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**Working Paper**

## Employment Inequalities

Working Paper, No. 293

**Provided in Cooperation with:**

Levy Economics Institute of Bard College

*Suggested Citation:* Glyn, Andrew; Salverda, Wiemer (1999) : Employment Inequalities, Working Paper, No. 293, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY

This Version is available at:

<https://hdl.handle.net/10419/186965>

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## Working Paper No. 293

### Employment Inequalities

by

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The deteriorating position of less qualified workers has been a growing cause for concern in many OECD countries in the 1980s and 1990s. As well as contributing directly to rising inequality it compounds the difficulties faced by workers already disadvantaged in the labour market for reasons of age, gender or race. This paper documents the employment record of the less qualified and examines the factors which help to explain the variety of experience among OECD countries.

The first section discusses some tricky but important problems about how to represent the impact of educational qualifications on employment. Cross country patterns of differences in employment rates by education are then reported for the OECD countries. Section 2 discusses a range of factors which may bear on the extent of employment disadvantage suffered by the least qualified. These include the usual suspects, such as overall demand for labour, trade with the South and aspects of labour market flexibility, but we have also examined the dispersion of educational achievement in the labour force. New light is thereby thrown on the widely held view that, in the face of global trends, the less qualified lost out everywhere, but that in the USA this took the form of falls in their relative pay whilst in Europe their chances of being in work declined.

## Employment Differences in OECD Countries

### Measurement Issues

Educational qualifications, although subject to problems of comparison between countries and over time, offer just about the only widely available measure of "skill". The major cross-country studies which propelled the international debate on the declining demand for unskilled labour, all reported how educational qualifications affected employment outcomes across countries. The main measure used was the ratio of unemployment rates for low and high educational categories or variants thereof (Wood (1994) table A3.5, OECD (1995) chart 7.1, Nickell and Bell (1995) table 2a). Ratios exceeded one almost everywhere, reflecting higher unemployment rates for the less qualified, but the trend over time appeared much less clear. Nickell and Bell confirmed the OECD's finding that the ratio tended to rise between the 1970s and 1980s, but reported that this trend was partially (or in the case of the UK wholly) reversed in the early 1990s. These measures were supplemented, data permitting, with "non-employment rates" (100% minus the ratio of employment to population to working age) which could take into account differences in non-participation; by this measure (the ratio of non-employment rates for "low-ed" to "high-ed" workers) the US was also displaying *less* disadvantages for the less qualified in 1991 than in the early 1970s (Nickell and Bell 1995, table 6).

The problem with these measures is, first, that the *ratio* of unemployment (or non-employment) rates does not adequately reflect differences in the probability of having a job for workers with different levels of skill. Thus whilst the UK male unemployment ratio (low-ed to high-ed) fell from 2.9 in 1971-74 to 2.6 in 1992, the absolute difference in the unemployment rates nearly quadrupled from 2.6% to 10.3%; the chances of having a job fell much more for the less qualified and thus the extent of disadvantage

suffered by them rose. Similarly, while the ratio of male non-employment rates in the USA was 3.9 in both 1971-74 and 1991 the difference in non-employment rates rose from 19.1% to 24.1% . It is these absolute differences in un- (or non-) employment which measure the extent to which the less educated are less likely to have a job; comparisons of the ratio of unemployment rates do not convey differences in the probability of having work in situations where the unemployment rate for the most educated is not constant over time. Nor is the ratio any better for measuring differences across countries. Sweden in 1991 and the UK in 1992 had the same ratio of unemployment rates; in the former case the difference in unemployment rates between the best and least educated was 2.4% points, in the latter 10.3% points. The degree to which the less educated were less likely to be in work was obviously far greater in the UK. Whilst the ratio of unemployment rates may be an appropriate indicator of the pattern of labour market slack in some models of wage pressure (Nickell and Bell 1995), it is a misleading measure of the comparative employment record of different groups. The use of absolute differences in unemployment (and employment) rates in the OECD's latest discussion of the issue is surely correct (OECD 1997 chapter 4). The emphasis in what follows is on employment, rather than unemployment rates, that is on how different economies have generated work for the less qualified, rather than whether those without work are unemployed or inactive.

The second problem in interpreting educational differences in employment concerns differences between countries (or changes within a country) in proportions of the labour force in the various educational categories. In 1994 the proportion of the male labour force, aged 25-64, with university education was 8.5% in Italy and 26.7% in the US, whilst the proportion with "lower secondary education" was 15.3% in the USA and 65.0% in Italy (OECD 1997 table 4.1a). So high-ed workers were almost twice as numerous in the US as low-ed (on this definition) whilst in Italy the ratio was about 1 to 8. This makes it hard to interpret comparisons of high-ed/low-ed employment differences in the US and Italy. Changes over time are just as troublesome. For example, the proportion of low-ed workers halved in the UK between 1984 and 1994. Their deteriorating employment position may partly reflect a more refined process of "sorting" whereby the shrinking membership of the bottom educational category is increasingly confined to those with other disadvantages in the labour market (in terms of intellectual capacity, attitude and so forth). Plausibly, the distribution of talents among the population remained the same but its mapping over the range of formalised educational categories changed.

