

IZA DP No. 152

# **The Role of the Minimum Wage in the Welfare State: An Appraisal**

Juan J. Dolado  
Florentino Felgueroso  
Juan F. Jimeno

May 2000

# **The Role of the Minimum Wage in the Welfare State: An Appraisal**

**Juan J. Dolado**

*Universidad Carlos III de Madrid, CEPR and IZA, Bonn*

**Florentino Felgueroso**

*Universidad de Oviedo, Spain and FEDEA*

**Juan F. Jimeno**

*Universidad de Alcalá, FEDEA, CEPR and IZA, Bonn*

Discussion Paper No. 152  
May 2000

IZA

P.O. Box 7240  
D-53072 Bonn  
Germany

Tel.: +49-228-3894-0  
Fax: +49-228-3894-210  
Email: [iza@iza.org](mailto:iza@iza.org)

This Discussion Paper is issued within the framework of IZA's research area *The Welfare State and Labor Markets*. Any opinions expressed here are those of the author(s) and not those of the institute. Research disseminated by IZA may include views on policy, but the institute itself takes no institutional policy positions.

The Institute for the Study of Labor (IZA) in Bonn is a local and virtual international research center and a place of communication between science, politics and business. IZA is an independent, nonprofit limited liability company (Gesellschaft mit beschränkter Haftung) supported by the Deutsche Post AG. The center is associated with the University of Bonn and offers a stimulating research environment through its research networks, research support, and visitors and doctoral programs. IZA engages in (i) original and internationally competitive research in all fields of labor economics, (ii) development of policy concepts, and (iii) dissemination of research results and concepts to the interested public. The current research program deals with (1) mobility and flexibility of labor markets, (2) internationalization of labor markets and European integration, (3) the welfare state and labor markets, (4) labor markets in transition, (5) the future of work, (6) project evaluation and (7) general labor economics.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character.

## **ABSTRACT**

### **The Role of the Minimum Wage in the Welfare State: An Appraisal\***

In order to offer a balanced assessment of the role of minimum wages in the Welfare State, seven basic questions need to be answered: (i) Why is the minimum wage a useful redistributive tool?; (ii) How binding are minimum wage floors in different countries?; (iii) To what extent do minimum wages have the adverse consequences that standard analysis predict?; (iv) Are there strong theoretical grounds underlying the revisionist results?; (v) Who supports minimum wages?; (vi) Under which conditions is the minimum wage a better tool than other policy instruments to achieve income redistribution?; and, finally, (vii) What is the overall cross-country time-series evidence regarding the employment effect of the minima? The aim of this paper is to provide an appraisal on the available evidence for each of the above-mentioned issues.

JEL Classification: J31

Keywords: Minimum wages, employment, inequality

Juan J. Dolado  
Dpto. Economía  
Universidad Carlos III de Madrid  
Calle de Madrid, 126  
28903 Madrid  
Spain  
Tel.: +34-91 6249300  
Fax: +34-91 6249313  
Email: [dolado@eco.uc3m.es](mailto:dolado@eco.uc3m.es)

---

\* This paper was presented as Inaugural Lecture at the Annual Congress of the Swiss Society of Statistics and Economics, 23-24 March 2000, Solothurn, Switzerland. We are grateful to M. Boldrin, L. Ljungquist for helpful comments on an early draft of the paper and to participants at the conference for insightful suggestions.

## **1. Introduction**

In the immediate after-war years, rising living standards were enjoyed across the entire workforce of most OECD member countries, regardless of individuals' position in the wage distribution. As such, the means to eradicate poverty aimed at ensuring that individuals were in work, relying on economic growth to keep poverty at bay. However, from the beginning of the 1980s it seems that in several countries (most notably in the UK and the US) the link between high growth and low poverty began to break down. Rising wage inequality and a rise in the proportion of households headed by low-wage workers (typically single parents or households with a single earner) seem to have brought about this new trend. Hence, low wages are now a key issue in the struggle to alleviate poverty.

In this scenario, minimum wages, despite bad textbook press, have emerged forcefully in the policy discussions with the traditional slogan “make work pay more than welfare” being back in play. An example of the change of viewpoint is the recent recommendation by the OECD (1998): *“A well-designed policy package of economic measures, with an appropriately set minimum wage in tandem with in-work benefits, is likely, on balance, to be beneficial in moving towards an employment-centred social policy”*.<sup>1</sup> The role of the minimum wage setting differs among countries and over time. In the US, the Reagan administration maintained a fixed nominal minimum which effectively lowered the wage floor in real terms and, according to the research by Di Nardo, Fortin and Lemieux (1996), its declining value in real terms can explain something like 25% of the rise in wage inequality, a much larger number than others had thought plausible. During the Bush mandate, in turn, Congress enacted increases in the minimum wage that were implemented in 1990 and 1991. On top of these increases, the Clinton Administration has considered a further

---

<sup>1</sup> Four years before the OECD recommended to “reassess the role of statutory minimum wages as an instrument to achieve redistributive goals, and switch to more direct instruments. If it is judged desirable to maintain a legal minimum wage as part of an anti-poverty strategy, consider minimising its adverse employment effects...” (OECD, 1994)

increase of the federal hourly minimum from \$4.25 in 1996 to \$5.15 in 1997.<sup>2</sup> By contrast, in 1993, the Conservative government in the UK abolished the 26 remaining Wages Councils (except in agriculture), which set minimum wages for 2.5 million workers in low-paid sectors. As a result, wage inequality increased and this exacted a strong electoral price from the Tories in the last general election. Consequently, the Labour government instated successfully a National Minimum hourly wage of £3.70 for adults and £3.20 for youngsters. The French government, after failing to launch a reform to allow young people under 25 to be paid less than the minimum wage, withdrew the amendment in 1994. In view of the forceful reaction to this proposal, the subsequent Socialist government took a rise in the minimum wage as one of its key electoral promises. Consistently, during 1997 and 1998, the Jospin government has decided successive extra increases in the minimum wage over that required by law. The prevention of an excessive increase in labour costs, as a consequence of the definitive settlement of the statutory 35-hour week from January 2000, has been the main reason to explain no further extra increase since 1999. The Spanish government, in turn, has pursued a very different strategy. In exchange to moderate increases in the national minimum wage (adjusted to the expected increase in the consumer price index), it has agreed to remove the youth minimum wage at the request of the Spanish unions. Some recent changes in this area have also taken place in the developing countries. Thus for example, two of the fast-growing East-Asian “tigers”, Taiwan and Korea, introduced non-negligible minimum wages at the turn of the decade, while the same happened recently in two relatively successful Eastern European countries, Hungary and Poland.

Thus, despite the harsh judgement given by standard economics, minimum wages continually surface as a proper tool for redistributing income. The standard competitive model of the labour market says that, if the price of workers is artificially increased by a minimum wage, labour demand will fall. Thus, critics of the minimum

---

<sup>2</sup> In November 1999, this process has culminated with the approval of a Republican plan to raise the federal minimum wage by \$1 an hour over three years, to \$6.15 - providing a variety of tax breaks. In great contrast to earlier clashes, Republicans agreed to increase the minimum wage and the debate focused on how to increase the minimum instead of whether to increase it at all.

wage argue that, far from helping the poor, a minimum is more likely to leave them worse off. Raising unskilled wages will mean that employers take on fewer workers, pushing up unemployment and raising poverty. Furthermore, they argue that it may be ineffective, since relatively few of the lowest-paid workers are from poor families. By contrast, proponents of the minimum wage take the competitive working of the labour market as the exception, rather than the rule, arguing that in many reasonable instances “monopsony” (upwardsloping labour supply to the individual firm) corresponds to the rule. After all, nobody would agree with the competitive model prediction that if a firm pushes down wages all employees would immediately walk out and find jobs paying more elsewhere. In such a case, assuming that it is set at the right level, proponents of the minimum wage say that it would help to reduce poverty and income inequality at the same time. Not only would it raise the incomes of the lowest-paid employees, but it would also narrow the gap between their pay and that of those further up the pay scale.

Until the 1990s (see, e.g. the survey in Brown, Gilroy and Kohen, 1982), most of the evidence seemed to confirm the critics’ viewpoint. Specially during the 1970s and 1980s there appeared to be a strong correlation between several OECD countries’ relatively high minimum wages and rising unemployment among young workers (Europe and US) and among some ethnic minorities (blacks and Hispanics in the US). However, this orthodox view has been challenged particularly in the US (see Card and Krueger, 1995), by several authors who studied the employment effects of two recent minimum wage increases in the early 1990s, finding no measurable impact on employment in a wide range of very low-wage sectors, considered most vulnerable to a minimum rise. Indeed, in several cases they even found that the number of jobs had even increased. Recent research in the UK, following the abolition of wage councils (see, e.g., Machin and Manning, 1996), and in some other European countries, following significant changes in minimum wages (see, e.g., Dolado et al., 1996) echoed those unexpected findings.

