# EMPLOYMENT AND TRAINING PAPERS

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# Minimum Wages
# and Youth Unemployment

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# Foreword

Means of integrating younger workers into the active labour force, into meaningful employment relations, into the culture and ethic of work, continue to be of foremost importance, at a time when societies are struggling with increasing employment difficulties and the spectre of social exclusion. National policy makers try to find the appropriate mix between macro- and micro-economic strategies, and between labour market policies notably governing training schemes, social security programmes and wage policy, to identify the right approach to the problem of the insertion of youth into the labour market. The relationship between wages, and in particular minimum wages, and the employment of youth is a highly controversial problem of current debate, and cannot be usefully considered in isolation from other influences on the labour market.

The minimum wage is a policy tool that is probably best evaluated in its entirety, rather than in terms of its effects on a particular sub-group of the population. The overall effects of a minimum wage on total employment depends on a number of factors, including the elasticity of labour supply to wages and to demand for labour, the reservation wages of those who do not find work in the sector covered by the minimum wage, and the relative size of this covered sector. This paper reviews the main theoretical models and recent empirical evidence of the relationship between the minimum wage and youth employment. In these prefatory remarks, it is useful to pose a few general questions with reference to the complex subject matter of the paper.

The so-called "over-pricing" theory concerning youth labour posits that an exogenous rise in the real youth wage will, ceteris paribus, result in a decline in the demand for youth labour. This over-pricing hypothesis is difficult to test by simply correlating relative wage trends with changes in youth employment and unemployment. The main empirical difficulty is to isolate the wage effects from other exogenous influences. For example, if the demand curve for youth labour is itself shifting, this is an additional influence on youth employment which has to be disentangled. The models reviewed in the paper point towards ways of isolating the wage effects, with more or less success.

However, it should be stressed that traditional economic theory would say that an increase in the minimum wage that leads to an increase in wages *which does not correspond to an increase in productivity* would have the effect of reducing employment. The issue of productivity is crucial, and indeed it is the posited lower productivity of younger workers that leads to concerns for their employment at times of recession. This has led to the introduction of lower minimum wage rates for younger workers in a number of countries, the pros and cons of which are also discussed in this paper. Minimum wages per se say little about productivity (except in the broadest and most indirect manner i.e. the extent to which the trends in the level of the minimum wage tend to reflect a proportion of the national average wage, which in turn tends to reflect national measures of productivity). The question which is often asked is: Will employers substitute older, more productive workers for young ones if, as a result of

a statutory MW, they have to pay higher wages than they would have paid otherwise? (This in turn leads to even more important questions: If there are prospects for increasing the employment of young workers through wage reductions - or other means, for that matter - what effect will this have on the employment of other groups e.g. minorities, women, etc?)

Is age by itself a valid criterion for differentiating pay? It may be argued that this is after a form of discrimination. In principle, it should be the work performed by a worker, rather than the age of that worker, that is the main criterion for remunerating that worker. Are there valid grounds for discriminating? The key question relating to younger workers then is, are they fully involved in the firm's activities and do they perform the same work as their adult counterparts, or are they involved in training, on-the-job or formal, such as apprentices? The latter situation is one that is more justifiably subject to lower rates of pay, at least on the basis of principles. This issue is taken up in the section of this paper that addresses the position of international labour standards and the possibility of lowering the minimum wage for younger workers.

Is it better to provide the young with a "wage history" (starting at higher wages than might otherwise obtain) but with unstable employment prospects at the macro level, or with a "work history", with lower and less stable wage prospects? This is a policy question that many countries face. Associated closely with this question are the factors that shape personal decisions between current self-denial and future income prospects of people in general and youth in particular. It is necessary to assess both the income and the substitution effects of real wage movements, in order to gauge effects on employee choice between work effort and leisure.

In this respect, it is also important to consider the relative importance of aspects of the job other than the wage. If one posits that less able workers tend to leave school as early as possible, and are thus economically dependent upon their families for the first few years of their working life, non-income aspects may be more important for these individuals, such as quality of working environment, of social life among employees, convenience of travel to work, and in particular growth opportunities. Thus, job search by young workers may give more importance to non-income attributes, rather than to evaluating the wage differentials between jobs.

