



**HAL**  
open science

## Women in the Labour Force: How Well is Europe Doing?

Christopher Pissarides, Pietro Garibaldi, Claudia Olivetti, Barbara Petrongolo, Etienne Wasmer

► **To cite this version:**

Christopher Pissarides, Pietro Garibaldi, Claudia Olivetti, Barbara Petrongolo, Etienne Wasmer. Women in the Labour Force: How Well is Europe Doing?. European Women at Work, Fondazione Rodolfo Debenedetti, Jun 2003, Alghero, Italy. hal-03588626

**HAL Id: hal-03588626**

**<https://sciencespo.hal.science/hal-03588626>**

Submitted on 25 Feb 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - ShareAlike 4.0 International License

# **Women in the Labour Force: How Well is Europe Doing?**

BY

*Christopher Pissarides (London School of Economics)*

*Pietro Garibaldi (Bocconi University / Fondazione RDB)*

*Claudia Olivetti (Boston University)*

*Barbara Petrongolo (London School of Economics)*

*Etienne Wasmer (Ecares, Université Libre de Bruxelles)*

## **1. Introduction**

Women have made important advances in labour markets. The distinctions between the activities of single and married women are not as sharp as they used to be, and ambition to do well in a job is no longer restricted to men. Have we done enough to exploit the economic potential in our nations' women and are our labour markets as good towards women as they are towards men? Are women satisfied with their opportunities and outcomes in the labour market? And are other demographic groups benefiting or hurt from the competition for jobs from more women?

In this report we are addressing these questions from a variety of viewpoints. The focus is on the labour market: how many women have jobs, what jobs do they have, how much do they earn, and are labour markets giving them the chance to exploit their potential? We focus on Europe, but sometimes compare with the United States and other OECD countries where employment rates of women are higher. We support the view that raising female employment rates is beneficial to the society as a whole. In a long-run perspective, when more of a country's population is trained and put into productive use, competing for jobs and for markets worldwide, the better are the country's chances that it will make more discoveries and grow faster with benefits for everyone. More directly, bringing more women

into the labour force increases gross national product through the introduction of new activities and through the recording of activities that were hitherto unrecorded and protected from taxation and regulation. It thus corrects a distortion in the tax system – that market activities are taxed but home activities are not – and in the process increases the tax base, which should make it easier for governments to manage their finances.

Can Europe do better? European leaders certainly think we can do better. In the *Presidency Conclusions* of the European Union Council in Lisbon, which took place in March 2000 and which set the agenda for employment in the Union for the next ten years, women featured prominently. Further elaborations took place in follow-up meetings in Barcelona and Stockholm again emphasising the role of women. The overall target for female employment is currently set at 57 per cent of the population of working age for the year 2005 and 60 per cent for the year 2010. The targets for total employment are 67 and 70 per cent respectively. Not every country is required to achieve the average target but the evaluation of progress is usually done by comparing each country's performance with the average.

The European employment agenda is as much about overall numbers as about the quality of jobs. The emphasis on “better” jobs, a term that is still awaiting proper definition from the Commission, and on a “knowledge based” economy dominated by jobs in services. The focus on education with modern electronic means and on the use of the internet as a means of improving economic organisation are welcome. It is still too early to make an evaluation of this objective. The focus on services is inevitable: all the job growth since the war and the employment gap between Europe and the United States are entirely in services. But low-skill and low-paid jobs also need to be done and one of our objectives in this report is to look at the whole range of jobs and ask whether our labour market institutions are helping job creation everywhere. It is certainly the case that much of the employment gap between Europe and the United States is in low-wage service jobs, such as jobs in retailing and personal services, although gaps also exist in more complex service jobs, such as professional financial services.

We examine first the current situation with overall employment patterns and ask why there are such big differences in employment rates across Europe. We find that although European countries have had access to the same technologies that have helped American women leave the home and enter employment, not all European countries are taking advantage of these technologies. A lot of the employment rise in Europe over the last two decades is due to more favourable economic conditions. We identify some rigid institutional structures that inhibit job creation for women, such as rigidity in the establishment of small

enterprises, which are a dominant form of employment growth in service industries. When we ask what kind of jobs women hold we find that in some countries large fractions of them hold part-time jobs. However, we find that women in part-time jobs derive as much job satisfaction as those in full-time jobs, in contrast to temporary jobs, which are less sought after.

Following the analysis of employment patterns, we turn to a close examination of wage earnings and the wage gap between men and women. As part of the overall employment targets of Lisbon, the European Union also requires equality of employment opportunity and wage earnings, and has set targets for the male/female gap in earnings. We find evidence that the wage gap is still present, although it has probably narrowed. A proper evaluation of relative wage gaps across Europe shows that there are no big differences across countries, and wage gaps are closely connected with overall levels of inequality and with the skill of the worker, low skill workers being the most vulnerable to discrimination.

An examination of the competition for jobs in the labour market reveals that women probably compete more with young workers for jobs than with prime-age males. We suggest policy options to deal both with the objectives of the European Employment Strategy and with the competition for jobs between women and young workers.

Section 2 sets out some facts about employment and sections 3-5 examine, respectively, overall employment patterns, types of jobs and earnings. Section 6 looks at the consequences of female entry for other groups in the labour market and Section 7 brings together our evaluation of the European employment targets and our policy suggestions for improvement.

## 2. Some facts about women's employment patterns

We begin with some facts about female employment rates in 15 European countries (Norway and the 15 European Union members except for Luxembourg), Canada and the United States. We divide the 15 European countries into four groups: Mediterranean (Spain, Italy, Greece), Nordic (Sweden, Finland, Norway, Denmark) Anglo-Saxon (United Kingdom) and Rest of Europe (Austria, Belgium, France, Germany Ireland, Netherlands and Portugal). We show that there are substantial differences between the four groups, but fewer differences within each group. This is especially true of the Nordic and Mediterranean countries, with the rest of Europe showing more differences. Our classification also reflects substantial differences in the organization of the welfare state, particularly so between the Nordic and Mediterranean countries.<sup>1</sup> We claim later that the fact that the biggest differences in the welfare state and in female employment rates are both between the Nordic and Mediterranean countries is not coincidental, and attempt to narrow down the institutions of the welfare state that matter for the differences in employment rates.

Table 2.1 records the progress made by women in the total employment rate since 1960 and the distance that needs to be covered to meet the Lisbon objectives. Looking at performance in 2000, the gaps that are still substantial are in the Mediterranean countries, Belgium, France and Ireland. Figure 2.1 shows that the employment gap is due mainly to inactivity, not to unemployment differentials. The patterns shown in figure 2.1 allow us to talk about successes or failures in either participation or employment without the risk of inconsistency.

Figures 2.2 and 2.3 show that there is a correlation between the female and male employment performance. Although some of the correlation shown in figure 2.2 is due to the business cycle, because both female and male employment rates are higher in a cyclical boom, most of it is due to the correlation between the employment rates of men over 55 and women. The European Union has a target for the overall employment rate of the over 55 year olds ("active ageing"), which is 50 per cent. It appears that the countries that are failing the EU targets in the female labour market are also failing them in the labour markets for older persons.

---

<sup>1</sup> See for example Bertola et al. (2001) and references to the political literature mentioned there.

The gender employment gap, defined as the difference in the employment rate between men and women, is falling in all countries in our sample. On average, the gender gap nearly halved since 1980, from 30 per cent to 16.7 per cent by the year 2000. The fall in the gender gap was mainly due to the rising female employment rate, which took place in all countries in our sample, but also to a falling male employment rate, especially for the older groups.

Women tend to work on average fewer hours each week than men, so focusing on the gender employment gap understates the difference in the supply of hours of work from each gender. We show next some facts about part-time employment, which demonstrates this point. Whether the European Union should also have an agenda for reducing the differential in hours of work, however, is a difficult question. Women may actually prefer to have part-time jobs, given family circumstances and other sources of family income, in which case the focus of the European Employment Strategy on employment rather than hours of work is the correct one.<sup>2</sup> We address this question in more depth in section 4.

The experience of European countries with part-time jobs is varied. Table 2.2 gives the incidence of part-time employment for men and women (the fraction of jobs held which require on average less than 30 hours a week) and the share of women in full-time and part-time employment. The incidence of part-time work among women is lowest in the Nordic countries, where the rate is comparable to the rate in North America. The female share of full-time and part-time work in the Nordic countries is also close to the North American share. In the rest of Europe, however, there is generally more incidence of part-time work, with women accounting for a bigger share of the overall part-time employment. Whether we view the growth of part-time employment as a transitional phase, towards the integration of women into the full-time labour market, or as a regular occurrence that provides diversity for the women who want it is a moot point. We will address some of these issues later in this report.

The Netherlands has the highest incidence of part-time work, with 57 per cent of employed women working part-time, and Norway and the United Kingdom come next, with 40 per cent. Although these are also three countries with high overall employment rate for women, there does not appear to be a close association between the incidence of part-time work and the overall employment rate (figure 2.4). The correlation, however, fails because the

---

<sup>2</sup> Of course, one can make the same preferences argument about overall employment. But it would be hard to claim that a gender employment gap in the Mediterranean countries of 30 points is due to women's preferences, when the gaps in other European countries are so much less.

North American and Rest of Europe countries exhibit a variety of patterns. The low-employment Mediterranean countries show also low incidence of part-time employment.

Tables 2.3 and 2.4 looks at the role of education, focusing on men and women in the age group 25-54. The table shows the overall employment rate for men and women for two educational groups, those with secondary school or below, and those with university or equivalent degree qualification. It is striking but perhaps not surprising how employment rates vary with education. The better educated group experiences far higher employment rates than the less educated group in all countries in our sample. The gender employment gap is also far less for the more educated group. Even in the Mediterranean countries, women with university education are characterised by an employment rate close to 70 percent. The most striking example in this respect is Portugal, where employment among highly educated women reaches 90 percent.

Because the gender employment gap is smaller in the population with post-secondary education, if the educational attainment of women were to increase the gender employment gap should fall. There are encouraging developments along this dimension. At ages 35-54 women represent 52.1 percent of the population with a higher educational qualification, but in the 25-34 age group they represent 54.1 percent. This pattern is visible in all country groups, and is also visible, even more emphatically, for the case of tertiary education.

The gender employment gap widens substantially when one takes into account the presence of children. Women are still the gender which is predominantly responsible for looking after children: the presence of children in a household increases the employment prospects of men and reduces those of women. On average, as Table 2.5 shows, the gender gap rises from 14.4 per cent for women without children, to more than 27 per cent for women with two or more children. This pattern holds both in the Nordic countries (with an increase from 3.3 per cent to 14 per cent in the gender gap) and in the Mediterranean countries (an increase from 27.8 to 48 per cent). The United Kingdom is another striking example. The gender gap increases from 5.4 per cent to 28.2 per cent when a women has two or more children. A similar patterns holds, perhaps surprisingly, for the United States. The reason that these countries have high overall employment rates is that childless women work in large numbers, not because they managed to find ways to bring large numbers of women with children into the labour force. If attention is restricted to households with two or more children they resemble the low-employment continental European countries. Perhaps not surprisingly women with children are more likely to work part-time but men with children less likely to do so (see Table 2.6)

## 2.1. Women's role in overall employment growth

European countries have experienced a variety of employment dynamics since the early 1980s. Table 2.7 shows that some high-employment countries, led by Sweden, lost a substantial number of jobs in the last two decades, whereas others, led by the Netherlands and Ireland, made substantial gains. How are these changes related to the changes in female employment rates? We decompose average employment growth in each country by gender, age and part-time or full-time work, and assess how much each dimension contributed, in accounting terms, to average employment growth.

Table 2.8 shows the decompositions of the average rate of employment growth between 1983 and 1997. Our results clearly reflect the narrowing of the gender gap. In all European Union countries, employment growth was much faster for females than males. Youths experienced below average employment growth, a fact that reflects largely changes in the schooling age and more generally the increase in education. The fall in the gender employment gap is accounted for by the growth of employment of women aged 25-49. In every country, the contribution to employment growth by prime-age women dominates that of prime-age men, even among Mediterranean countries such as Italy and Greece. Job creation performance among those aged 50-64 was more mixed, reflecting in part the tendency towards early retirement in a number of countries. Nevertheless, the fall in employment among those aged 50-64 is much more marked for men than women.

There are substantial differences within Europe, especially in the role played by part-time jobs. The country that stands out in this respect is the Netherlands, the top European performer. The growth of employment among women aged 25 to 49 years, typically in part-time jobs, accounts for about half the growth of overall employment. To a large extent the Dutch "employment miracle" is a part-time female employment miracle. The experience of Ireland, the other employment success story of the last twenty years, is more uniform across decompositions, with substantial employment growth observed for both men and women, and both full-time and part-time. In countries such as Belgium, Germany, France and Italy we observe growth in part-time jobs alongside a decline in full-time jobs.

Figure 2.5 plots overall employment growth (averaged over 1983–1997) against the change in the share of part-time jobs, for the ten countries for which we have data, to test whether there is a positive association between employment growth and growth in the share of part-time jobs. As in the comparison of employment levels in figure 2.4, there is no clear

evidence in figure 2.5 that countries which experienced a rise in the share of part-time jobs also experienced a rise in overall employment. The simple correlation coefficient for the ten observations in figure 2.5 is 0.4.<sup>3</sup>

---

<sup>3</sup> Garibaldi and Mauro (2002) confirm with econometric tests the claims made in the text.

### **3. What explains women's employment patterns?**

There are two events that need explaining in the history of the overall female employment rate. First, what are the reasons for the big rise in the employment rate over time, and second, why does the rate differ so much across countries? Because employment rates across countries differ by much more than unemployment rates, the same questions can be asked about the participation rate, and in our discussion we refer to both, although we do not discuss unemployment (see figure 2.1). Both employment and participation are influenced by supply and demand factors. Employment may be low because not enough women want to enter the labour market, or participation may be low because not many jobs are being offered to attract the women into the labour market. In the first case low participation rates are explained by women's preferences, in the second by employers preferences and discouragement on the part of the women. It is very difficult to disentangle these two effects, and it is made more difficult by the role of wages in the determination of the participation rate and the employment rate. In the world of the frictionless neoclassical economic model the participation rate drives the employment rate: according to this model the reason employment rates differ across countries is due to women's preferences, given technology and wages. But once the influence of institutions is taken onto account the answer could be different and no general rules can be used to make any welfare statements about the participation and employment rates.

The countries in our sample enjoy similar technological structures and standards of living, so it is more likely that the explanation for the differences in the employment and participation rates will be found in their institutional structures. We review first the explanations put forward in the literature for the rise in participation and employment and then use aggregate OECD data to identify macroeconomic and institutional influences on employment rates.

#### **3.1. The rise of female employment: A brief review of explanations**

Most research in the explanation for the big rise in the female participation rate has been done in the United States. Apart from the obvious advantage of the availability of good

data (and many resources devoted to pure research), the United States has the advantage of large participation rates which are a fairly recent phenomenon. Since there are relatively few institutional barriers to job creation in US labour markets, the reasons for the growth in female employment rates are usually found in the factors that shape women's preferences for work over the home ("home production") and in technological advances.

At the beginning of the century, only 18 per cent of American women were part of the labour force. By the year 2001 this fraction had reached 61 per cent. This trend has been particularly prominent for married women. The labour force participation rate of married women rose from 5 per cent in 1900 to about 60 per cent in 2001. There are a few plausible explanations for this change that have been investigated in the literature. One set of factors influences women's participation through the supply of labour. The diffusion of new household technologies allows women to decrease the time spent in home production. The improvement in working conditions, both in terms of status and in terms of hours of work, makes it more attractive for women to go out to seek work. And the availability of contraceptive methods allows women to plan their fertility and the timing of births. A second set of factors has influenced the demand for women's labour services. Key to this is the shift from manufacturing to services, which employ more women in jobs such as clerical and sales. Other favourable developments are the introduction of new technologies that made it possible for firms to create more "female-friendly" jobs, and the change in the wage structure. Finally, the rise in the female employment rate is also explained in terms of the change in society's attitudes towards the role that women should play in the household and in the workplace.

In what follows, we review some of the explanations for the U.S. experience that have been proposed in the literature. We first discuss explanations for the trend growth in women's participation since the beginning of the century. Then we review the post WWII period and, in particular, to the big increase in married women's labour force participation that occurred in the U.S. between 1970 and the 1990s. Some of the explanations proposed for this dramatic increase also apply to European countries, which have experienced a similar diffusion of market and domestic technologies.

The influential work by Goldin (1990) provides an extensive analysis of the change in women's role in the labour market in the twentieth century. In particular, using cross-city estimates of income and wage elasticity, she studies how the relative importance of supply and demand factors in explaining women's labour market experience has changed over time. She shows that the increase in women's participation in the United States between 1890 and 1930 may be mostly due to supply factors. That is, over this time period, women were mostly

employed in manufacturing and agriculture where the working conditions were meagre. As a consequence, a social stigma was attached to a working wife, it meant that the husband was in poor financial conditions.<sup>4</sup> Between 1940 and 1960 this situation changed mostly because of changes in the type of available jobs. The availability of clerical jobs and the increase in the schooling level of working women made the stigma associated with a working wife much weaker. The importance of demand factors was made even larger by improvements in the housework production process, and by the increase in the availability of market goods that could substitute for home-produced products.

Over the final decades of the century both demand and supply factors have become important in causing the increase in women's participation, as women's labour force experiences became more similar to men's. A quite large literature has stemmed from Goldin's work. The documented increase in the availability of "good" jobs for women is interpreted by Galor and Weil (1996) as a form of "female"-biased technological change. In particular, they argue for a link between skill-biased technological change and changes in women's fertility and labour choices.

Smith and Ward (1985) explicitly measure the contribution of demand factors to the increase in female participation over the final decades of the century. They show that about 60 per cent of the increase in North-American women's labour force participation between 1950 and 1980 may be attributed to the increase in real wages that took place over this time period. These calculations take into account the change in fertility that also occurred in response to the wage rise. Their breakdowns allow us to have an indicative measure of the contribution of other factors, such as the introduction of new contraceptive technologies, the increasing level of schooling, and changes in gender role attitudes, to the increase in women's participation. Some of these explanations have been analysed in more recent papers. For instance, Goldin and Katz (2002) argue that the introduction and diffusion of the oral contraceptive (the pill) facilitated a woman's investment in human capital by almost eliminating the chance of an accidental pregnancy. Indeed, they show how the number of women entering professional degrees, such as Medical School, Business School, and Law School, increased substantially between the early 1970s (when the pill first started to become easily available) and the late

---

<sup>4</sup> According to a Gallup poll conducted in 1938, about 80 per cent of men and women disapproved of a married woman working if her husband was capable of supporting her.

1990s (when there were almost as many female first year students in Law and Medicine as male).<sup>5</sup>

Greenwood, Seshadri and Yorukoglu (2002) focus instead on the liberating effect of new consumer durables (such as the washing machine, and the microwave) that reduced the amount of time required in the household, thus allowing women to allocate more time to the labour market. They find that about 10 per cent of the growth in female labour force participation between the beginning of the twentieth century and 1980 may be due to the introduction and diffusion of these domestic appliances. However, although the evidence they presented supports their hypotheses for the period 1940 to 1970, this seems not to be a convincing explanation for women's behaviour over the 1980s and the 1990s, by which time such goods were widely available to every household in the country while women's participation continued to grow substantially.

Finally, some authors investigate the importance of society's views about the role of women on their work decisions. Fernandez, Fogli, and Olivetti (2002) examine the hypothesis that an increase in the proportion of men with mothers who work makes working more attractive to their wives. In this case, the change in society's attitude is conveyed by the change in attitudes towards working women brought about by some men experiencing a different family model – one in which their mothers worked.<sup>6</sup> This mechanism has a persistent effect on the labour force participation of women in subsequent generations. Neumark and Postlewaite (1998) also study the importance of social norms in women's employment decisions. They develop an augmented version of the standard neoclassical model where relative income concerns enter women's utility functions and hence their labour choices. They argue that women's employment decisions are significantly affected by the employment decisions of their reference group (including sisters and sisters in law).

A number of contributions give a quantitative assessment of the importance of the observed changes in the U.S. wage structure and labour market returns in the explanation of the increase in the labour supply of married women between the 1970s and the 1990s. Starting with the work by Katz and Murphy (1992), several researchers have documented how returns

---

<sup>5</sup> Other social trends of the early 1970s may also help to explain the rise in the number of women with professional degrees. In particular, as argued in Costa (2000), the passage of Title IX in 1972, that applied civil rights legislation to universities, may have had an impact on the admission practices of graduate and professional schools.

<sup>6</sup> One criticism of this assumption is that women may have been influenced by the past work experience of their own mothers. However, the empirical evidence shows that this is not the case. Moreover, this argument does not preclude the fact that as more women joined the labour force, attitudes towards these women changed in society at large. Their argument does not preclude this additional transmission mechanism.

to education and experience, and within-group wage inequality, have been rising for both men and women over this time period. This evidence seems to indicate that these changes in the wage structure can be taken, at least to some extent, as exogenous with respect to women's prior work behaviour.<sup>7</sup> Pencavel (1998) studies the change in women's employment decisions between 1975 and 1994. He finds that the increase in women's wages account for between one quarter to a half of the increase in women's labour supply (depending on the cohort) with the increased attractiveness of the marketplace relative to the household accounting for the rest. Moreover, he finds that husband's wages have a very minor role in explaining a married woman's work decisions. This is consistent with the work by Juhn and Murphy (1997) which shows how the slowdown of the husband's earnings growth cannot explain the increase in married women's labour force participation over the 1980s and the 1990s.<sup>8</sup>

Olivetti (2001) develops a life-cycle model with human capital accumulation and home production and uses it to quantitatively assess the consequences of the increase in the relative returns to labour market experience on married women's life cycle labour supply. She finds that most of the increase in life time hours worked by married women between 1970 and 1990 may be attributed to the increase in the relative returns to experience, whereas the decrease in the gender wage gap can only explain about 20 per cent of the increase in hours worked. The logic behind her argument is straightforward. In the 1970s, married women would temporarily cut back on market work during child rearing years. One cost of this withdrawal is the loss in accumulated labour market experience. Since this cost has become greater in the 1990s, we would expect married women to decrease the interruptions in market hours.<sup>9</sup>

Jones, Manuelli and McGrattan (2002) study the effects of the decline of the gender wage gap and of technological improvements in the production of non-market goods on female labour supply over the past three decades. They find that the decline in the gender wage gap can explain a larger increase in married women's participation than the technological improvements in the production of non-market goods. This is not surprising, because as we argued above, the diffusion process of such goods was completed by the 1970s

---

<sup>7</sup> Market wages influence women's decisions to work, marry and have children, and vice versa. The studies we present in this section mainly focus on the first direction of causality

<sup>8</sup> Additional evidence that during the 1980s returns to labour market experience increased more for women than for men is provided by Blau and Kahn (1997) and O'Neill and Polachek (1993). These studies show that the increase in return to experience and the increase in actual experience for women explained a large portion of the decreasing gender wage gap. See section 5 on the gender wage gap.

<sup>9</sup> Caucutt et al (2002) also investigate the impact of the increased returns to experience on women's fertility decisions.

whereas the largest decline in the gender wage gap occurred in the 1980s. As also shown in Mulligan and Yona (2002), the decline in the wage gap is not enough to produce the observed increase in married women's participation to the labour market. They show, however, that a simple model of household specialisation can predict the observed increase in the labour force participation of married women in response to an increase in wage inequality *relative to* the gender wage gap.

The literature that studies the different unemployment experiences of Europe and the United States over the 1980s and the 1990s emphasizes the role of the interaction between labour market institutions in Europe and other macroeconomic shocks. As pointed out in Bertola et al (2002), the interaction between labour market institutions and macroeconomic forces in all likelihood also had a negative impact on the relative employment of some demographic groups (including women). Moreover, it is also believed that the same macroeconomic forces (in the absence of "protective" labour market institutions) may have been responsible for the observed change in the U.S. wage structure. This is the same change that made market work far more attractive than work at home for U.S. (married) women. If part of the increase in US women's work hours is due to the increase in wages, the compression of the European wage structure may be one of the reasons why women do not work as much in some European countries.

### **3.2. Explaining cross-country differences**

Cross-country differences in participation rates existed throughout our sample but also changed over time. Even if we compare country experiences since 1980, the female employment gap between, say, the United States and Germany in 1980 was about 5 percentage points in favour of the United States but by 2000 it increased to 10 points. To take another example, in 1980 the gap between the United Kingdom and France was 5 points in favour of the UK, but by 2000 it increased to 12 points. There has been a uniform increase in female employment rates but some countries did better than others. In the first set of tests in this section we ask whether the reason that country experiences differed can be attributed to their institutional structure in labour or product markets.

We first follow the methodology of Blanchard and Wolfers (2000) and try to identify differences in the responses of employment rates to an unspecified set of "unobservable" shocks. The idea behind these tests is that the reasons for the increase in female employment

rates cannot be quantified – as we argued in the first part of this section they have to do with the increased availability of consumer durables, developments in medicine and shifts in technology and social attitudes that cannot be easily quantified in a time series. Assuming that all countries in our sample had access to the same domestic and market technologies, which is a reasonable assumption given that our sample consists of the rich OECD countries since 1970, we remove the common trends in participation rates with time dummies and the unexplained gaps between countries with country fixed effects and allow a set of institutional variables to influence the way that each country’s participation rate responded to the new technologies. The estimated regression is

$$E_{it} = c_i + d_t + d_t \sum_k b_k x_{it}^k + v_{it}$$

where  $E_{it}$  is the employment rate in country  $i$  at time  $t$ ,  $c_i$  is the country fixed effect,  $d_t$  is a time dummy for each period in our sample,  $x_{it}^k$  is a set of  $k$  institutions that take different values in each country and some over time as well, and  $v_{it}$  is an error term. The equation was estimated with non-linear least squares for 14 of the European countries in our sample (some of the institutional variables for Greece were missing), Switzerland, Australia, New Zealand, Japan, Canada and the United States.

The results are shown in Table 3.1. The institutions included are mostly labour market institutions, employment protection legislation, unionisation, unemployment insurance benefits and labour taxes. But we also include an index of product market regulation, the OECD measure of the administrative costs of setting up new companies. Employment protection legislation changes very little during the sample because of the absence of information on earlier years, and the company start-up costs do not vary at all. Only one observation per country is available, for the late 1990s.

The results show that the only institution that is statistically significant is the index of product market regulation, although there is also weak support for the proposition that unionisation exerts a negative influence on employment. Product market regulation may be especially important for women’s employment because women are mostly employed in smaller establishments in the service sector – retailing, catering etc. – and if regulation impedes the entry and expansion of such establishments it restricts job creation. Product-market regulation also appears to be a significant, and mostly neglected, institution in the determination of overall employment rates.<sup>10</sup> Unionisation is a more commonly tested institution, with generally negative implications for overall employment rates. Our estimates

---

<sup>10</sup> See, for example, Nicoletti et al (2001), Pissarides (2003), Lopez-Garcia (2003)

imply small effects on female employment rates. It does not contradict the work of Bertola et al (2002), who find that, if anything, countries with more widespread union membership experience less female employment relative to male. The natural interpretation of the Bertola et al (2002) finding is that although unions reduce male employment, they reduce female employment even by more. This is a surprising conclusion, in view of the fact that the unionised sectors of the economy tend to be the ones that have higher ratio of male to female employment, such as manufacturing or big state enterprises.