The new evidence has not gone unchallenged (see, e.g., the papers criticising Card and Krueger's evidence in AER, 1995 and Kennan, 1995): errors creeping from

telephone surveys which underlie the US evidence, an improvement in the efficiency of the sectors affected by the abolition of the minimum wage in the UK, the mere fact that “teenagers like hamburgers” in the experiment analysed by Card and Krueger (1995) about the employment effects on New Jersey fast foods, etc., have been claimed against the revisionist results. Nonetheless, some of these counter-arguments suffer from the same sort of flaws as the papers they aim to attack (reduced sample sizes, lack of proper controls, etc.). Thus, cutting through the emotive positions of proponents and opponents, in order to offer a more balanced assessment of the impact of the minimum there is no substitute for moving one step backward and try to answer the following basic questions: (i) Why is the minimum wage a useful redistributive tool?; (ii) How binding are minimum wage floors in different countries?; (iii) To what extent do minimum wage have the adverse consequences standard analysis predict?; (iv) Are there strong theoretical grounds underlying the revisionist results?; (v) Who support minimum wages? (vi) Under which conditions is the minimum wage a better tool than other policy instruments to achieve income redistribution? and, finally, (vii) What is the overall cross-country time-series evidence regarding the employment effects of minima?

Our aim in this paper is to provide some reflections on those seven issues by devoting the following seven sections to each of them.

## **2. Characteristics of the Minimum Wage as a Redistributive Tool**

It is well taken that all methods of redistribution have some unintended adverse effects on incentives and behaviour. The key question, therefore, is not whether the minimum distorts market outcomes in absolute terms, but how its distortionary effects compare with those of other modes of redistribution, or with the benefits of redistribution.

According to Freeman (1996) there could be, in principle, four attributes of minimum wages which make them an attractive redistributive tool:

(i) **It has no immediate budgetary consequences.** Pass a minimum wage law and neither taxes nor public sector borrowing requirement will rise (contrast with negative income taxes or subsidies for low-wage workers, both of which come out of the government budget). This is not, however, the case for countries (e.g. Netherlands and Spain) where social benefits are directly linked to the minimum wage. Thus if there is a case for raising the minimum wage, there should also be a case for decoupling it from benefits and social security contributions.

(ii) **It increases incentive to work.** Measured labour participation may fall owing to the adverse employment effects of the minimum (if there are such effects) but, if jobs are available at the minimum wage, people will take them (assuming that unemployment benefits are sufficiently low). By contrast, most ways of transferring income to the poor (family income supplements subsidies to consumption items, etc) typically have distorting effects reducing the incentive to work. However, by increasing participation it may reduce further accumulation of human capital by those workers who withdraw from schooling in favour of early participation in the labour market. Further, it may adversely affect on-the-job training since the existence of wage floors prevents firms from shifting onto wages the proportion of the training costs to be financed by the worker.

(iii) **It is administratively simple.** Thus, it makes it easy to determine compliance and report violations, minimising the need for a sizeable enforcement agency. Nonetheless, employers can find subtle ways to reduce the hourly wage without violating the statutory minimum, for example by extending working time or by reducing training schemes (though in some circumstances this may be advantageous to the workers and the firm if it avoids shutdown).

(iv) **It establishes the “right” social cost of labour in the markets.** If the minimum reflects what society will, in fact, provide the low paid, this makes low-wage firms and, ultimately, the consumers of their products, bear the full cost of that labour, rather than having the part of the cost through taxes and subsidies. In other words, minimum wages do not subsidise low-wage jobs, as do other forms of redistribution. In this respect, consumers are often ready to support minimum wage rises even if they are not particularly favourable to social welfare schemes (people prefer to reward those who work, i.e., the “deserving” poor rather than those who do not work, i.e., the “underserving”).

### **3. How Binding are Minimum Wages?**

Two standard measures are used: i) the Kaitz index, namely, the ratio of the minimum to average wage, and ii) the “spike” in the wage distribution corresponding to the minimum, namely, the fraction of workers paid at or close to the minimum. In Table 1 we present a comprehensive summary of the systems of minimum wages in operation in the OECD (see Dolado et al, 1996 and Neumark and Wascher, 1999).

Minimum wages in most European countries are about 50-70% of average earning (35% in Spain) compared to 33% in the US. In countries with a number of different minimum wages, there are obviously difficulties in computing a single measure of the Kaitz index. In countries with a single statutory minimum, the effective Kaitz index will be much higher for less skilled than for more skilled workers because the numerator in the index is the national minimum and the denominator is much lower for the former class of workers.

Given a higher Kaitz index in Europe than the US, it is tempting to claim that minimum wages might cause job losses in Europe even if they do not in the US (see, e.g. OECD Jobs Study, 1994). But this may be mistaken. Many commentators feel that the effect of minimum wage is strongest in the youth labour market. However, the US has little provision for lower youth minimum wage (the Kaitz index for young workers was 85% before the 1996 reform) but most European countries have extensive variation in the minimum by age.

Although the Kaitz index is the most widely used measure of the impact of the minimum, concerns are expressed about its use as a measure of the impact of minimum wages, the reason being that a rise in the minimum wage could affect the average wage less than proportionally, as some available evidence suggest that this is the case (see, e.g. Bazen and Martin, 1991, and Dolado, Felgueroso and Jimeno, 1997, and the Appendix in Dolado et al, 1996). What this suggests is that knowledge of the so-called spill-over effects might be important not just for understanding the links between minimum wages and wage inequality but also the impact of minimum wages on employment. As above mentioned, given that the US has no variation in the minimum wage by age, minimum wage is very high in the youth labour market yet the estimates of the employment impact are very small. One possible explanation of this fact is that spill-overs are very different depending on union power. In the US, where unions are weak, the minimum wage acts as a safety net with very little spill-over effect. On the contrary, in European countries, unions use increases in the minimum wage as a launch pad for their wage demands leading to a larger spill-over effect and a more adverse effect of the minimum wage on employment. Figure 1 illustrates the differences between agreed minimum wages in collective bargaining and the statutory minimum wage in four important industries in Spain which range from 20% in the Textile sector to 80% in the Construction sector.

In the case where collective bargaining (or unemployment benefits) provides upper floors to wages, the Kaitz index and the spike may give different impressions of the importance of minimum wages. So, e.g., in Sweden, the Kaitz index is higher than

in the US, but other institutions compress the wage distribution so strongly that nobody actually receives the minimum. Some estimates of the spike are also presented in Table 1: they tend to be in the region 5-10%, being slightly higher in Greece and Portugal (due to the large share of agriculture) and in France (12%), whose SMIC is often singled out as an example of minimum wages in Europe.

As regards the evolution of the Kaitz index and the spike over time shown in Figures 2a and 2b, there are few dramatic changes in the Kaitz index in European countries. It is hard to argue from this that aggressive increases in minimum wages caused the stagnated performance of European employment. But failure to decrease the index in response to changed market circumstances (such as globalisation and skill-biased technical change) might still have had a negative effect. We will have more to say about this later in section 8. With regard to the spike, the evidence for many countries is that it has not changed much, except France in the 1980s (although it has only returned to the level of the 1960s where unemployment was only 2 per cent compared with more than 10 per cent nowadays). Thus, again on this front, the conclusion is that there is no evidence that minimum wages are a more serious constraint on the European economies than 30 years ago.

#### **4. The Economics of the Minimum Wage**

The conventional wisdom about the implications of standard economic theory can be encapsulated in four propositions:

- (I) A binding (above the competitive wage) minimum wage cannot increase employment and generally reduces it.
- (II) Its adverse employment effects are largest in small open economies where competitiveness matters the most.
- (III) Young workers are most affected.
- (IV) Minimum wage earners do not usually come from the poorest households, so minimum wages do little to alleviate poverty.

Is this picture accurate? Let us take each point at a time.