This leads to the question of the significance of wages as a proportion of the total compensation emanating from employment. Human capital theory suggests that individuals increase their wealth by investing in on-the-job-training. Thus the total cost of unemployment is the sum of foregone observed earnings plus the value of the unobserved payment of human capital. Already twenty years ago, in one case, it was estimated (Lazear, Edward: "Age, experience and wage growth", *The American Economic Review*, 66,4 Sept.1976 pp.548-558) that young workers receive approximately one-third of their total employment compensation in the form of human capital i.e. on-the-job training. What sort of jobs provide the sort of human capital development that will set youth on the path to growth?

In low wage industries - the easiest place to achieve a "work history" for poorly qualified youth - work is typically unskilled, so that productivity does not necessarily rise with age or experience. In such situations, the employer may have an incentive not only to forgo any meaningful training, but also to make younger workers redundant when they become entitled to adult wages. This brings us back full circle to the relative value of lowering wages of young workers to allow their insertion into the labour market, if this leads to low-paid, dead-end jobs in the final analysis.

These thoughts are mentioned here not with a view to providing any answers to the difficult questions relating to policy-mix in combatting youth unemployment but simply to remind the reader of the complexity of the issues at hand, and to make a plea against any simplistic notion that reducing the minimum wage or real wages will in any automatic sense create sustainable employment and social integration of young people in the labour market and society. The various other levers of economic and social policy will need to be fully exploited if decision-makers are to meet with any success in addressing youth unemployment.

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# Contents

"But I fear that when the economic theorist turns to the general problem of  wage determination and labour economics, his voice becomes muted and his speech halting.  If he is honest with himself, he must confess to a tremendous amount of uncertainty and self-doubt concerning even the most basic and elementary parts of the subject."

Paul A. Samuelson
cited by Card and Krueger,
1995, p.8

# Introduction

This paper has been prepared as an input to the Action Programme on Youth Unemployment implemented by EMPFORM in the current biennium. It attempts: (i) First to review the main findings of the existing economic literature, both theoretical and empirical, on **the correlation between the change in Minimum Wage (MW) and youth employment movement** [1]; (ii) Secondly, to discuss the statute of youth workers with respect to MW in selected countries [2] and the changes affecting it.

The first point aims at answering the question of how the MW affects youth employment/unemployment on the basis of the analysis of the available evidence, while the second one aims at discussing how selected countries have been managing the question of young workers and the MW, in response in particular to the problem of growing youth unemployment. Such a discussion will be preceded by an introduction on how the issue of youth MW is regarded by the International Labour Standards.

This paper does not pretend to exhaust the whole existing literature/information on the question of MW and youth employment. However, it tries, when possible at least: (i) to cover as much country experience as possible, and (ii) to include the most recent studies on the issue. This is an important point because, in some cases, the results of the most recent research seem to question a number of views which have been prevailing for a long time.

As we will see the bulk of the empirical studies have focused on the experience prevailing in OECD countries such as the United States, France and the Netherlands. Indeed very few studies have been carried out to examine the possible effects of MW on employment in other countries (transition, developing, etc.). Several reasons may explain such a situation. In transition economies for example, the relative value of the MW is too low to allow it to exert any economic impact on the labour market functioning (Standing, Vaughan-Whitehead, 1995, pp. 16, 22). In most developing countries the point is that when MW exists it covers only a small fraction of workers in the economy, so its impact may not be considered as important as in other countries. In addition the lack of data of the range and quality required does not make the economic research worthwhile (Starr, 1993, p. 176).

This paper is structured as follows: Part 1 reviews the lessons of the main theoretical economic models, Part 2 reviews the empirical evidence in two categories of countries, namely: (A) OECD Countries with Northern America (2.1), Western European countries (2.2) and other OECD countries (2.3), and (B) Countries outside the OECD zone including developing countries [3] (2.4) and transition countries (2.5). Part III deals with the question of youth MW statute. Finally, we end the paper with some concluding remarks.