We quantify the effect of unionisation and start-up costs on the employment rate by showing the predicted employment rate for the country that has the biggest and smallest union density, and the most stringent and least stringent start-up index. Our estimates say that if a country has all institutional variables at mean values, its employment rate between 1970/74 and 1990/95 would have increased by 10.3 per cent because of the common unobserved shocks (the consumer durables, the pill, etc.). But if this country was the most unionised in the sample, employment would have increased by 4.7 per cent less, i.e., by 5.6 percentage points. The other estimates reported in the last column of Table 3.1 have similar interpretation.

Caution should be exercised in interpreting the results with regard to unionisation because the estimate is imprecise, due to a large standard error. But product market regulation is estimated to have a large and precise impact on employment. The country with the most stringent regulations in the setting up of new companies (Italy) is predicted to have as much as 12.8 percentage points of employment less than the mean, and the country with the most liberal start-up requirements (Denmark) is predicted to have 6.8 percentage points more than the mean.

The introduction of further controls in our regressions alters the results but does not alter the basic findings. In the regression reported in Table 3.1 all time effects were summarised in the time dummies. Replacing the time dummies by some time controls that have a country dimension – the Blanchard-Wolfers (2000) measure of strength of labour demand, the real interest rate, the gap of actual from potential GDP and the country's terms of trade – gives the estimated equation

$$E_{it} = c_i + \left( \sum_j a_j y_{jt} \right) \left( 1 + \sum_k b_k x_{it}^k \right) + v_{it}$$

where  $y_{jt}$  is a set of time series controls for each country.<sup>11</sup>

---

<sup>11</sup> Results did not change much when the time dummies were retained, in addition to the time controls.

The introduction of the country-specific time controls has no effect on the findings in Table 3.1 on the role of product market regulation and unionisation, but gives a bigger role to unemployment insurance (see Table 3.2). Both the level of the replacement ratio and the duration of entitlement exert a small negative influence on employment. For reasons that are not obvious, the real interest rate seems to be associated with more female employment, as is the rate of taxation. The former may be a spurious finding, female employment rates increased at the time that real interest rates also increased worldwide<sup>12</sup>, but the latter may indicate the role of part-time and temporary employment, namely, that taxation may make the typical male job more expensive than the typical female job and firms substitute female jobs for full-time male jobs.

The other time controls have the predicted effect on employment. Interestingly, the terms of trade shock, which essentially reflects changes in the relative price of imported goods and depends partly on product market regulation, exerts a strong negative influence on employment, namely, when import prices rise relative to domestic prices employment falls. This may partly reflect the fact that import prices are an important component of inputs into domestic production. Employment protection legislation is still unimportant, in accordance with previous findings, but now unionisation and the benefit replacement ratio become statistically significant negative influences on female employment rates. Product-market regulation in the form of company start-up costs retains its negative influence on female employment rates.

Table 3.2 shows that the country specific shocks can account for a sizeable fraction of the differences in the observed rise in female employment rates. The range is from virtually no effect in Denmark to just over 10 per cent in Italy and Norway. The institutional variables also explain differences among countries, with unionisation now explaining more of the observed divergence, but the index of product market regulation again accounting for the biggest range, at least when the lowest and highest index are contrasted.

A question that has attracted attention in connection with female employment rates is whether state provision of family care units increases participation. At the Barcelona summit, for example, European leaders decided that by 2010 governments in the European Union should provide day care for as many as 90 per cent of children from the age of 3 to the school mandatory age, and for 33 per cent of children under the age of 3. We were not able to find data for family day care since 1970 but we found data since 1980 for the majority of our

---

<sup>12</sup> However, the real interest rate remains significant when time dummies are introduced, although at a much lower level.

countries. The variable that we used in our regressions is total spending by the state on family day care divided by the number of women in employment. Family day care turned out to be statistically significant in both the regression without time controls other than the time dummies and in the regressions with the country-specific controls. An interesting finding in these regressions is that the level and duration of unemployment benefits become a stronger negative influence on employment. This suggests that if the welfare state compensates unemployed workers generously and provides generous day care services for women entering employment the disincentive effects are offset, but if it focuses only on unemployment compensation they are strong.

The regressions with family day care are not reported, because the sample is much smaller and the estimates of the other coefficients are not altered in significant ways. We show, in figure 3.1, all the observations of the family day care variable against the female employment rate. Most of the countries in our sample spend very little on family day care and this is reflected in the concentration of points to the left of the graph. But the positive correlation between the big spenders and their employment rates, essentially the Scandinavian countries, is evident. The graph also shows a time series correlation. The sequences of points moving in the north-eastern direction evident in the graph are points that apply to single countries since 1980. Countries that have increased family day care spending and experienced a growth in female employment rates include the four Scandinavian countries but also Austria, Germany and Ireland.

## 4. Job segregation

What types of jobs do women hold? Is there evidence of job segregation, namely, of discrimination leading women into non-standard forms of employment where their skills are not utilized to their full potential? Occupational segregation has received some attention in the economics literature (see, e.g., Dolado et al. 2002) but less is known on systematic differences in the types of employment contracts held by women. The OECD (2002, chapter 2) reported some evidence of gender discrimination in the type of jobs held by women, and in this section we probe deeper into this issue by making use of the European Community Household Panel.

The recent empirical literature has often emphasized the spectacular growth of “irregular” jobs during the past few decades both in Europe and in the United States, typically including part-time, temporary and casual jobs (see OECD 1999, chapter 1, and the June 2002 issue of the *Economic Journal* on Temporary Work for an overview). A key factor to understand recent labour market developments lies therefore in the study of the incidence and the characteristics of non-standard forms of work. At best, part-time work may provide an opportunity for flexible hours of work, and for combining wage work with family commitments, especially for women. However, part-time work may sometimes be a form of underemployment, paying lower wages and providing inferior fringe benefits than full-time work (see OECD 1999, chapter 1). Similarly, temporary contracts may provide firms with a useful means of worker screening, and therefore represent stepping-stones towards permanent employment. But they may also be used as a cheaper option of adjusting employment, with lower wages and severance payments, and poor human capital accumulation (see Booth et al 2002a).

The existing studies in the United States have identified a small wage penalty associated with part-time work (Blank 1990). But evidence on labour market transitions suggests that both part-time and temporary work are often part of the transition out of unemployment, leading to regular employment in the future (Blank 1989, Farber 1999). For the United Kingdom Harkness (1996) shows that, despite the narrowing gender wage gap in full-time jobs, women in part-time jobs have made less progress in attaining earnings parity with men, and lag behind full-timers in both skills and earnings. Fixed-term contracts also seem to pay lower wages and provide less training than permanent contracts in the U.K. (see

Booth et al. 2002b), but they do represent a stepping-stone to permanent work. For the rest of Europe, the available evidence mainly concerns temporary rather than part-time jobs, due to the recent boom in temporary employment in southern Europe, and most markedly in Spain, which is the focus of the bulk of European studies. These studies document a very strong persistence of temporary employment (Alba 1998 and Güell and Petrongolo 2003), with very low prospects of transition to permanent employment.

In this section we examine whether the apparent segregation of women in Europe into non-standard jobs stands up to rigorous econometric testing and if so, whether this is because of gender discrimination or other reasons. After briefly discussing some conceptual issues and the data that we use we examine the incidence of non-standard forms of employment, gender preferences for them and the wages that each pays.

#### **4.1. Discrimination through job segregation**

Labour market discrimination is commonly understood as the residual difference in labour market outcomes that cannot be explained by factors such as preferences or human capital endowments of different categories of workers (Altonji and Blank, 1999). Studies on gender discrimination have typically addressed the question of wage discrimination, namely, what fraction of the gender wage differential cannot be explained by differences in skills or in their labour market price. Discrimination through job segregation is another form of discrimination, which may also lead to wage gaps, if the jobs to which women are segregated are lower-paying ones. Of course, job segregation can arise for other reasons. Men and women may segregate into jobs because of differences in preferences or because of differences in human capital and in each gender's productivity in non-market activities.

A major issue is the source of differences in human capital and job preferences across genders. Investment in women's human capital may be discouraged by the expectation of future labour market discrimination and by pre-labour market discrimination in the quality and quantity of schooling (see Thomas 1990). Also, women's preferences for certain types of jobs – typically part-time jobs – may be driven by social norms (see Akerlof 2000) or the impossibility to delegate home production. While it would be difficult to quantify these effects, the potential endogeneity of human capital investments and preferences with respect to gender discrimination would imply that the portion of job segregation that cannot be

explained by differences in human capital or preferences provides a lower bound for the extent of gender discrimination in the labour market.

Throughout our analysis the types of jobs that we will consider are full-time versus part-time jobs, and permanent versus temporary jobs. While part-time jobs can be thought of as typical “women’s” jobs, mainly because of the different family roles of the two genders, this is no reason *ex-ante* to expect temporary jobs to be typical “women’s” jobs. The data will tell in which countries this turns out to be the case. Also, while women’s role in home production may imply that women have stronger preferences than men for part-time jobs, this does not necessarily imply different gender preferences for temporary jobs. It is probably fair to argue that from any worker's point of view, a permanent contract is at least as desirable as a temporary one, given that it would commit the firm rather than the worker to costly procedures in case of separation.

## 4.2. The data

We use data drawn from the European Community Household Panel Survey (ECHPS), whose coverage is currently the 15 EU member states, during six annual waves (1994-1999). This is an unbalanced household-based panel survey, containing information on a few thousands households per country per year.<sup>13</sup> The employment section of the survey contains information on the type of jobs held by members of the selected households, including working hours, type of contract, fringe benefits, and earnings. Several indices of job satisfaction are also reported, either overall satisfaction or satisfaction with respect to specific job attributes, namely the quality of jobs, working hours, job security and earnings.

For the purposes of our analysis we select all employees aged 16-64 with complete information on the type of employment contract they hold. Table 4.1 reports some summary statistics on the distribution of non-standard employment contracts across genders and the associated raw wage differentials. We are not exploiting the panel dimension of the data set here, and simply compute averages of relevant variables across individuals and waves for

---

<sup>13</sup> The initial sample sizes are as follows. Austria: 3,380; Belgium: 3490; Denmark: 3,482; Finland: 4,139; France: 7,344; Germany: 11,175; Greece: 5,523; Ireland: 4,048; Italy: 7,115; Luxembourg: 1,011; Netherlands: 5,187; Portugal: 4,881; Spain: 7,206; Sweden: 5,891; U.K.: 10,905. These figures are the number of household included in the first wave for each country, which corresponds to 1995 for Austria, 1996 for Finland, 1997 for Sweden, and 1994 for all other countries.

each country. The resulting sample statistics can be interpreted as medium run averages of the relevant variables.<sup>14</sup>

The incidence of part-time work is much higher among women than among men. Except in Ireland, part-time incidence among men is everywhere below 5%, while for women it goes from about 9% in Portugal and Finland to 45% in the Netherlands. On average, more women work part-time in central and northern Europe than in the Mediterranean, while no major geographical pattern can be detected for men.

We next present figures on involuntary part time, including all workers who declare that they hold a part-time job because they wanted but could not find a full-time one. When one takes into account the reason why men and women work part-time, a negative cross-country correlation between the use of part-time work and the incidence of involuntary part-time can be detected. In particular, in northern and central Europe part-time work is less likely to be perceived as involuntary than in the south, especially by women. Finland actually makes an exception to this general rule, behaving more like a southern than like a northern European country.

The incidence of temporary work varies more across countries than across genders. In all countries considered except Spain, Portugal and Greece, on average slightly less than 10% of employed men hold temporary jobs. This proportion however rises to one fifth in Portugal and Greece, and to over one third in Spain. The relevant figures for women are slightly higher, but replicate quite closely this international pattern.

Table 4.1 finally reports hourly wages in standard relative to non-standard jobs for both men and women. Full timers in northern Europe typically earn more than part-timers, but the wage differential switches in favour of part-timers when moving towards the south. Temporary workers everywhere earn less than permanent workers, and this is especially true in southern Europe. In particular, Spain is the country with both the highest incidence of temporary work and the highest wage penalty attached to it, around 70% for both men and women.

---

<sup>14</sup> Note that the time covered by these data is different from the one in the data reported in section 2, so averages may differ. There might also be some sample bias and some differences due to the different collection methods, although this is unlikely to affect the averages much because samples are big and definitions standard.

### 4.3. The incidence of irregular jobs

We next use multivariate analysis to look at how women perform relatively to men in their employment characteristics by estimating binary choice models for a number of job attributes. Table 4.2 reports the estimates of probit models for the probabilities of working part-time, being an involuntary part-time worker, and holding a fixed-term contract, controlling for a number of individual and job characteristics.

All estimated equations include age and education effects, occupation, sector and year dummies, and control for the family composition of workers and previous unemployment spells. The effect of family characteristics is allowed to differ across genders, to pick up the component of employment arrangements that may be explained by the different family commitments of the two genders. Similarly, the age and education effects are interacted with the female dummy, as human capital may have different returns for men and women. The existence of previous unemployment spells is controlled for as non-standard employment arrangements (including part-time jobs or fixed-term contracts) tend to be held disproportionately more by those who have suffered a job loss or had spells of inactivity, due to the difficulty in finding regular employment (see Farber 1999). The reference category in all regressions reported is a single male without dependent children, so the reported coefficient in a given row is the difference in the outcome between an individual of that type and a single male without children.

The first set of results presented in Table 4.2 shows that in all countries considered women are over-represented in part-time jobs. Among single individuals without dependent children, gender differences range from zero in Germany, Finland, Luxembourg and Greece, to 11% in Belgium. Such gender differences rise for those married without children (up to 20% in the Netherlands, Belgium and Ireland) and even more for those married with children (up to 33% in the Netherlands). Overall, gender differences tend to be more pronounced in northern Europe than in the South, especially for individuals with family ties.

The use of part-time work for combining paid work and family or other commitments should be associated with a lower incidence of involuntary part-time, due to the lack of full-time jobs available rather than the need to work shorter hours. We would therefore expect that in countries where family ties explain most of part-time incidence among women, women are less likely to declare themselves involuntary part-timers.

In the second set of estimates we run probit regressions for involuntary part-time work on the same observable characteristics used for the part-time equation.<sup>15</sup> Among single women, part-time is more likely to be involuntary than among single men in the UK, France, Italy and Spain. In particular, while this difference is around 10% in the UK, Italy and Spain, it increases to as much as 40% in France. In Portugal and Greece such difference is around 15%, but not significant at conventional statistical levels ( $z$ -statistics are 1.42 and 1.23 respectively). The relatively low number of observations for the involuntary part-time equations in Portugal and Greece could have made it hard to identify precisely these coefficients, and indeed very few other coefficients are significant in the two regressions. We therefore tried to exploit cross-country differences in order to estimate more precisely the incidence of involuntary part-time in Portugal and Greece, by pooling observations for the two countries and including one country dummy. In this case, the coefficient of interest becomes 0.198, with an associated  $z$ -statistic of 2.40. The estimated coefficients on all other types of individuals remain non-significant.

Among those with family ties, women are less likely to be involuntary part-timers in a group of northern countries (Denmark, Finland and Ireland), for which gender differences in the incidence of involuntary part-time go in the expected direction. There are instead no significant gender differences in all other countries except France, where married women without children are actually 65% more likely than married men without children to be involuntary part-timers.

The picture that emerges from the estimates of the two part-time equations can be broadly summarized by saying that in northern and central Europe, part-time among women is mostly explained by family ties and it is unlikely to be perceived as the consequence of a market constraint on the number of hours worked. On the contrary, in southern European countries (including, and especially, France) the explanatory power of family ties in female part-time employment is lower, and single women are more likely to be involuntary part-timers than single men. These facts are much easier to reconcile with discrimination against women in regular, full-time jobs than with gender differences in preferences or comparative advantages.

In the last set of results we look at the incidence of temporary work, using the same specification of the regression equation as for part-time work. Temporary work is more frequent among single women than single men in southern Europe, Ireland and Sweden,

---

<sup>15</sup> No estimates are reported for Sweden, as information on reasons for part-time work is not available for this country in the ECHP, and for Luxembourg, due to the small sample size.

although the associated marginal effects are fairly small. Family ties reinforce this tendency, and the highest gender difference is detected for Spain, where married women with children are about 9% more likely than married men to hold a temporary contract. This result bears no clear interpretation in terms of family commitments of women, unless part-time jobs are typically covered by temporary contracts.

We therefore explicitly consider the possibility that the use of temporary and part-time contracts is positively correlated across individuals (see OECD 2000, chapter 2). A simple probit regression of the probability of holding a fixed-term contract on a set of country dummies and a part-time dummy reveals that part-time workers are 15% more likely than full-time workers to hold a fixed-term contract, and this effect bears a t-statistic of 47.12. The absence of controls for this correlation in our main regression may bias our coefficients of interest as, for instance, we might obtain a significant gender effect in the fixed-term contract equation simply because women are more likely to work shorter hours and hold part-time jobs. We therefore estimated the part-time and the fixed-term contract equations simultaneously using a bivariate probit model. The estimated covariance between the error terms of the two equations is positive and significant at the 1% level for all countries considered (except Luxembourg, where it was only significant at the 10% level). Nevertheless, the sign and the significance of the gender and family variables remain unchanged from the previous specification, in which such covariance is ignored by the estimate.

#### **4.4 Preferences for irregular jobs**

Section 4.3 illustrated that, controlling for a number of individual and job characteristics, women tend to take the larger share of part-time jobs in all countries considered, and of temporary jobs in a smaller subset of countries. We mentioned in Section 4.2 that an unequal allocation of genders across jobs may stem from comparative advantages, preferences, or employer discrimination. In the previous section we controlled for comparative advantages by conditioning outcomes on human capital and family characteristics, whose effect on employment arrangements was allowed to differ across genders. In this section we address workers preferences.

If the observed job allocation meets the preferences of the workers affected (and does not negatively affect their productivity) then one should conclude that workers sort

themselves efficiently across jobs. However, we have seen in the previous section that some fraction of female part-time work is indeed involuntary, as a full-time job would have been preferred to a part-time one but was not found. There is probably little to question about worker preferences for fixed-term contracts, as they should imply, if anything, lower job security than permanent contracts, with no obvious advantage for the workers involved.<sup>16</sup>

In this section we use job satisfaction indicators to infer how worker utility is affected when holding a non-standard job. The ECHPS contains detailed information on several dimensions of job satisfaction (overall job satisfaction, satisfaction with earnings, job security, type of job, working hours, etc.). Each aspect of job satisfaction is measured on a scale from 1 to 5, from very dissatisfied to very satisfied, and we estimate corresponding ordered probit equations, including the usual individual and job characteristics on the right-hand side, plus a part-time and a temporary contract control, interacted with gender. The results are reported in Table 4.3.

A clear message from the first three panels of Table 4.3 is that part-time jobs tend to reduce job satisfaction (overall and with earnings) in southern Europe only (and they actually increase it in some northern European countries), while temporary jobs reduce satisfaction (overall, with earnings and with the type of job) everywhere, but more so in the South than in the North.

Features which are most closely related to part-time or temporary jobs, like satisfaction with working hours and job security, are studied in panels 4 and 5 respectively. Concerning working hours, female part-timers in northern Europe are typically more satisfied than male part-timers with shorter working hours, while this only happens in a subset of southern European countries (Spain and Greece). As expected, holding a temporary job implies lower satisfaction with job security in all countries considered (and again this effect is stronger in southern Europe), and women are in this case even more negatively affected than men.

The results of this section can be very broadly summarized saying that, as far as job satisfaction is concerned, part-time jobs are generally perceived as good as full-time jobs in central and northern Europe, and even better than full-time jobs by women in a few cases. On the contrary, in southern Europe they tend to be perceived as inferior. Temporary jobs reduce job satisfaction everywhere, if anything more in the south than in the north. This result is

---

<sup>16</sup> Possible exceptions are issues of commitment. Temporary work agencies often argue that their placements are for people who prefer temporary jobs as stop-gaps, with no commitment requirements. We do not, however, find evidence for this later on (although we also cannot differentiate between those holding temporary jobs through temporary work agencies and the rest).

interesting in light of the recent experiments of flexibility at the margin, implemented in a number of European countries through the introduction of temporary contracts.<sup>17</sup> Increased labour market flexibility does not seem to have come without a cost in terms of job satisfaction, especially as far as job security is concerned.

Furthermore, women's job satisfaction is in a few cases less affected by non-standard contracts (when it comes to earnings and working hours, and mostly in northern Europe), and in others more affected (typically when it comes to job security). Overall, there is no widespread evidence that women are particularly happier (or less unhappy) than men on non-standard jobs, which means that different gender preferences for jobs cannot go a long way in explaining women's over-representation in non-standard jobs.

#### 4.5. Wages in non-standard jobs

We finally assess the penalty in earnings, if any, associated with non-standard jobs by estimating wage equations for the two genders, including controls for part time and temporary work. Ideally, in order to assess the wage penalty from part-time work, one should use data on hourly wages for employees paid by the hour. In the ECHPS no information on hourly wages is available (nor on pay times), and we therefore use information on gross monthly earnings. We use (log) monthly wages as our dependent variable, and include both the (log) of weekly hours worked and the part-time dummy, as well as controls for temporary work and other usual characteristics, on the right-hand side:

$$\ln W_{it} = \mathbf{a}_1 \ln(H_{it}) + \mathbf{a}_2 PT_{it} + \mathbf{a}_3 TC_{it} + x_{it}' \mathbf{b} + e_{it}$$

where  $W_{it}$  denotes gross monthly earnings,  $H_{it}$  denotes normal monthly hours worked,  $PT_{it}$  and  $TC_{it}$  are controls for part time and temporary work, respectively,  $x_{it}$  is a vector of individual and job characteristics, and  $e_{it}$  is an error term.

We will use this specification in order to assess any wage penalty (or premium) associated with non-standard jobs. While the effect of temporary contracts on wages can be

---

<sup>17</sup> During the 1990s, temporary employment growth accounted for around a half of total employment growth in Finland, France, Spain and Portugal, and was actually higher than total employment growth in Germany and Italy (see OECD 2002, chapter 3) – all countries with relatively strict employment protection on permanent contracts (see OECD 1999, chapter 2).

simply picked by the  $a_3$  coefficient, the effect of part-time work entails both a regime switch, represented by the part-time dummy, and a change in working hours. Specifically, the coefficient on the part-time control  $a_2$  represents the change in (log) monthly earnings induced by the switch in working time from just above to just below the full-time threshold, without a discrete change in the number of hours worked. As earnings may not increase in the same proportion as the number of hours worked, this needs to be accounted for when assessing the wage penalty associated with part-time work, which typically involves a discrete change in the number of hours worked.

For an individual with given characteristics, moving from a full-time to a part-time job implies a change in monthly wages given by  $a_2 - a_1 \ln(H^{FT}/H^{PT})$ , where  $H^{FT}$  and  $H^{PT}$  represent the working hours associated to full- and part-time work, respectively. The corresponding change in hourly wages is given by

$$PT \text{ penalty} = \mathbf{a}_2 + (1 - \mathbf{a}_1) \ln \left( \frac{H^{FT}}{H^{PT}} \right),$$

which will be our measure of the hourly part-time penalty (and which denoted a premium when positive). To compute this, we will need estimates of the coefficients of interest  $a_1$  and  $a_2$  from the wage equations and values for  $H^{FT}/H^{PT}$ . Typical working hours on full-time and part-time jobs can be computed by taking averages of working hours for full-timers and part-timers in each country. The resulting  $H^{FT}/H^{PT}$  ratio ranges from 1.73 in Germany to 2.14 in the UK. As a benchmark case, we set  $H^{FT}/H^{PT}=2$  in our calculations, although virtually identical results were obtained when using actual values of  $H^{FT}/H^{PT}$  for each country.

Another important issue is the presence of measurement error in reported working hours (and consequently in the part-time status). As there are good reasons to believe that working hours may be measured with some error, this would induce an attenuation bias in our estimated coefficients and in particular understate the part-time penalty, as given in equation (2). To reduce the effect of measurement error we instrument both working hours and the part-time status by the values reported in the previous wave. The correlation between current and past working hours ranges (across countries) between 0.50 and 0.69 for males, and between 0.56 and 0.82 for females. The corresponding figures for part-time status are 0.51-0.71 for males and 0.52-0.80 for females. It seems therefore that there is a fairly high correlation between the instruments and the variables potentially mismeasured, if anything higher for females than for males.

It may finally be argued that non random selection of individuals into our sample of wage earners may bias the estimates of interest, especially for women. Female labour market participation varies widely across countries and non random selection of women into the labour force implies that the composition of the female labour force also varies across countries. For example, assume that more educated women are more likely to participate in market work than the less-educated in any country. In a country with relatively low female participation (due, say, to social norms or family commitments) the educational cut-off level above which women participate is higher, and consequently the female labour force is on average more educated, than in a country with relatively high female participation. This has clear implications for international comparisons of gender wage gaps (see next section). Its implications for the gender-specific penalty to non-standard jobs are rather unexplored, although, in principle, a higher participation cut-off along the educational distribution may affect the skill composition of standard and non-standard employment and the related wage differentials.

To explore this issue we correct our estimates for sample selection using Heckman's (1979) two-step estimator. We first estimate a probit model for selection into employment, controlling for marital status, number of children under 14, number of employed members in the household, number of non-employed members in the household, either below or above age 65, other family income, age and education. The resulting inverse Mills' ratio is then used as an extra regressor in the estimated wage equation. As Heckman's correction for selectivity did not alter in any appreciable way the results of interest from the OLS regressions, the results reported do not control for selectivity.

The OLS and IV estimates of our wage equations are reported in Tables 4.4 and 4.5, respectively, separately for males and females. The vector of controls  $x_{it}$  includes marital status, number of dependent children under 14, education dummies, potential experience and its square, controls for public sector, employer size, previous unemployment spells, occupation, sector and year dummies.

The OLS estimates of Table 4.4 give evidence of a significant penalty to temporary work for both men and women, ranging between 10 and 20 log points in most countries, if anything higher in southern Europe (excluding Portugal) and the Netherlands. The hourly part-time penalty is computed taking into account the coefficients on  $\log(\text{hours})$  and part-time status, as explained earlier, and is reported at the bottom of each panel. All positive figures indicate the presence of a part-time premium in hourly wages in most countries, and this is particularly strong in southern Europe.