(I) The standard argument about the effects of a minimum wage like on employment is based on the competitive paradigm. However, embedding the analysis of the effect of a minimum wage within a labour market assumed to be perfectly competitive is not the only possibility. Labour market textbooks, perhaps as a curiosity, mention that, under monopsony (traditionally identified with a single buyer of labour), a minimum wage may boost employment if judiciously set within the range determined by the monopsonistic and the competitive wages. Figure 3 depicts the standard graph on this issue where the crossing between the solid lines representing the marginal cost and the marginal revenue-product of labour (MRPL) determine the monopsonistic outcome ( $W_m, N_m$ ). A minimum wage at  $W_0$  increases employment from  $N_m$  to  $N_0$ , whilst at  $W_1$  decreases employment from  $N_m$  to  $N_1$ . Interpreting monopsony as describing a particular firm with exclusive access to a completely isolated labour market is surely rare. When other firms are present, one might expect competition from alternative employers to monopsony, effectively driving the reservation wages of all potential workers up to the competitive wage. What might prevent this? The

literature sometimes, in parallel with the appearance of the new revisionist empirical evidence, has suggested several possibilities:

- i) Oligopsonistic models which rely on non-wage-taking behaviour and where the rate of exploitation will be proportional to concentration of firms (see Demsetz, 1973 and Bhaskar and To, 1999). These models arise if firms differ discretely along dimensions, like location or working conditions, and workers have heterogeneous preferences over those dimensions, or if workers must pay costs (whether pecuniary or psychic) to change firms (see Ioannides and Pissarides, 1985).
- ii) Equilibrium Search models where monopsony is implied by diseconomies of scale in hiring workers (see Burdett and Mortensen, 1989).
- iii) Efficiency Wage models, where firms suffer from diseconomies of scale in monitoring workers and, therefore, must increase wages when expanding their workforce to maintain the required penalty for shirking (see Calvo and Wellisz, 1979, Rebitzer and Taylor, 1995 and Manning, 1995). A natural implication of these models, is the presence of an upward-sloping supply in the long-run; and
- iv) Training Enhancing models, where a binding minimum wage induces workers to raise their productivity to the level of the minimum by acquiring education which otherwise would not have been taken (see e.g. Cahuc and Michel, 1996 and Acemoglu and Pischke, 1999)

(II) This argument makes only sense if the market is competitive for then a given rise in the minimum wage will have a larger negative effect on employment the more elastic (flatter) is the labour demand curve, as is most likely with severe international competition. Under the competing hypothesis of “monopsony”, things are completely different: as the labour demand becomes more elastic the potential of the minimum wage to increase employment becomes much larger. The dashed MRPL’ line in Figure 3 displays this case.

(III) A high proportion of both research and policy on the effects of minimum wages focuses on the young. But while it is certainly true that young workers are more likely to be low paid than the average worker, it is not necessarily true that young workers make up the bulk of the low paid, since youngsters make up a small proportion of the total workforce. Young workers used to be a higher proportion of the low paid, but their importance has declined with rises in school enrolment and women's labour market participation. For instance, in the UK at 2/3 median earnings only around 25% of low wage earners are under 20, whereas in Spain the corresponding fraction is 12%. Thus, in most countries, the typical profile of low-pay workers corresponds nowadays to women, above 20 with some type of part-time contract. So, while some beneficiaries of a minimum would not be in poor families, an increasing fraction seems to be affected in the 1980s. (see Tables 2).

(IV) There is an important element of truth in this. The main cause of poverty, at least in most European countries is unemployment, but as Tables 3 and 4 show (see Marx and Verbist, 1998 and Dolado et al. 1996), between 50% and 60% of minimum wage earners are in the three lowest deciles of the household income distribution, and the fraction of low-paid in single or double-earner households may still range between 5% and 30%. Moreover, low wages influence the unemployment rate by affecting the effective replacement rate, i.e., the ratio of out-of-work to in-work income. Moreover, the interaction of means-tested benefits system with a labour market that is increasingly offering low wage-low hour vacancies is proving a barrier to work. In this sense, a judicious rise in the minimum wage while keeping unemployment benefits fixed, and moving toward individual rather than household means-testing, would help tackle the poverty trap and improve job searching. In this respect, however, an important issue, to be discussed at more length in section 7, is whether a negative income tax provides a better means of distribution than a minimum wage (see Atkinson, 1995).

The conclusion should be that perfect literate economic argument can be constructed for and against a minimum wage. Theory alone will not resolve the debate: evidence is what is needed.

## **5. Employment Effects of the Minimum Wage**

It is often claimed that the group which most likely pays for the minimum are low-wage workers through the loss of jobs. If the elasticity of demand for minimum wage workers exceed unity, the minimum will reduce rather than increase the share of earnings going to the low-paid. The general conclusion of the studies covering the pre-1980 minimum wages is that the estimated elasticity of employment with respect to changes in the minimum was a modest  $-0.2$  (see Brown, Gilroy and Kohen, 1982). More recent research surveyed in Neumark and Wascher (1999) raises that elasticity in some cases up to  $-0.4$  or  $-0.5$ . The implication of these results is that a rise of the minimum wage of 10 per cent reduces employment by just 4 or 5 per cent and therefore increases the share of income received by minimum wage earners by 5 or 6 per cent. In the early 1990s, the new set of revisionist studies even found more favourable evidence since there was absence of noticeable employment losses (in some cases there were even gains). Perhaps the most interesting case is France, whose minimum wage (SMIC) is often singled out as being at such a high level that it causes serious harm to employment. Yet it is hard to find much evidence in favour of this (see Dolado et al., 1996). Notwithstanding, more recent and scrupulous evidence provided by Laroque and Salanié (1999) finds that the French minimum wage (about 5,000 francs per month in 1997) explains close to 15% of non-employment for married women.

Still, it is possible to concede that if even only a few workers are unemployed by the minimum, there may be some undesirable redistributive effects, particularly in labour markets where labour turnover is low and duration of joblessness is high (as in many European countries). This is so, since there is the risk that a minimum will divide the low-paid workforce into lucky winners and unlucky losers. Furthermore, there may be another undesirable consequence stemming from larger participation of skilled workers whose reservation wage is high and were not searching before. In this case, it is quite possible that middle-class secondary earners will “steal” the jobs from

the lower-income applicants even without any reduction in the demand for labour (see more on this in section 6).

Finally, the effects of minimum wages may depend on how it fits in labour relation systems. As above mentioned if the wage-setting system is such that higher-paid workers restore the differentials that the minimum has reduced, the redistributive purpose of the minimum wage could be subverted. There is again evidence that, in some European countries, changes in the minimum wage may well trigger general wage settlements, though the causality more likely runs in the opposite direction. There is also the case, as in Spain, where agreed minima in collective bargaining is superimposed on the statutory minima, enhancing the probability of inducing wage inflation and job losses (see Dolado et al, 1997 and 1998). Finally it could be the case that a rise in the minimum could lead some employers to reduce other non-pecuniary benefits in ways that would make minimum wage earners worse off. However, this issue is probably of most importance if most earners are part-time workers who are not entitled to those benefits anyway.

In spite of those relevant remarks, our reading of the new evidence is that in almost all cases under scrutiny, the minimum wage has been an effective redistributive tool when raised with no apparent serious adverse effect on employment (though the rise of youth minimum in Spain in 1990 had some serious adverse effects on the job opportunities of workers). Conversely, the reduction/abolition of minimum wages in UK did not show any dramatic improvement in the job fortunes of the workers affected (see Dickens et al., 1999), albeit they did in the Netherlands (see Nickell and van Ours, 2000). That adverse effects were hardly noticeable in most cases is no mean achievement for a policy tool in an era when the real earnings of the less skilled fell sharply in countries where no wage floors were present.

## **6. Who Support the Minimum Wage?**

The obvious answer is that it is supported by those who are likely to enjoy a wage rise. However there are more subtle arguments. For example, there are also some groups which may favour minimum wages because it makes low-paid labour less attractive to employers (high wage firms, unionised sectors) and therefore try to build barriers to competitiveness by making cheap labour more expensive. Alternative views can be obtained by interpreting the minimum wage, as any other labour market institution, from a political economy perspective. According to Saint-Paul (1996), assuming that spill-overs are negligible, the main difference between minimum wage and other institution is that it mostly affects the bottom of the income distribution, contrary to, say, unemployment benefits which directly affect all workers. An interesting argument is that the decisive median voter in this framework will possibly be an employed worker whose wage is slightly above the minimum. This is so if this group of workers can enjoy a high degree of substitutability with the workers who lose their jobs due to the minimum wage and a high degree of complementarity with capital. A rise in the minimum wage, by eliminating the least-skilled, would therefore increase the MRPL of the semi-skilled and hence their wages. Alternatively, the ruling “middle class” supports the minimum wage as a way of buying “social peace”. As long as the excluded are not numerous enough to be politically important, it is cheaper to exclude them than to redistribute to everybody. Conversely, they will oppose a reduction in the minimum wage since firms will be tempted to replace them with cheaper workers (this may explain why the French government’s attempt to lower the minimum wage for youngsters in 1994 was mostly opposed by young people whose potential wages were above the minimum wage but just by a narrow margin).

## **7. The Minimum Wages as a Policy Tool**

The minimum wage is not the only way to improve the living standards of the low-paid. Those who argue that a minimum wage is desirable need to show that it is a more effective policy tool than alternatives like reductions of unskilled labour taxes, subsidies financed by progressive labour income taxes (including in-work benefits) or the introduction of a non-distorting negative income tax. As earlier mentioned, the inefficiency of the minimum is the lost employment (if any) whereas the inefficiency of the tax transfer is the excess burden of taxes due to supply responses by taxpayers and the reduction in labour supply by low wage workers. As Freeman (1994) as pointed out, the choice between the two policies depends on their relative costs which in turn depend on the i) level of taxes; ii) elasticity of supply of high-wage earners; iii) income effect on the labour supply of low-wage workers; iv) job loss owing to the minimum; v) turnover of low-paid workers; and, vi) household income of low-wage workers.