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[1] In developing and transition countries most of the studies have focused on the correlation between the change in MW and
overall employment.

[2] The countries retained in this study are those for which information was available.

[3] The notion of developing countries as used in the text has a broad sense as it includes both developing and emerging countries.

# 1. Brief review of the predictions of the main theoretical models on the link between MW and employment in general

The analysis which follows tends to discuss what some of the theoretical economic models tell us about the linkage between MW and employment. We start by presenting the predictions of the basic version of the Competitive Model, namely the supply-demand model, which says that the MW lowers the employment of MW workers, because it establishes an "artificial wage-floor" which has nothing to do with the market requirements such as the prevailing productivity growth and unemployment rate. We will attempt to show that this prediction is based on a picture which tends to ignore the variety and the complexity of labour market functioning. Then we will discuss how such a simple prediction has been attenuated by new versions of the competitive model which better reflect the features of the labour market functioning today, particularly regarding the link between MW and employment. This will be followed by a discussion of the predictions of alternative models which tell us that the link between MW and employment might be positive, such as the Monopsony Model and the Efficiency Wage Theory (section 2).

## 1.1 The competitive model

### 1.1.1. The supply-demand model
The most basic model of MW effects on employment and unemployment focuses on a single competitive labour market. In this model of the market, the labour force is homogeneous. The demand for labour of the firm is a decreasing function of real wages (cf. Fig. 1). The fixation of a MW level above the equilibrium level, say Wc, would lead to a drop in the demand for labour, all things being equal. Then, the workers whose productivity is below the MW are shut out of the labour market.

## Figure 1. The competitive labour market



Figure 1. The competitive labour market
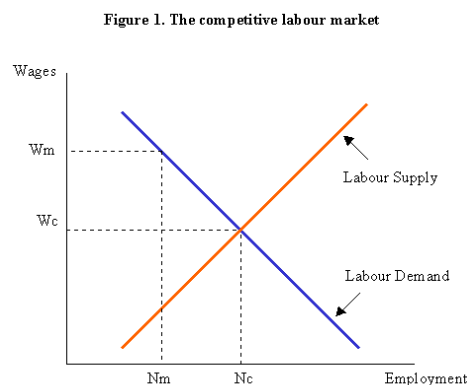
Key:
- Wm: minimum wage
- Wc: equilibrium wage
- Nm: demand for labour if the MW is set up above the equilibrium wage
- Nc: demand for labour at the equilibrium wage

The purported negative effects of the MW on employment result from the combination of two elements: (i) a Substitution Effect as well as (ii) a Scale Effect.

**(i)**    **The Substitution Effect** means that firms could decide to use more capital than labour as the latter becomes more expensive, and secondly, they could substitute skilled-labour for unskilled-labour. Such a behaviour of substitution could be attributed to the fact that with a MW set at a higher level than the equilibrium, the ratio Minimum wage/Average wage will rise leading to a decrease of the firm's demand for low-skilled labour and an increase in the demand for more skilled labour;

**(ii)**   **The Scale Effect** results from the fall of sales due to cost increases, leading to a reduction in the use of both factors, capital and labour, including low-skilled labour.

The above-mentioned predictions of the competitive model presuppose the existence of several elements:

-    The labour force might be substitutable;
-    MW legislation covers the whole economy;
-    All the employers comply with MW legislation;
-    Employers have little or no influence in setting wages.

In practice, the situation appears different as the experiences of countries show. Indeed, labour markets are neither homogeneous nor governed by strict competitive rules. Their functioning differs from one country to another, and often in each country from one region to another and from one sector to another. Therefore, the theoretical analysis of the MW has to incorporate such realities. Furthermore, the notion of "equilibrium" on which this model is based does not seem to reflect the dynamic and complex nature of the labour market. Furthermore, as the Committee of Experts[4] pointed out in its 1992 study on Minimum Wage-Fixing Machinery, the notion of equilibrium wage levels seems particularly utopian in many developing countries, where it has been found that wages and MW in particular have been losing their purchasing power both in absolute and relative terms (para. 131).