The Jobs Study (OECD 1994) made a rough correction for differences in educational patterns by constructing unemployment by educational quartiles. By analogy with the distribution of wages, consistent definitions for the two ends of the employment distribution are applied by taking the top and bottom quarters of the population ranked by educational qualification. Table 1 below shows that employment rate (employment over population) differences between educational quartiles can give a different picture from those between university graduates and those with "lower secondary education". Column 3 shows that in both France and Germany men with lower secondary education had employment rates about 24% points lower than those with university qualifications. But the quartile comparison (column 6) suggests a distinctly worse position in France with employment rate differences nearly half as big again as those in Germany. The explanation is that less than half of those in the first quartile in Germany had only lower secondary qualifications so that the employment rate of the first quartile is boosted by the higher employment rate of the next educational group; by contrast in France most of the first quartile were in the lowest sub-section of "lower secondary" which pulls their employment rate (column 4) below the average for lower secondary as a whole (column 1).

**Table 1**

Measures of Employment Rate Differences, Men, 25-64						
	1	2	3	4	5	6
	Lower Secondary	University	Difference	1 <sup>st</sup> education Quartile	4 <sup>th</sup> education Quartile	Difference
Germany 1994	66.2	90.7	24.5	71.1	88.2	17.1
France 1994	62.1	86.0	23.9	60.5	85.0	24.5
France 1981	80.3	92.5	12.2	73.8	91.8	18.0
Source: See data appendix.						

The quartile calculations also suggest a much smaller deterioration in employment at the bottom end in France since 1981. This is because the proportion of the population in the very lowest educational category, with the lowest employment rate, was almost halved over the period.

These quartile measures capture both the experience of particular educational categories and the educational structure and this is appropriate because inequalities in employment outcomes reflect both influences. Employment rate differences for quartile groups are analogous to the d9/d1 measures of overall wage dispersion rather than to measures of pay differentials between specific educational groups. The "sorting" problem of using fixed educational categories over time is minimised since the "bottom" refers to a constant, rather than an ever shrinking, share of the working population.

The third issue concerns age and gender. Including age groups with large numbers in full-time education (or national service) is confusing because their non-employment does not only reflect a lack of work. Educational participation by young people and consequently their labour market participation differs significantly over time and internationally. It seems best to treat youth separately and leave them out here (cf. OECD 1998 for a discussion of youth unemployment). Thus the OECD data used below, starting at age 25, probably provides the best single measure. There is a similar problem with older workers. Labour force withdrawal is very prevalent amongst those over 55, especially the least qualified. Given that these age groups contain a higher proportion of the least educated they have an important weight in employment outcomes. There seems to be a case for concentrating on "prime-age workers" between 25-54. On the other hand, early retirement has been a deliberate policy for dealing with lack of work for the least qualified in many countries and has had an important influence on labour force participation for those over 55. Leaving out these workers may paint an unrealistically rosy picture of the employment position of the least qualified. So the fact that the OECD data used covers only the whole age group 25-64 is not too serious a drawback. Finally it is desirable to analyse men and women separately. Given the very strong historical and cultural influences affecting patterns of women's participation in the labour market it may be that the data for men best displays the influences of lack of work on employment outcomes; on the other hand the labour market for men does not exist in isolation and the position of women obviously deserves analysis in its own right.

## Employment Differences

Table 2 presents data for employment rates (as percentage of the population of working age) for 19 OECD countries for 1994 calculated mainly from the background data used in OECD 1997 *Employment Outlook* (see data Appendix for details). The data is shown separately for men and for women. Employment rates for the least educated are generally in the range 50-75%; the figure for Portugal is biased upwards by the fact that it actually refers to the nearly 70% of the population in the lowest

educational category whilst the very high Swiss rate reflects the regulation of the numbers of less qualified through control of migration.

With employment rates for the best qualified quartile generally between 80% and 90%, educational differences in employment outcomes (Q4-Q1) vary substantially between countries. Most fall in the range 15-25% , with Ireland and Belgium outliers at over 30% and Portugal, Japan and Switzerland below 10%. Differences in inactivity are very significant; thus Italy has one of the lowest unemployment rate differences between the best and least qualified (see Appendix table) but its employment rate differences is greater than the average for Europe.

Perhaps most striking of all, the USA lies close to the average for Europe as a whole with the least educated quartile of men 21% less likely to have a job than the most educated quartile. This was considerably higher than in allegedly inflexible Germany. Even for women, whose overall employment rate in the USA is very high, Q4-Q1 is almost as large as the average for European countries. Thus wage flexibility clearly did not prevent the less qualified in the USA from suffering the high levels of joblessness.