A strategy based on minimum wages would be more effective if existing taxes are already high, high-wage workers have a large supply elasticity, low-wage workers have a large income effect, the demand for labour is inelastic (or even better if there is monopsony), labour turnover is high and few low-wage earners belong to high-income families. What does the evidence say on these issues? Probably, at least in Europe, it says that taxes are high, high-wage workers' supply elasticity is not large, income effects among low-paid are small, displacement effects are scarce, turnover is high and that there is an increasing fraction of poverty due to low pay. In sum, the score in favour of minimum wages is 4 out of 6 points.

In this respect, an interesting issue whether the existence of minimum wages would be justified if an optimal taxation scheme were to be available. In such a case, resources would be maximised, under a competitive labour market, and redistribution could be achieved at a lower cost than when minimum wage is imposed where, through a rise in unskilled labour cost and unemployment, resources are smaller.

Thus, an obvious question is why such a tax/subsidy system does not completely eliminate minimum wages (see, Saint-Paul, 1994). An answer to this question relies on second-best considerations (only linear taxes are considered, as in Allen, 1987, or employment subsidies are excluded, as in Drèze and Gollier, 1993) or simply than non-competitive features abound in the workings of the labour market. However, even if they were to be absent, political economy considerations may preclude the implementation of optimal negative tax systems. The argument, developed by Lehman (1999), is that if decisions on the way redistribution occurs are in the scope of skilled workers, they will realise that, since the potential amount of redistribution is lower under a minimum wage, it is in their interest to block the possibility of a negative income tax and hence redistribute less through the minimum wage.

However the available alternative is not either minimum wage or tax/subsidy schemes on their own. Both can co-exist. For instance, in-work benefits are successful if by increasing labour supply they generate downward pressure on wages and the taxpayer then subsidises low-wage jobs through the in-work credit scheme. When used in conjunction with minimum wages, however, there is a floor below which wages cannot fall, creating savings for the taxpayer and reducing the unemployment trap. To achieve this, nonetheless, long hours of work are needed to lift households out of the benefit receipt, which probably implies changing the available working hours thresholds in current in-work benefits systems. For example, in Figure 4, it is shown how the ratio between the minimum wage and poverty threshold has been declining in the US, to the extent that the Earned Income Tax Credit was expanded in 1993 to enable full-time minimum wage workers in families above three to be lifted out of poverty.

## **8. Cross-Country Evidence**

In this section, we summarise some of the “new minimum wage research” of recent years using Neumark and Wascher (1999)‘s results on the estimation of the effects of the minimum wages on youth employment by means of a pooled cross-section times-series data set comprising fifteen OECD countries for the period 1975-1997. This is a particularly interesting exercise since international data provides much greater variation than any of the national studies while it allows to control for a wide variety of labour market institutions/policies which either reduce or amplify the effects of minimum wages.

The model they estimate is as follows:

$$E_{it} = \delta_t + X_{it} \Gamma + P_i \Phi + (\beta_0 + \beta_1 P_i) MW_{it} + v_{it}$$

(i=1,..., N; t=1,...,T)

Where  $E_{it}$  is the employment rate of a particular age group;  $\delta_t$  denotes a set of time dummy variables,  $X_{it}$  is a set of controls (adult employment rates, ratio of youth to adult population);  $P_i$  is a set of time-invariant controls representing different institutions) policies comprising two indexes of labour standards and employment protection regulation, both developed by OECD, and the level of public expenditures on active labour market policies as a proportion of GDP, as of 1995;  $MW_{it}$  is the Kaitz index; and  $v_{it}$  is an i.i.d. error term. Two age groups are distinguished: “teenagers” (15-19) and “youths” (15-24).

Table 5 reports the estimated minimum wage effects on the employment ratios, calculated as the coefficient on  $MW_{it}$ , plus each of the coefficients on the interaction term multiplied by the value of the policy/institution variable for each country. We have ordered the countries from the most deleterious effects to the most beneficial effects for both age groups. There are seven countries where the estimated elasticities are negative and statistically significant where for the remaining eight

countries in the sample they are either insignificant or even positive. Moreover, the results are not very robust to the inclusion of fixed country effects as an additional regressor. For example, the elasticity for Sweden, the country with the most negative effect, turn out to be around 0.2 in such case. In general, those dummy variable could be capturing the existence of sub-minima for youth or by sector or that other minima are set at the collective bargaining being superimposed on the statutory ones.

Overall, we regard those estimates as providing the somewhat confusing menu of results which have been found in the national studies although they provide some light on the interaction of minimum wage with other labour market policies/institutions. In particular, the role of active labour market policies seems to be the paramount in explaining the relative performance of various countries.

The previous estimates, however, allow us to carry out an admittedly bold exercise regarding the likely employment effects of introducing a statutory minimum wage in Switzerland that was one of the key issues to be addressed at this conference. The estimated elasticities for  $\beta_0$  and the three components of  $\beta_1$  are  $-0.32$ ,  $-0.40$ ,  $0.12$  and  $0.02$  (for youths) and  $-0.24$ ,  $-0.89$ ,  $0.29$  and  $0.15$  (for teenagers), respectively. The corresponding values for Switzerland of the  $P_i$  variables are: Labour Standards (3), Employment Protection (1.75) and Active Policies (0.48). Using those values, in deviation from the sample averages, yields the following elasticities:  $-0.90$  (for youth) and  $-2.00$  (for teenagers). These elasticities are very high mainly due to the relatively high level of Labour Standards in Switzerland. Nonetheless, as is the case with Sweden, which also has very high negative elasticities, it may be that the incidence is low, covering the above estimates with a large dose of uncertainty.

## **9. Concluding Remarks**

Our reading of the evidence shown in this paper is that a minimum wage is not a panacea to poverty but it helps to redistribute income. It is true that, as any other redistributive interventions, it has inefficiency losses and may not always help those it is intended to work. It is also true that the long-term well-being of workers depends ultimately on increasing their productivity and setting a minimum wage may not help in this respect. However, policies to raise skills and potential earnings will do little to alleviate poverty in the short run. Thus, if judiciously chosen (set different rates across sectors and age), without interfering with the available wage-setting procedures (better in decentralised systems) or with existing in-work benefit systems (it should increase participation) or payroll taxes (there may be case for subsidising the social security payments of minimum wage earners), it can do more well than harm in breaking the lock of the poverty trap. In rethinking the welfare society, the mantra that minimum wages always cost jobs –and the insistence on a particular model of pay and employment that lies behind it- should be taken with great doses of scepticism, as many international institutions and national governments seem to be taking them nowadays.

## References

Acemoglu, D. and J.S. Pischke (1999): "Beyond Becker: training in imperfect labour markets", *Economic Journal*, 109, 112-142.

Allen, S. (1987): "Taxes, redistribution, and the minimum: a theoretical analysis", *Quarterly Journal of Economics*, 101, 477-489.

Atkinson, A.T. (1995): *Public Economics in Action: the basic income/flat tax proposal* (Oxford: Oxford University Press).

Bhaskar, V. and T. To (1999): "Minimum wages for Ronald McDonald monopsonies: A theory of monopsonistic competition", *Economic Journal*, 109, 190-203.

Bazen, S. and J. Martin (1991): "The impact of minimum wages on the earnings and employment of young people and adults", *OECD Economic Studies*, 16, 199-200.

Brown, C., C. Gilroy and A. Kohen (1982): "The effect of the minimum wage on employment and unemployment", *Journal of Economic Literature*, 20, 487-528.

Burdett, K. and D.T. Mortensen (1989): "Equilibrium wage differentials and employer size", Northwestern Center for Mathematical Studies in Economics and Management Science, Working Paper No. 860.

Cahuc, P. and J. Michel (1996): "Minimum wage, unemployment and growth", *European Economic Review*, 40, 1463-1482.

Calvo, G.A. and S. Wellisz (1979): "Hierarchy, ability, and income distribution", *Journal of Political Economy*, 87, 991-1010.

Card, D. and A. Krueger (1994): "Minimum wages and employment: a case study of the fast food industry in New Jersey and Pennsylvania Wage", *American Economic Review*, 84, 772-793.

Card, D. and A. Krueger (1995): *Myth and Measurement: The New Economics of the Minimum Wage*. (Princeton New Jersey: Princeton University Press).

Demsetz, H. (1973): "Industry structure, market rivalry, and public policy", *Journal of Law Economics*, 16, 1-9.

Dickens, R., S. Machin, and A. Manning (1999): "The effect of the minimum wages on employment: theory and evidence from Britain", *Journal of Labour Economics*, 17, 1-22.