As the number of hours worked and the part-time status may be measured with error, part of this outcome may be the consequence of an attenuation bias in the corresponding coefficients, which tends to overstate our measure of the part-time premium. We therefore use IV estimates in Table 4.5, and find that the penalty to temporary jobs is slightly reduced for both men and women (being still highest in the Netherlands and southern Europe), while the part-time premium is much reduced, and in most cases it becomes either negative or non-significant. According to our estimates, there is a significant wage penalty to part-time work for men in the UK, the Netherlands, Ireland, France and Spain (in the range of 10-25 log points). In other countries, such differential is either non-significant (namely in Finland, Denmark, Germany, Luxembourg and Portugal) or still positive (in Belgium, Austria, Italy and Greece, being in the range of 15-25 log points). The international pattern of part-time wage differentials for women resembles that of men, although at a somewhat higher level.

The existence of large wage premia to part-time work is fairly unexpected, especially in the light of job satisfaction indicators, which would point at a strong wage penalty to part-time work in southern Europe (see Table 4.3). Interestingly, it can be noted that for the four countries where such premia are detected the OLS and the IV estimates of the part-time premium are fairly similar. It can probably be argued that the instruments used are less adequate for these countries, and that measurement error is still affecting the IV estimates. We will come back to this issue below.

Concerning gender differences in the penalty/premium to non-standard jobs, it seems that women's earnings are less negatively affected by temporary work than men's earnings in all countries except the Netherlands, Luxembourg, Ireland, Spain, Portugal and Greece. If women are relatively more discriminated than men in standard jobs, women should earn lower relative wages in standard jobs than men or, equivalently, face lower wage penalties in non-standard jobs. This seems to happen in 8 out of 14 countries. In the 6 remaining countries the reverse happens. The explanation could be that there are variations across countries in the type of discrimination exercised over different types of workers and jobs.

Alternatively, it may be argued that part of the wage penalty to temporary contracts estimated in Table 4.5 includes the effect of some unobserved heterogeneity. If workers who take temporary jobs have some characteristics not picked up by the survey with an associated wage penalty, the estimates for the penalty to temporary contracts would be overstated. In particular, cases in which women suffer from a higher penalty from temporary jobs are consistent with a scenario in which women are more heavily sorted across jobs according to their unobservable characteristics (e.g. motivation, labour market attachment), and therefore

their wage gap with respect to men becomes stronger. Similarly, If employers tend to use temporary contracts to cover low quality jobs, and this tendency is stronger when the job is occupied by a woman, we should expect women to be more heavily penalized than men when taking temporary jobs. While very little can be done to control for job unobserved heterogeneity, fixed-effect estimates, which exploit the wage variation for workers who move jobs, provide a way to control for individual unobserved heterogeneity. When we repeated our IV estimates introducing fixed-effects, the penalty to temporary jobs remains higher for women than for men only in Spain and Greece, the two countries with the highest incidence of temporary work. Unobserved job heterogeneity may indeed help explain this result, although at this stage we can only speculate about it. Job satisfaction indicators on type of job show that Spanish women on temporary contracts are even less satisfied than men with the quality of their jobs, which indeed may be consistent with higher penalties to temporary work for women than for men (see Table 4.3, panel 3). The same argument, however, would not hold for Greece, where the gender differential in job satisfaction goes in the opposite direction.

Finally, the wage differentials between full- and part-timers are everywhere lower for women except in those four countries in which we obtained a significant premium to part-time work, namely Belgium, Austria, Italy and Greece. But as part-time jobs are indeed perceived as “women’s” jobs in most countries, it would be odd to argue that women are more discriminated in part-time rather than full-time jobs, which is possibly a further reason to believe that the high male part-time premia in these countries reflect measurement error in the number of hours worked rather than genuine differentials (and, again, further evidence can be gathered from the job satisfaction indicators, which show that female part-timers are less dissatisfied with earnings than male part-timers).

#### **4.6. Conclusions**

Two main results emerge from our analysis of job segregation. First, part-time and temporary jobs display systematic features that make them significantly different from standard jobs. In particular, part-time jobs are dominated by full-time ones in terms of job satisfaction and earnings in southern Europe, and temporary jobs are dominated virtually everywhere by permanent jobs, but differences are more marked for southern European countries.

Second, given that women are over-represented in such non-standard jobs in most countries considered, systematic features of these jobs may be an important factor of gender discrimination. Our results show that job segregation may be a symptom of gender discrimination in southern Europe, as it is not fully explained by different preferences or productivities of the two genders. By contrast, in central and northern Europe, non standard work is either less widespread (as in the case of temporary work), or seems to better mirror women's preferences for shorter working hours (as in the case of part-time work) and thus should not be a signal of gender discrimination in the labour market.

## 5. Wage gaps

In this section we focus on the gender wage gap which, together with the employment gap discussed in the previous section, is also an important indicator of the relative performance of women in the labour market. The gender wage gap gained added importance in Europe when it was included in a revised list of “structural indicators” for employment, following the Stockholm European Council in 2002.

The study of the gender wage gap has attracted considerable attention in the literature, and most research has focused on changes in gender wage differentials over time for the US. Studies of the gender wage gap and its evolution emphasize the importance of gender differences in human capital (education and experience), and in the occupational structure by gender in explaining the pay gap. The residual wage gap, which is left unexplained after accounting for differences in observed characteristics for men and women, is attributed to discrimination in the labour market. In addition, a number of authors have discussed the link between the gender wage gap and aggregate changes in wage inequality and in industry composition during the 1980s and 1990s.<sup>18</sup>

Despite the richness of this literature, we only have a few extensive cross-country studies of the gender wage gap. Up to the early 1990s this was partly due to the absence of a fully comparable cross-sectional data set on the employment and earnings of men and women. However, recent studies by Blau and Kahn (1996, 2002) and the OECD (Economic Outlook, 2002) use comparable cross-country data (the International Social Survey Program (ISSP) data and the European Community Household Panel respectively) to study the effects of differences in the wage structure on the relative gender wage gap. Both Blau and Kahn (1996) and OECD (2002) use the decomposition method developed by Juhn, Murphy and Pierce (1991) in order to obtain “adjusted” measures of the wage gap that control for between-country variations in the female/male differences in observed characteristics (age, education, experience) and in jobs held, and in the extent of “equal pay” for similar (observed) characteristics. According to this decomposition technique, the “comparability” problem is solved by choosing one country as a benchmark and by using the entire wage structure for the reference group in the reference country (typically men) to evaluate “gaps” in observed and

---

<sup>18</sup> See Goldin (1990) for an influential historical analysis of the gender wage gap in the US, and Altonji and Blank (1999) for an extensive review of the theoretical and empirical literature that examines the determinants of differences in pay across demographic groups (in particular the black/white and female/male wage differentials).

unobserved characteristics by gender across different states.<sup>19</sup> The application of such methodology to the analysis of the gender pay gap may be problematic since it is assumed that the estimated prices of observed characteristics do not differ by gender. Blau and Kahn (2002) try to deal with this issue by estimating gender specific wage equations for each country and by using the observed characteristics of a reference state to evaluate cross-country differences in the wage gap. These studies suggest a link between wage inequality and the gender pay gap.

Here, we use data from the 1998 wave of the ECHP to investigate the importance of adjusting for cross-country differences in patterns of female participation in cross-country studies of the gender wage gap. Moreover, we examine the role of country-specific institutions, such as employment protection policies, parental leave policies, and product market regulation, in explaining differences in the gender wage gap across countries.

This section is organized in three parts. In the first part we briefly talk about the US experience. We then turn to a first analysis of cross-country differences in the gender wage gap for the countries in our sample. For a subset of countries we also study how the gender wage gap has evolved between the mid 1980s and the late 1990s. In the second part, we turn to the decomposition analysis of cross-country gender differences in pay and we discuss how the issue of sample selection may be affecting cross-country comparisons even of the “adjusted” wage gap. Finally, in the third part, we study the effect of country-specific institutions on cross-country differences in the gender wage gap.

### **5.1. The evolution of the gender wage gap in the US**

In the United States the ratio of mean female earnings to mean male earnings among full-time workers has been hovering around 60% from the mid 1950s to the late 1970s and early 1980s. Starting in the 1980s, we observe a steady and rapid increase in the relative earnings of women. By 2001, women’s earnings were about 80% of men’s earnings.

Traditionally, women were more likely to withdraw from the labour market after marriage or after giving birth. The consensus estimate was that about half of the traditional 40% differential in wages could be explained by the difference in experience (Goldin and Polachek (1987)). The major explanation for the stability of the female/male wage differential

---

<sup>19</sup> The same framework has also been used to compare the gender wage gap in Australia and Canada, Kidd and Shannon (1996), and to compare Sweden and the US, Edin and Richardson (2002).

through the 1970s was that the new groups of women that started entering the labour force during that period typically had lower education and lower labour market experience than those already in the market (Goldin (1990), Smith and Ward (1989)). However, during the 1980s and the 1990s, women's observable characteristics and, in particular their labour market experience and their educational level, became closer to that of men. Moreover, over these two decades, women also shifted to higher-paying occupations. This relative improvement in the observable characteristics of the female labour force contributed to the narrowing of the gap during the late 1980s. Studies by Blau and Kahn (1997) and O'Neil and Polachek (1993) show that both the increase in the rate of return to labour market experience and the increase in actual experience for women can explain a large portion of the decreasing gender wage gap. These studies show that convergence in work-related characteristics (education and experience) may account for about one third to a half of the drop in the gender gap. They also find a decline in the residual (unexplained) differential. This has been interpreted as evidence of a decline in discrimination. Part of the argument is that the effect of the 1964 Civil Rights Act, and of the subsequent institution of the Equal Employment Opportunity Commission, were delayed, and resulted in increased earning for women in the 1980s and 1990s.

## **5.2. Cross-country evidence on the gender wage gap**

There are substantial differences in the gender wage gap across countries. Table 5.1 presents 1998 data on the female/male earnings ratio for both full-time wage and salary employees, and for all the wage and salary workers (including part-time workers).<sup>20</sup> The table shows that, for both measures, women's hourly earnings are lower than men's in all of the countries. On average, women are paid an hourly wage equal to 84% of men's pay. Moreover, the gender gap is smallest (less than 10%) in the Mediterranean countries, in the Nordic countries and in Belgium and France. On the contrary, the gender gap is largest (around 20%) in the United States, Canada, and the United Kingdom. For the UK, Spain and Ireland the gender gap for all workers is about five percentage points higher than for full time workers. This reflects the fact that a large fraction of women work in part-time jobs in these countries,

---

<sup>20</sup> Source: OECD, Employment Outlook (2002). We only present results for the ratio of median hourly earnings since this measure is less sensitive to the presence of outliers. See the OECD report for data on the female/male ratios of means hourly earnings and the 20<sup>th</sup> and 80<sup>th</sup> percentiles of the hourly wage distribution.

and (consistent with our earlier econometric results for these countries) part-time workers receive lower hourly wages. However, this is not the case for the other countries particularly for the Netherlands, where the incidence of part-time jobs is high and where we also found a part-time penalty in our econometric work.

In order to investigate this issue further, we summarize information about the female/male wage differential in both hourly and monthly wages in Table 5.2. This is particularly relevant because not only are women more likely to work part-time than men, but also they tend to work less hours when holding full-time jobs. In addition, we break down this information by age to study whether more recent generations of women face a smaller pay penalty on the labour market. The table shows that, for every country and every age group, the monthly gender pay gap tends to be about 10 percentage points larger than the hourly wage gap. This difference is largest in the Netherlands and in the UK, where older women's monthly pay is about 50% of men's pay. The difference between the hourly and the monthly gender gap is smallest in the USA (where the gap in hours worked by men and women is lower), followed by Mediterranean and Nordic countries. The table also shows that for most of the countries, except for the Mediterranean countries, the monthly female/male wage differential tends to be around 10 percentage points higher for young, 25 to 34 years old, women than for older women. Both age and cohort effects are at work here. First, young women tend to be more similar to young men in terms of accumulated labour market experience. Second, for the recent generations, the education gap has narrowed substantially.<sup>21</sup>

Finally, we turn to the analysis of how the gender wage gap has evolved between the mid 1980s and the late 1990s. Table 4.3 presents data on the growth of the female/male (median) earnings ratio for a subset of countries.<sup>22</sup> The gender wage gap has been declining in most of the countries in our sample since the late 1970s/early 1980s. The largest decline occurred in the United States, the United Kingdom, France, Germany, and Canada. Over this time period, the wage gap was essentially constant in Nordic countries (Finland, Sweden), and in Italy -- the only country in the Mediterranean group for which we have time series data. This is an interesting result since both the strong decline in the gender wage gap in the US, and the stagnation in Nordic countries, occurred at a time of rising wage inequality that by

---

<sup>21</sup> See section 1 of this report and Dolado, Felgueroso and Jimeno (2002).

<sup>22</sup> Source: OECD, Labour Force Statistics (online).

itself tends to increase the gender wage gap. Hence, while US women improved their position in the earning distribution relative to men, women in the Nordic countries did not.<sup>23</sup>

To conclude, despite the increase in the female-male earning ratio during the 1980s and the 1990s, by the end of the 1990s the North American gender ratio was still below its level for Italy, Spain (where the gender gap in employment is almost three times as large as in the U.S.), and the Nordic countries (where the job segregation index is much larger than in the U.S.). The next section discusses work by Blau and Kahn (1996, 2003) and by the OECD (2002), which explores this contradictory evidence.

### **5.3. Explaining the cross-country evidence on the gender wage gap**

The evidence presented in this chapter shows that although U.S. women perform quite well in terms of human capital and occupational structure relative to their European counterparts, they face a much larger wage penalty relative to men than European women do. Blau and Kahn (1996) highlight the importance of country differences in wage structure in accounting for cross-country differences in the gender wage gap. According to their argument, since women tend to be more concentrated at the bottom of the wage distribution relative to men, institutions that compress the wage distribution, such as minimum wage legislation and highly centralized wage-setting, will also tend to decrease the gender wage gap.

In their 1996 study, they use 1985-1989 ISSP data for 10 countries, supplemented by country-specific micro data sets for Italy, Sweden, and the U.S., to analyse the importance of the overall wage structure in explaining cross-country differences in the gender wage gap. In particular, they study the reasons underlying the lower ranking of U.S. women relative to their European counterparts on this dimension.<sup>24</sup>

From a methodological standpoint, Blau and Kahn adapt the decomposition analysis that Juhn, Murphy and Pierce (1991) used in their study of wage differential by demographic groups to a cross-country setting. The procedure may be summarized as follows, first the wage equation for men is estimated in each country. These regressions provide benchmark

---

<sup>23</sup> See Blau and Kahn (2000), Datta Gupta, Oaxaca, and Smith (2001), and OECD, Employment Outlook (2002).

<sup>24</sup> The data set considered are the Bank of Italy's Survey of Household and Income Wealth, the Michigan Panel Study of Income Dynamics (PSID) for the U.S. and the Swedish Household Market and Non-Market Activities Survey (HUS). The other countries included in the analysis are: Australia, Austria, Germany, Hungary, Norway, Switzerland and the UK.

estimates of the price of observed characteristic and its level of residual wage inequality for each country.<sup>25</sup> The gender wage gap difference between two countries may be decomposed into four terms. The first term measures the contribution of cross-country differences in observed characteristics (mainly education, and experience). The second term measures the contribution of differences in the “price” of observed characteristics, namely the return they command in the market. The third term measures the effects of cross-country differences in the relative ranking of women within the male residual wage distribution, obtained after controlling for observed characteristics (given the assumption that the male residual wage inequality is the same across countries). Finally, the fourth term measures the cross-country difference in the gender wage gap that would be explained by differences in residual inequality (if the two countries are characterized by the same relative ranking of women in the male residual wage distribution). The sum of the second and fourth term represents the total effect of the wage structure (the sum of both observed and unobserved prices effects). The sum of the first and third term represents the total effect of gaps in gender differences in observed characteristics and of differences in the “treatment” of women in the labour market.

The estimation results obtained for this subset of countries show how US women perform better than their counterparts along this latter dimension (except for Australia and Sweden). However, the US level of inequality in the wage structure makes their relative position worse. The effect of the wage inequality accounts for almost all the higher US pay gap for all countries except for Sweden where it accounts for 74% of the gap. The authors interpret this evidence as suggestive of the fact that differences in wage structure can account for a large part of the cross-country gender wage gap. Moreover, they analyse the relationship between cross-country differences in wage setting institutions, male wage inequality, and cross-country differences in the wage gap and find some suggestive (although weak) evidence that supports their conjecture.

In a more recent paper Blau and Kahn (2003) test their hypothesis for a larger set of 22 countries, from the International Social Survey Program (ISSP) for the years 1984-1994. They use a slightly different methodology to compare gaps across countries, and allow for the prices of observed characteristics to differ across countries and across gender groups but use the observed characteristics of men and women in the US as the benchmark. Moreover, they also include in the analysis measures of the net supply of labour by women across countries. In this case, they find stronger evidence that the variation in gender gap across countries may

---

<sup>25</sup> Men are chosen as a reference group within each country in order to minimize the sample selection bias.

be attributed to differences in the degree of inequality in the earnings distribution. They also show that, controlling for differences in the wage structure, the wage differential tends to be lower when female supply of labour is lower with respect to its demand. This result is robust to the inclusion of institutional variables, collective bargaining, parental leave policies, unemployment insurance and employment protection. This evidence confirms that to the extent that labour market institutions are an important component in explaining the degree of overall wage inequality, differences in the labour market institutions can account for differences in the gender wage gap.<sup>26</sup>

A similar analysis is conducted for the 12 countries in the ECHP in the 2002 OECD Employment Outlook. In particular, this study uses the same decomposition method used in Blau and Kahn (1996) and considers an average of the 12 ECHP countries as the benchmark economy. The results of the analysis are summarized in Table 5.4. Entries in the first column of the table represent percentage point differences of the unadjusted wage gap in each country from the wage gap in the benchmark economy. The second column represents the total contribution due to differences in the gender gap in observed and unobserved characteristics. Entries in the third column of the table represent the sum of the contributions due to cross-country differences in market prices for observed and unobserved characteristics.

The results of this decomposition analysis show that the unadjusted wage gap would substantially change in each country if its wage structure were similar to that of the average benchmark country. In particular, the gender wage gap in the UK would be reduced by between 2 and 4 percentage points under the benchmark (more compressed) wage structure. On the contrary, the adjusted wage gap would increase in the Netherlands as a consequence of women's higher concentration in lower paid occupational groups. There is also evidence that less-dispersed wage structures are not necessarily beneficial to women relative to men. For instance, women tend to have a strong presence in the public sector where wages tend to be higher than in the private sectors (at least for lower educational levels). Hence, countries such as Belgium, Denmark, Finland and the Netherlands, where the public/private wage differential is lower, tend to display higher adjusted wage gaps with respect to the benchmark economy.

The analysis also shows that this adjusted measure of the gender wage gap confirms the evidence presented in the previous section for unadjusted measures of the female/male earning differential: the gender wage gap tends to be smaller for the Mediterranean countries

---

<sup>26</sup> For example, if collective bargaining coverage were to increase from 47% to 82% the gender wage gap would fall by .10 log points. Higher collective bargaining is known to compress the overall wage structure.

(Greece, Italy, and Spain) than for the Nordic and Anglo-Saxon countries (including the U.S.).

#### **5.4. The importance of sample selection**

The analysis described above shows that both the raw gender wage gap and the adjusted wage gap are smaller in Mediterranean countries, where women's participation rate is particularly low. We argue that part of the reason why this may occur is that this type of analysis does not take into account cross-country differences in how women select (positively or negatively) into employment.

In what follows we compare the gender wage gap estimates, obtained both with and without the sample-selection correction, for the same subset of European countries analysed in the OECD study. The wage gap is computed as the difference between the male and female average log hourly earnings, which is obtained by estimating gender and country specific equations. In such equations, the dependent variable is the logarithm of gross hourly wages,<sup>27</sup> and the independent variables include education (two dummies), potential experience, and potential experience squared, occupation (fifteen dummies), tenure (four dummies) public/private sector, type of contract, full time/part time, and interaction terms between part time, full time and weekly hours worked. We exclude individuals working as apprentices and students as well as self-employed. The estimates corrected for sample selections are based on Heckman's two-step consistent estimator. The participation equation includes age, marital status, education (two dummies), and weekly hours spent in childcare.

The results of the estimation are reported in Table 5.5. The estimated "raw" gender gap is reported in the first column. Estimates for the gender wage gap corrected for sample selection are in the second column. Once we account for sample selection the estimated gender wage gap increases by as much as a factor of two in Mediterranean countries. In contrast, it falls substantially in the Nordic countries and is unchanged in the UK, Netherlands and Portugal. Intuitively, the sample correction takes care of the fact that the wage gap differs across skill groups. With the large differences in the participation rate in the Mediterranean and (say) Nordic countries, the average gap could be distorted if the calculation did not

---

<sup>27</sup> Following the OECD report, we compute hourly earnings by dividing gross monthly earnings in the main job by 52/12 and then dividing the corresponding weekly wage by the actual hours worked per week. The "selected" sample is restricted to individuals working 15+ hours per week.

correct for the different composition of the female labour force in each case. Evidently, since the fraction of skilled women who participate in the Mediterranean countries is relatively larger than in the Nordic countries, our results say that the gender gap is bigger in the unskilled occupations. A simple average in the Mediterranean countries shows a small gap because there are not enough unskilled women to make the gap larger. Our results suggest that in cross-country analyses of the gender wage gap (as well as in the analysis of the gender wage gap across demographic groups) it is important to adjust for cross-country differences in patterns of female participation.<sup>28</sup>

### **5.5. Cross-country institutional differences and the gender wage gap**

In line with our earlier work on the institutional influences on the overall employment rate across countries, we investigate, in this section, whether institutional differences across countries, such as employment protection policies, parental leave policies, and product market regulation, can explain any of the cross-country differences in the gender wage gap. We use a variety of data sources to build the set of institutional variables for the 1990s. The index of bargaining coverage is from Blanchflower (1996). Parental leave entitlements (weeks of leave), employment protection policy (EPL), and union density are from Nickell and Layard (1999). The information on parental leave entitlements for Greece is obtained from the OECD Employment Outlook (1990), Table 5.8. The index of product market regulation, and the index of employment protection legislation for both temporary and regular contracts are taken from Nicoletti, Scarpetta, and Boylaud (1999). The maximum unemployment insurance (UI) replacement rates are from Blanchard and Wolfers (2000) where they construct this (time varying) measure of the generosity of the unemployment insurance as an average of the replacement rate, the number of years over which unemployment benefits are paid, and a measure of active labour market policy. The segregation index is from Anker (1998), Table 9.1, and it is based on a set of 75 non-agricultural two-digit occupations. Finally, the Equal Employment Opportunity indicator (EEO) is based on Table 5.11 in the 1988 OECD *Employment Outlook*. The table provides information about the year in which the equal employment opportunity legislation was introduced in each country. We use the indicator to

---

<sup>28</sup> This is consistent with the work by Derek Neal (2002) which emphasizes the importance of adjusting measures of the black-white wage gap among women for racial differences in selection patterns.

measure the time lag since this legislation was passed in each country. Unfortunately we do not have cross-country measures of the degree of enforcement of this legislation.

We perform a cross-country regression of the estimated “raw” gender gap presented in Table 5.4 on this set of institutional variables. Our measure of the gender gap is derived from the estimates of wage equations that control for gender- and country-specific differences in education, potential experience and its square, occupation, tenure, public/private sector, type of contract, full time/part time, and interaction terms between part time, full time and weekly hours worked. The correction is for both men and women and for all the countries in our sample. For this analysis we exclude individuals working as apprentices and students and we restrict our attention to individuals working 15+ hours per week.

Table 5.6 describes the results obtained for two different specifications. We report the results for three different age categories: 25-34, 35-44, and 45-54. These results should be interpreted with caution because the sample size is very small. We have data on all the institutions only for a subset of 11 countries. We show the results for two different specifications. In the first one we include parental leave, bargaining coverage, maximum replacement ratio, the EEO indicator, and the two measures of employment protection (for temporary, and regular jobs). In the second, we also control for the index of product market regulation. We find that more generous measures of the unemployment insurance system and measures of employment protection for temporary jobs both tend to decrease gender wage gap. However, these effects disappear once we control for the degree of product market regulation.

It is interesting to study how the results vary by age groups. For women between 35 and 44 years old we find that, consistent with Blau and Kahn (2002), larger bargaining coverage decreases the gender gap in wages. However, this is not the case for younger women (25 to 34). In this case, a larger degree of bargaining coverage tends to increase the gap. Stricter EPL for regular contracts have the same effect. This is consistent with the story that these institutions, designed to protect the “insiders” in the labour market, have a larger negative impact on the employment and pay opportunities of the young. The results suggest that the negative effect is larger for young women than for young men. Also, for this age group, we find that stricter EPL for temporary contracts and a larger UI benefit replacement ratio both tend to decrease the gap.<sup>29</sup>

---

<sup>29</sup> Results for specifications that include union density, and benefit duration are not reported since these two variables are always not significant and they do not add predictive power.

Finally we find that for 35 to 44 year old women more generous parental leave entitlements tend to significantly increase the gender wage gap. This finding is consistent with the evidence provided by Ruhm (1998) who shows that parental leave is associated with higher overall female employment (consistent with our finding with respect to family day care in section 3), but with reductions in their relative (female/male) wage.

Given the small number of observations, these results should be interpreted as suggestive evidence of these associations rather than firm conclusions. In order to overcome somewhat the data constraint we use a variety of data sources to construct a data set of repeated cross-country observations. Unfortunately, in this case we cannot estimate the gender wage gap so we use aggregate information on the male/female wage ratio obtained by using median earnings for full-time workers as the dependent variable in our analysis. The subset of countries for which we have information includes: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Portugal, Spain, Sweden, UK, and the USA. We consider three time periods, 1980, 1990 and 1998.<sup>30</sup>

We estimate the following regression:

$$WG_{jt} = f_j + g_t + g_t * X_j' b_j + e_{jt}$$

where  $j$  is a country index, and  $t$  is a period index. The dependent variable is the gender wage gap for country  $j$  at time  $t$ , and it is measured as the log of the male/female wage ratio (median earnings for full-time year-round workers).  $f_j$  is the country fixed effect,  $g_t$  is the year dummy, and  $X_j$  is a vector of country-specific time-invariant institutions, with the exception of the maximum replacement ratio, and the indicators of EPL for temporary and regular contract that have a time dimension.

Table 5.7 summarises the results obtained for this cross sectional, time series regression for 15 countries. The number of observations now increases to 36. The coefficients in the table should be interpreted as the marginal effect of each institution on the difference in the gender wage gap growth between 1980 and 1998. We consider three different specifications. In the first one we control for the degree of bargaining coverage, parental leave entitlements, EPL, union density and the EEO lag index. In the second specification we add the index of product market regulation to the above list. Finally, in the third specification we

---

<sup>30</sup> Sources: 1980 and 1990: Blau and Kahn (2000), data for Denmark, Greece, Portugal and Spain refer to 1994, Source: ECHP. Data for 1998 are from OECD, Employment Outlook (2002)

introduce the measure of gender segregation. For each specification we run the regression both with and without country fixed effects.