**Table 2**

**Employment Outcomes by Educational Quartile 1994**  
**Employment/Population (%)**

	Women			Men			Q4-Q1 Changes 1981-94
	Q1	Q4	Q4-Q1	Q1	Q4	Q4-Q1	
Australia	50.5	73.5	23.0	73.0	88.0	15.0	
Austria	47.0	70.5	23.5	70.2	86.6	16.4	
Belgium	23.2	76.9	53.7	52.8	88.0	35.2	
Canada	40.8	77.4	36.6	64.2	86.3	22.1	4.5
Denmark	55.5	85.6	30.2	65.7	87.6	21.9	8.2
Finland	50.9	77.1	26.2	54.6	80.3	25.7	*10.7
France	40.5	72.4	31.9	60.5	85.0	24.5	6.4
Germany (95)	37.4	70.9	32.5	71.1	88.2	17.1	*9.5
Ireland	18.2	67.7	49.5	58.6	89.1	30.6	
Italy	20.1	63.3	43.2	60.6	84.7	24.1	*13.0
Netherlands	30.1	70.9	40.8	66.6	86.9	20.3	1.5
New Zealand	46.3	75.7	29.4	67.5	90.3	22.8	15.2
Norway	56.2	86.1	29.8	72.9	90.9	17.9	6.7
Portugal	52.0	80.7	28.7	80.0	87.8	7.9	
Spain	22.9	57.3	34.4	63.6	80.8	17.1	8.6
Sweden (96)	63.6	87.0	23.4	73.1	87.2	14.1	*-5.2
Switzerland	58.7	69.8	11.1	90.6	93.3	2.7	
UK	52.0	79.0	27.0	65.1	88.3	23.2	13.2
US	51.2	79.9	28.7	70.1	90.6	20.6	1.4
<b>Japan</b>				89.6	97.6	8.0	*2.2
<b>Europe (median)</b>			30.2			20.3	

\* Finland 1982-94, Germany 1980-95, Italy 1980-94, Japan 1979-92, Sweden 1981-94

**Source: See data appendix**

Employment differences are greater for women than for men and more variable across countries,

reflecting the fact that the longer-term rise in women's participation has generally had a bigger effect on better educated women and an extremely uneven effect for the less qualified.

It is important to supplement the picture of the employment position of the less educated in the early 1990s with an analysis of how it changed over the 1980s. Here the data problems are even more severe, but some rough preliminary estimates can be made. The OECD data starts for nine countries in 1981, far from ideal as many countries were deep in recession. With patching from national sources estimates for another five can be included. The right-hand column of table 2 shows the change in the male Q4-Q1 employment rates over the 1980s and early 1990s. There really is a very wide range of experience. The majority of countries experienced a rise of Q4-Q1 of between 6% and 15%; of those with small increases (or even falls) only Sweden and Japan were preserving what was still a low level of employment disadvantage for the less qualified.

The USA also suffered only a very small deterioration in the relative employment of the less qualified in the 1980s and early 1990s. To this extent the favourable comparison of US employment experience *during the 1980s* with many European countries is justified. But it must be emphasised that the position of the least qualified men in the USA had become extremely bad by 1981, with (of the 14 countries with data) only the Netherlands having a lower employment rate for the first quartile. Thus the less educated in the US lost jobs in the 1970s and relative pay in the 1980s - simply comparing the small deterioration in their employment position in the 1980s with the larger deterioration in some European countries is only part of the picture. The detailed findings of Card et al (1996) that the less qualified in France did not suffer greater declines in their employment rates in the 1980s than comparable workers in the USA are broadly consistent with the aggregate data presented here. In France like the USA much of the radical deterioration in employment for the least qualified appears, surprisingly perhaps, to pre-date 1981. However in a number of other countries, including Finland, Denmark, Italy, New Zealand, Spain and (the allegedly flexible) UK, there was indeed a major deterioration in the relative employment position of the least qualified in the 1980s.

## Why Employment Differences Differ

This section examines how far it is possible to account for the cross country variation in the employment rate differences described in the previous section. A number of macroeconomic and structural factors are considered first, including overall labour demand, trade with the South and the distribution of literacy skills. These are combined into a simple multiple regression before the impact of various dimensions of wage and labour market flexibility is examined.

## Demand, Structural Change and Educational Dispersion

It is conceivable that falling employment could affect all groups equally (in terms of the proportions of the working population losing jobs). However overall lack of demand for labour may cause a disproportionate decline in the demand for the least qualified as, by one means or another, they are "bumped down" the employment ladder (Nickell & Bell 1995, De Grip and Borghans 1999). Figure 1 suggests that, for men at least, lower employment generally does indeed have a disproportionate reflection at the bottom end of the labour market. The relationship is significant at the 0.0 % level and accounts for half of the cross country variation in employment differences. Belgium and Ireland appear to have exceptionally high non-employment for the least qualified, even given their high levels of non-employment overall. Conversely Spain and Portugal seem to have maintained comparatively small employment gaps between the more and less qualified relative to the overall demand for male workers, although this may simply reflect the very high proportions of the population in the least educated