Dolado, J., F. Felgueroso and J. Jimeno (1997): "The effects of minimum bargained wages on earnings : Evidence from Spain", *European Economic Review*, 1997, 41, 713-721

Dolado, J., F. Felgueroso and J. Jimeno (1998): "The Effects of Minimum Wages : Evidence from Spain" in S. Bazen, M. Gregory and W. Salverda (eds.), *Low-Wage Employment in Europe*, (Aldershot: Edward Elgar Publishing Limited).

- Dolado, J., F. Kramarz, S. Machin, A. Manning, D. Margolis and C. Teulings (1996): "The economic impact of minimum wages in Europe", *Economic Policy*, 23, 317-372.
- Di Nardo, J., N. Fortin and T. Lemieux: (1996): "Labor market institutions and the distribution of wages 1973-1992: a semi-parametric approach", *Econometrica*, 64, 1001-1044.
- Drèze, J.H. and C. Gollier (1993): "Risk sharing on the labour market and second best wage rigidities", *European Economic Review*, 37, 1457-1482.
- Freeman, R.B. (1994): "Minimum wages - Again!", *International Journal of Manpower*, 15, 8-25.
- Freeman, R.B. (1996): "The minimum wage as redistributive tool", *Economic Journal*, 106, 639-649.
- Ioannides, Y.A. and C.A. Pissarides (1985): "Monopsony and the lifetime relation between wages and productivity", *Journal of Labor Economics*, 3, 91-100.
- Kennan, J. (1995): "The elusive effects of minimum wages", *Journal of Economic Literature*, 33, 1950-1965.
- Laroque, G. and B. Salanié (1999): "Breaking down married female non-employment in France", CEPR Discussion Paper N°. 2239.
- Lehmann, E. (2000): "Unemployment as the outcome of a political process: minimum wage or negative income tax?", mimeo.
- Low Pay Commission (2000): *The National Minimum Wage: The Story So Far*. Second Report of the Low Pay Commission. (London: Stationary Office)
- Manning, A (1995): "How do we know that real wages are too high?", *Quarterly Journal of Economics*, 110, 1111-1126.
- Machin, S. and A. Manning (1996): "Employment and the introduction of a minimum wage in Britain", *Economic Journal*, 106, 667-673.
- Marx, I. and G. Verbist (1998): "Low-paid work and poverty: a cross-country perspective", in S. Bazen, M. Gregory and W. Salverda (eds.), *Low-Wage Employment in Europe*, (Aldershot: Edward Elgar Publishing Limited).
- Metcalf, D. (1999): "The Low Pay Commission and the National Minimum Wage", *The Economic Journal*, 109, 46-66.
- Neumark, D. and W. Wascher (1999): "A cross-national analysis of the effects of minimum wages on youth employment", National Bureau of Economic Research, Working Paper N°. 7299.
- Nickell, S. and J. van Ours (2000): "The Netherlands and the United Kingdom: a European miracle?", forthcoming in *Economic Policy*.
- OECD (1994): *The OECD jobs study. Facts, Analysis, Strategies*. (Paris: OECD).
- OECD (1998): *Employment Outlook*. (Paris: OECD).

Rebitzer, J. and L., Taylor (1995): “The consequences of minimum wage laws: some new theoretical ideas”, *Journal of Public Economics*, 56, 245-255.

Saint-Paul, G. (1994): “Do labor markets rigidities fulfill distributive objectives?”, *I.M.F. Staffs Papers*, 41, 624-642.

Saint-Paul, G. (1996): “Exploring the political economy of labour markets institutions”, *Economic Policy*, 23, 265-315.

U.S. Department of Labor (1998): *Minimum wage and overtime hours under the Fair Labor Standards Act*, 1998 Report to the Congress

**Table 1**  
Minimum Wages in the OECD Countries

Country	Kaitz Index	Minimum Wage Earners (%)	Youth Subminimum
<b>[National Minimum Wage]</b>			
Australia	0.35 (1992)	5.0	< 21
Belgium	0.60 (1992)	4.0	< 21
Spain	0.35 (1994)	5.0	No (since 1998) < 18 (before 1998)
France	0.50 (1993)	12.0	< 18
Greece	0.62 (1995)	20.0	No
Netherlands	0.55 (1993)	3.5	< 23
Portugal	0.45 (1993)	8.0	< 18
UK (*)		8.3	< 21
US	0.33 (1993)	4.0	< 21
<b>[Collective Bargaining/Wage Councils]</b>			
Germany	0.55 (1991)	--	--
Austria	0.62 (1993)	4.0	--
Denmark	0.54 (1994)	6.0	< 18
Ireland	0.55 (1993)	--	< 21
Italy	0.71 (1991)	--	--
UK (**)	0.40 (1993)	--	< 21
Sweden	0.52 (1992)	0.2	< 21

*Note:* (\*) National Minimum Wage (since 1999), (\*\*) Wage Councils

*Source:* Dolado et al., (1996), Freeman (1996), Neumark and Wascher (1999) and Low Pay Commission (2000)

**Table 2**  
 Characteristics of the low paid

	France (1990)	Netherlands (1985)	Spain (1990)	United Kingdom (1994)
Proportion female	0.54	0.81	0.58	0.66
Proportion age <21	0.09	0.01	0.41	0.29
Proportion part time	0.11	0.71	0.37	0.52

*Sources:* French computations from *Enquête Emploi*; Netherlands computations from *1985 Wage Survey*; Spanish computations from Valdés (1992), *Labour Force Survey* and *Tax Returns*, UK computations from *Labour Force Survey*.

**Table 3**Poverty incidence<sup>(1)</sup> by income configuration, prime-age couples (head aged 25-54) <sup>(2)</sup>

	Poverty incidence			All	Share in sample		
	double earner(3)	single earner(4)	no earner(5)		double earner(3)	single earner	no earner(5)
Australia 1989	0.9	9.0	64.7	5.9	67.8	27.9	4.3
Belgium 1992	0.1	2.9	28.2	3.0	57.2	36.1	6.7
Canada 1991	2.8	14.0	68.5	6.4	77.4	20.6	2.0
Denmark 1992	0.2	1.9	12.6	0.8	83.8	13.7	2.6
Finland 1991	0.5	1.5	[18.3]	0.7	88.7	10.7	0.6
Germany 1989	0.7	3.5	[63.7]	3.0	55.5	42.8	1.7
Netherlands 1991	0.4	3.6	34.8	3.1	51.6	44.5	3.9
Norway 1991	0.2	5.1	[27.5]	1.2	83.3	15.6	1.1
Spain 1990	3.8	12.0	41.9	10.8	27.3	69.3	3.4
Sweden 1992	0.5	4.7	26.9	1.9	83.4	13.5	3.1
UK 1991	1.1	14.6	70.7	10.6	65.2	28.4	6.4
US 1991	7.1	24.6	70.2	12.4	74.4	23.8	1.8

Notes: (1) 50% of average equivalent income threshold; equivalence scale: 1.0 for first adult, 0.5 for other adults and 0.3 for children; (2) self-employed excluded; (3) both partners non-zero annual earnings; (4) one partner non-zero annual earnings, other partner zero annual earnings and labour force status constant with non-employment; (5) both partners zero annual earnings and labour force status consistent with non-employment.

Source: LIS. Marx and Verbist (1998)

**Table 4**  
The relationship between minimum wages and income distribution

Decile	France		Netherlands		Spain		United Kingdom	
	% affected	% of affected	% affected	% of affected	% affected	% of affected	% affected	% of affected
All	7.2	100.0	11.5	100.0	6.6	100.0	14.5	100.0
1	10.1	13.2	35.0	30.4	23.5	35.5	41.7	28.7
2	11.3	15.8	21.0	18.2	12.2	18.4	19.1	13.2
3	13.1	17.7	24.0	20.9	9.6	14.5	18.2	12.5
4	8.4	11.4	16.0	13.9	7.4	11.2	12.2	8.4
5	6.6	9.1	8.0	6.9	6.2	9.4	11.8	8.1
6	7.4	10.7	5.0	4.3	3.2	4.8	10.3	7.1
7	7.1	9.8	2.0	1.7	2.1	3.2	12.1	8.3
8	5.1	7.4	2.0	1.7	1.3	2.0	8.0	5.5
9	2.2	4.1	1.0	0.9	0.6	0.9	5.4	3.7
10	0.6	0.8	1.0	0.9	0.1	0.2	6.9	4.7

*Notes:* For each country, the first column is the proportion of individuals in each decile of the equivalized household income distribution who are minimum wage earners; the second column is the fraction of individuals who are affected by the minimum wage who are in each decile. For the Netherlands it is the adult rate that is used for all workers, which is why the incidence is high. Households without any worker are excluded from these computations. These figures make no allowance for taxes and benefits that may be very important in practice. See Sutherland (1995) for an analysis of the UK, Nolan (1993) for Ireland, for analyses including the tax/benefit system.