Hence, several new versions of the competitive model have been formulated. Among them are the two-sector model (1.1.2) and the two-sector m del with queuing for covered-sector jobs (1.l.3) whose main features are discussed below.

### 1.1.2 Two-sector model
Even if in many countries the coverage rate of MW appears high, a significant amount of sub-minimum employment may exist for different reasons, such as problems of compliance, exemptions granted to some sectors, and so on. Such a situation suggests that it makes sense to consider a model of MW which allows for employment opportunities in the uncovered sector. Among the authors who have formalised such a model is Welch (1974) cited by Brown, Gilroy, Kohen (1982). This author considers an economy with two sectors. In the absence of MW legislation, the equilibrium wage is called Wc. The setting up of a MW, say Wm, whose value is higher than the equilibrium wage (Wm> Wc; cf. figure 1), would lead to the following situation: workers displaced by the MW move to the uncovered sector. Consequently, wages in that sector would fall. As a result, employment increases if we apply the predictions of the

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[4] The Committee of Experts on the Application of Conventions and Recommendations of the ILO.

traditional economic theory. However, according to Welch, those displaced from the covered sector do not automatically become employed in the uncovered sector. Indeed, some of them as well as a part of those who were originally employed in the uncovered sector, would quit the labour force because the wages offered by the employer in that sector are lower than their reservation wage. Therefore, the overall MW's effects on total employment depends on: the elasticity of labour supply to wages and demand for labour, the reservation wage of those who do not obtain a job in the covered sector and the relative size of the covered sector. These elements make things even more complex and show that the relationship between MW and employment is far from being as easy as has been formalised in the basic version of the competitive model.

### 1.1.3 Two-sector model with queuing for covered-sector jobs

This model is a sort of extension of the preceding one. It has been formalised by Mincer (1976) who was the first author to introduce the notion of unemployment when considering the effect of MW regulation on the functioning of the labour market. Mincer's approach aimed at seeing what would happen, not only in terms of effects on employment but on unemployment as well, if MW were introduced in a given economy. The basic idea of Mincer is that in the covered sector, the existence of a MW that is higher than the equilibrium rate (Wm> Wc), would encourage some workers to wait for jobs, thus generating unemployment. Here unemployment is seen as queuing for covered-sector jobs. The length of the queue (the unemployment level) would depend on the type of the frontier separating the formal from the informal sector. For example, if the two sectors are geographically separate, as might be true in some developing countries, workers are unlikely to search for covered-sector jobs while employed in the uncovered sector. In this case, the effects of MW on unemployment might be lower. On the other hand, in other countries, covered and uncovered establishments may be next door to each other (C. Brown, C. Gilroy, and A. Kohen, 1982, p. 492); In this case the effects might be higher.

*Probability to find a job and unemployment rate*

Those in the labour force have two strategies. One strategy is to search for covered employment if not employed in the covered sector; the other is to work in the uncovered sector if not employed in the covered sector. The first strategy gives a probability P of being employed in the covered sector, and a probability 1-P of being unemployed. The second strategy gives a lower probability of covered-sector work, BP (0< B < 1), and thus a probability of working in the uncovered sector equal to 1-BP. All in all, larger values of B reduce the effect of the MW on both employment and unemployment (Brown, Gilroy, Kohen, 1982, p. 493).

The key idea of this model is that as B[5] increases, uncovered employment becomes more attractive in comparison with being in the queue waiting for the covered sector's jobs.
All in all, there is a difference between the MW effects on employment on the one hand and unemployment on the other one. In fact, as Mincer (1976) pointed out, in a competitive economy, the increase of MW would not result automatically in an increase in unemployment. Such a hypothesis depends on the elasticity of the activity rate vis-à-vis the MW as well as the employment rate.

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[5] It should be noted here that B depends particularly on the size of the uncovered sector.