Nickell and Layard (1997) have shown that cross-country differences in the dispersion of earnings were related to the dispersion of academic achievement as measured by standardised literacy scores (see also Lucifora this volume). Pryor and Schaffer (1999) report that literacy scores within the USA have a significant effect on the chances of being in work (even after education is controlled for — see their table 2.4). It seems plausible that the employment record of the less qualified was better in countries where their educational achievement was not so weak. The International Adult Literacy Survey (reported

in OECD 1997b) provides data on test scores for samples of the working population, measured by three separate literacy tests in the 1994-5 for 11 countries. From the underlying data from this study we constructed measures of the dispersion of literacy skills for men and women separately using the "quantitative literacy" tests (see data Appendix). Figure 2 plots employment differences for men against the corresponding ratio of the scores of the top quartile of the men to the scores of the bottom quartile,. The German, Swedish and Dutch educational systems delivered notably less dispersed literacy scores than the Anglo-Saxon countries and Belgium. The substantial dispersion in Switzerland appears to be related to the number of migrant workers with language difficulties; as pointed out earlier the employment difference in Switzerland is actually held down by the safety valve of migration.

The less qualified may have suffered disproportionately from structural change, for example when the least skill-intensive manufactures are displaced by imports from low-wage sources (Wood 1994). Figure 3 suggests that there may be an effect and to test for this the ratio of Southern imports to GDP was included in the regressions.

Table 3 shows the results of regressing Q4-Q1 employment rate differences in 1994 on the ratio of imports from non-OECD countries to GDP and on the dispersion of quantitative literacy, controlling for the important influence of the overall employment rate. Since the literacy scores are only available for slightly over half the sample, a dummy variable is included for the countries with no score. The regressions are run for men and women separately. All variables are significant except that test score dispersion did not significantly affect the employment of less qualified women.

**Table 3**

Regressions with <i>employment</i> rate differences Q4ed — Q1ed* as dependent variable, 1994						
	Constant	Average Employment Rate	Quantitative Literacy (Q4/Q1) No Score		Manufacturing Imports from South (% GDP)	R <sup>2</sup> corr (N)
Equation/Category						
(1a) Men	68.48 [.002]	-0.977 (.228) [.001]	10.98 (3.46) [.006]	8.99 (6.07) [.007]	4.871 (1.70) [.012]	0.643  (20)
(1b)Women	46.25 [.006]	-0.587 (.130) [.000]	4.267 (7.58) [.583]	8.089 (13.02) [.544]	6.162 (2.25) [.016]	0.406  (19)
* absolute percentage points differences between fourth and first quartiles Note: Huber Standard errors ( ); p-values [ ]						

A 1% lower employment rate is associated with a 1% point bigger gap between the employment rate of the first and the fourth quartile for men. For women the effect is not quite so large but still highly significant. These results are certainly consistent with less demand for labour in general causing greater disadvantage (as when the least qualified get bumped down off the employment ladder). The Finnish recession in the early 1990s provides a spectacular example of a collapse in demand being reflected in disproportionate job loss for the least educated. The differential in employment rates between those with lower secondary education and those with tertiary education rose by nearly 10% points between 1989 and 1994; such a sharp decline could hardly be attributed to long term influences such as technical progress. Conversely the more drawn out "employment miracle" in the Netherlands over the past 15 years brought a substantial decline in Q4-Q1 for men (some 7% between 1985 and 1997) as the employment rate of the first quartile rose steadily.

However the causation may run in the reverse direction as well. Declining demand at the bottom, for longer-term reasons such as technology or trade, may generate the overall rise in non-employment (as in Wood's analysis which sees the NAIRU increasing if less qualified workers lose their jobs since they have little impact on the general level of wage pressure). This would bring upward bias to the coefficient for the overall employment rate, which includes the employment rates of the first quartile, and would mean that the impact of the overall demand for labour on employment differences may be exaggerated in table 3.

Educational differences (ratio in the country of quantitative test scores for the fourth to first quartile) lie in the range 1.4-1.9. According to equation 1a countries at the bottom of this range would tend to have an 6% smaller gap between employment rates for the least and most educated men than those countries with most dispersed outcomes. However test scores are not at all significant in explaining employment differences for women; presumably their influence is swamped by the host of social factors which influence differences in women's participation across countries.

1% more imports from the South as a percentage of GDP (a range spanning most of the observations) is associated with 5% larger employment gap for men and probably a bigger one for women. This coefficient is still practically significant at the 5% level if the outlier Belgium is omitted (see figure 3). A broader indicator of structural change would be the share of industrial employment in the total; once overall employment is controlled for, however, there is no significant tendency for lower industrial employment, or declining industrial employment as a share of population of working age, to be associated with fewer jobs for the least qualified.