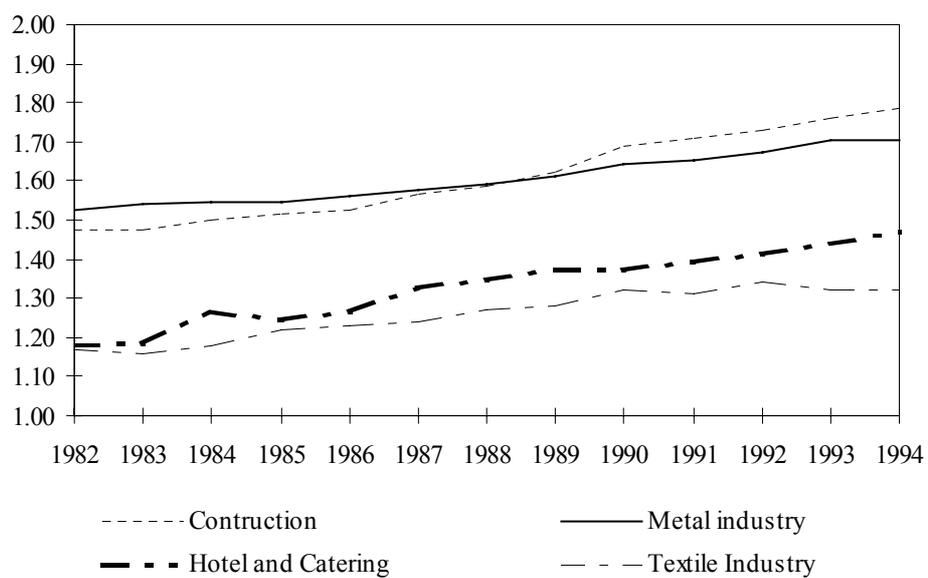
*Sources:* Spain and UK as in Table 3; France from the *Enquête Actifs Financiers* (1990); the Netherlands from a micro model used by the Ministry of Social Affairs.

**Table 5**  
Implied Minimum Wage Elasticities

<b>Youths</b>		<b>Teenagers</b>	
<b>Country</b>		<b>Country</b>	
Sweden	-1.26 (.23)	Sweden	-2.08 (.35)
Greece	-1.03 (.27)	New Zealand	-1.81 (.30)
New Zealand	-0.97 (.20)	Greece	-1.74 (.42)
Netherlands	-0.65 (.11)	Netherlands	-0.97 (.16)
Spain	-0.60 (.11)	Spain	-0.73 (.17)
Germany	-0.49 (.10)	Germany	-0.42 (.15)
France	-0.39 (.08)	France	-0.29 (.12)
Denmark	-0.28 (.22)	Denmark	-0.19 (.35)
Italy	-0.24 (.12)	Canada	-0.03 (.18)
Canada	-0.11 (.12)	Italy	0.18 (.18)
Japan	0.12 (.13)	US	0.42 (.23)
Belgium	0.13 (.15)	Japan	0.51 (.20)
U.S.	0.13 (.15)	Belgium	0.92 (.35)
Portugal	0.35 (.24)	UK	1.02 (.29)
UK	0.36 (.19)	Portugal	1.41 (.36)

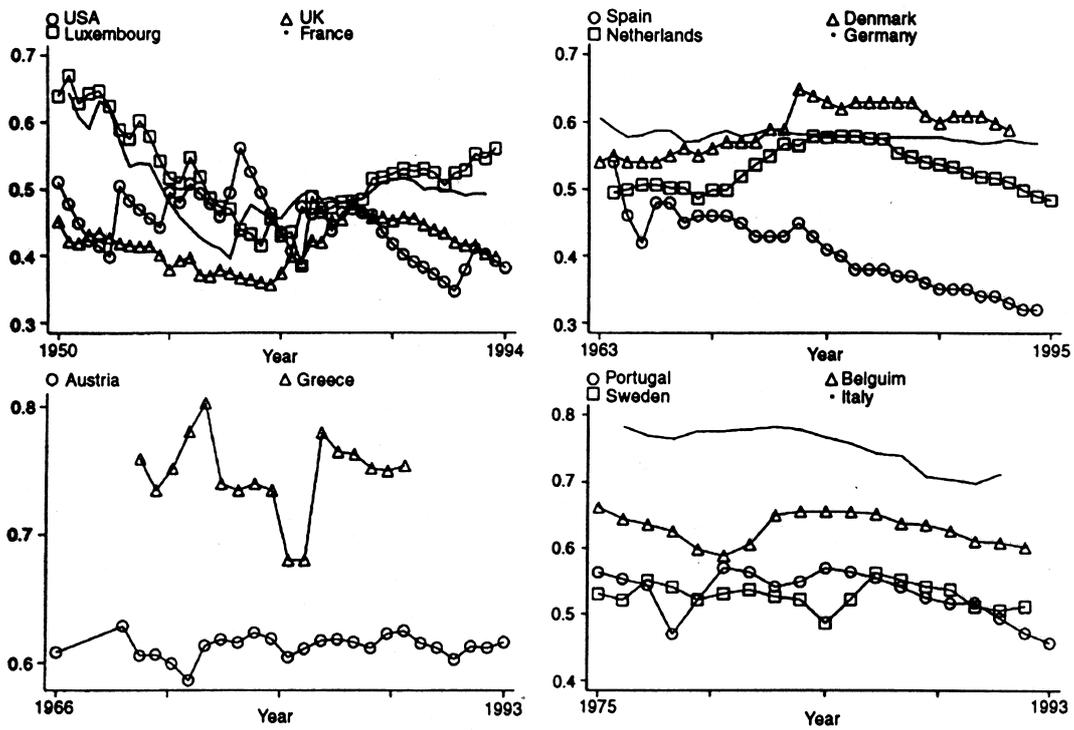
*Notes:* Taken from Table 8 (columns 4 and 9) in Neumark and Wascher (1999). Standard errors in parentheses.

**Figure 1**  
Differences between agreed minimum wages and the statutory minimum wage by sectors (Spain, Adults)



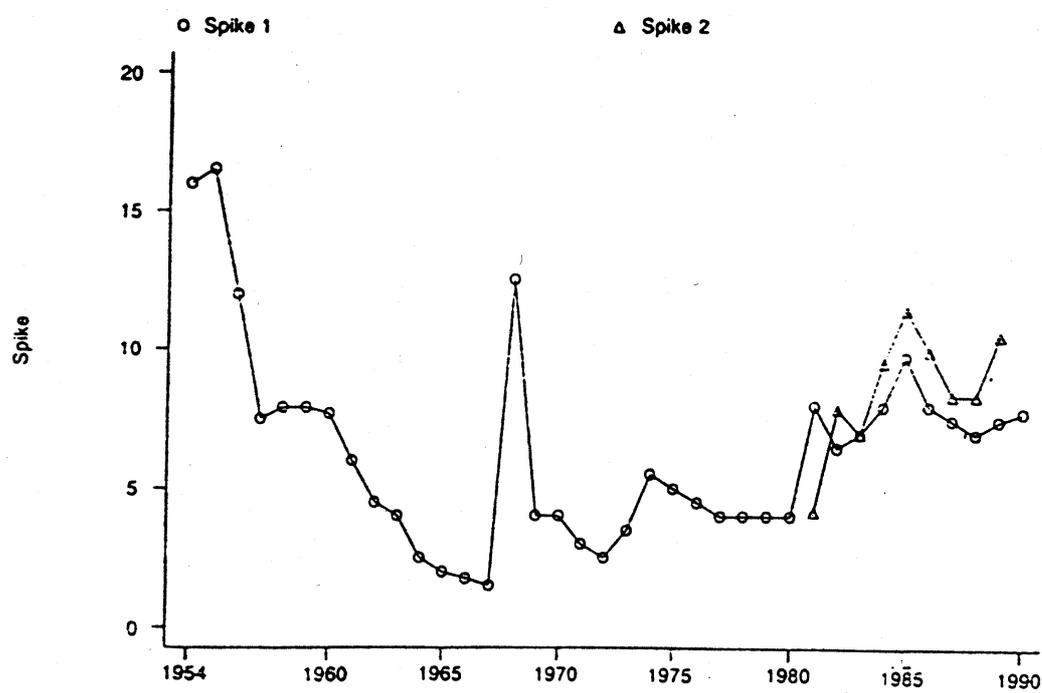
Source: Dolado et al. (1997)

**Figure 2a**  
Kaitz indexes in selected countries



Source: Dolado et al (1996)