**Labour force, unemployment rate and MW increase**
When MW increases one would expect, in the first instance, a rise in labour force because of the inactive population, say "new entrants" will be attracted to the labour market by higher wages prospects. In that case what would happen in terms of unemployment rate movement? To put it simply let's consider only two possibilities:

(i)     If the employment remains stable, the rise in the supply of labour may lead to an increase of the unemployment rate (because there are no additional jobs to be granted to these "new entrants"), all other things being equal;

(ii)    If employment declines as a result of MW increase, this may lead to two situations: (ii.1) an even higher increase of the unemployment rate if the "new entrants" remain in the labour market (there are less jobs for wider labour force), and (ii.2) a lower increase of the unemployment rate if a fraction of the labour force, say the "discouraged people" withdraws from the labour market because of the deterioration of job prospects.

When we talk about the effects of MW on unemployment rate movement, the behaviour of the labour force becomes very important, because as discussed earlier, these effects might be attenuated by the withdrawal of a fraction of the labour force from the labour market. This was the case in the United States according to BGK.

*Limits of the analysis based on the competitive market*
Several authors have criticized the predictions of the competitive model saying that such a model does not reflect the real labour market functioning, which is supposed to be highly complex. Thus, Richard Lester (1994), pointed out that firms directly affected by a MW increase, because they have wages significantly below a new minimum, can use various means of adjustment that may not involve a reduction in employment (p.198). For example, they can *"increase productivity and cut costs in a number of specific ways"* (running costs, etc.) Furthermore, according to S. Machin and A. Manning (1994), while the competitive model remains the foundation on which labour market analysis has traditionally been based, recent years have seen strong doubts about whether it is an accurate description of the working of the labour market. For many other critics the analysis based on competitive market does not take into account the imperfections of the market. Among them one can cite the lack of information on job opportunities faced by the workers, which has a direct impact on the behaviour of the labour force, as well as the market power the firms may have in influencing wages. In this regard the case of big companies which often offer higher wages than market-rates to their workers is very significant and confirm the fact that wages are not only the outcome of the free demand-supply game.

**1.2 Alternative models**
The criticism addressed to the labour market competitive model in its varied versions focuses on the fact that the firm is not always subject to the price of labour which the market is supposed to determine in an automatic manner. However, in the alternative models examined below, the main idea is that MW, and consequently higher wages, may have other effects than damaging employment prospects of those to whom they apply. Moreover, employers possess some market power in setting wages, so that they can hire more easily the workers they need

as well as motivate a larger part of the work force. Below we examine the main characteristics of three alternative models, namely: the monopsony, the theory of wage efficiency, and the model of MW, unemployment and growth.

### 1.2.1 The monopsony model

Contrary to the predictions of the competitive model, under the hypothesis of the monopsony model, the negative relationship between MW and employment is not proven. Such a relationship may be positive.

The main postulate of the monopsony model is that employers are not subjected to wages. Rather, they have a certain market power in setting wages in such a way that labour supply is a positive function of the wages paid. This means that the higher the wages, the more abundant the labour force. In this context, the labour market is compared with that of a "one company-town", where there is only one buyer of labour. If an employer wants to attract the labour force in the town, say "the villagers", he should pay higher wages. Higher wages, through the setting up of a minimum wage, would help him to retain his workers, thus maintaining a higher level of employment.

Many criticisms have been addressed concerning this basic version of monopsonistic market. The main reproach was that the assumption that the market could be dominated by one employer is considered more theoretical than true. In addition, critics argue that: (i) "company-towns" are increasingly rare; transport facilities existing today have improved workers' knowledge of job-opportunities in the labour market, and that (ii) most low-paid workers are employed in small firms (Machin and Manning 1992, p.7). From this evolved a new version of the monopsonistic market theory. Basically, the idea is: *firstly*, there could be several employers (instead of one dominant employer) in the labour market; and *secondly,* since workers have insufficient knowledge of job opportunities offered by different employers turn-over rates are low. Their workers would not easily find better offers in the labour market precisely because of this lack of access to information. This vision contrasts with that of the competitive model where workers are supposed to have full access to information so that if an employer reduces wages he or she is bound to loose the labour force immediately. Another idea underlying the monopsony model is that the firm does not pay its workers their marginal product (the marginal product is higher than the marginal cost of labour). Consequently, there is room for increasing wages to a certain level without causing too much harm to the firm's profits. In addition, the MW would drive wages upward leading to the hiring of more workers and thus to more production and more profits.