Skill-biased technical progress is often regarded as the major influence on declining employment opportunities for the less qualified. A number of technological indicators, such as R&D intensity, have been found to be associated with the variation across industries in the decline in jobs for the less qualified (see Machin and Van Reenen (1998) for example). It might be inferred that in countries where technology is developed more intensively the problems will be greatest for the least qualified. If measures, such as the ratio of R&D in manufacturing to value added or the ratio of total R&D to GDP are added to equation 1 they are consistently positive, but never significant. This is hardly a decisive rebuttal for the importance of technology since the national level of R&D may be a very weak indicator of the rate of implementation of technological advance.

### **Wages and Labour Market Rigidity**

Many people believe that greater wage dispersion encourages employment at the bottom end of the labour market. This would imply a trade-off between two dimensions of labour market inequality. The less effective is wage flexibility, the more difficult it is to justify policies which reduce labour costs at the bottom end of the labour market as a means of generating jobs. The relationship between relative wage flexibility and the growth of employment became a major policy issue with the publication of the OECD Job Study. In the "Facts" section of the summary report the OECD wrote that "All countries have experienced a shift in demand away from unskilled jobs towards more highly skilled jobs. In most countries where relative wages have been flexible (the United States, Canada, Australia) both the relative employment and unemployment rates of the unskilled changed little during the 1980s. In comparatively inflexible Europe, on the other hand, both relative employment and unemployment rates deteriorated"(p 23). The accompanying chart (15) showed data for just 8 countries, including the significant counter example of the UK (where both employment and pay of the less qualified deteriorated sharply) but omitting the (then) low unemployment of egalitarian Scandinavian countries.

A number of subsequent studies have examined the relationship of employment performance and earnings dispersion with less clear-cut results than implied in the Jobs Study. OECD (1996) found no significant correlation between the relative employment rates of the low-skilled and high-skilled and the incidence of low pay. Nickell and Bell (1995 p 46) examined the declining demand for less educated workers over the 1970s and 1980s and from inspection of the data found no evidence that "unemployment effects are any more severe in countries where wage effects [increases in wage dispersion] are small". Blau and Kahn (1996), by contrast, found that the greater wage dispersion in the USA was associated with smaller



differences in employment rates (especially between the low and middle skill categories) than in continental European countries; however they only used employment data for six countries.

From these studies there is little consistent support for the idea that wage dispersion has been the main influence on employment for the less qualified (and a similar conclusion is reached in the much more detailed comparisons with US experience of employment rates in the 1980s in France by Card et al (1996) and in Germany by Krueger and Pischke (1997)).

A fundamental problem in attempting to test for such effects in a cross section is that less pay dispersion could reflect less dispersion in the productivity of workers, and thus even be associated with relatively high employment of the least educated rather than the reverse. Moreover there is a more general endogeneity problem, as anything which drives down employment of the least qualified will presumably tend to drive down their wages. So simply finding no correlation between employment differences and wage dispersion (as in figure 4) would not prove that wage dispersion had no influence. However regressing employment rate differences on a measure of wage dispersion, including appropriate controls for the dispersion of productivity, can suggest whether differences between differences in wage dispersion across countries has been the major influence on employment outcomes.

**Table 4**

Coefficients and significance levels [p values] when variables added (one by one) to equation 1 for Employment Rate Differences, 1994		
	Men	Women (Test scores omitted from equation 1)
Ratio of earnings Q4/Q1 (Educational quartiles)	1.072 [.773]	4.607 [.269]
Overall Wage Dispersion D5/D1	4.541 [.316]	-1.446 [.826]
Minimum Wage (ratio to average)	12.39 [.297]	8.202 [.542]
Replacement Ratio (average of years 2-5)	2.231 [.535]	9.754 [.144]
EPL (ranking of severity)	0.020 [.895]	0.203 [.430]
ALMP (% of GDP normalised by unemployment)	-5.857 [.695]	10.68 [.598]
Home Ownership (%)	0.053 [.647]	0.183 [.223]
Trade Union Density (%)	-0.005 [.920]	0.136 [.135]
Centralisation of Bargaining (3-9)	-1.871* [.002]	-0.913 [.405]

Note: Only the ratio of earnings is available for men and women separately

\* Coefficient after dropping insignificant quantitative literacy

Two measures of earnings dispersion were added in turn to equation (1); the ratio of average earnings of the fourth to the first educational quartiles and then the usual OECD measure of the overall earnings dispersion (between the median and bottom decile). Table 4 reports the coefficients on the earnings dispersion variables and shows that the coefficients tend to be perverse (greater dispersion of wages being associated with larger differences in employment rates) and insignificant, despite the inclusion of the controls. Thus greater wage dispersion is not associated with higher employment at the bottom end of the labour market, given both the overall employment level, the educational level of the bottom end of the labour force and imports from the South. It should be emphasised that this is not a test of whether wage dispersion has *any* influence on employment at the bottom end of the labour market. However the results reported here do contradict the claim that wage flexibility is the *dominant* influence explaining why the less qualified are less employed in some countries than in others.

Minimum wages are sometimes thought to be an important influence limiting wage flexibility. Given the lack of significance of wage dispersion in accounting for employment rate differences it is hardly surprising that an index of the generosity of minimum wages is also insignificant when added to equation 1.