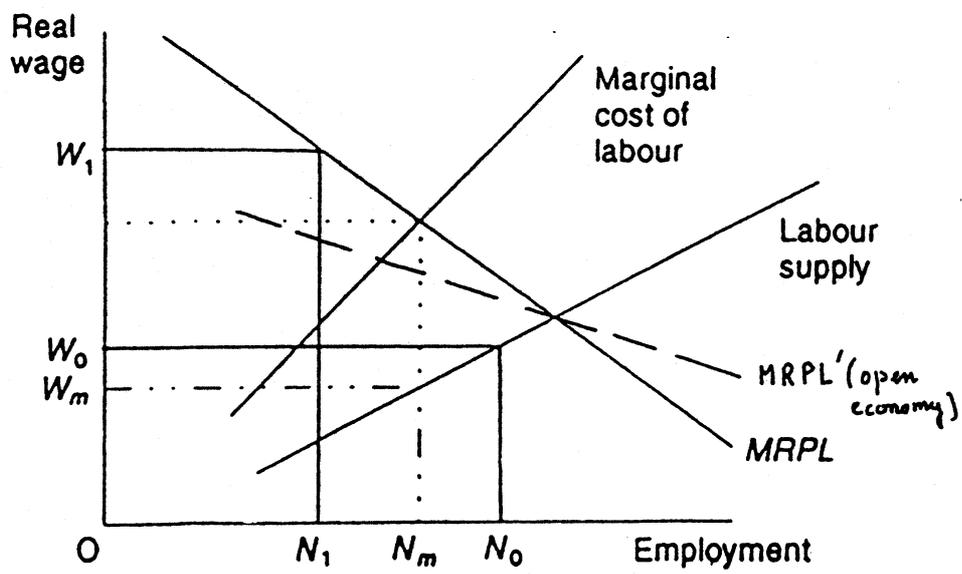
**Figure 2b**  
The evolution of the spike in France



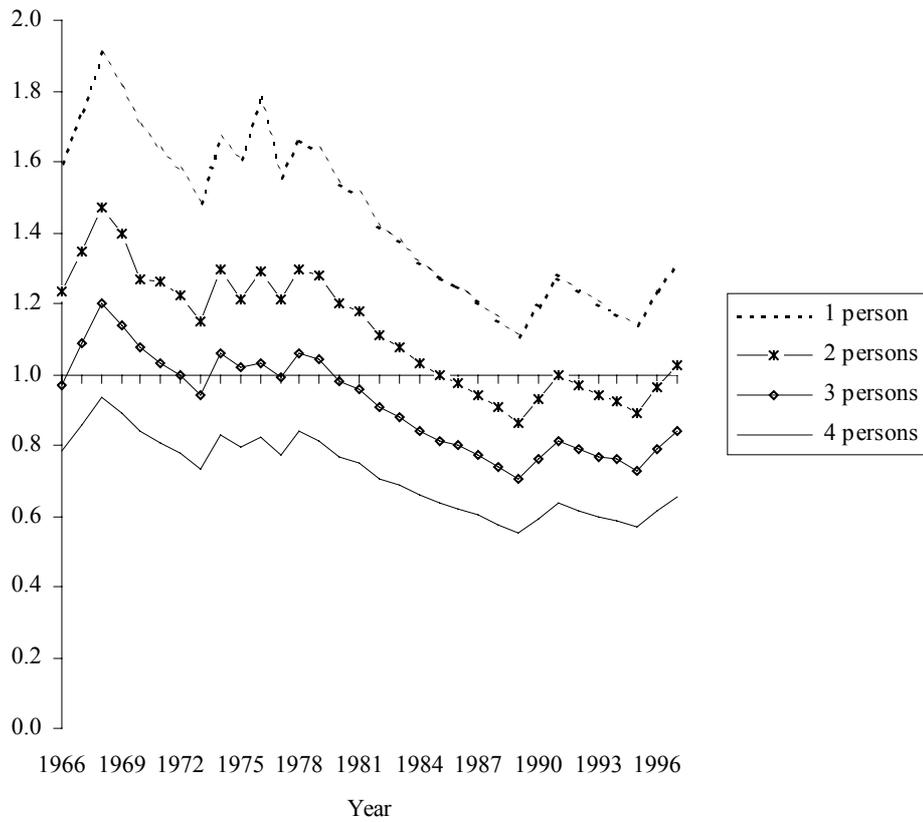
Notes: Spike1 measures the proportion of workers at end-June earning between the old and the new SMIC. Spike 2 is an estimate of the proportion of workers in the *Enquête Emploi* who report earning in the band which contains the SMIC multiplied by their usual hours of work (actual earnings are not reported).

Source: Dolado et al. (1996)

**Figure 3**  
A monopsonistic labour market



**Figure 4**  
 Ratio Federal Minimum Wage/ poverty thresholds by family size in US.  
 (1966-1997).



Source: U.S. Department of Labor (1998)

# IZA Discussion Papers

No.	Author(s)	Title	Area	Date
51	A. Barrett P. J. O'Connell	Does Training Generally Work? The Returns to In-Company Training	5	8/99
52	J. Mayer R. T. Riphahn	Fertility Assimilation of Immigrants: Evidence from Count Data Models	3	8/99
53	J. Hartog P. T. Pereira J. A. C. Vieira	Inter-industry Wage Dispersion in Portugal: high but falling	1	8/99
54	M. Lofstrom	Labor Market Assimilation and the Self-Employment Decision of Immigrant Entrepreneurs	1	8/99
55	L. Goerke	Value-added Tax versus Social Security Contributions	3	8/99
56	A. Lindbeck D. J. Snower	Centralized Bargaining and Reorganized Work: Are they compatible?	1/5	9/99
57	I. N. Gang K. F. Zimmermann	Is Child like Parent? Educational Attainment and Ethnic Origin	1	9/99
58	T. Bauer K. F. Zimmermann	Occupational Mobility of Ethnic Migrants	1	9/99
59	D. J. DeVoretz S. A. Laryea	Canadian Immigration Experience: Any Lessons for Europe?	1/2/3	9/99
60	C. Belzil J. Hansen	Subjective Discount Rates, Intergenerational Transfers and the Return to Schooling	6	10/99
61	R. Winkelmann	Immigration: The New Zealand Experience	1	10/99
62	A. Thalmaier	Bestimmungsgründe von Fehlzeiten: Welche Rolle spielt die Arbeitslosigkeit?	3	10/99
63	M. Ward	Your Everyday, Average Academic	5	10/99
64	M. Ward	Salary and the Gender Salary Gap in the Academic Profession	5	10/99
65	H. Lehmann J. Wadsworth A. Acquisti	Grime and Punishment: Job Insecurity and Wage Arrears in the Russian Federation	4	10/99
66	E. J. Bird H. Kayser J. R. Frick G. G. Wagner	The Immigrant Welfare Effect: Take-Up or Eligibility?	3	10/99

67	R. T. Riphahn A. Thalmaier	Behavioral Effects of Probation Periods: An Analysis of Worker Absenteeism	1/3	10/99
68	B. Dietz	Ethnic German Immigration from Eastern Europe and the former Soviet Union to Germany: the Effects of Migrant Networks	1	11/99
69	M.-S. Yun	Generalized Selection Bias and the Decomposition of Wage Differentials	6	11/99
70	I. N. Gang F.L. Rivera-Batiz	Immigrants and Unemployment in the European Community	1	11/99
71	L. Goerke	The Wedge	3	11/99
72	J. Fersterer R. Winter-Ebmer	Are Austrian Returns to Education Falling Over Time?	5	11/99
73	G. S. Epstein S. Nitzan	The Endogenous Determination of Minimum Wage	3	11/99
74	M. Kräkel	Strategic Mismatches in Competing Teams	5	12/99
75	B. Henry M. Karanassou D. J. Snower	Adjustment Dynamics and the Natural Rate: An Account of UK Unemployment	1	12/99
76	G. Brunello M. Giannini	Selective Schools	5	12/99
77	C. M. Schmidt	Knowing What Works: The Case for Rigorous Program Evaluation	6	12/99
78	J. Hansen R. Wahlberg	Endogenous Schooling and the Distribution of the Gender Wage Gap	6	12/99
79	J. S. Earle Z. Sakova	Entrepreneurship from Scratch: Lessons on the Entry Decision into Self-Employment from Transition Economies	4	12/99
80	J. C. van Ours J. Veenman	The Netherlands: Old Emigrants – Young Immigrant Country	1	12/99
81	T. J. Hatton S. Wheatley Price	Migration, Migrants and Policy in the United Kingdom	1	12/99
82	K. A. Konrad	Privacy, time consistent optimal labor income taxation and education policy	3	12/99
83	R. Euwals	Female Labour Supply, Flexibility of Working Hours, and Job Mobility in the Netherlands	1	12/99
84	C. M. Schmidt	The Heterogeneity and Cyclical Sensitivity of Unemployment: An Exploration of German Labor Market Flows	1	12/99
85	S. Pudney M. A. Shields	Gender and Racial Discrimination in Pay and Promotion for NHS Nurses	5/6	12/99