We find that union bargaining coverage tend to decrease the gender wage gap both in the first and in the second specification (with and without fixed effects). Once again, this is consistent with the argument put forth by Blau and Kahn (2003) that since women tend to be more concentrated at the bottom of the wage distribution relative to men, institutions that compress the wage distribution will also tend to decrease the gender wage gap.

We also find that more generous parental leave policies tend to significantly increase the wage gap (although this effect disappears once we include country fixed effects in the regression). In the first specification we find that higher union density tend to increase the gap. Finally, when we control for sex segregation by occupation but none of these institutions has a significant impact on cross-country differences in the gender wage gap.

## **5.6. Conclusions**

Our analysis of the gender wage gap has shown that significant differentials in the pay of men and women remain in Europe. Although the wage gap is not as large as in America, the reasons are probably not due to less discrimination against women in Europe but to the fact that because wage inequality is bigger in the United States, the mean earnings of men and women are also further apart. Unions appear to close some of the wage gap – though our analysis is not able to distinguish between this as an objective of union policy or as an outcome of the fact that unions tend to compress the wage structure. We also found that although Mediterranean countries at first sight are characterised by lower wage gaps than the rest of Europe, this result is not robust to corrections for the fact that in the Mediterranean countries female participation rates are lower and concentrated among more skilled women. Gender gaps are bigger at lower skills and when we correct for the small number of unskilled women who participate in southern Europe the wage gap widens to that of other European countries.

## **6. The consequences of rising female participation for other workers**

In the world of the neoclassical macroeconomic growth, with each country characterized by constant returns to scale, a rise in female participation induced by factors that are exogenous to the labour market (such as the more general availability of consumer durables and other factors discussed in section 3) might in the short run reduce the wages of all labour, but in the medium to long run the capital stock rises to catch up with the higher labour supply. Even if we ignore the possibility of more research and innovation induced by the presence of more women in universities and research laboratories, the higher female supply is neutral. But there is a lot of heterogeneity in the labour market, and it is unlikely that the rise in female labour will affect all demographic and skill groups equally. We saw that women segregate into some sectors of the economy and their skills are different from those of men. It is likely that women complement some types of labour and compete with others. To give two rather obvious examples, the entry of women into the labour force creates demand for child care units, so complements the labour used to run those units, but creates competition for retail assistants, because retailing is one of the popular destinations for women.

In this section we consider the consequences of an exogenous rise in the female participation rate, say one induced by social norms or developments outside the labour market, for the employment and wages of other demographic groups. As in previous sections, we first review the evidence, which comes mostly from the United States, and then present some original work of our own as it applies to Europe.

### **6.1. What do we know?**

An increase in the supply of female workers is not a homogenous increase in labour supply. In the United States, the median hourly wage of women is around the 32<sup>nd</sup> percentile of the distribution of hourly wages of men, while the median male hourly wage is at the 75<sup>th</sup> percentile of women's wages (source CPS, 1991 and author's calculations). In this sense, the

average woman tends to crowd out the labour market for low-wage workers: possibly, unskilled men workers and younger workers. If wages are a good proxy for productivity women appear to be less skilled than the average worker. We saw that there is evidence of some discrimination against women. But even if we account for this, the relative rank of the median women will not rise to the rank of the median man. Is this a valid inference and are women therefore competing only with unskilled men and youths?

Some early estimates of production functions with different labour inputs were carried out in the United States and surveyed by Hamermesh and Grant (1979). Some disaggregated by gender allowing for an estimate of any congestion effects caused by women. Freeman (1979) introduced female workers as an explicit factor of production, but he did not find significant substitutability between younger male workers and women. This conclusion was challenged by Grant and Hamermesh (1982) who estimated a trans-log production function across industries with gender and race groups as well as physical capital. They found a strong substitutability between adult white women and younger workers. Their estimates suggest that the consequence of a 10 per cent exogenous increase in the supply of female workers reduces the wage rate of younger workers by 1.5 per cent and would reduce their employment rate by as much as 50 per cent if their wage was totally rigid. Not surprisingly, they find this number “unbelievably large”. Berger (1983) also investigates the impact of changes in the composition of the labour force, by differentiating in addition by education and introducing capital. He introduces women as a single, homogenous group and finds that female workers are strong substitutes for both young male workers with a high school degree and young male college-educated workers<sup>31</sup>. He also finds some evidence of significant but weaker substitutability between older men with a high school degree and women. Topel (1994a and b) relaxes the assumption of homogeneity for women and also finds substitutability between low-skill women (first half of their wage distribution) and low-skill men (first 33<sup>rd</sup> percentile of their wage distribution). He also found substitutability between higher-skill women (say half of the skilled distribution) and two groups of men (1-33<sup>rd</sup> percentiles and 34<sup>th</sup>-66<sup>th</sup> percentiles). Topel (1997), surveying these results, claims that had women’s participation remained constant, wages of the less skilled men would not have declined, although he points out some drawbacks of this conclusion, notably in terms of timing of the changes in supply and returns to skills that do not coincide perfectly.

---

<sup>31</sup> Young workers are defined as those with less than 15 years of experience.

There are very few similar studies for Europe. Given wage rigidities at the lower end of the wage distribution, the main effects of more female labour supply on unskilled workers and youths should be primarily on their unemployment rates. In Wasmer (2001b), the share of women in the labour force is found to have a significant positive impact on the unemployment rate of young workers in a cross-section of countries. Further, there is evidence of an inverted U-shaped interaction term with respect to the degree of decentralization of wage bargaining: flexible labour markets and highly centralized ones (Austria, Sweden) seem to have better accommodated rising female participation in terms of youth employment.

In terms of human capital, women tend to be better educated on average and tend to have higher returns to education. Given that women earn generally less than men in all occupations, the latter fact is another way of saying that the ratio of the wages of low-skill women to the wages of low-skill men is less than the corresponding ratio for high-skill workers.

Rising female participation has also some implications for the supply of on-the-job skills and experience of the labour market. In Wasmer (2003), a measure of the supply of experience based on French and US individual data is computed: it is the average across the active population of the contribution of experience to individual wages. A measure of the supply of education can be computed in the same way, as the contribution of education to wages. The outcome is that, in both countries, the supply of education increased fast in the last 30 years, while the supply of experience declined until the mid 80's, and then recovered in the late 80's and in the 90's, i.e. a U-shaped pattern in time. It is shown that the supply of experience almost perfectly negatively co-moves with the returns to experience in the US, indicating that labour supply factors dominate over labour demand factors.

In the study above, the supply of experience is not only due to rising female participation: it is also driven by the baby-boom cohorts, changing the age composition of the labour force in the late 70's. However, isolating higher female participation leads to the same U-shape pattern: women have both lower experience and lower returns to experience in earnings than men (the difference is about 30 to 50 per cent per year worked), and thus a rise in female participation reduces the average efficiency units of experience, due to a simple composition effect. In the late 80's and in the 90's, the evolution of experience is different. Women have longer and more stable careers, which leads to an inversion of the trend: the quality of female participation has improved, improving the human capital content of the labour force.

As an additional check of the U-shaped evolution of experience, Wasmer (2001a) calculated the supply of experience based on a ‘perpetual inventory method’: experience is seen as a sum of past participation rates, possibly discounted to account for human capital depreciation. This method is applied to eight OECD countries with sufficiently long time series, and in almost all of them, a similar pattern emerges from the data. Further, this measure of experience correlates *positively* with relative employment rates of workers less than 29 years old, a reflection of the congestion effects described below: scarce experience reduces the relative demand for younger workers if they are complement with older, more experienced workers.

In the short-run, i.e. when physical capital is fixed, an exogenously driven increase in female participation tends to reduce aggregate wages. It is striking to notice that in countries where the labour force rose faster, such as the US, average wages have not progressed much or have even declined (See Card, Kramarz and Lemieux 1999). Gottschalk (1997) however shows that if male wages have declined over the period 1979-1994, wages and employment of women have progressed very significantly. This would suggest either that labour demand for women plays an important role or that societies accept more easily female employment due to changes in social norms and discrimination. In countries where the share of women in the labour force is low, such as Italy, France or Spain, aggregate wages have progressed faster over the last decades (Bertola 1999). One should also remark that in these countries, if female participation rates have been low compared to the US, the growth rates have been higher than in average in the OECD. In the short-run, growth rates matter since physical capital cannot adjust. One indeed finds evidence of a positive and significant impact of the growth rate of the female labour force on the unemployment rates of women and young workers (Wasmer 2001b).

## **6.2. Measuring experience in the labour market**

One way to measure the consequences of female participation is to focus on the supply of experience. Due to interruptions of labour market activity that are more frequent for women than for men, women necessarily accumulate less labour market experience as men. However, measures of labour market experience from individual surveys usually have low quality, since the exact number of years worked is typically not known. Experience is often approximated with the so-called potential experience, i.e. age minus education. If this proxy is

considered as a good instrument in the estimates of wage equations, the measurement error is rather large: O'Neill and Polacheck estimate that actual experience of women is about 2/3 of potential experience, with an increase in this fraction over time and cohorts. For this reason, we prefer to use aggregate data to approximate experience of men and women.

The idea is as follows: let  $p_{at}$  be the participation rate of a cohort of age  $a$  at time  $t$ . For simplicity, we ignore the gender dimension in the notation. At time  $t-1$ , the cohort had a participation rate of  $p_{a-1,t-1}$ , and at the age of entry to the labour market, say 15, that cohort had a participation rate of  $p_{15,t-(a-15)}$ . It follows that the average experience of the cohort of age  $a$  at time  $t$  can be written:

$$E_{a,t} = \sum_{a'=15}^a p_{a',t-(a-a')} d^{a-a'}$$

where  $d < 1$  is a discount factor characterizing the yearly depreciation rate of the accumulated experience at rate  $1-d$ . Since we use participation rates and not employment rates, this measure of experience is experience of the labour market, not of employment.<sup>32</sup> Rewriting the above formula by changing the index and defining by  $e = a - a'$  the potential experience of the labour market, one obtains

$$E_{a,t} = \sum_{e=0}^{a-15} p_{a-e,t-e} d^e .$$

This formula is equivalent to the usual formula defining the capital stock of a plant of age  $a$ , i.e. as the sum of depreciated past investments in physical capital. There is one difference though: the initial stock of experience is known as it is simply zero at the age of 15.

The total stock of experience of men and of women is the sum across all cohorts, with weights the share of the cohorts in the male (resp. female) active population (denoted by  $\mathbf{a}_{a,t}^K$ , with  $K=m,f$  for male and female). We thus obtain:

$$E_t^K = \sum_{a=15}^{64} E_{a,t} \mathbf{a}_{a,t}^K , \quad K=m,f$$

which also gives the average experience of labour market participants, with  $\mathbf{a}_t^f$  the share of women in the labour force, as

$$E_t = (1 - \mathbf{a}_t^f) E_t^m + \mathbf{a}_t^f E_t^f$$

---

<sup>32</sup> This measure of experience is less accurate than employment experience as far as the issue is to measure human capital (although, young graduates usually learn a lot when looking for jobs). Labour market experience however captures better the idea of attachment to the labour market: unemployment spells then matter. There was not enough employment data per age and gender available to estimate employment experience. One can use this constraint to one's advantage: as argued later on, labour market experience is a good instrument for employment experience in an unemployment model.

The OECD and the ILO provide participation data and population by gender and age intervals for several countries for the period 1960 to 1998. A logistic function of participation rates by age, gender and country are regressed on lagged values, a trend and its square. The series are then dynamically forecasted on the basis of each model to obtain retrospective data. Series of forecast errors are computed to provide confidence intervals. This method ignores the break due to the war period, with the implication that forecasts (in the present case, a more accurate word would be backcasts) of participation before 1945 have a systematic error. The weight of those years in the average experience across cohorts is however rather small between 1970 and 1998, which is the period considered hereafter. See Wasmer (2001a) for more details about this method. We set  $\mathbf{d}$  to 1, i.e. do not consider human capital depreciation.

Figures 6.1-6.4 illustrate the time series evolution of experience by gender in France, Germany (western Länder), Sweden, Finland, the Netherlands, the US. and the United Kingdom. They establish the following facts:

1. In all countries, the average experience level of men is between 18 and 20 years, with a decline in the seventies as the size of the cohorts of new entrants in the labour market peaks 16 years after the baby-boom.
2. The average experience of women differs much more across countries. In the early 70's, it was about 5 years in the Netherlands, 6 years in Spain, 8 years in the UK, 10 years in France, the US and Germany, and 12 or more in Sweden and Finland.
3. There is a general trend towards gender convergence, although it is especially slow in Spain, Germany and the Netherlands.
4. The level of average experience, being by definition a weighted combination of both series, is closer to male experience in low participation countries. In most countries, average experience declined in the late 70's, especially in countries where female participation was low and grew fast.

The low experience levels of women in the 70's are explained both by low investments in the labour market from older cohorts of women and by the over-representation of young women in the female labour force. The latter is a pure cohort-effect, presumably a transitory one given gender convergence. This indicates that countries with historically low levels of female participation, which faced a large demographic impact of the baby-boom and a change in social norms for recent cohorts had to cope with a strong reduction in average experience in the first instance. Subsequently, in the late 80's, these factors have reverse consequences: the population becomes older, and higher female participation is rewarded by

higher average experience levels. Both factors, the ageing and the higher propensity of women to participate to the labour market, contribute to a U-shape pattern of experience in the labour market. One can isolate formally the effect of female participation on this U-shape evolution: for  $E_t^f < E_t^m$ , an increase in female participation raises  $\mathbf{a}_t^f$  and initially contributes to a decline in  $E_t$ , while  $E_t^f$  is an increasing function of past values of  $\mathbf{a}_t^f$  implying, with a lag, that both  $E_t$  and  $E_t^f$  will increase.

### 6.3. Measuring crowding-out in the youth labour market

A test of the substitutability between women and young workers in the labour market would be to examine the impact of lower experience on the unemployment rate of youths. To check this, we can estimate the following regression in the panel of eight countries above:

$$\log(u_{i,t}^{25-34,m}) = C_i + \mathbf{f}_i \cdot E_t + \mathbf{j} \cdot \text{cycle}_{i,t} + \mathbf{e}_{i,t}$$

$$\log(u_{i,t}^{25-34,f}) = C'_i + \mathbf{f}'_i \cdot E_t + \mathbf{j}' \cdot \text{cycle}_{i,t} + \mathbf{e}'_{i,t}$$

where  $i$  is the country,  $t$  is time. The business cycle is controlled for by the log of unemployment of men aged 45-54. One expects a negative sign of  $\mathbf{f}_i$  and  $\mathbf{f}'_i$  if the decline in experience raises unemployment. To see this, think first of a world with perfect wage adjustment to labour supply and imagine a production function with, as an input, experience of the labour market with decreasing returns to this input. A decrease in the supply of experience should raise returns to experience, i.e. weaken the relative position of youths in the labour market. If relative wages cannot adjust fully, the decline in experience results into higher youth unemployment. The coefficients  $\mathbf{f}_i$  indicate the percentage increase in the unemployment rate of the 25-34 year old group when there is an increase of one year in average experience.

A lag of the dependent variable is added to control for autocorrelation of the residuals. One might argue that experience is an endogenous variable because during unemployment the

worker does not accumulate experience. This is not the case here, however, because our measure of experience is the sum of past participation rates, not of employment rates.<sup>33</sup>

The results are given in Table 6.1. Column (I) shows that the unemployment rate of young men is reduced by a higher level of average experience (each additional year reducing the rate of unemployment by 4%). This suggests that young male workers compete with low experience workers. Since in all countries, women have lower experience than the average even in the 90's, this is evidence of substitutability between young workers and women. Young female workers do not appear to be affected by overall experience as shown in column (II). This is a priori surprising since one would expect competition between young women and other low experience workers.

To clarify this, columns (III) and (IV) re-estimate the model by separating experience for men and women. The drawback of this specification is that, implicitly, it is assumed that the supply of experience is not aggregate, but rather segmented: one market for men, and one market for women. The outcome is reassuring for men: there is a larger impact of female experience (-11% for each additional year), meaning that, the more experienced women are, the less competition with them occurs, while experience of men is not significant. For women, the result is slightly more difficult to appreciate: their unemployment rate is raised by experience accumulation of men (with a 9% semi-elasticity) and reduced by experience accumulation of women. One interpretation is that, as women's experience increases, the cohorts of new female entrants to the labor market are perceived as having higher labor market attachment and thus face a higher relative demand from employers. An alternative interpretation, less favourable to the econometric specification, is that the cycle indicator used (male log unemployment rate for the 45-54 year old group) is not capturing well the cyclical conditions for women's labor demand. As a check, we replaced this indicator by the female counterpart and obtained insignificant results on the coefficients  $f_i$  with or without breaking up experience by gender. Overall, the results of columns (I) and (II), consistently with Grant and Hamermesh (1982) cited above, suggest net-substitutability of young men with women, especially with low experience women, and no particular substitutability between young men and older men.

---

<sup>33</sup> It might however be the case that current participation is reduced when unemployment is higher, but this would affect only current participation, not past participation rates. This implies that experience is only marginally affected by current unemployment and can thus be considered as exogenous.

Although the institutional factors are already controlled for by country fixed effects and country specific trends, it is of interest to interact the coefficient of experience with institutional variables or with country fixed effects. Table 6.2 shows the results. For male workers, youth unemployment is reduced by an increase in average experience of the labour market participants in countries with a high level of employment protection (see column II), as the interaction coefficient reveals. Interacting with country effects (column I) also shows a significant coefficient of experience for Sweden, Germany, France and somehow the Netherlands and the US, but Finland has the wrong sign. The fit of the model for female workers is less good (column III), although the interaction term between experience and employment protection remains negative and significant (column IV). Other regressions, specifying interaction terms between experience and benefit duration or with the replacement rate of unemployment benefits, did not exhibit significant interactions and are not reported. This is probably due to the fact that young workers are not frequently covered by unemployment insurance because of seniority rules.

#### **6.4. Conclusions**

In the US literature the consensus is that the rise in female participation rates has affected adversely the wages of unskilled workers, and youths in particular. In Europe, where wages at the lower end of the distribution are less flexible no such effect can be detected but there is an effect on youth unemployment rates. We suggested a new way of measuring mean labour market experience in the labour market, by making use of an inventory method conventionally used to measure the capital stock. We found that a rise in the mean labour-market experience of women decreases the unemployment rates of both male and female young workers. To the extent that mean experience picks up the effects of female labour on youth unemployment, the negative impact is consistent with substitutability between youths and inexperienced women but complementarity between youths and experienced women.

## 7. What should policy do?

Our main objective in this section is to return to the main policy issue that we began with, the European Union's objectives of raising employment rates in the EU for women to at least 60 per cent by the year 2010 (the Lisbon target) and to achieving equality of employment opportunity and pay for women. Are these objectives realistic and how well have European Union countries been doing in their pursuit of those targets?

Legislation aiming to end discrimination with regard to employment opportunities and wages pre-existed the Lisbon agenda. The European literature evaluating the success of such legislation is sparse but there is a rich literature on the effects of civil rights legislation on wage differentials in the United States. This legislation came into force mainly in the late 1960s and early 1970s. The first substantial legislation referring to women (again, in the United States) is the Equal Pay Act of 1963, which requires equal pay for substantially equal work among men and women (but it does not include any provision for hiring, layoffs or promotions). The Title VII of the Civil Rights Act of 1964 prohibited discrimination both in employment opportunities and in wages (including hiring, layoffs or promotions). In the same year the Equal Employment Opportunity Commission (EEOC) was instituted to enforce Title VII. The 1972 Equal Employment Opportunity Act authorized the EEOC to initiate lawsuits on behalf of workers.<sup>34</sup> Most of the US literature, surveyed for example by Blau and Kahn (1992) and Altonji and Blank (1999), focuses on differentials by race and finds that civil rights policies, aided blacks and women over the 1970s and 1980s. In particular, Beller (1982) provides some indicative evidence that Title VII led to a reduction of the gender wage gap and of occupational segregation by sex in the US between 1967 and 1974.

In Europe, there is a basic legislative framework relating to equal pay and equal treatment in the workplace that is common across EU countries. The principle of equal pay for men and women is contained in Article 119 of the EEC Treaty. Since 1975 this basic principle has been developed through a series of directives. In particular, the Council Directive 76/207/EEC also adds the principle of equal treatment of men and women with regards to: access to employment, vocational training and promotions and working conditions

---

<sup>34</sup> The first female discrimination case brought before the Supreme Court was "Phillips v. Martin Marietta Corp" in 1971. Phillips, a white woman, was not hired because she had children at pre-school age, yet men in the same situation were hired (source EEOC, annual report 1972). The court ruled in her favour. Several similar cases were brought to the attention of the court by the mid 1980s. (Olivetti (2001))

(that is, Equal Employment Opportunities). Each country is expected to determine the procedure by which these rights may be asserted. In extreme cases, national matters may be referred to the Court of Justice of the European Community.<sup>35</sup>

Countries in the EU, however, may differ in terms of the degree of law enforcement and in terms of the timing of introduction of country-specific Equal Pay and Equal Employment Opportunity legislation. Although Equal Pay laws have been in place in most European countries since the 1970s, legislation on Equal Employment Opportunity was introduced as late as the mid 1980s in many countries including: Austria, Finland, France, Germany, Greece, Ireland, Italy, Spain and Sweden. This legislation was introduced in 1978 in Belgium, Denmark and Norway. The UK constitutes an exception. The Equal Pay Act was introduced in 1970 and the Sex Discrimination Act in 1975 in response to national demands.

As discussed by Rice (1999), European countries substantially differ in the degree of awareness of equality issues and in the level of litigations arising from equal opportunities legislation. In particular, the UK and Ireland rank high in this dimension, whereas France and Belgium rank very low. This may be due to historical differences in the reasons why equal opportunities legislation was introduced, in response to domestic pressure as in the UK, or because of pressure from the European Union?<sup>36</sup>

The explanations of the rise in female employment and the closing of the wage gap that we reviewed made no reference to legislation as a cause of these changes. Although there is no decisive evidence of such causal links in the literature, Equal Employment Opportunity Legislation has probably had an effect on women's choice of education and career. Women choosing to embark on long-term educational and career paths at least know that the courts can protect them from discrimination that does not allow them to reap the full rewards. The fact that discrimination is less in more skilled occupations may also be indirect evidence that legislation has helped, because it is easier to identify discrimination in professional occupations than in low-level routine jobs.

Legislation can also have a big impact on social norms, which as we have seen have been cited as reasons for the increased participation of women. The United Kingdom, where legislation was introduced early on, has had one of the fastest rises in female employment and wage rates. In contrast, two of the countries with large participation rates and most segregated

---

<sup>35</sup> For a summary of the timing of the introduction of Equal Pay and Equal Employment Opportunity legislation across countries see Table 5.11 in the OECD, *Employment Outlook* (1988).

<sup>36</sup> Blau and Kahn (2000, 2003) briefly describe the differences in Equal Pay and Equal Employment Opportunity Legislation in Europe and in the US.

labour markets (Sweden and Finland) were among the last European countries to introduce equal employment opportunity legislation (1984 and 1987 respectively).

Returning now more explicitly to the Lisbon targets, we take first a closer look at the feasibility of the overall employment target. Table 2.1 and figure 2.3 show that several countries have achieved the quantitative target but some, the Mediterranean countries in particular, are a long way behind. However, women's education levels have been improving and social norms have been changing in favour of more women entering the labour force. There is an independent momentum that pushes up the participation rate of women and even if there is no policy change, participation rates are likely to increase. We calculate roughly the likely rise in participation rates that might be expected by the year 2010 given current trends.

The age-employment profile of women is characterized by a similar hump shape in all countries in our sample (see figures 7.1 and 7.2 for Sweden and Italy). The employment rates for women in their early twenties tend to be the lowest, but they increase substantially as women enter their early thirties. In most countries, the highest employment rate is observed for women in their early forties. Conversely, as women are close to the retirement age, the employment rate drops significantly. Looking at figures 7.1 and 7.2 it is clear that the main difference between these two extreme examples is not in the shape of the employment-age profile, but rather in the level of the employment rate within each age group.

The age-employment profiles reported in figures 7.1 and 7.2 do not represent the average employment history of an average Swedish or Italian woman, but are based on the actual employment rates of women who entered the labour market at very different points in time. In other words, the employment rates refer to women of different cohorts. For example, women in the age group 55-60 were born in the early 1940s, while women in the age group 30-35 were born in the early 1970s. Women belonging to the first group had very low employment rates throughout their working life, since in their cohorts female participation was generally low. The typical labour market history of a woman that is in her prime-age in the early 2000s is rather different, and is much more labour intensive than that of the generation of her mother.

In the year 2010, the oldest cohort of women in the working age population will be that of women born in the late 1940s, who entered the labour force in the late 1960s or early 1970s, when participation rates were rising fast. In addition, the women in their 50s will be those women that in the early 2000s experienced the largest employment rates. One can argue that the latter women will have employment rates much larger than the employment rates of

women that are currently in their 50s. Such cohort effects can be substantial, and can have sizeable effects at the macro level.

Table 7.1 calculates the female employment rate of women in 2010, based on the cohort effects mentioned above. The estimates of the working age population by different age groups and gender are obtained from the ILO population estimates. The level of employment in 2010 for different age groups is obtained in the following way. For women in the age groups 45-64, we assume that total employment in 2010 will be the same as the current total employment of those identical (albeit younger) women. For women in the age groups 15-45, we assume that the employment rate in 2010 will be as high as it is today. The results show that these cohort effects are substantial. For the case of Italy, the employment rate in the year 2010 will be 49 per cent, up from a level of 41.3 per cent in 2001. For the Mediterranean countries as a whole, the exercise suggests that cohort effects can result in an increase in the female employment rate by some 6-7 percentage points. Figure 7.3 shows in detail the shift in the age-employment profile in Italy that such effects may induce.

Finally, in Table 7.1 we present also the estimate of the employment rate in the year 2010, assuming that cohorts 14-45 will increase their employment rate by two percentage points. The aggregate effects of such exercise are less dramatic, for two reasons. First, employment rates of the young workers are very low, and an increase of two percentage points has little macro impact. Second, population aging shifts most of the working age population to the older class, and further reduces the marginal effect of the increase in the employment rate of the younger workers.

So something like a third of the distance to the achievement of the Lisbon target will probably close even in the Mediterranean countries because of the internal dynamics of female employment rates now in place. These calculations, however, depend on women maintaining their high employment rates into middle age. This assumes that their accumulated pension rights do not give them incentives to retire early. Currently, the pensions system in some countries gives strong incentives for early retirement. In this event, the high employment rates computed will not be achieved. So succeeding to narrow the gap vis-à-vis the Lisbon targets requires also reform of the pensions system, at least in some countries, to remove strong incentives to retire early.<sup>37</sup> Even if the internal dynamics narrow the Lisbon gap, there is still long distance to be travelled before the target is reached. And what about the

---

<sup>37</sup> This is obviously even more relevant to the European Union objective of “active ageing” but it has implications for women’s employment too, given that older women will have to stay in employment if the female target is to be reached.

other objectives of the European employment strategy, equal employment opportunity and equal pay?