High and long-lasting benefits might decrease the labour supply (and thus reduce employment rates), an effect which could be particularly strong at the bottom of the labour market. Using the OECD replacement ratio data base, a variety of summary replacement ratio measures were constructed, both for the first six months of benefit (either calculated at average earnings or at two thirds of average earnings) and for years 2-5 of benefit (to capture the longer-term impact). When added individually none of the coefficients were significant (the results for the longer-term benefits are shown in the table).

Employment protection legislation is also criticised as inhibiting employment creation, and presumably the effect would be strongest at the bottom of the labour market. However if an index of the severity of employment protection is added to equation (1) it is quite insignificant. Conversely active labour market policies could help to prevent long-spells out of work, and this might be particularly important for the less qualified. Expenditure on ALMP, normalised for unemployment to reduce endogeneity, is not significantly related to employment rate differences; this is disappointing perhaps as ALMP should be of particular assistance to those with fewer qualifications. A high level of home ownership has been suggested as an important influence on unemployment by inhibiting labour mobility (Oswald 1996); however there is no extra impact on joblessness of the less qualified.

Finally strong trade unions might be in a position to protect jobs at the bottom end of the labour market, or according to another view might inhibit job creation. Neither trade union density (shown in the table) nor the coverage of collective bargaining agreements is significant if added to equation 1. However a high degree of centralisation of collective bargaining (see figure 5) is significantly associated with a smaller employment difference for men (but not for women); when the centralisation index is included literacy skills variable is no longer significant. This is probably because centralisation of bargaining is associated with less dispersion of educational attainment (just as it tends to bring less dispersion of wages) but centralised bargaining may also foster better training and may have inhibited massive bursts of industrial redundancies which tend to generate labour market withdrawal.

It is important not to claim too much for these results, especially given the very limited degrees of freedom and the difficulties of constructing a panel (the literacy data for example is only available for one year). Nickell (1997) found that a number of the variables considered here, in particular those concerned with the wage bargaining system, were influential in determining employment outcomes overall. It seems, however, that they did not have any *additional* effect on employment rate differences between educational quartiles over and above their influence if any through affecting the overall employment level.

The broad conclusion from this section is surprisingly strong. Neither greater wage dispersion nor other

Regressions on Unemployment Rate differences Q4ed — Q1ed*, 1994						
	Constant	Average Unemploy-ment Rate (%)	Replace-ment ratio Years 2-5	Manufacturing Imports From South (% GDP)	Quantitative Literacy (Q4/Q1)	R <sup>2</sup> corr (N)
Equation/Category						
(2a) Men	-10.63 [.077]	0.585 (.134) [.001]	9.593 (1.69) [.000]	0.889 (.465) [.078]	5.387 (3.22) [.118]	0.719 (19)
(2b) Women	-8.710 [.489]	0.216 (.158) [.194]	13.19 (2.64) [.000]	0.849 (.978) [.400]	5.267 (7.27) [.466]	0.283 (19)