86	J.P. Haisken-DeNew C. M. Schmidt	Money for Nothing and Your Chips for Free? The Anatomy of the PC Wage Differential	5	12/99
87	T. K. Bauer	Educational Mismatch and Wages in Germany	1	12/99
88	O. Bover P. Velilla	Migration in Spain: Historical Background and Current Trends	1	12/99
89	S. Neuman	Aliyah to Israel: Immigration under Conditions of Adversity	1	12/99
90	H. Lehmann J. Wadsworth	Tenures that Shook the World: Worker Turnover in Russia, Poland and Britain	4	12/99
91	M. Lechner	Identification and Estimation of Causal Effects of Multiple Treatments Under the Conditional Independence Assumption	6	12/99
92	R. E. Wright	The Rate of Return to Private Schooling	5	12/99
93	M. Lechner	An Evaluation of Public-Sector-Sponsored Continuous Vocational Training Programs in East Germany	6	12/99
94	M. Eichler M. Lechner	An Evaluation of Public Employment Programmes in the East German State of Sachsen-Anhalt	6	12/99
95	P. Cahuc A. Zylberberg	Job Protection, Minimum Wage and Unemployment	3	12/99
96	P. Cahuc A. Zylberberg	Redundancy Payments, Incomplete Labor Contracts, Unemployment and Welfare	3	12/99
97	A. Barrett	Irish Migration: Characteristics, Causes and Consequences	1	12/99
98	J.P. Haisken-DeNew C. M. Schmidt	Industry Wage Differentials Revisited: A Longitudinal Comparison of Germany and USA	1/5	12/99
99	R. T. Riphahn	Residential Location and Youth Unemployment: The Economic Geography of School-to-Work- Transitions	1	12/99
100	J. Hansen M. Lofstrom	Immigrant Assimilation and Welfare Participation: Do Immigrants Assimilate Into or Out-of Welfare?	1/3	12/99
101	L. Husted H. S. Nielsen M. Rosholm N. Smith	Employment and Wage Assimilation of Male First Generation Immigrants in Denmark	3	1/00
102	B. van der Klaauw J. C. van Ours	Labor Supply and Matching Rates for Welfare Recipients: An Analysis Using Neighborhood Characteristics	2/3	1/00
103	K. Brännäs	Estimation in a Duration Model for Evaluating Educational Programs	6	1/00
104	S. Kohns	Different Skill Levels and Firing Costs in a Matching Model with Uncertainty – An Extension of Mortensen and Pissarides (1994)	1	1/00

105	G. Brunello C. Graziano B. Parigi	Ownership or Performance: What Determines Board of Directors' Turnover in Italy?	1	1/00
106	L. Bellmann S. Bender U. Hornsteiner	Job Tenure of Two Cohorts of Young German Men 1979 - 1990: An analysis of the (West-)German Employment Statistic Register Sample concerning multivariate failure times and unobserved heterogeneity	1	1/00
107	J. C. van Ours G. Ridder	Fast Track or Failure: A Study of the Completion Rates of Graduate Students in Economics	5	1/00
108	J. Boone J. C. van Ours	Modeling Financial Incentives to Get Unemployed Back to Work	3/6	1/00
109	G. J. van den Berg B. van der Klaauw	Combining Micro and Macro Unemployment Duration Data	3	1/00
110	D. DeVoretz C. Werner	A Theory of Social Forces and Immigrant Second Language Acquisition	1	2/00
111	V. Sorm K. Terrell	Sectoral Restructuring and Labor Mobility: A Comparative Look at the Czech Republic	1/4	2/00
112	L. Bellmann T. Schank	Innovations, Wages and Demand for Heterogeneous Labour: New Evidence from a Matched Employer-Employee Data-Set	5	2/00
113	R. Euwals	Do Mandatory Pensions Decrease Household Savings? Evidence for the Netherlands	3	2/00
114	G. Brunello A. Medio	An Explanation of International Differences in Education and Workplace Training	2	2/00
115	A. Cigno F. C. Rosati	Why do Indian Children Work, and is it Bad for Them?	3	2/00
116	C. Belzil	Unemployment Insurance and Subsequent Job Duration: Job Matching vs. Unobserved Heterogeneity	3	2/00
117	S. Bender A. Haas C. Klose	IAB Employment Subsample 1975-1995. Opportunities for Analysis Provided by the Anonymised Subsample	7	2/00
118	M. A. Shields M. E. Ward	Improving Nurse Retention in the British National Health Service: The Impact of Job Satisfaction on Intentions to Quit	5	2/00
119	A. Lindbeck D. J. Snower	The Division of Labor and the Market for Organizations	5	2/00
120	P. T. Pereira P. S. Martins	Does Education Reduce Wage Inequality? Quantile Regressions Evidence from Fifteen European Countries	5	2/00
121	J. C. van Ours	Do Active Labor Market Policies Help Unemployed Workers to Find and Keep Regular Jobs?	4/6	3/00

122	D. Munich J. Svejnar K. Terrell	Returns to Human Capital under the Communist Wage Grid and During the Transition to a Market Economy	4	3/00
123	J. Hunt	Why Do People Still Live in East Germany?	1	3/00
124	R. T. Riphahn	Rational Poverty or Poor Rationality? The Take-up of Social Assistance Benefits	3	3/00
125	F. Büchel J. R. Frick	The Income Portfolio of Immigrants in Germany - Effects of Ethnic Origin and Assimilation. Or: Who Gains from Income Re-Distribution?	1/3	3/00
126	J. Fersterer R. Winter-Ebmer	Smoking, Discount Rates, and Returns to Education	5	3/00
127	M. Karanassou D. J. Snower	Characteristics of Unemployment Dynamics: The Chain Reaction Approach	3	3/00
128	O. Ashenfelter D. Ashmore O. Deschênes	Do Unemployment Insurance Recipients Actively Seek Work? Evidence From Randomized Trials in Four U.S. States	6	3/00
129	B. R. Chiswick M. E. Hurst	The Employment, Unemployment and Unemployment Compensation Benefits of Immigrants	1/3	3/00
130	G. Brunello S. Comi C. Lucifora	The Returns to Education in Italy: A New Look at the Evidence	5	3/00
131	B. R. Chiswick	Are Immigrants Favorably Self-Selected? An Economic Analysis	1	3/00
132	R. A. Hart	Hours and Wages in the Depression: British Engineering, 1926-1938	7	3/00
133	D. N. F. Bell R. A. Hart O. Hübler W. Schwerdt	Paid and Unpaid Overtime Working in Germany and the UK	1	3/00
134	A. D. Kugler G. Saint-Paul	Hiring and Firing Costs, Adverse Selection and Long-term Unemployment	3	3/00
135	A. Barrett P. J. O'Connell	Is There a Wage Premium for Returning Irish Migrants?	1	3/00
136	M. Bräuninger M. Pannenberg	Unemployment and Productivity Growth: An Empirical Analysis within the Augmented Solow Model	3	3/00
137	J.-St. Pischke	Continuous Training in Germany	5	3/00
138	J. Zweimüller R. Winter-Ebmer	Firm-specific Training: Consequences for Job Mobility	1	3/00
139	R. A. Hart Y. Ma	Wages, Hours and Human Capital over the Life Cycle	1	3/00
140	G. Brunello S. Comi	Education and Earnings Growth: Evidence from 11 European Countries	2/5	4/00

141	R. Hujer M. Wellner	The Effects of Public Sector Sponsored Training on Individual Employment Performance in East Germany	6	4/00
142	J. J. Dolado F. Felgueroso J. F. Jimeno	Explaining Youth Labor Market Problems in Spain: Crowding-Out, Institutions, or Technology Shifts?	3	4/00
143	P. J. Luke M. E. Schaffer	Wage Determination in Russia: An Econometric Investigation	4	4/00
144	G. Saint-Paul	Flexibility vs. Rigidity: Does Spain have the worst of both Worlds?	1	4/00
145	M.-S. Yun	Decomposition Analysis for a Binary Choice Model	7	4/00
146	T. K. Bauer J. P. Haisken-DeNew	Employer Learning and the Returns to Schooling	5	4/00
147	M. Belot J. C. van Ours	Does the Recent Success of Some OECD Countries in Lowering their Unemployment Rates Lie in the Clever Design of their Labour Market Reforms?	3	4/00
148	L. Goerke	Employment Effects of Labour Taxation in an Efficiency Wage Model with Alternative Budget Constraints and Time Horizons	3	5/00
149	R. Lalive J. C. van Ours J. Zweimüller	The Impact of Active Labor Market Programs and Benefit Entitlement Rules on the Duration of Unemployment	3/6	5/00
150	J. DiNardo K. F. Hallock J.-St. Pischke	Unions and the Labor Market for Managers	7	5/00
151	M. Ward	Gender, Salary and Promotion in the Academic Profession	5	5/00
152	J. J. Dolado F. Felgueroso J. F. Jimeno	The Role of the Minimum Wage in the Welfare State: An Appraisal	3	5/00