Women entered jobs in the United States in big numbers partly because of technological and sectoral shifts and partly because of improvements in working conditions at home. The main shift in the market place that helped women is the one from manufacturing and agriculture to services, and the main innovation at home is the availability of durables and the possibility of family planning. European women have access to the same technologies and some countries, the Nordic and the United Kingdom in particular, have for all practical purposes achieved what the United States has achieved. Our examination of the data has revealed some things that can be done to help the other countries converge with the Anglo-Saxon and Scandinavian countries.

Primary among these appears to be market deregulation, notably in the market for final output. If the service sector is to create the jobs that will attract the women, entrepreneurship in the service sector has to be encouraged through easy access to company creation, an operation free of intervention from the state, and easy recruitment of workers. Product market regulation takes a variety of different forms and formal econometric work is only just beginning. But indications are that heavily regulated markets have adverse effects for women's employment. We would include here high taxation for small enterprises, restrictions on the firing of employees which makes it very expensive for a small company to recruit workers, either full time or part-time, and high minimum wages and social security contributions.

The creation of part-time and flexible temporary jobs should also be encouraged by policy. There is a European Union directive for the creation of more part-time jobs, as part of the overall Employment Strategy, and this is especially important for women. Although the evidence that countries that create more part-time jobs also create more overall employment is not very strong, there is some evidence pointing in this direction, and it becomes stringer and more convincing when countries at the extremes of the distribution are compared. The Mediterranean countries have not created many part-time jobs, almost certainly because their labour markets are too rigid to enable firms to create them. If they liberalise their markets to make it easier for firms to create such jobs their aggregate employment rates will almost certainly rise.

A large number of the jobs that will be created in the service sector will be in small companies or will be for people working on their own account. Successful countries, like the United Kingdom, Denmark and the Netherlands, have low product-market regulation, give

incentives to new entrepreneurs and have opened large numbers of part-time jobs. Temporary jobs may be another source of employment for women, especially in countries where regular jobs are protected by strict legislation with vested interests that do not allow change. Although we found some evidence that women do not consider temporary jobs satisfactory, their existence may be a necessary second-best solution to a more serious problem, the existence of entrenched rigidities in the labour market. But we found no evidence against part-time jobs. The women who have them seem to have them because they want them. At least as a start of a labour market career for women with children, part-time jobs may offer a useful first step to other forms of employment.

If the liberalisation reforms that we are suggesting (and most of which have been mentioned in several European Commission documents since Lisbon) are pursued, the employment of single women will almost certainly rise to the desired targets everywhere. But married women need the extra provision for family care. The European Union wants governments to provide state-subsidised care for 90 per cent of children in school-going age. Although the evidence is that the countries that currently provide for subsidised family care for working wives have higher employment rates of married women, providing such care by the state can be expensive and we see no overwhelming economic reason for such massive support. The same objectives can be achieved if private initiative is encouraged to set up small family-care units run by a small number of individuals each, themselves most likely women with children working on their own account. Encouragement of this kind can take the form of tax incentives and long-term low-interest start-up loans or grants. Support can also take the form of vouchers given to parents of small children by the state, although again there is no reason why the vouchers should do more than offer a small subsidy. Unsubsidised private initiative appears to be the driving force behind family care in the United States and the United Kingdom, two high-employment countries. But it should be noted that the participation rates of women with two or more children in these two countries is not as high as it is in the Nordic countries, where state family provision is common.

What about employment equality? There is certainly evidence of some job segregation – women working in some sectors of the economy and men in others. Such segregation, however, is not necessarily a bad thing and might reflect either preferences or comparative advantage. We did not find strong evidence of discrimination in this respect. But women are also heavily represented in part-time and temporary jobs. Although as we pointed out we believe that the allocation to part-time jobs is voluntary, the over-representation in temporary jobs may not be. Legislation that is designed to ensure that men and women are given equal

opportunities in all types of jobs should be enforced with the same level of strictness everywhere.

The same can be said about wages. There is evidence that although the gender wage gap has been narrowing, there is still wage discrimination against women, both in temporary jobs and in regular full-time jobs. European countries do not actually suffer as much from this as the United States does, but the reasons are unrelated to discrimination. In the United States there is more inequality in general and a larger gender wage gap is one of its symptoms. In Europe stronger unions and other institutions compress the wage structure and so move women's pay closer to men's. Unions have another effect on female employment rates. There is some evidence that they affect them adversely, both absolutely and in relation to men. Generally, the effect of unions is one that works against larger participation rates but in favour of those who are already in the market.

At first sight the Mediterranean countries appear to be doing better in achieving wage equality between men and women. This is partly because of the higher overall wage compression effects of labour market institutions that we already discussed. But it is also due to another factor, the nature of female employment rates in southern Europe. The women participating in southern Europe are on average more skilled because not as many unskilled women as in northern Europe participate. The gender wage gap is smaller for higher skills and as their participation rates increase and more unskilled women come into the market, the average gap should increase.

What can governments do to reduce the difference between men's and women's rates of pay? There is already legislation in place across the European Union making it an offence to pay different wages for similar types of work. Enforcement is not uniform and increasing monitoring should contribute to the narrowing of the gap. The closing of the gap, however, will come only if market developments are favourable to it. In this connection, as women pursue more stable careers and advance further up the occupational ladder the gap should be narrowing. This, for example, has been a major force behind the narrowing of the gap in the United States. Policy here can help through education and training and more directly through the provision of family care units and other incentives that reduce the interruptions of women's careers. But when the incentives are given as longer mandatory parental leave, as is the case in most countries, the evidence we found is that the gap widens, probably because with the prospect of a larger interruption on full pay, employers offer lower wages to compensate. The cost of the non-interruption cannot be on the employer, otherwise it will have the perverse effect on the gender wage gap.

There are of course big advantages from the increased participation of women but some groups of the population will feel the pressure of increased competition for jobs. On average the capital stock should eventually adjust to compensate the median worker for any loss of earnings, but because women are not competing directly with the median some long-term negative consequences for some groups might remain. We identified young workers, especially men, as the ones most vulnerable to competition from newly arriving women. Governments need to provide for these workers, because the cause of the deterioration of their prospects is itself a government-initiated change. We found that in Europe, where youth wages are not as flexible as in the United States, the entry of more women raises the unemployment of young workers. This is a critical time in a worker's life and the loss of earnings, experience and the self-esteem that come with the first job can have long-term consequences for the young person's employment prospects and welfare.

For this reason welfare policies that deal with youth unemployment should be given priority by governments in countries that are facing fast rise in female employment rates. Tax incentives for firms to take on youths should accompany any similar measures designed to encourage the employment of women. But whereas women do not experience much long-term unemployment, youths are an especially vulnerable group. Measures such as the ones implemented in the Nordic countries and the UK that target unemployed youths and give them active support to speed up their transition to work are especially effective in offsetting the adverse effects of job competition. These measures, however, should be temporary: crowding-out effects should disappear progressively as women accumulate more experience.

## References

- Akerlof, G. (2000), "Economics and Identity", *Quarterly Journal of Economics* 115, pp. 715-753.
- Alba, A. (1998), "How Temporary is Temporary Employment in Spain?", *Journal of Labor Research* 19, 695-710.
- Altonji, J. and Blank, R. (1999), "Race and Gender in the Labor Market", in Ashenfelter, O. and Card, D. (eds.), *Handbook of Labor Economics*, Amsterdam: Elsevier, Vol. 3C, pp. 3143-3259.
- Becker G. (1964), *Human Capital*, The University of Chicago Press, Third Edition
- Ben Porath, Y. (1967), "The Production of Human Capital and the Life-Cycle of Earnings", *Journal of Political Economy*, pp 352-365, vol. 75(4)
- Berger, M.C. (1983), "Changes in Labor Force Composition and Male Earnings: A Production Approach", *The Journal of Human Resources*, XVII(2)
- Bertola, G. (1999), "Microeconomic Perspectives on Aggregate Labor Markets," in O.Ashenfelter and D.Card (eds.), *Handbook of Labor Economics* vol.3B, Amsterdam: North-Holland, 1999, pp.2985-3028.
- Bertola, G., F. D. Blau and L. Kahn (2002), "Labour Market Institutions and Demographic Employment Patterns." Discussion paper no. 3448, CEPR.
- Blanchard, O. and Wolfers, J. (2000), "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence", *Economic Journal*, 110, C1-C33
- Blank, R. (1989), "The Role of Part-Time Work in Women's Labor Market Choices over Time", *American Economic Review* 79, 295-299.
- Blank, R. (1990), "Are Part-Time Jobs Bad Jobs?", in Gary Burtless (ed.), *A Future of Lousy Jobs*, Washington D.C.: Brookings Institution, pp. 123-164.
- Blau F. and Kahn L. (2003) "International Differences in the Gender Pay Gap", *Journal of Labor Economics*, 21: 106-144
- Blau F. and Kahn L. (2000) "Gender Differences in Pay", *Journal of Economic Perspectives*, 14:75-99
- Blau F. and Kahn L. (1997) "Swimming Upstream: Trends in the Gender Wage Differential in the 1980" *Journal of Labor Economics*, 15: 1-42.

Blau, F. and Kahn, L. (1992), "Black-White Earnings Over the 1970s and 1980s: Gender Differences in Trends", *Review of Economics and Statistics*, Vol. 74, no. 2(1992): 276-286.

Blau, F. and L. M. Kahn. (1996) "Wage Structure and Gender Earning Differentials: an International Comparison" *Economica*: 63: 29-62.

Blau F. and Kahn L. (1992) "Race and Gender Pay Differentials," in D. Lewin, O. Mitchell, and P. Sherer, eds., *Research Frontiers in Industrial Relations and Human Resources* (Industrial Relations Research Association, Madison, WI).

Blinder, A and Weiss, Y. (1976), "Human Capital and Labor Supply: A Synthesis." *Journal of Political Economy*, Vol. 83, No. 3, (June 1976), pp. 449-472.

Booth, A., Francesconi, M. and Frank, J. "Temporary Jobs: Stepping Stones or Dead Ends?", *Economic Journal*, 112, F189-F213.

Card D., Kramarz, F. and Lemieux, T. (1999), "Changes in the Relative Structure of Wages and Employment: A Comparison of the United States, Canada and France", *Canadian Journal of Economics*, 32, 4, 843-877.

Caucutt E., Guner N. and Knowles J. (2002), "Why Do Women Wait? Matching, Wage Inequality, and the Incentives for Fertility Delay," *Review of Economic Dynamics*, 5-4, 815-855

Costa D. (2000) "From Mill Town to Board Room: The Rise of Women's Paid Labor", *Journal of Economic Perspectives*, 14: 101 - 122

Dolado, J.J., Felgueroso, F. and Jimeno, J.F. (2002), "Recent Trends in Occupational Segregation by Gender: A Look across the Atlantic", CEPR Discussion Paper No 3421.

Fernandez R., Fogli A., and Olivetti C. (2002) "Marrying Your Mom: Preference Transmission and Women's Labor and Education Choices", NBER Working Paper, # 9234

Freeman , R. B. (1979), "The Effect of Demographic Factors on Age-Earnings Profiles", *The Journal of Human Resources*, Vol. 14, No. 3. (Summer, 1979), pp. 289-318.

Galor O. and Weil D. N. (1996), "The Gender Gap, Fertility and Growth," *American Economic Review* 86: 374-387

Garibaldi and Mauro (2002) *Anatomy of Employment Growth*, *Economic Policy*, Vol. 34. 69-113

Goldin C. and Katz L. (2002) "The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions", *Journal of Political Economy*, 110: 730 -770

Goldin C. (1990) *Understanding the Gender Gap*, Oxford University Press, 1990.

Goldin and Polachek, *AER*, May 1987

Gottschalk, P. (1997), "Inequality, Income Growth, and Mobility: The Basic Facts", *Journal of Economic Perspectives*, Spring 1997, 11, pp21-40

Grant, J.H. and Hamermesh, D.S. (1982), "Labor Market Competition Among Youths, White Women and Others", *Review of Economics and Statistics*, 354-360

Greenwood J., A. Seshadri and M. Yorukoglu (2002), "Engines of Liberation," *Economie D'Avant Garde Research Reports*, University of Rochester

Grimshaw, D. and Rubery, J. (2002) "The adjusted gender pay gap: a critical appraisal of standard decomposition techniques." *Report by Group of Experts on Gender and Employment commissioned by the Equal Opportunity Unit in the European Commission.*

Güell, M. and Petrongolo, B. (2003), "How Binding Are Legal Limits? Transitions from Temporary to Permanent Work in Spain", IZA Bonn Discussion Paper No 782.

Hamermesh, D.S. (1986), "The Demand for Labor in the Long Run", in *Handbook of Labor Economics*, Vol I, edited by O. Ashenfelter and R. Layard, Elsevier Science Publisher BV

Hamermesh, D.S. and Grant, J. (1979), "Econometric Studies of Labor-Labor Substitution and their Implications for Policy", *The Journal of Human Resources*, XIV(4)

Harkness, S. (1996), "The Gender Earnings Gap: Evidence from the U.K.", *Fiscal Studies*, 17, 1-36.

Heckman, J. (1979), "Sample Selection Bias as a Specification Error", *Econometrica* 47, 153-161.

Johnson and Stafford (1998), "Alternative Approaches to Occupational Exclusion", in Inga Persson and Christina Yonung (eds.), *Women's Work and Wages*, London: Routledge, pp. 72-88.

Jones, L., R. Manuelli, and E. McGrattan (2002), "Why are married women working so much?" Federal Reserve Bank of Minneapolis Research Dept. Staff Report.

Juhn C. and Murphy K.M. (1997) "Wage Inequality and Family Labor Supply". *Journal of Labor Economics*, 15: 73-97

Juhn, C., K. M. Murphy and B. Pierce (1993), "Wage Inequality and the Rise in Returns to Skill", *Journal of Political Economy* Vol. 101, No. 3, pp. 410-442

Layard N., S. Nickell, R. Jackman (1991), *Unemployment. Macroeconomic Performance and the Labour Market*, Oxford University Press

Ljunqvist L. and Sargent, T.J. (1998), "The European Unemployment Dilemma", *Journal of Political Economy*, 106, 514-550.

Lopez-Garcia, P. (2003), "Labour Market Performance and Start-Up Costs: OECD Evidence." Working Paper No. 849, CESifo, Munich.

Mortensen, D.T. and Pissarides, C.A. (1999), "Job reallocation, Employment Fluctuations and Unemployment", *Handbook of Macroeconomics*

Mulligan, Casey and Yona Rubenstein (2002) "Specialization, Inequality, and the Labor Market for Married Women." Manuscript, University of Chicago

Neumark, David and Andrew Postlewaite (1998) "Relative Income Concerns and the Rise in Married Women's Employment", (with David Neumark), *Journal of Public Economics*, 70, pp. 157-183.

Nickell, S. (1997), "Unemployment and Labor Market Rigidities: Europe versus North America"(in Symposium: European Unemployment), *The Journal of Economic Perspectives*, Vol. 11, No. 3. (Summer, 1997), pp. 55-74.

Nickell, S. and Layard, R. (1999), "Labor Market Institutions and Economic Performance" in Orley Ashtenfelder and David Card, eds. *Handbook of Labor Economics*, Vol. 3A, (Amsterdam: North-Holland).

Nickell, S. and J. van Ours (2000), "The Netherlands and the United Kingdom: a European unemployment miracle?", *Economic Policy*, Vol. 15, No. 30, 135-180.

Nicoletti, G., R. C. G. Haffner, S. Nickell, S. Scarpetta and G. Zoega (2001), "European Integration, Liberalization, and Labor-Market Performance." In *Welfare and Employment in a United Europe*, edited by G. Bertola, T. Boeri and G. Nicoletti. Cambridge, Mass and London: MIT Press.

O'Neill J. and Polachek S. (1993) "Why the Gender Gap in Wages Narrowed in the 1980" *Journal of Labor Economics*, 11: 205-228.

OECD, (1988) "Women's Activity, Employment and Earnings: A Review of Recent Developments" in *Employment Outlook*, Paris.

OECD (1999), *Employment Outlook*, Paris.

OECD (2002), "Women at work: who are they and how are they faring?" in *Employment Outlook*, Paris.

Olivetti C. (2001), "Changes in Women's Hours of Market Work: The Effect of Changing Returns to Experience", PhD Dissertation, University of Pennsylvania

Pissarides, C. A. (2003), "Company Start-Up Costs and Employment." In *Knowledge, Information, and Expectations in Modern Macroeconomics: In Honor of Edmund S. Phelps*, edited by P. Aghion, R. Friedman, J. Stiglitz and M. Woodford. Princeton, NJ: Princeton University Press.

Rice P. (1999) "Gender Earnings Differentials: The European Experience," *Gender and Development WP series*, 8, World Bank

Ruhm C. (1998) "The Economic Consequences of Parental Leave Mandates: Lessons from Europe," *Quarterly Journal of Economics*, 285-317.

Saint-Paul, G. (2000), *The political economy of labour market institutions*, Oxford University Press

Smith J.P. and Ward M. P. (1985) "Time-Series Growth in the Female Labor Force." *Journal of Labor Economics*, 3: 59-90.

Topel, Robert H.(1994a), "Wage Inequality and Regional Labour Market Performance in the US", in Toshiaki Tachibanaki, ed., *Savings and Bequests*, Ann Arbors University Michigan Press

Topel, Robert H. (1994b), "Regional Labor Markets and the Determinants of Wage Inequality", *American Economic Review Papers and Proceedings*, 84, 17-22, May

Topel R.H. (1997), "Factors Proportions and Relative Wages: The Supply-Side Determinants of Wage Inequality", *Journal of Economic Perspectives*, Spring 1997, 11, pp55-74

Thomas, D. (1990), "Intra-household Resource Allocation: An Inferential Approach", *Journal of Human Resources* 25, 635-664.

Wasmer, E. (1997), "Changes in the Composition of the Labor Force. Implications for Wages and Unemployment", PhD dissertation, Economics Department, London School of Economics and Political Sciences

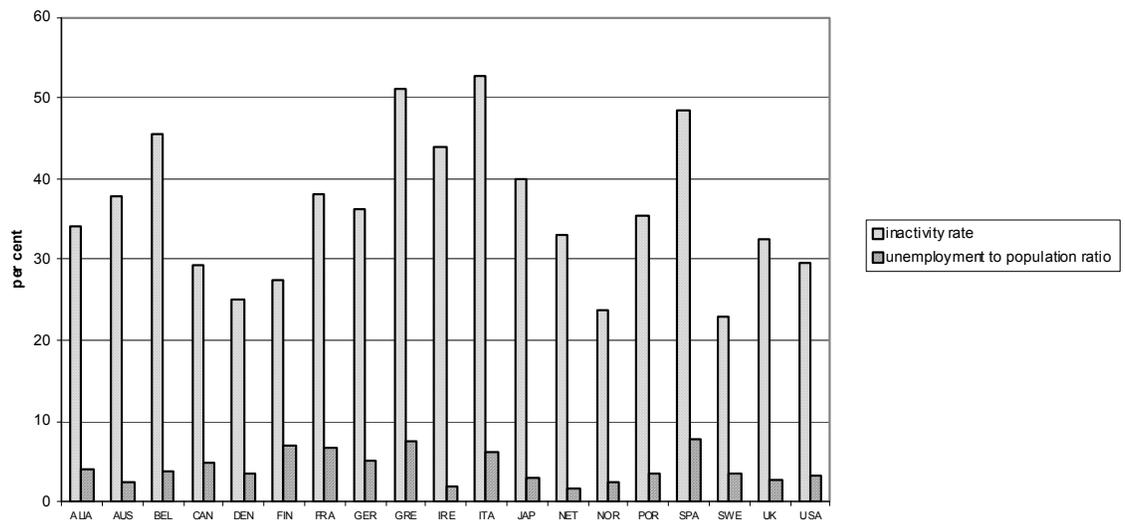
Wasmer, E. (2001a), "Measuring human capital in the labor market: the supply of experience in 8 OECD countries", *European Economic Review Papers and Proceedings*, Vol 45, n°4-6, pp 861-874

Wasmer, E. (2001b), "The Causes of the 'Youth Employment Problem': A (Labor) Supply Side View", in *The New Economics of Rising Inequalities*; eds. Cohen, Piketty and Saint-Paul, Oxford University Press and CEPR

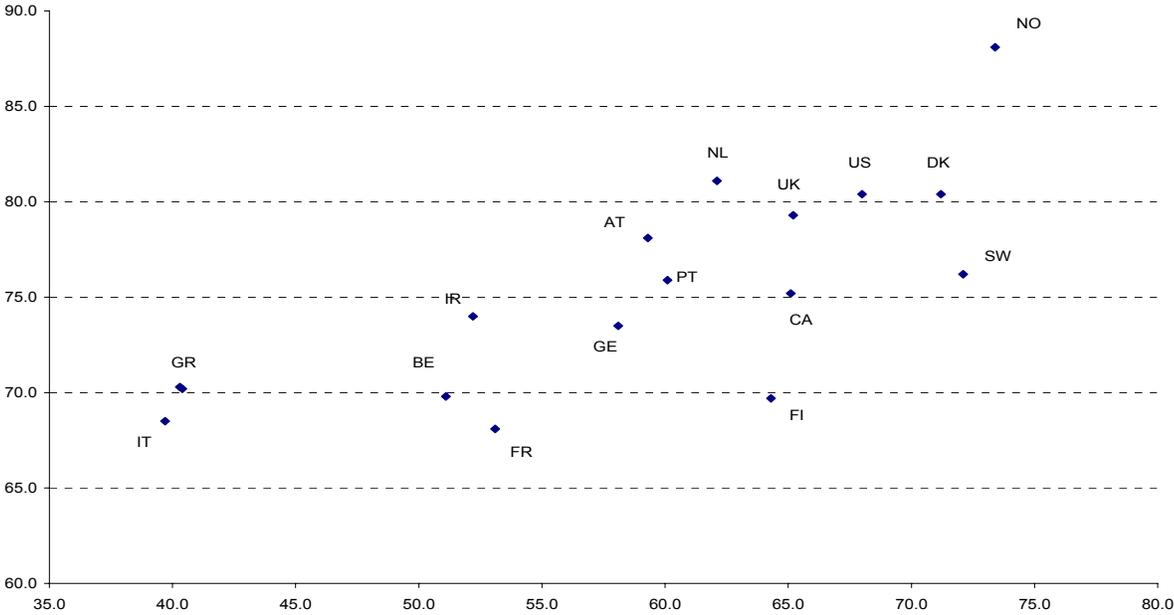
Wasmer, E. (2003), "Between-group competition in the labor market and the rising returns to skill. US and France 1964-2000", CEPR DP 2798 (2001), revised.

Watson, C. Maxwell, Bas B. Bakker, Jan Kees Martijn, and Ioannis Halikias (1999), "The Netherlands: Transforming a Market Economy," *IMF Occasional Paper No. 181*.