\* Absolute percentage points differences

Figure 1 Employment Rate Differences, Q4-Q1, Men 1994

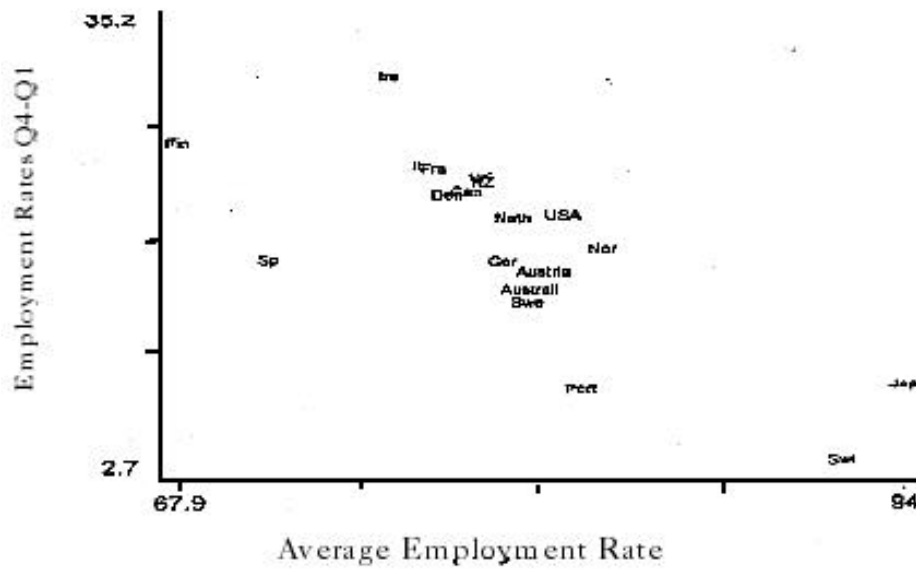


Figure 2 Employment and Educational Differences, 1994 Men 25-64

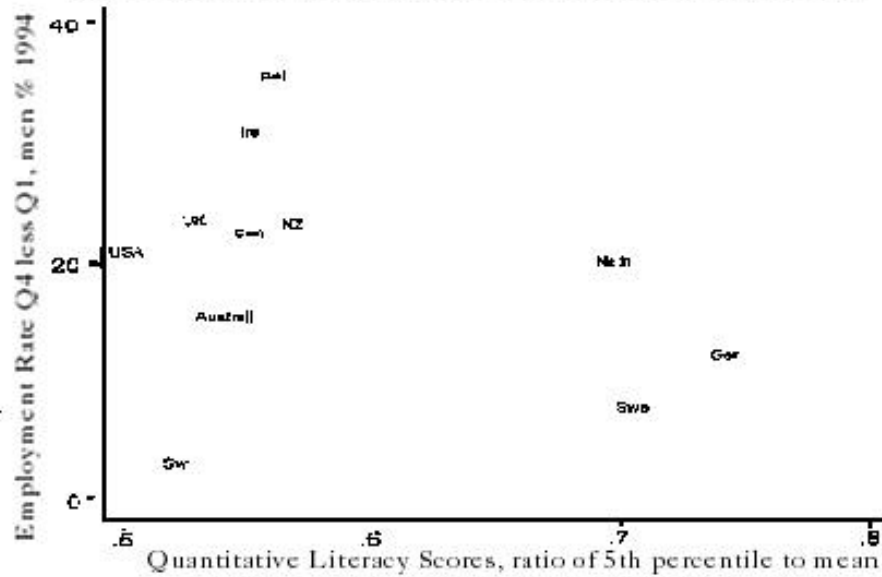


Figure 3 Employment Diff., Men and Imports from the South, 1990

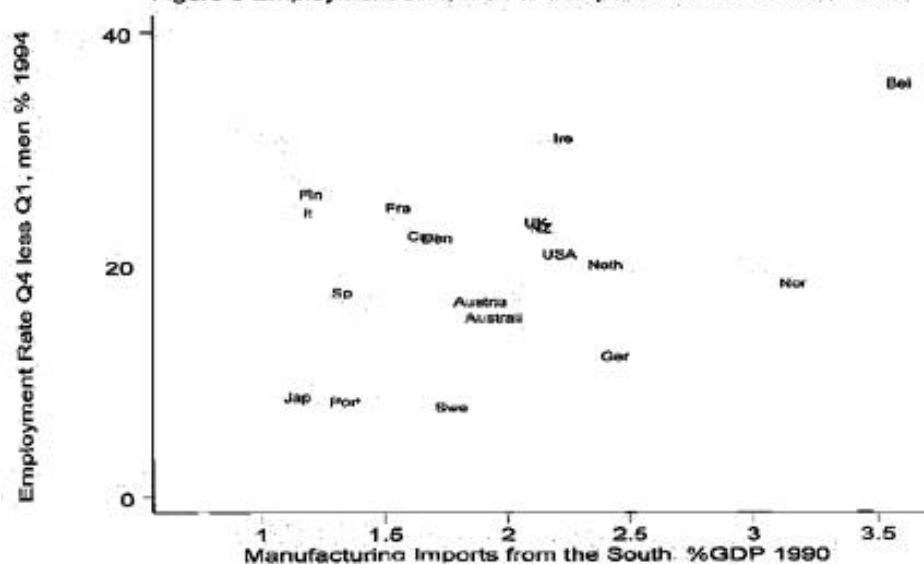
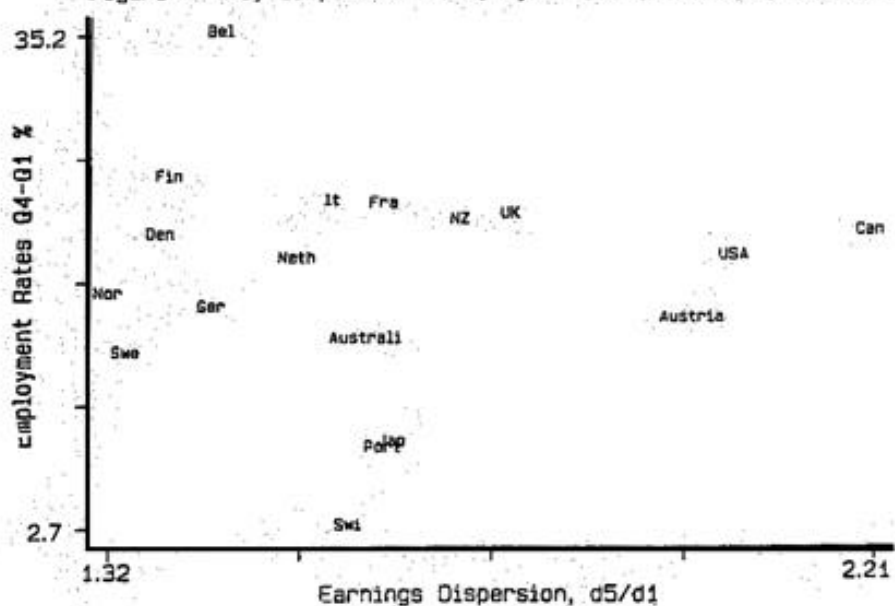


Figure 4 Pay Dispersion & Employment Differences, Q4-Q1 Men 1994



## Conclusions

This paper has attempted to present systematically the differences in the employment rates of the best and least qualified in the OECD countries. These differences are large and vary considerably between countries, with the USA by no means displaying the superior performance which is often assumed.