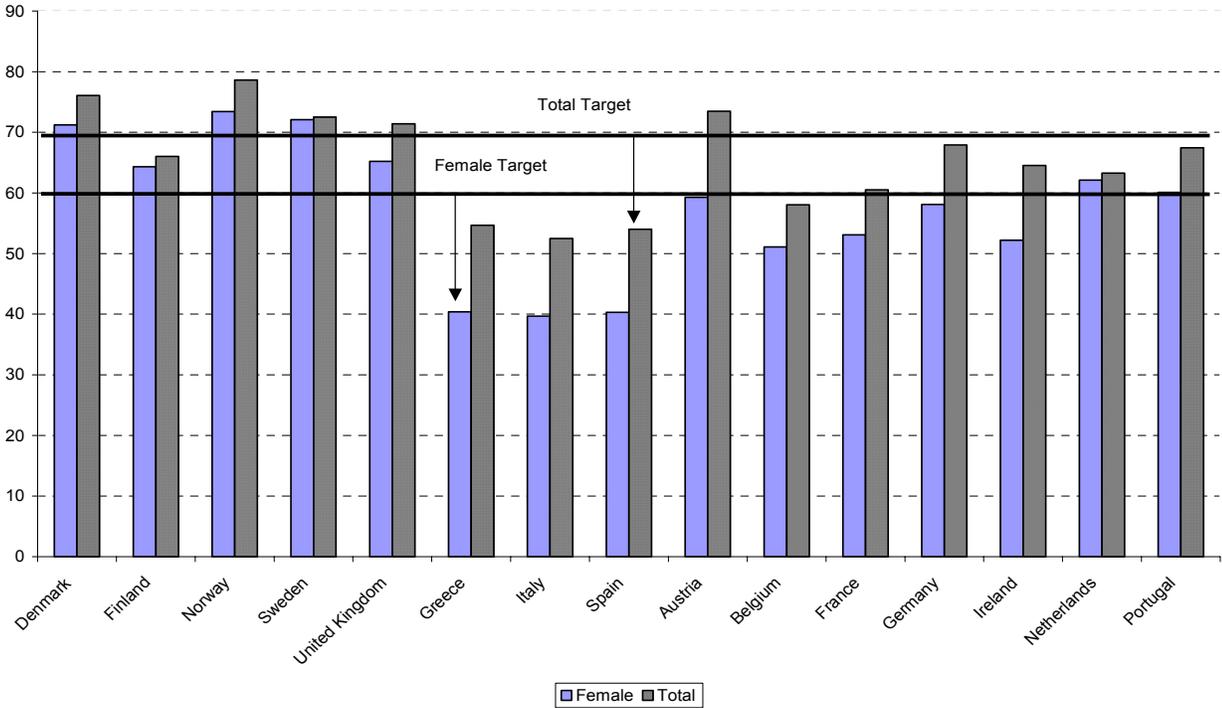
Figure 2.1  
Female inactivity and unemployment as per cent of population  
of working age, 2000



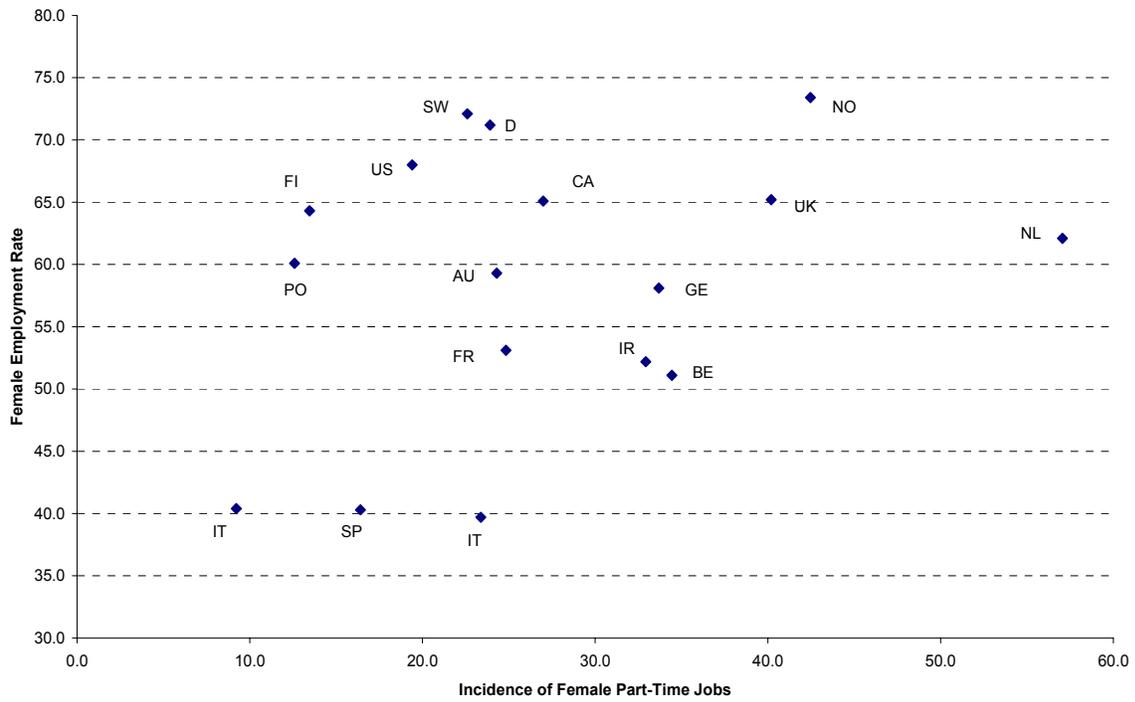
**Figure 2.2. Male and Female Employment Rate, 2000**



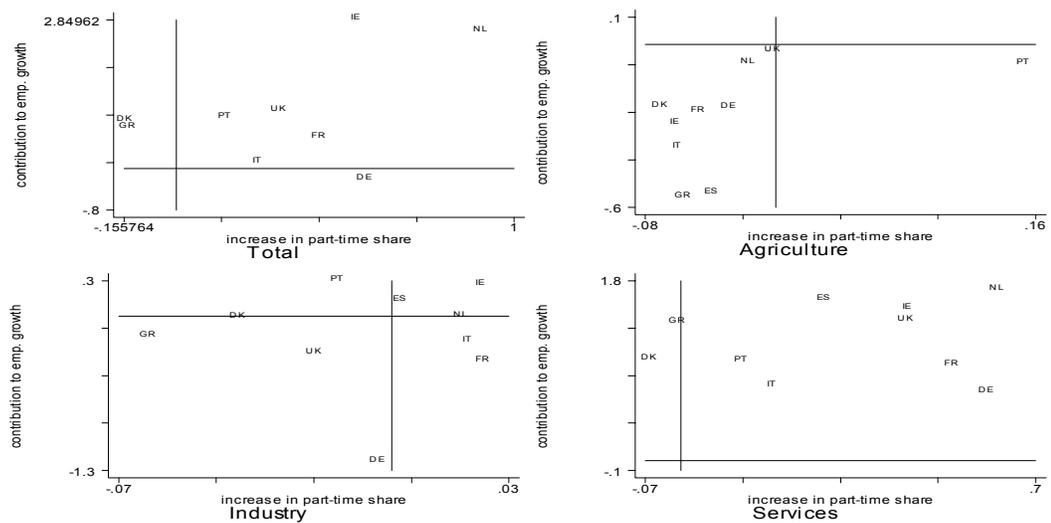
**Figure 2.3. Male and Female Distance From Lisbon Target, 2000**



**Figure 2.4. Female Employment Rate and Incidence of Female Part-Time Jobs**



**Figure 2.5. Share of Part-Time Jobs and Employment Growth**



**Figure 3.1**  
**Employment rate for women and average family day care spending per employed woman**

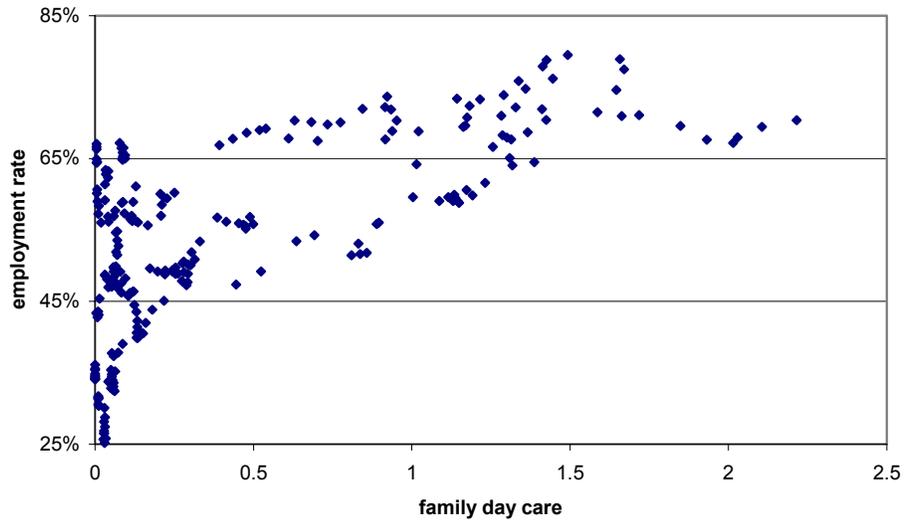
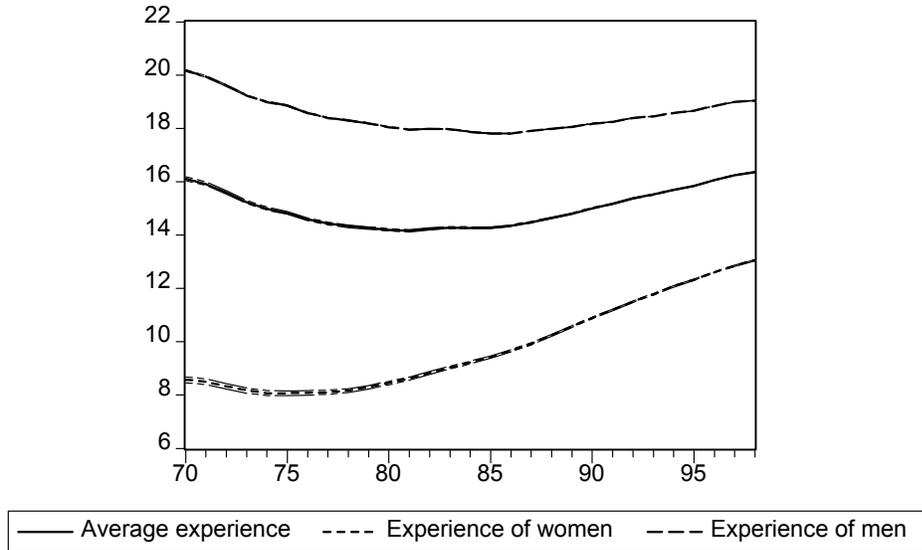


Figure 6.1

Experience of the labour force in the US and the UK.

USA : Experience of the labor force (in years) by gender and 95% confidence interval



United Kingdom : Experience of the labor force (in years) by gender and 95% confidence interval

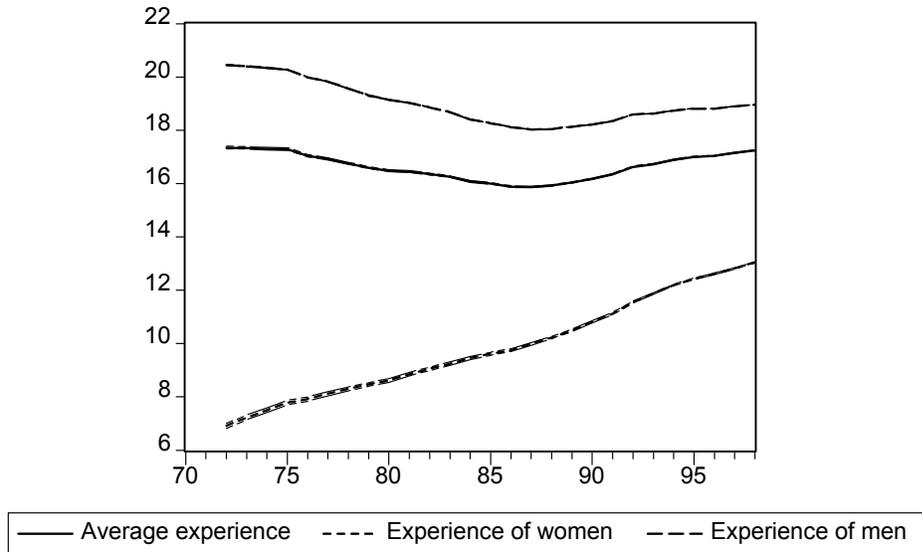
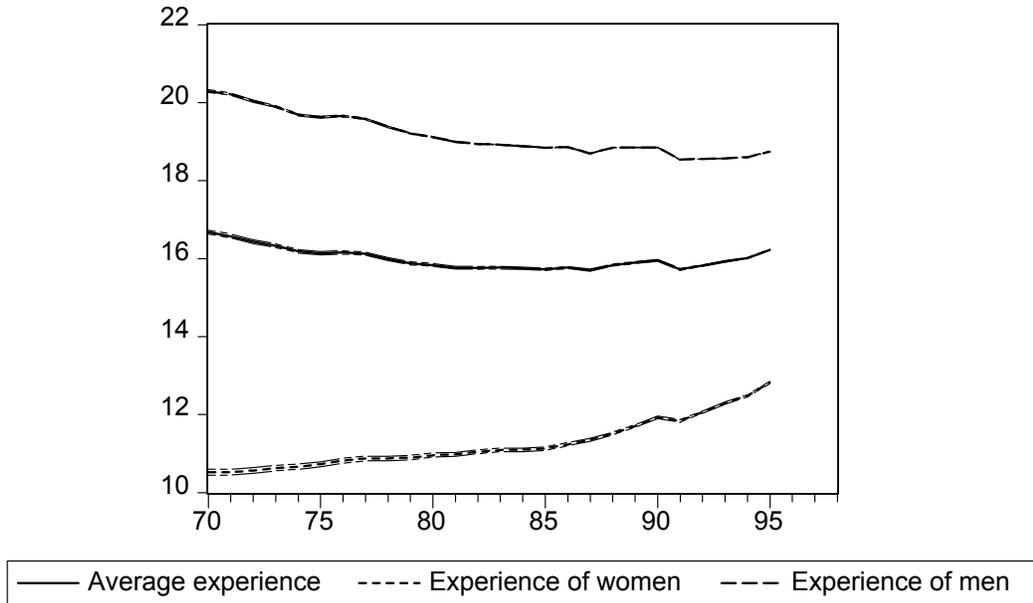


Figure 6.2

Experience of the labour force in (West) Germany and Spain.

Germany : Experience of the labor force (in years) by gender and 95% confidence interval



Spain : Experience of the labor force (in years) by gender and 95% confidence interval

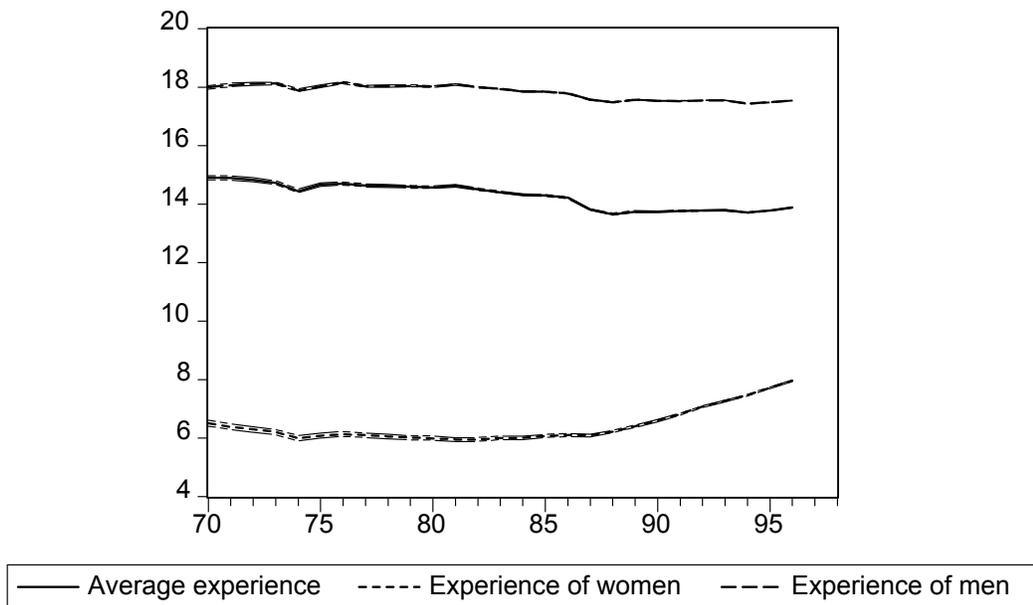
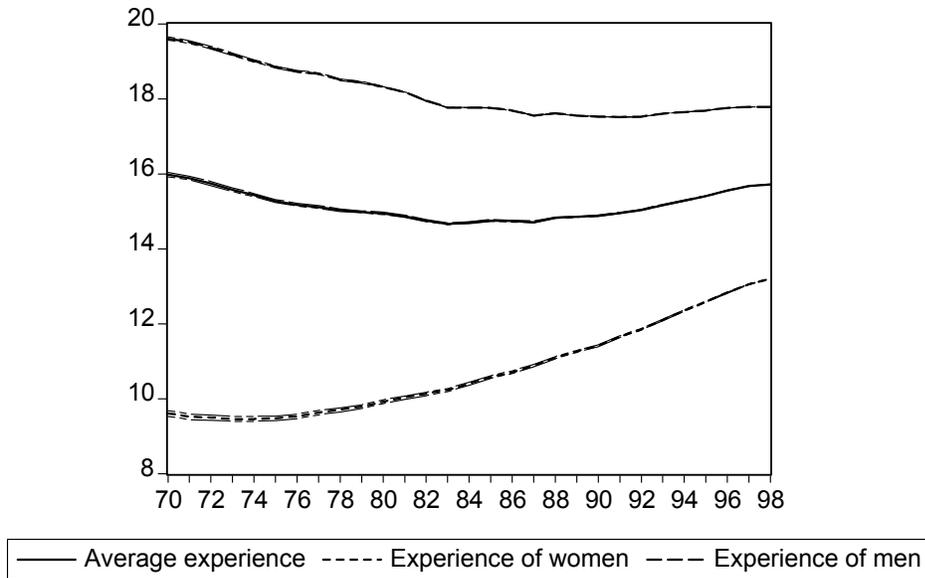


Figure 6.3.

Experience of the labour force in France and the Netherlands.

France : Experience of the labor force (in years) by gender and 95% confidence interval



Netherlands : Experience of the labor force (in years) by gender and 95% confidence interval

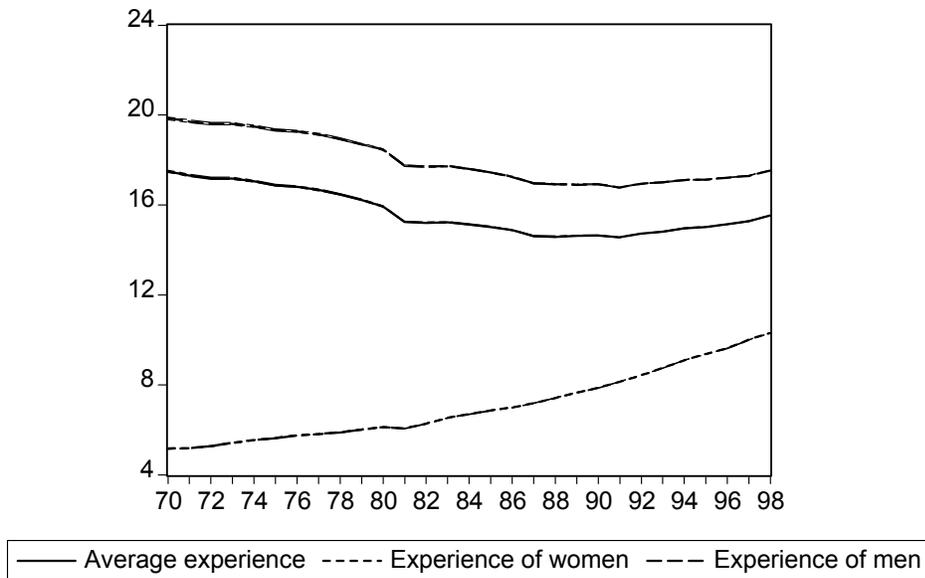
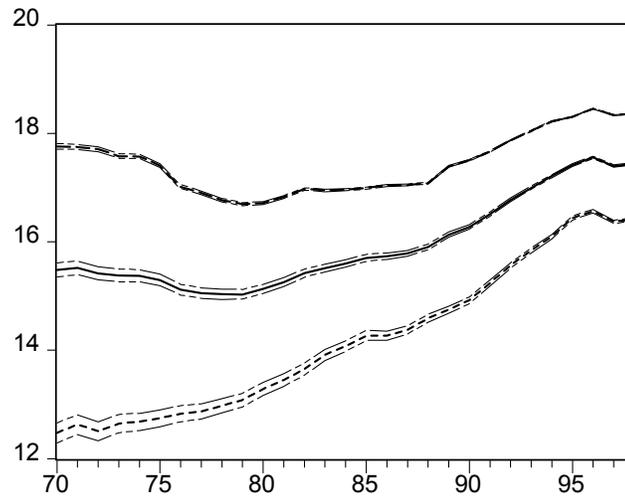


Figure 6.4.

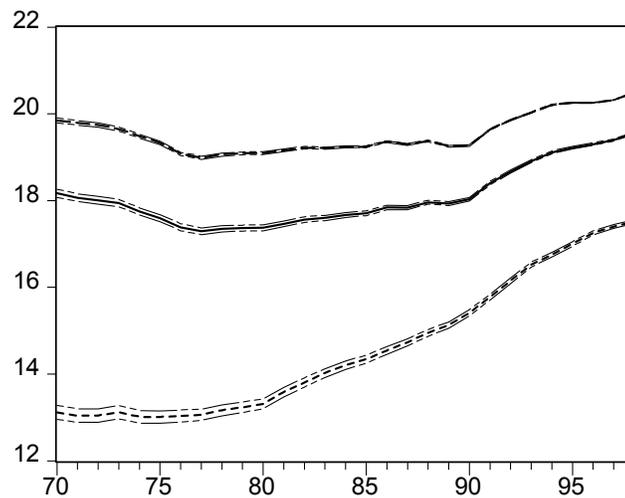
Experience of the labour force in Finland and Sweden.

Finland : Experience of the labor force (in years) by gender and 95% confidence interval



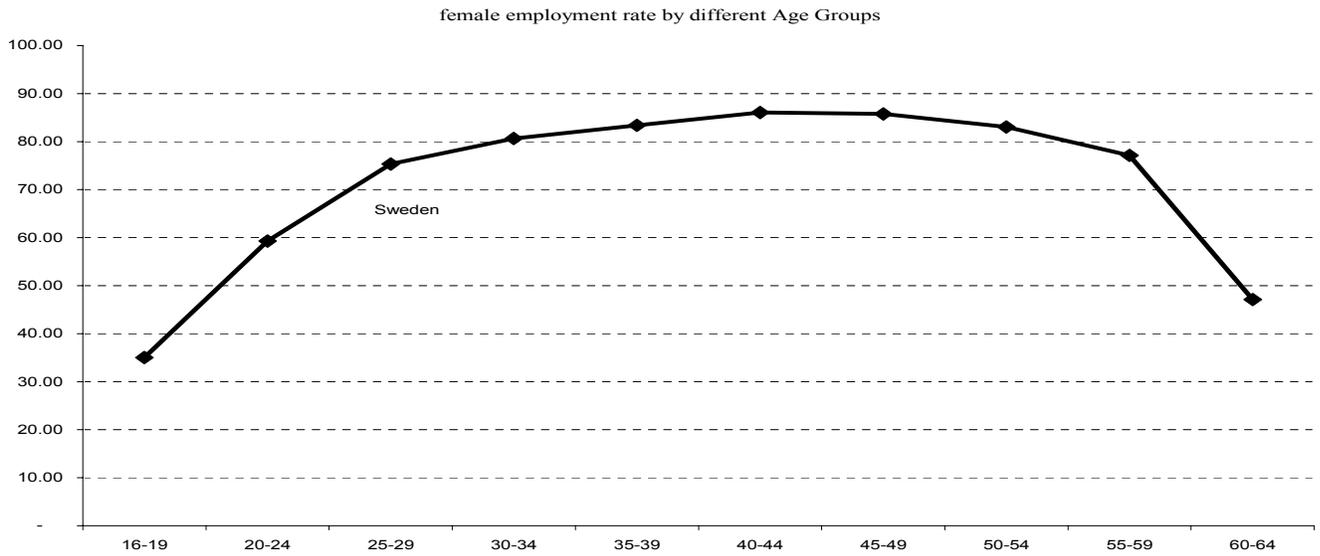
— Average experience    - - - - Experience of women    - . - . Experience of men

Sweden : Experience of the labor force (in years) by gender and 95% confidence interval

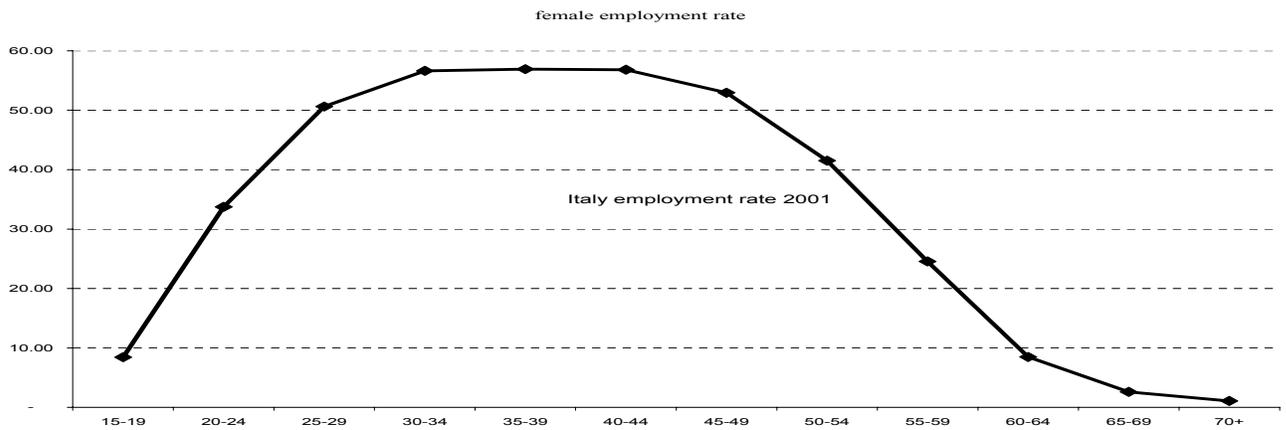


— Average experience    - - - - Experience of women    - . - . Experience of men

**Figure 7.1**  
**Female Employment Rates by Different Age Groups: Sweden 2001**



**Figure 7.2.**  
**Female Employment Rates by Different Age Groups: Italy 2001**



**Figure 7.3**  
**Age Employment Profile in 2001 and 2010 in Italy with Cohort Effects**

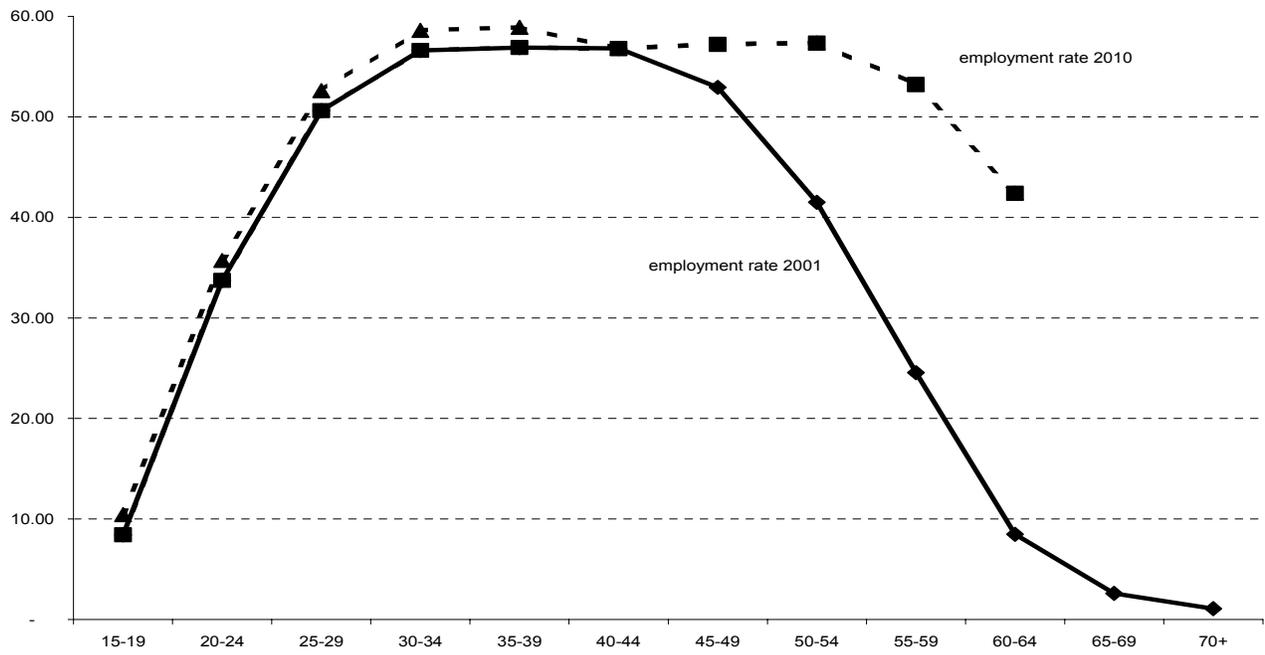


Table 2.1  
Female Employment Rates, 1960-2000  
Persons aged 15 to 64 years

		1960	1980	2000	<i>Men, 2000</i>	Lisbon distance (a)
Nordic		40.5	64.3	70.3	78.6	10.3
	Denmark	42.7	66.2	71.2	80.4	11.2
	Finland	54.9	65.0	64.3	69.7	4.3
	Norway	26.1	58.4	73.4	88.1	13.4
	Sweden	38.1	67.6	72.1	76.2	12.1
Anglo Saxon		43.1	54.5	65.2	79.3	5.2
	United Kingdom	43.1	54.5	65.2	79.3	5.2
Mediterranean			30.8	40.1	69.7	-19.9
	Greece		30.7	40.4	70.2	-19.6
	Italy	28.1	33.2	39.7	68.5	-20.3
	Spain	21.0	28.4	40.3	70.3	-19.7
Rest of Europe			41.0	56.6	74.4	-3.4
	Austria		52.4	59.3	78.1	-0.7
	Belgium	29.6	35.0	51.1	69.8	-8.9
	France	42.9	50.0	53.1	68.1	-6.9
	Germany	35.0	34.8	58.1	73.5	-1.9
	Ireland		32.2	52.2	74.0	-7.8
	Netherlands		35.7	62.1	81.1	2.1
	Portugal		47.1	60.1	75.9	0.1
North America			53.1	66.6	77.8	
	United States	39.5	53.9	68.0	80.4	
	Canada		52.3	65.1	75.2	
Average				58.6	75.2	

Notes

- (a) Lisbon distance is the percentage difference between the female employment rate in 2000 and 60 per cent  
(b) source: OECD 2000

Table 2.2. Women and Part-Time Work

	Incidence of part-time		Female share <sup>b</sup>		
	Women	Men	Full-time work	Part-time work	Total
Nordic	25.6	8.1	41.9	72.1	47.3
Denmark	23.9	8.6	42.4	71.2	46.9
Finland	13.5	6.6	45.7	64.9	47.6
Norway	42.5	9.7	35.7	79.1	46.7
Sweden	22.6	7.6	43.8	73.3	48.2
Anglo Saxon	40.2	7.6	34.6	81.3	44.9
United Kingdom	40.2	7.6	34.6	81.3	44.9
Mediterranean	16.3	3.6	34.2	72.4	37.4
Greece	9.2	2.9	36.4	66.5	38.0
Italy	23.4	5.5	32.3	71.3	37.0
Spain	16.4	2.5	33.8	79.5	37.3
Rest of Europe	34.5	6.6	34.7	81.0	43.2
Austria	24.3	2.3	37.9	89.2	44.1
Belgium	34.4	6.9	35.1	79.4	42.3
France	24.8	5.3	39.2	79.2	44.9
Germany	33.7	4.4	35.2	85.8	43.9
Ireland	32.9	7.5	33.6	75.6	41.2
Netherlands	57.1	13.0	27.1	76.8	42.9
Portugal	12.6	3.0	42.7	77.9	45.3
North America	23.2	8.6	42.1	70.0	46.4
United States (1999)	19.4	7.3	43.1	69.7	46.6
Canada	27.0	9.8	41.0	70.3	46.2
Average	29.2	6.9	39.2	80.4	45.8

Table 2.3. Women Employment Rate and Employment Gender Gap by Educational Attainment

		Persons aged 25 to 54 years					
		Total		Less than upper secondary		University/tertiary	
		Employment rate	Gender gap <sup>a</sup>	Employment rate	Gender gap <sup>a</sup>	Employment rate	Gender gap <sup>a</sup>
Nordic		80.3	6.5	66.7	11.6	87.1	5.4
	Denmark	80.5	7.7	68.2	9.2	88.7	4.5
	Finland	77.6	7.0	69.5	8.3	84.8	8.0
	Norway	81.5	7.1	63.8	14.6	87.3	4.9
	Sweden	81.7	4.1	65.4	14.5	87.8	4.3
Anglo-Saxon		73.1	14.4	49.7	17.3	86.4	8.0
	United Kingdom	73.1	14.4	49.7	17.3	86.4	8.0
Mediterranean		51.3	34.9	38.7	45.8	77.0	13.2
	Greece	52.6	35.9	42.1	45.5	78.4	12.4
	Italy	50.7	33.9	35.8	46.8	78.7	12.4
	Spain	50.6	34.8	38.1	45.1	74.0	14.8
Rest of Europe		68.5	19.6	54.2	26.6	85.6	8.8
	Austria	73.5	16.2	61.6	17.6	86.5	9.2
	Belgium	67.8	20.1	47.4	32.3	86.7	8.6
	France	69.6	17.7	56.5	23.6	83.1	8.5
	Germany	71.1	16.3	55.4	20.9	83.4	10.5
	Ireland	53.1	29.0	33.7	39.5	79.9	13.3
	Netherlands	70.9	21.4	53.4	32.8	86.6	8.8
	Portugal	73.9	16.4	71.5	19.7	93.0	2.6
North America		74.1	13.3	50.9	23.7	80.9	10.4
	United States (199)	74.1	14.8	49.7	26.5	81.9	11.6
	Canada	74.0	11.8	52.0	20.8	79.8	9.2
Average		72.2	20.2	56.0	28.3	88.5	9.7

Table 2.4. Female Share in the Population by Educational Attainment

Percentage of women in the total population in each category

	At least upper secondary education				Tertiary education			
	25-34	35-54	55-64	Total	25-34	35-54	55-64	Total
Nordic	50.2	49.5	47.8	49.4	55.8	52.4	45.2	52.5
Denmark	51.4	47.9	41.8	47.8	55.4	53.1	38.3	51.7
Finland	50.8	50.6	51.1	50.7	59.5	53.9	47.6	54.6
Norway	49.8	48.8	47.5	48.9	55.2	48.9	43.8	50.4
Sweden	48.9	50.9	50.7	50.2	53.1	53.8	51.3	53.2
Anglo-Saxon	49.2	47.6	34.5	46.5	46.8	47.0	36.2	45.6
United Kingdom	49.2	47.6	34.5	46.5	46.8	47.0	36.2	45.6
Mediterranean	52.4	48.5	40.9	49.3	55.2	45.3	34.5	47.9
Greece	52.2	49.3	42.6	49.5	55.2	42.9	30.3	46.0
Italy	52.0	48.3	42.2	49.1	55.3	46.9	39.9	48.7
Spain	52.9	47.9	38.0	49.2	55.0	46.2	33.4	48.9
Rest of Europe	51.2	49.1	45.0	49.3	52.4	46.7	39.6	47.5
Austria	47.9	45.3	42.7	45.7	50.3	39.0	25.1	40.2
Belgium	51.4	50.4	46.7	50.3	53.7	50.4	43.3	50.7
France	50.2	48.0	44.3	48.3	54.0	50.8	46.5	51.6
Germany	48.4	47.1	43.6	46.7	45.8	39.1	29.3	38.7
Ireland	54.1	53.7	52.8	53.7	52.0	48.1	44.9	49.4
Netherlands	50.8	46.8	40.3	47.1	50.5	41.8	37.5	43.9
Portugal	55.7	52.8	44.6	53.5	60.5	57.6	50.6	58.1
North America	51.1	50.9	50.8	51.0	52.5	49.5	46.0	49.9
United States (1 <sup>4</sup> )	51.5	51.2	52.1	51.4	53.4	50.0	45.0	50.3
Canada	50.6	50.7	49.6	50.5	51.6	49.1	47.1	49.6
Average	54.1	52.1	47.4	52.3	56.6	50.8	42.6	51.7

Table 2.5. Female Employment Rate By Presence of Children

Persons aged 25 to 54 years

	Total		No children		One child		Two or more children	
	Employment rate	Gender gap <sup>a</sup>	Employment rate	Gender gap <sup>a</sup>	Employment rate	Gender gap <sup>a</sup>	Employment rate	Gender gap <sup>a</sup>
Nordic	80.3	6.5	80.6	3.3	82.6	8.4	77.6	14.0
Denmark	80.5	7.7	78.5	7.7	88.1	3.5	77.2	12.9
Finland	77.6	7.0	79.2	0.1	78.5	11.8	73.5	19.7
Norway	81.5	7.1	82.9	5.9	83.3	..	78.0	..
Sweden	81.7	4.1	81.9	-0.4	80.6	9.8	81.8	9.4
Anglo-Saxon	73.1	14.4	79.9	5.4	72.9	17.1	62.3	28.2
United Kingdom	73.1	14.4	79.9	5.4	72.9	17.1	62.3	28.2
Mediterranean	51.3	34.9	53.5	27.8	51.2	42.0	45.3	48.0
Greece	52.6	35.9	53.1	31.1	53.9	40.3	50.3	45.4
Italy	50.7	33.9	52.8	26.2	52.1	40.9	42.4	49.9
Spain	50.6	34.8	54.6	26.0	47.6	44.7	43.3	48.6
Rest of Europe	68.5	19.6	72.3	12.5	70.2	22.3	60.6	31.6
Austria	73.5	16.2	76.0	10.5	75.6	18.5	65.7	29.0
Belgium	67.8	20.1	65.6	17.4	71.8	23.5	69.3	24.7
France	69.6	17.7	73.5	9.6	74.1	18.7	58.8	32.9
Germany	71.1	16.3	77.3	7.2	70.4	21.2	56.3	35.6
Ireland	53.1	29.0	65.8	14.1	51.0	33.2	40.8	43.2
Netherlands	70.9	21.4	75.3	15.6	69.9	24.3	63.3	30.8
Portugal	73.9	16.4	72.6	13.4	78.5	16.6	70.3	24.8
North America	74.1	13.3	77.5	6.6	75.3	16.1	66.5	26.3
United States (19 <sup>9</sup> )	74.1	14.8	78.6	7.2	75.6	17.4	64.7	29.0
Canada	74.0	11.8	76.5	6.0	74.9	14.9	68.2	23.6
Average	51.7	19.6	53.5	14.4	51.8	23.5	49.1	27.1

Table 2.6. Part-Time Work by Gender and Presence of Children

Percentage of persons working part time in total employment by category, workers aged 25 to 54 years

	Women				Men		
	No children	One child	Two or more children	Total	No children	With children	Total
<b>Nordic</b>	16.3	18.0	23.3	18.8	5.1	3.4	4.2
Denmark	18.5	13.3	16.2	16.6	..	..	3.7
Finland	7.5	8.6	13.6	9.2	..	..	3.7
Norway	24.7	33.5	41.1	31.8	5.0	..	5.0
Sweden	14.6	16.7	22.2	17.9	5.2	3.4	4.3
<b>Anglo-Saxon</b>	23.7	46.6	62.8	38.6	4.1	3.2	3.7
United Kingdom	23.7	46.6	62.8	38.6	4.1	3.2	3.7
<b>Mediterranean</b>	14.0	18.1	21.4	16.2	3.6	2.7	3.2
Greece	8.4	9.7	11.2	9.2	2.8	2.5	2.7
Italy	20.0	27.2	34.4	24.1	5.5	4.5	5.1
Spain	13.7	17.4	18.6	15.3	2.6	1.2	1.9
<b>Rest of Europe</b>	22.4	36.8	46.1	31.0	4.5	3.1	3.9
Austria	17.4	33.6	43.7	26.7	2.1	1.7	1.9
Belgium	29.2	34.7	46.1	34.7	6.5	5.1	5.9
France	20.0	23.7	31.8	23.7	5.2	3.6	4.4
Germany	24.0	45.3	60.2	35.2	4.2	2.3	3.4
Ireland	16.6	37.2	46.4	29.7	4.3	3.6	4.0
Netherlands	38.3	72.6	82.7	55.9	6.2	4.6	5.5
Portugal	11.5	10.5	11.3	11.2	2.7	1.3	2.0
<b>North America</b>	13.5	19.3	27.1	18.0	4.3	2.5	3.5
United States (1999)	10.1	15.8	23.6	14.6	3.5	1.8	2.7
Canada	17.0	22.9	30.7	21.4	5.2	3.2	4.3
<b>Average</b>	18.5	27.6	35.1	24.4	4.4	3.0	3.8

Table 2.7. Employment Rate and Employment Growth, 1980, 2000

	Employment Rate	Employment Rate	$\Delta(L/P)$ 3/	Empl. Growth 4/	$\Delta(WP)$ 5/	Lisbon Distance
	1980-82 1/	1998-20 2/				
Nordic	74.36	73.05				
Denmark	72.14	76.06	3.91	0.58	0.36	6.06
Finland	71.97	66.03	-5.94	0.04	0.34	-3.97
Norway	74.31	78.62	4.31	0.88	0.57	8.62
Sweden	79.02	71.49	-7.53	-0.10	0.35	1.49
Anglo Saxon	67.65	71.40				
United Kingdom	67.65	71.40	3.75	0.52	0.37	1.40
Mediterranean	55.03	53.72				
Greece	55.31	54.66	-0.65	0.80	0.76	-15.34
Italy	56.72	52.48	-4.24	0.00	0.39	-17.52
Spain	53.05	54.00	0.95	0.91	0.76	-16.00
Rest of Europe	62.02	65.03				
Austria	75.79	73.48	-2.31	0.43	0.62	3.48
Belgium	56.90	58.06	1.16	0.25	0.19	-11.94
France	63.13	60.51	-2.61	0.39	0.60	-9.49
Germany	64.87	67.92	3.05	0.30	0.47	-2.08
Ireland	56.68	64.54	7.86	1.92	1.20	-5.46
Netherlands	53.96	63.26	9.31	1.47	0.71	-6.74
Portugal	62.81	67.45	4.64	0.87	0.48	-2.55
North America	66.26	72.75				
United States (1999)	65.51	74.40	8.89	1.54	0.92	
Canada	67.01	71.11	4.10	1.49	1.15	
Average	64.5	66.2				

1/Average 1980-20

2/ Average 1998-20

3/ Change in employment-working age population ratio (in percentage points). Average 1998-00 minus average 1980-82.

4/ Average employment growth (in percent).

5/ Average growth of working-age population.

Table 2.8. Contribution to average employment growth between 1983 and 2000 by Age, Gender and Part-time/Full-time

	Male			Female			Total \1
	15-24 \2	25-49 \2	50-64 \2	15-24 \2	25-49 \2	50-64 \2	
Belgium							
part-time	0.03	0.14	0.03	0.03	0.52	0.07	0.82
full-time	-0.18	-0.12	-0.28	-0.16	0.11	-0.02	-0.65
all contracts	-0.15	0.02	-0.25	-0.13	0.63	0.05	0.17
Germany							
part-time	0.03	0.07	0.04	0.03	0.30	0.07	0.53
full-time	-0.26	0.00	-0.21	-0.27	0.00	-0.01	-0.75
all contracts	-0.23	0.07	-0.18	-0.24	0.29	0.06	-0.22
Denmark							
part-time	0.07	0.05	0.01	0.14	-0.21	-0.01	0.05
full-time	-0.09	0.17	0.20	-0.11	0.43	0.27	0.88
all contracts	-0.02	0.22	0.21	0.03	0.22	0.26	0.93
France							
part-time	0.02	0.07	0.02	0.03	0.33	0.06	0.53
full-time	-0.17	0.18	-0.02	-0.16	0.20	0.05	0.09
all contracts	-0.15	0.25	0.00	-0.13	0.53	0.12	0.62
Greece							
part-time	0.00	-0.01	-0.01	-0.01	-0.13	-0.01	-0.18
full-time	-0.05	0.23	0.03	-0.03	0.56	0.10	0.84
all contracts	-0.05	0.22	0.02	-0.04	0.43	0.09	0.65
Ireland							
part-time	0.07	0.07	0.05	0.17	0.46	0.15	0.96
full-time	0.01	0.75	0.15	-0.11	0.98	0.10	1.88
all contracts	0.08	0.82	0.20	0.06	1.44	0.25	2.84
Italy							
part-time	0.00	0.06	0.00	0.01	0.18	0.01	0.26
full-time	-0.19	0.08	-0.14	-0.14	0.21	0.05	-0.13
all contracts	-0.19	0.14	-0.14	-0.13	0.39	0.06	0.12
Netherlands							
part-time	0.24	0.12	0.11	0.25	0.97	0.32	1.99
full-time	-0.18	0.43	0.28	-0.20	0.27	0.06	0.66
all contracts	0.06	0.55	0.39	0.05	1.24	0.38	2.66
Portugal							
part-time	0.00	0.01	0.03	-0.01	0.11	0.12	0.26
full-time	-0.16	0.37	-0.08	-0.07	0.58	0.07	0.71
all contracts	-0.16	0.38	-0.05	-0.08	0.69	0.19	0.98
United Kingdom							
part-time	0.09	0.06	0.07	0.10	0.21	0.08	0.61
full-time	-0.20	0.38	-0.17	-0.18	0.46	0.10	0.39
all contracts	-0.11	0.44	-0.11	-0.08	0.67	0.18	0.99

\1 Refers to total average employment growth by type of contract

\2 Refers to different age groups

Source: Garibaldi-Mauro, 2002

Table 3.1  
Institutional influences on female employment rates  
(common unobservable shocks, five-year averages, 1970-1995)

Variable	Estimates	Fixed effects, %		Common trend	Institutional influence	
Const	0.48 (21.26)	Austria	47.4	1970/74 to 1990/95  +10.3%		
1975/79	0.02 (1.82)	Belgium	39.5			
1980/84	0.04 (3.59)	Denmark	58.3			
1985/89	0.08 (6.20)	Finland	61.7			
1990/95	0.10 (7.61)	France	45.5			
Employment protection	0.025 (0.07)	Germany	46.5		Union density	
Union Density	-1.07 (1.35)	Ireland	28.3		Sample max	-4.7%
Union coordination	0.11 (0.52)	Italy	34.2		Sample min	+3.5%
Replacement Ratio	0.17 (0.28)	Netherlands	30.8		Start-up costs	
Benefit Duration	-0.30 (0.81)	Norway	47.2		Sample max	-12.8%
Tax Wedge	1.06 (0.80)	Portugal	45.4		Sample min	+6.8%
Start-up Costs	-0.47 (2.43)	Spain	24.9			
Fixed Effects	Yes	Sweden	63.8			
Observations	89	UK	50.0			
R2	0.95	Canada	46.7			
		US	48.5			

Notes: Estimated by non-linear least squares. The variables are all five-year averages, except for the last period, which has six years. The error terms may suffer from groupwise heteroskedasticity which might influence the efficiency of the estimates. All variables are entered as deviations from sample means. Additional countries included but not reported: Australia, Japan, New Zealand, Switzerland. The base values are the estimated constant plus the fixed effects. The common trend is the estimate of the time dummy for 1990/05, i.e., the estimated rise in employment for a country with all institutional variables at sample means. The effect of the two significant variables is reported for the country with the highest and lowest value in the sample in 1990/05.

Table 3.2  
Institutional influences on female employment rates  
(observable country-specific shocks, five-year averages, 1970-1995)

Variable	Estimates	Rise due to country-specific shocks, %		Institutional influence, %	
Const	0.28 (32.42)	Austria	5.9		
Labour Demand	0.05 (0.07)	Belgium	7.5	Union density	
Interest Rate	1.10 (5.79)	Denmark	.04	Sample Max	-8.4
TFP Gap	1.02 (0.42)	Finland	4.0	Sample min	6.4
Terms of Trade	-2.13 (4.56)	France	9.2		
Employment protection	0.07 (0.21)	Germany	4.0	Replacement ratio	
Union Density	-2.65 (2.70)	Ireland	9.3	Sample Max	-3.5
Union coordination	0.01 (0.02)	Italy	10.6	Sample min	2.5
Replacement Ratio	-1.66 (2.22)	Netherlands	6.2		
Benefit Duration	-0.67 (2.04)	Norway	10.3	Benefit duration	
Tax Wedge	4.61 (3.52)	Portugal	8.2	Sample Max	-2.5
Start-up Costs	-0.69 (3.41)	Spain	8.0	Sample min	2.1
Fixed Effects	Yes	Sweden	5.7		
Observations	89	UK	4.8	Start-up costs	
R2	0.94	Canada	5.9	Sample Max	-13.6
		US	4.0	Sample min	7.3

Notes: Estimation by non-linear least squares. The variables are all five-year averages, except for the last period, which has six years. The error terms may suffer from groupwise heteroskedasticity which might influence the efficiency of the estimates. All variables are entered as deviations from sample means. Additional countries included but not reported: Australia, Japan, New Zealand, Switzerland. The effect of the institutions is reported for the country with the highest and lowest value in the sample in 1990/05.

Table 4.1  
Summary statistics on male and female employment

	UK	SWE	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRE
<i>Males</i>															
Part-time	3.3	3.6	3.8	2.8	1.7	4.8	2.6	1.7	2.1	7.6	4.3	4.5	2.6	1.4	6.0
Involuntary part-time   P-T	24.6	n.a.	29.1	20.5	9.9	13.5	41.9	31.6	18.5	66.0	48.5	26.9	44.6	35.5	43.8
On temporary job	7.4	6.0	12.9	12.2	8.3	8.2	7.8	4.6	7.9	13.5	8.7	12.0	34.9	19.6	22.0
Hourly earnings															
Full-time/Part-time	113.8	n.a.	105.9	128.3	94.2	115.5	82.8	97.2	69.1	81.8	66.3	64.1	101.5	48.7	61.3
Permanent/Temporary	136.4	n.a.	139.7	127.6	125.7	158.9	129.3	141.5	119.4	15.3	147.7	134.3	177.3	143.9	146.7
<i>Females</i>															
Part-time	30.2	17.8	9.5	17.0	22.8	45.2	26.9	21.2	24.6	29.2	21.6	21.8	15.4	8.7	15.9
Involuntary part-time   P-T	7.3	n.a.	32.5	15.6	5.7	7.8	19.3	8.2	9.8	18.4	41.1	21.1	36.0	37.5	43.6
On temporary job	9.6	7.5	18.2	11.9	9.8	14.3	13.7	7.4	10.3	22.7	10.5	14.6	40.7	22.3	23.9
Hourly earnings															
Full-time/Part-time	130.0	n.a.	105.1	103.2	91.6	105.4	98.1	105.3	91.3	90.07	85.1	67.8	115.8	63.6	56.7
Permanent/Temporary	120.4	n.a.	124.1	118.7	121.0	143.0	115.5	149.7	12.3	139.2	151.5	134.3	168.3	155.8	143.7

Notes. All figures reported are in %. Definition of variables: *part-time*: normally working less than 30 hours in their main job; *involuntary part-time*: whose main reason for working part-time is that they wanted but they could not find a full-time job; *on temporary contract*: holding a fixed-term contract or no contract at all; *hourly earnings*: monthly wage or salary earnings divided by the number of monthly hours worked. The information on reason for part-time work and wages is not available for Sweden. Source: ECHPS.

Table 4.2  
Female versus male employment characteristics: Probit estimates

	UK	SWE	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRE
<i>Part-time</i>															
Single F, no kids	.053**	.075**	.019	.038**	.001	.039**	.112*	.008	.057**	.084**	.084**	.094**	.050**	.033**	.015
Married F, no kids	.118**	.116**	.030*	.089**	.064**	.178**	.154**	.048**	.110**	.144**	.116**	.125**	.061**	.030**	.034**
Single F, with kids	.128**	.105**	.011	.048**	.042**	.175**	.142**	.027*	.087**	.113**	.109**	.094**	.052**	.027**	.028**
Married F, with kids	.189**	.138**	.036**	.096**	.104**	.301**	.190**	.077**	.141**	.187**	.140**	.138**	.062**	.031**	.040**
Married M, no kids	-.022**	-.036**	-.021**	-.021*	-.025**	-.030**	-.042**	-.039**	.002	-.047**	-.028**	-.019**	-.025**	-.013**	-.022**
Single M, with kids	.002	-.034**	-.022**	-.007	.019**	.048**	.013	-.009	-.027**	-.010	.019**	.011	.003	-.001	.004
Married M, with kids	-.019**	-.041**	-.027**	-.019**	-.027**	-.024**	-.035**	-.038**	.001	-.035**	-.025**	-.012*	-.025**	-.016**	-.018**
No. observations	35807	8125	8608	12709	12592	23463	11677	7732	14830	16134	26698	29934	27024	24536	15143
<i>Involuntary part-time / part-time</i>															
Single F, no kids	.073**	-	-.202	.060	.064	.029	-.029	-	.035	-.098	.415**	.139**	.121*	.161	.141
Married F, no kids	.009	-	-.107	-.046	.004	-.054**	-.205*	-	-.029	-.231**	.291**	-.005	-.067	.113	-.030
Single F, with kids	.011	-	-.100	.010	-.040	-.006	-.114	-	-.040	-.193**	.372**	.063	.071	.140	-.054
Married F, with kids	-.032	-	-.144	-.117	-.046	-.089**	-.249**	-	-.081	-.318**	.143	-.040	-.117	.106	-.177
Married M, no kids	-.017	-	.276**	-.065	-.064	-.053**	.058	-	-.093*	.115*	-.360**	.018	-.061	.180	.044
Single M, with kids	.011	-	.074	.139**	-.125*	-.035	-.052	-	.090	.024	.078*	-.019	.042	-.053	-.334**
Married M, with kids	.026	-	.219**	-.062	-.040	-.056**	.068	-	-.125**	.088	-.156**	-.021	-.023	.233**	-.116
No. observations	2451	-	544	1161	1477	4846	1377	208	1493	2017	2372	1979	1740	948	842
<i>On fixed-term contract</i>															
Single F, no kids	-.007	.036**	.043	.032	-.000	.006	.032	.004	.003	.053**	.010	.042**	.038*	.038**	.017
Married F, no kids	-.031**	.007	.006	.006	-.013	-.023**	.010	.004	-.020	.041*	-.014	.009	-.20	.003	-.010
Single F, with kids	.003	.031*	.022	.017	.013	.018	.009	.016	.011	.050**	.011	.039**	.028	.049**	.046
Married F, with kids	-.014	.014	.010	-.007	-.012	-.003	-.001	.013	-.008	.038*	-.011	.008	-.040	-.010	-.027
Married M, no kids	-.017**	-.036**	-.039**	-.030**	-.001	-.046**	-.040**	-.021**	-.003	-.046**	-.048**	-.031**	-.133**	-.075**	-.068**
Single M, with kids	.006	-.014**	.007	-.007	.000	-.026**	-.050**	-.010	.019**	-.009	.002	.022**	.031**	.030**	.004
Married M, with kids	-.022**	-.041**	-.024*	-.035**	-.011	-.049**	-.043**	-.022**	-.007	-.053**	-.044**	-.037**	-.125**	-.074**	-.061
No. observations	26979	8231	8496	9268	7891	19496	8988	6675	14164	11959	22478	24251	21705	20803	12145

Notes. The figures reported are marginal effects obtained from probit regressions. Significance at 5% and 10% is denoted by \*\* and \* respectively. The estimated equations also include: 4 age dummies (interacted with gender), 2 education dummies (interacted with gender), 9 occupation dummies, 2 sector dummies, 3 dummies for unemployment spells (if any) before the current job (unemployed for less than 6 months, for 6-12 months, or for more than 12 months), year dummies. Exception: for Sweden: no occupation or previous unemployment dummies are included, as the relevant information is not available in the data source. Source: ECHPS.