The analysis has so far mainly been confined to a single cross section in the mid-1990s, with "country effects" omitted. Bearing in mind this limitation the main conclusions are:

1. For both men and women a major influence on employment rate differences between the top and bottom educational quartiles is the overall employment rate; when the employment position deteriorates, those at the bottom of the qualifications scale suffer disproportionate employment losses.
2. The educational attainment of those at the bottom of the educational distribution significantly influences the employment differences for men; This effect does not show up for women, is very much

weaker for unemployment rate differences, is only significant once the overall employment rate is controlled for and is rendered insignificant when centralisation of bargaining is included in the regression. Nevertheless this constitutes some evidence that that countries which have less dispersed educational outcomes also display less extreme employment disadvantage for the least qualified men.

3. Import penetration by manufactures from non-OECD countries reduces job prospects for the least qualified.

4. There is no significant association between employment differences across countries and the extent to which new technology is implemented, at least when measured by R & D intensities.

5. There is no observable tendency for countries where wage dispersion is greater to have smaller employment rate differences between the best and worst educated.

6. A high replacement rate from longer-term unemployment benefits is associated with larger unemployment differences between educational quartiles; there is no significant impact on employment differences, suggesting that benefits mainly affect the split between unemployment and inactivity.

7. Employment Protection Legislation, the generosity of minimum wages and active manpower policies have no discernible impact on employment rate differences. However centralised bargaining procedures are associated with smaller employment differences for men.

The central conclusion is that labour market flexibility, encouraged by low minimum wages and benefits and weak employment protection, and reflected in high wage dispersion, has *not* been the route by which some OECD countries have managed to minimise the employment disadvantage of the least qualified. Countries with centralised bargaining systems have fared better and any impact of deregulation appears to have been marginal as compared to the influence of the overall demand for labour.

## Data Appendix

Employment rates, Unemployment Rates, Inactivity, Employment Rates by Educational Category kindly supplied by OECD (background data for *Employment Outlook 1997 table 41.b*); used to calculate quartiles. Data for 1981 supplemented by calculations from OECD Jobs Study (tables 1.6 and 1.16) for Italy, Japan. Data for Netherlands calculated from Labour Force Surveys. Data for Germany from the Mikrocensus tables kindly calculated by Ronald Schettkat. Data for Sweden calculated from Labour Force Survey Data supplied by Statistics Sweden (1996 is chosen as the first year of more satisfactory attribution of educational qualifications which substantially increases differences between quartiles).

**Test scores.** Ratio of average score of fourth quartile to average score of first quartile for 5 quantitative tests, calculated, for men and women separately from CD of background data for OECD *Literacy Skills in the Knowledge Society* 1997 data for Australia kindly supplied by Mark Chapman from ABS.

**Imports from South 1990 :** Manufactured imports from non-OECD as % GDP from table 2.6 S.Saeger *Trade, Industrial Structure and Employment: Evidence from the OECD* Harvard mimeo 1995.

**Research and Development :** R and D spending in Manufacturing as % of Value Added, Business R & D as % of GDP from OECD *Technology and the Economy* (1992) tables 1,4.

**Minimum Wage as Percentage of Average Earnings :** J. Dolado et al "The economic impact of minimum wages in Europe" *Economic Policy* 1996 No 26 refers to c 1993. Australia from *The National Minimum Wage* table A6.2 HMSO (1998) plus Canada NZ & Japan from *Employment Outlook 1998 table 2.3*

**Ratio of d5 to d1 Earnings all Workers c 1993** *Employment Outlook 1996*

*Ratio of earnings of first to fourth educational quartiles constructed from Education at a Glance OECD 1996.*

*Replacement Ratios : Average of 3 different family situations, 40 year old worker on 2/3 average wage and years 2-5 of benefit. OECD Unemployment Benefit database kindly supplied by OECD.*

*Union Density, Collective Bargaining Coverage, Centralisation of Bargaining, Co-ordination of Bargaining Employment Outlook 97 ch 3 average of values for 1980, 1990, 1994; for Ireland centralisation estimated.*

*Employment Protection Legislation Ranking OECD Jobs Study table t 6.7*

*ALMP Employment Outlook 1997 (normalised by unemployment )*

*Industrial Employment 1994; Share of total OECD Historical Statistics.*

*Home Ownership From A.Oswald "A Conjecture on the Explanation for High Unemployment in the Industrialised World", Warwick Economic Research Papers No 475, December 1996.*

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