Table 4.3:  
Job satisfaction on part-time and temporary contracts

	UK	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRE
<i>(1) Overall job satisfaction</i>														
Part-time	.184**	-.170*	.216*	-.092	-.061	-.143	.439	-.056	-.122*	.022	-.111**	-.163**	-.161*	-.205**
Part-time * female	.01	.028	-.113	.107	.117**	.207**	-.432	.148*	.044	-.054	.006	.059	-.231**	.139**
On temporary contract	-.200**	-.012	-.140**	-.215**	-.119**	-.095*	-.077	-.216**	-.293**	-.097**	-.447**	-.254**	-.349**	-.716**
On temporary contract * female	.023	.082	.193**	.07	.048	.114	.01	.009	.134**	.009	.077*	.018	.004	.04
No observations	23969	7819	9089	7561	19491	8727	1725	14093	10013	20780	23785	21206	20621	12030
<i>(2) Satisfaction with earnings</i>														
Part-time	-.038	-.140	.233**	-.060	-.062	.019	-.559	.024	-.007	-.131**	-.354**	-.367**	-.415**	-.382**
Part-time * female	.219**	-.029	-.006	.054	.089*	.035	.573	.013	-.060	.093*	.147**	.248**	.000	.132*
On temporary contract	-.299**	-.171**	-.232**	-.205**	-.200**	-.147**	-.009	-.106**	-.146**	.015	-.331**	-.210**	-.119**	-.448**
On temporary contract * female	-.006	.061	.200**	.180**	.079	.091	.015	-.067	.096*	-.154**	.083**	.060*	-.046	.036
No observations	16251	7818	9172	7559	19448	8785	1725	14077	10007	20796	23781	21248	20614	12037
<i>(3) Satisfaction with type of job</i>														
Part-time	.019	-.125	.271**	-.070	-.133**	-.011	.064	-.006	-.097	.037	-.006	-.049	.065	.077
Part-time * female	.005	-.054	-.184	.004	.052	.067	.004	.052	-.015	-.031	.017	-.039	-.343**	.040
On temporary contract	-.171**	-.033	-.123**	-.112**	-.122**	-.035	.017	-.156**	-.314**	.000	-.348**	-.191**	-.245**	-.589**
On temporary contract * female	.022	.015	.169**	.061	.009	.121	.184	-.024	.091	.032	.076*	-.064**	.006	.149**
No observations	26309	7812	9171	7548	19486	8774	1721	14075	9992	20800	23777	21252	20617	12037

Notes. The figures reported are the coefficients obtained from ordered probit regressions. Significance at 5% and 10% is denoted by \*\* and \* respectively. The estimated equations also include: a gender dummy, 4 age dummies, 2 education dummies, one dummy for married (interacted with gender), the number of dependent children (interacted with gender), 9 occupation dummies, 2 industry dummies and year dummies. Sweden is excluded from the sample as no job satisfaction indexes are available. Source: ECHPS.

Table 4.3 (continued):  
Job satisfaction on part-time and temporary contracts

	UK	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRE
<i>(4) Satisfaction with working hours</i>														
Part-time	.063	-.291**	-.02	.023	.074	.097	-.144	.406**	-.099	.153**	.178**	-.097*	-.184**	.323**
Part-time * female	.382**	-.038	.500**	.303**	.220**	.291**	.553	-.122	.348**	-.016	.072	.157**	-.109	.129*
On temporary contract	-.023	.037	-.033	-.146**	.009	.004	.127	-.127**	-.212**	.022	-.336**	-.193**	-.100**	-.538**
On temporary contract * female	-.085*	-.106	-.149**	.152**	-.133**	.009	-.083	-.099	-.079	-.155**	.056	-.034	-.006	.082*
No observations	26310	7818	9163	7550	19486	8767	1721	14075	9968	20800	23741	21238	20617	12037
<i>(5) Satisfaction with job security</i>														
Part-time	.165**	-.102	-.064	-.049	-.095**	-.019	-.141	-.057	-.075	-.038	-.171**	-.303**	-.251**	-.125**
Part-time * female	-.045	.063	.025	.201	.053	.036	.242	-.015	-.023	-.009	.032	.228**	.083	.179**
On temporary contract	-.829**	-1.011**	-.974**	-.519**	-1.065**	-.723**	-.809**	-.530**	-1.188**	-1.097**	-1.122**	-1.206**	-.932**	-1.339**
On temporary contract * female	-.062	-.325**	-.264**	-.190**	-.114**	-.072	.373*	-.326**	-.167**	-.374**	.066	-.097**	-.138**	-.105**
No observations	26183	7806	9166	7558	19440	8775	1724	14078	9991	20788	23782	21253	20613	12037

Notes. The figures reported are the coefficients obtained from ordered probit regressions. Significance at 5% and 10% is denoted by \*\* and \* respectively. The estimated equations also include: a gender dummy, 4 age dummies, 2 education dummies, one dummy for married (interacted with gender), the number of dependent children (interacted with gender), 9 occupation dummies, 2 industry dummies and year dummies. Sweden is excluded from the sample as no job satisfaction indexes are available. Source: ECHPS.

Table 4.4:  
Wages on non-standard contracts, OLS estimates

	UK	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRC
<i>Males</i>														
log(hours)	.682**	.645**	.615**	.545**	.580**	.376**	.419**	.551**	.480**	.290**	.442**	.258**	.306**	.544**
	(.019)	(.041)	(.034)	(.051)	(.031)	(.038)	(.148)	(.036)	(.036)	(.050)	(.026)	(.022)	(.029)	(.033)
Part-time	-.258**	-.252**	-.190**	-.190**	-.303**	-.125**	-.709**	-.050	-.245**	-.229**	-.103**	-.367**	-.230**	-.043
	(.026)	(.043)	(.037)	(.070)	(.030)	(.043)	(.193)	(.041)	(.037)	(.055)	(.025)	(.026)	(.037)	(.033)
On temp contract	-.168**	-.169**	-.116**	-.121**	-.194**	-.109**	-.147**	-.112**	-.112**	-.195**	-.128**	-.173**	-.059**	-.116**
	(.014)	(.016)	(.013)	(.023)	(.015)	(.018)	(.059)	(.017)	(.015)	(.024)	(.009)	(.008)	(.009)	(.011)
No. Observations	10761	2759	3196	2281	7331	2503	508	4967	4334	2210	7624	8945	7803	4571
hourly part-time penalty	-.038*	-.006	.077**	.125**	-.012	.308**	-.306**	.261**	.115**	.263**	.283**	.147**	.251**	.273**
<i>Females</i>														
log(hours)	.831**	.628**	.718**	.709**	.884**	.615**	.800**	.735**	.812**	.285**	.538**	.423**	.454**	.572**
	(.019)	(.035)	(.037)	(.074)	(.029)	(.044)	(.113)	(.043)	(.041)	(.045)	(.032)	(.030)	(.032)	(.039)
Part-time	-.158**	-.185**	-.132**	-.035	-.042**	-.161**	-.05	-.039	-.080**	-.316**	-.076**	-.245**	-.171**	.025
	(.015)	(.029)	(.023)	(.049)	(.019)	(.029)	(.083)	(.030)	(.029)	(.037)	(.022)	(.023)	(.027)	(.029)
On temp contract	-.099**	-.138**	-.058**	-.136**	-.238**	-.026	-.141**	-.106**	-.157**	-.175**	-.107**	-.201**	-.093**	-.165**
	(.013)	(.013)	(.014)	(.027)	(.013)	(.017)	(.048)	(.019)	(.013)	(.024)	(.010)	(.010)	(.009)	(.013)
No. Observations	10283	2741	2472	1614	5752	2183	405	4144	3802	1633	5318	5315	5902	3238
Hourly part-time penalty	-.041**	.073**	.063**	.166**	.039**	.106**	.088**	.145**	.050**	.180**	.244**	.155**	.207**	.321**

Notes. The figures reported are the coefficients obtained from wage regressions. Dependent variable: (log) gross monthly earnings. Estimation method: OLS. Standard errors reported in brackets. Significance at 5% and 10% is denoted by \*\* and \* respectively. The estimated equations also include: 2 education dummies, potential experience and its square, one dummy for married (interacted with gender), the number of dependent children (interacted with gender), one dummy for previously unemployed, 5 dummies for employer size, one dummy for public sector, 9 occupation dummies, 13 industry dummies and year dummies. Sweden is excluded from the sample as no information on earnings is available. Source: ECHPS

Table 4.5:  
Wages on non-standard contracts, IV estimates

	UK	FIN	DEN	GER	NET	BEL	LUX	AUT	IRE	FRA	ITA	SPA	POR	GRC
<i>Males</i>														
log(hours)	.888**	.878**	.902**	.715**	.745**	.551**	.887**	.976**	.362**	.737**	.581**	.215**	.283**	.916**
	(.036)	(.119)	(.073)	(.091)	(.052)	(.065)	(.400)	(.084)	(.082)	(.112)	(.066)	(.063)	(.059)	(.104)
Part-time	-.338**	-.521**	-.188*	-.331**	-.338**	-.145	-.326	.218**	-.617**	-.458**	-.099	-.661**	-.539**	.222*
	(.069)	(.181)	(.105)	(.115)	(.057)	(.094)	(.619)	(.104)	(.105)	(.131)	(.062)	(.086)	(.081)	(.128)
On temp contract	-.108**	-.113**	-.076**	-.119**	-.149**	-.104**	-.128**	-.111**	-.049**	-.138**	-.123**	-.144**	-.048**	-.125**
	(.018)	(.026)	(.015)	(.025)	(.017)	(.021)	(.065)	(.019)	(.019)	(.032)	(.010)	(.009)	(.010)	(.013)
No. Observations	9410	1376	2865	2111	6474	2158	484	3566	3609	1804	6596	7340	6650	3889
Hourly part-time penalty	-.260**	-.436	-.120	-.133	-.161**	.166**	-.247	.234**	-.175**	-.276**	.191**	-.117*	-.042	.280**
<i>Females</i>														
log(hours)	1.030**	.641**	.787**	.798**	1.129**	.947**	1.270**	1.037**	.791**	.28	.719**	.430**	.396**	1.007**
	(.048)	(.152)	(.093)	(.172)	(.058)	(.113)	(.229)	(.102)	(.126)	(.176)	(.091)	(.090)	(.079)	(.182)
Part-time	-.138**	-.241*	-.159**	-.059	.005	-.021	.191	.084	-.192**	-.527**	-.014	-.358**	-.274**	.242
	(.037)	(.129)	(.055)	(.116)	(.040)	(.080)	(.169)	(.067)	(.088)	(.129)	(.065)	(.072)	(.065)	(.159)
On temp contract	-.069**	-.108**	-.031*	-.089**	-.193**	-.011	-.221**	-.068**	-.149**	-.126**	-.122**	-.176**	-.086**	-.140**
	-.015)	(.020)	(.016)	(.032)	(.014)	(.019)	(.057)	(.022)	(.016)	(.031)	(.012)	(.011)	(.011)	(.016)
No. Observations	8842	1303	2142	1369	4809	1824	366	2873	3002	1294	4486	4041	4805	2626
Hourly part-time penalty	-.159**	.008	-.012	.081**	-.084**	.016	.004	.058**	-.048*	-.028	.181**	.038	.145**	.238**

Notes. The figures reported are the coefficients obtained from wage regressions. Dependent variable: (log) gross monthly earnings. Estimation method: IV (hours worked and part-time status instrumented by their lagged values). Standard errors reported in brackets. Significance at 5% and 10% is denoted by \*\* and \* respectively. The estimated equations also include: 2 education dummies, potential experience and its square, one dummy for married (interacted with gender), the number of dependent children (interacted with gender), one dummy for previously unemployed, 5 dummies for employer size, one dummy for public sector, 9 occupation dummies, 13 industry dummies and year dummies. Sweden is excluded from the sample as no information on earnings is available. Source: ECHPS

**Table 5.1: Gender wage ratio in 1998**

	<i>Hourly earnings full-time wage &amp; salary workers</i>	<i>Hourly earnings all wage &amp; salary workers</i>
<i>Mediterranean</i>		
Spain	93	88
Italy	91	93
Greece	80	82
<i>Nordic</i>		
Sweden	90	88
Finland	87	87
Denmark	93	92
<i>Anglosaxon</i>		
UK	85	79
<i>Rest of Europe</i>		
Austria	80	79
Belgium	94	93
France	93	93
Germany	83	83
Ireland	81	76
Netherlands	86	87
Portugal	85	85
<i>Non-European Countries</i>		
Canada	81	78
USA	79	76

Notes: Ratio of median female to male hourly earnings.

Source: OECD, Employment Outlook, 2002

**Table 5.2: The gender wage ratio by age (median hourly and monthly wages), 1998**

	25-34		35-44		45-54	
	<u>hourly</u>	<u>monthly</u>	<u>hourly</u>	<u>monthly</u>	<u>hourly</u>	<u>monthly</u>
<i>Mediterranean</i>						
Spain	94.76	85.85	95.07	87.94	82.77	76.33
Italy	98.54	90.98	97.31	87.12	92.40	85.19
Greece	100.00	90.91	88.33	86.67	79.65	70.86
<i>Nordic</i>						
Finland	91.13	80.00	81.98	73.83	76.00	72.00
Denmark	91.80	82.56	92.50	79.55	90.48	80.36
<i>Anglosaxon</i>						
UK	92.07	75.47	70.49	51.93	67.13	52.87
<i>Rest of Europe</i>						
Austria	84.12	73.71	84.78	68.00	72.61	59.23
Belgium	96.11	86.57	96.13	78.13	88.09	73.64
France	95.15	86.72	86.03	75.91	86.11	75.00
Germany	85.92	78.00	82.90	68.18	80.59	66.22
Ireland	91.07	78.06	79.49	61.79	71.29	50.70
Netherlands	98.63	77.08	84.58	55.34	76.93	49.56
Portugal	86.79	83.26	83.88	77.27	81.56	77.85
<i>Non-European Countries</i>						
USA	83.33	75.11	74.67	63.54	70.36	64.86

Source: Author's calculations based on ECHP data for European countries and on CPS, Demographic File for the USA. The gap is computed as the percentage ratio of female to male wages. The sample is restricted to those who work 15+ hours per week, and excludes individuals working as apprentices and students.

**Table 5.3: Evolution of the Gender Wage Ratio**

	1985	1998	Change 1998 to 1985 (%)
<i>Mediterranean</i>			
Italy	0.813	0.829	1.61
<i>Nordic</i>			
Sweden	0.832	0.810	-2.26
Finland	0.775	0.776	0.13
<i>Anglosaxon</i>			
UK	0.665	0.734	6.95
<i>Rest of Europe</i>			
France	0.838	0.897	5.86
Germany	0.710	0.769	5.89
Netherlands	0.744	0.769	2.56
<i>Non-European Countries</i>			
Canada	0.652	0.711	5.80
USA	0.680	0.754	7.40

Note: Authors' calculation using available data from OECD, Labor Force Statistics.  
Female/Male Median Earnings Ratio for Full-time, Year-round workers

**Table 5.4: Decomposition of cross-country differences in the gender wage gap**

	Hourly wage gap	Hourly gap adjusted	Wage Structure
<i>Mediterranean</i>			
Spain	<b>-4.1</b>	-4.7	0.6
Italy	<b>-8.5</b>	-5.7	-2.8
Greece	<b>-1.3</b>	0.1	2.4
<i>Nordic</i>			
Finland	<b>2.8</b>	1.8	0.9
Denmark	<b>-2.3</b>	-0.8	-1.6
<i>Anglosaxon</i>			
UK	<b>6.5</b>	2.3	4.2
<i>Rest of Europe</i>			
Austria	<b>7</b>	8.5	-1.5
Belgium	<b>-4.1</b>	-3.6	-0.4
France	<b>3.9</b>	3.4	0.5
Germany	<b>4.3</b>	3.6	0.7
Ireland	<b>2</b>	0.1	1.9
Netherlands	<b>3.9</b>	9.3	-5.4
Portugal	<b>-3.8</b>	2.7	-6.5

Source: Table 2.B.2, OECD: Employment Outlook 2002, ch.2

Entries in the table represent percentage point differences from the gender wage gap in the benchmark economy that are explained by each component.

The hourly wage gap represents the sum of the contributions due to cross-country differences in the gender gap in observed and unobserved characteristics.

The wage structure represents the sum of the contributions due to cross-country differences in market prices for observed and unobserved characteristics

**Table 5.5: Estimated gender wage gap, the importance of sample selection**

	"Raw" estimates	"Corrected" estimates
<i>Mediterranean</i>		
Spain	14.14967	31.2943
Italy	8.50489	15.93678
Greece	11.7506	31.62456
<i>Nordic</i>		
Finland	16.77544	9.596542
Denmark	11.41786	7.961227
<i>Anglosaxon</i>		
UK	24.53988	26.12456
<i>Rest of Europe</i>		
Austria	21.67339	15.23666
Belgium	9.444664	7.464218
France	12.37045	7.922073
Germany	19.76378	14.14988
Ireland	16.21227	25.1804
Netherlands	18.02296	18.67802
Portugal	10.02388	9.476135

Note: The estimated gender wage gap is computed as the difference of the male and female average log hourly earnings obtained by estimating gender specific equations where the dependent variable is the logarithm of gross hourly wages. Independent variables include education (two dummies), potential experience, and potential experience squared, occupation (fifteen dummies), tenure (four dummies) public/private sector, type of contract, full time/part time, and interaction terms between part time, full time and weekly hours worked.

We exclude individuals working as apprentices and students as well as self-employed. The estimates corrected for sample selections are based on the Heckman's two-step consistent estimator. The participation equation includes age, marital status, education (two dummies), and weekly hours spent in child care.

Source: ECHP, 1998

**Table 5.6: Cross-sectional regression, ECHP 1998**

<i>Dependent variable: Estimated gender wage gap</i>									
	<i>All</i>		<i>25-34</i>		<i>35-44</i>		<i>45-54</i>		
Parental Leave	.026 (.025)	.025* (.009)	.006 (.023)	.006 (.008)	.071** (.022)	.0712 (.03)	.028 (.035)	.027 (.018)	
Barg. Coverage	.038 (.032)	-.022 (.060)	.294** (.078)	.248** (.078)	-.293* (.122)	-.276 (.196)	.018 (.063)	-.055 (.123)	
Max Rep. Rate	-.212* (.079)	-.113 (.088)	-.33** (.058)	-.25** (.048)	-.153 (.158)	-.182 (.302)	-.254 (.113)	-.132 (.148)	
EEO lag	.181 (.282)	-.623 (.38)	.977* (.398)	.366 (.309)	-.442 (.564)	-.212 (1.4)	.260 (.450)	-.725 (.644)	
EPL - regular	1.43 (1.307)	0.09 (1.04)	7.17*** (.864)	6.15*** (.47)	-1.82 (2.41)	-1.44 (3.80)	1.60 (1.77)	-.045 (1.47)	
EPL - temporary	-2.6*** (.42)	.174 (1.17)	-4.1** (.73)	-2.0* (.673)	-1.73 (1.07)	-2.52 (4.1.7)	-3.80** (.715)	-.415 (1.87)	
Product Market		-9.85 (4.08)		-7.49* (2.43)		2.81 (14.4)		-12.-73 (6.56)	
R-squared	0.88	0.9	0.89	0.9	0.84	0.844	0.88	0.95	
Number of obs	11	11	11	11	11	11	11	11	

Note: The estimated gender wage gap is computed as the difference of the male and female average log hourly earnings obtained by estimating gender specific equations where the dependent variable is the logarithm of gross hourly wages. Independent variables include education (two dummies), potential experience, and potential experience squared, occupation (fifteen dummies), tenure (four dummies) public/private sector, type of contract, full time/part time, and interaction terms between part time, full time and weekly hours worked. We exclude individuals working as apprentices and students.

\*\*\* Significance at the 1% level, \*\* Significance at the 5% level, \*Significant at the 10% level. Robust standard errors in parentheses.

Sources for Institutions: The index of Bargaining Coverage is from Blanchflower (1996). Parental Leave (weeks), EPL, and Union Density are from Nickel and Layard (1999). The Equal Employment Opportunity indicator is based on Table 5.1, OECD, Employment Outlook 1988. It measures the time lag since the equal employment opportunity legislation was passed in each country.

The index of Product Market Regulation, and of EPL for temporary and regular contracts are from Nicoletti, Scarpetta, and Boylaud (1999); The maximum UI Replacement Rates are taken from Blanchard and Wolfers (2000). The Segregation Index is from Anker (1998), Table 9.1.

**Table 5.7: Cross-section, time series regression results**

<i>Dependent variable: Gender wage gap</i>						
	( 1 )		( 2 )		( 3 )	
Barg. Coverage	-.025*** (.007)	-.0148** (.0061)	-.025** (.007)	-.016* (.007)	-.008 (.017)	-.002 (.025)
Parental Leave	.0073** (.0028)	.0014 (.0032)	.0068** (.002)	.003 (.004)	.005 (.005)	-.001 (.007)
EPL	.0149 (.017)	.0270 (.0302)	.032 (.029)	.033 (.035)	-.010 (.042)	-.034 (.045)
Union Density	.0099* (.005)	.0104* (.0052)	.009 (.006)	.009 (.006)	.009 (.012)	.011 (.012)
Max Rep. Rate	-.0052 (.0035)	.0037 (.0128)	-.004 (.003)	.005 (.015)	.0015 (.01)	.001 (.018)
EEO lag	-.0056 (.063)	.0587 (.0540)	.018 (.059)	.041 (.069)	-.033 (.133)	-.008 (.15)
Product Market			-.419 (.413)	-.298 (.524)		
Sex Segregation					-.014 (.050)	-.045 (.153)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country Effects	No	Yes	No	Yes	No	Yes
R-squared	0.745	0.159	0.777	0.2945	0.695	0.15
Number of obs	40	40	40	40	31	31

Note: The coefficients in the table represent the marginal effect of each institution on the gender wage gap growth between 1980 and 1998. The gender wage gap is computed as the log of the male/female wage ratio, median earnings for full time - full year workers for the periods 1980, 1990 and 1998. Sources: 1980 and 1990: Blau and Kahn (2000), data for Denmark, Greece, Portugal and Spain refer to 1994, Source: ECHP. Data for 1998 are from OECD, Employment Outlook (2002)

\*\*\* Significance at the 1% level, \*\* Significance at the 5% level, \*Significant at the 10% level. Robust standard errors in parentheses.

Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Portugal, Spain, Sweden, UK, USA

Sources for Institutions: The index of Bargaining Coverage is from Blanchflower (1996). Parental Leave (weeks), EPL, and Union Density are from Nickel and Layard (1999). The Equal Employment Opportunity indicator is based on Table 5.1, OECD, Employment Outlook 1988. It measures the time lag since the equal employment opportunity legislation was passed in each country.

The index of Product Market Regulation, and of EPL for temporary and regular contracts are from Nicoletti, Scarpetta, and Boylaud (1999); The maximum UI Replacement Rates are taken from Blanchard and Wolfers (2000). The Segregation Index is from Anker (1998), Table 9.1.

**Table 6.1**  
**Youth unemployment and female experience**

Dependent variable	$\log(u_{i,t}^{25-34,m})$		$\log(u_{i,t}^{25-34,f})$	
	(I)	(II)	(III)	(IV)
$E_{i,t}$	-0.04** (2.5)	-	-0.01 (0.65)	-
$E_{i,t}^M$	-	0.04 (1.3)	-	0.09* (2.5)
$E_{i,t}^F$	-	-0.11** (3.4)	-	-0.08* (2.3)
$\log(u_{i,t}^{45-54,m})$	0.86** (21.8)	0.86** (22.6)	0.44** (12.4)	0.44** (13.4)
Lagged dep. var.	0.19** (5.4)	0.16** (4.7)	0.56** (15.9)	0.52** (13.9)
Fixed Effects	yes	yes	yes	yes
Specific Trend	yes	yes	yes	yes
Cross-section weights	yes	yes	yes	yes
# obs.	204	204	204	204
R <sup>2</sup>	0.99	0.99	0.99	0.99
DW	0.98	0.96	1.36	1.36

t-stat in parentheses. \*\* = signif. at the 1% level., \* = signif. at the 5% level.

**Table 6.2.**  
**Youth unemployment and country effects**

Dependent . variable	$\log(u_{i,t}^{25-34,m})$		$\log(u_{i,t}^{25-34,f})$	
	(I)	(II)	(III)	(IV)
$E_{i,t}$ x FIN	0.37** (4.0)	-	0.11 (1.0)	-
$E_{i,t}$ x SWE	-0.31** (4.2)	-	-0.02 (0.5)	-
$E_{i,t}$ x NET	-0.75* (2.3)	-	-0.30 (1.4)	-
$E_{i,t}$ x GER	-0.60** (4.5)	-	-0.44** (4.0)	-
$E_{i,t}$ x FRA	-0.14** (3.0)	-	-0.09 (1.7)	-
$E_{i,t}$ x SPA	0.12 (1.4)	-	-0.23 (1.7)	-
$E_{i,t}$ x UK	-0.02 (0.50)	-	-0.46** (6.6)	-
$E_{i,t}$ x USA	-0.04* (2.0)	-	0.04 (2.2)	-
$E_{i,t}$ x Emp. Protection	-	-0.0057** (2.6)	-	-0.0061** (2.7)
$\log(u_{i,t}^{45-54,m})$	0.91** (24.7)	0.89** (22.9)	0.54** (16.1)	0.47** (13.5)
Lagged dep. var.	0.13** (3.9)	0.18** (5.5)	0.37** (9.7)	0.51** (14.3)
Fixed Effects	yes	yes	yes	yes
Specific Trend	yes	yes	yes	yes
Cross-section weights	yes	yes	yes	yes
# obs.	204	204	204	204
R <sup>2</sup>	0.99	0.99	0.99	0.99
DW	1.20	1.00	1.43	1.33

t-stat in parentheses. \*\* = signif. at the 1% level., \* = signif. at the 5% level.

**Table 7.1**  
**Cohort Effects and Female Employment Rate in 2010**

Estimate of the Female Employment Rate in the Year 2010

	Female Employment Rate 2001*	Female Employment Rate 2010 (hypotesis 1)	Female Employment Rate 2010 (hypotesis 2)
Mediterranean			
Italy	41.11	49.33	50.21
Spain	43.75	49.63	50.59
Greece	41.14	48.34	49.37
Average	42	49.1	50.06
Nordic			
Denmark	70.44	77.83	78.75
Sweden	73.48	76.22	77.17
Norway	73.75	76.5	77.46
Average	72.56	76.85	77.79
Continental			
Austria	47.12	53.85	54.54
Belgium	51.45	60.68	61.61
France	42.20	50.9	51.63
Finland	65.40	72.05	72.96
Germany	58.76	69.17	70.05
Ireland	53.99	60.34	61.44
Netherlands	63.86	71.61	72.52
Portugal	61.13	69.21	70.20
Average	55.49	63.48	64.37

\* Employment rates 15+ for France, Austria, 15-64 for the others.

<b>Hypothesis 1:</b>	Age 15-44	Employment Rate 2010 = Employment rate 2001
	Age 45-64	Employment Rate 2010 = Employment level 2001/Population 2010*100

<b>Hypothesis 2:</b>	Age 15-39	Employment Rate 2010 = Employment rate 2001 + 2%
	Age 40-44	Employment Rate 2010 = Employment rate 2001
	Age 40-44	Employment Rate 2010 = Employment level 2001/Population 2010*100