However, one has to say that, though MW might be associated positively with employment increase, MW cannot be set at any level. Beyond a certain limit, say marginal labour cost equal to the marginal product, it might lead to a decrease of job prospects, at least for those workers whose marginal product is below the marginal cost of labour. Then we have the question whether these job losses would be compensated by the job gains of workers whose productivity is higher than the MW. The answer to this question is not evident but many authors seem to concur (Lester, 1994, for example).

### 1.2.2 The efficiency wage theory

This theory is based on the supposition that higher real wages can, through various mechanisms, result in higher labour productivity. Wages above the average would increase incentives to work and lead to better economic performance, through lower absenteeism and better adaptation of workers. It suggests that in the absence of any wages regulation, and if unemployment is high and supply of labour abundant, wages can fall dramatically, leading to

poverty among workers. It suggests that such a decline in real wages will produce a drop in both labour productivity and the firms' profits.

Basically, the efficiency wage theory relies on several dimensions such as nutritional, job-shirking, turnover and sociological factors (Riveros and Bouton, 1994). Below we examine two of them, which seem more relevant given the subject: nutritional and turnover.

*Nutritional dimension*
This principle emphasizes the linkage existing between wages, nutrition and productivity. The basic idea is that workers should be granted a minimum subsistence wage to allow them to meet their nutritional needs and thus to be more productive. In this regard, the workers' productivity is supposed to be positively correlated with their health and earnings.

*Turnover dimension*
Turnover has been one of the most important principles of efficiency wage theory. In general, low-wages are associated with high turnover, and the latter is itself associated with the loss of firm-specific skills and hence a decline in labour productivity. According to Riveros and Bouton, the lower the firm's wage is relative to the average wage in the economy, the higher the quit rate. Despite the fact that few empirical studies have been carried out to assess the effect of labour force turnover on firms' productivity, it is today widely recognised that firms' labour cost would suffer if they loose on a regular basis their human resources on which they put investment in terms of training, experience, and so forth.

There are other arguments according to which labour productivity may rise as a result of: (i) additional efforts made by workers if they regard their wage as a "fair wage" (Akerlof, 1984, p. 81); (ii) higher wages with which the firm may attract the most skilled workers.

Empirical testing of efficiency wage theories is still very limited. According to Riveros and Bouton (1994, p. 708), in 1975 management at the Stanford Linear Accelerator Centre announced a 10 per cent reduction in the work force. To avoid the lay-off, workers responded management on the grounds that lower wages would reduce the quality of the work force, thus referring to the predictions of efficiency wage theory.

### 1.2.3 Minimum wage, unemployment and growth
Elaborated by Pierre Cahuc and Philippe Michel (1993), this model is very close to the human capital theory. It states that, in a overlapping generations model with endogenous growth, "high minimum wages can have positive effects on the growth rate and welfare by increasing the proportion of skilled workers". More precisely, the authors point out that MW might have a positive effect on growth if it allows for a human capital accumulation which is associated with some externalities. However, one has to say that these effects may occur but on a long perspective. For example, the growth rate would be higher in an MW economy than in a competitive economy if: (i) unemployment benefits are not very high, (ii) the elasticity of the demand for low-skilled labour force vis à vis the labour cost is very high, and (iii) if individuals have a strong aversion to risk.

Moreover, what this model suggests is that there is generally a trade-off between growth and the proportion of unskilled jobs: a low demand for unskilled labour, brought about by a high MW, may create a human capital reallocation towards the qualified sector of the economy.

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This would imply a higher growth rate and employment, which can improve the general welfare.

**Table 1.   Summary of the economic model predictions regarding the MW effects on employment/unemployment**

| Economic model/theory | Predicted effects on minimum wage on employment/unemployment |
|---|---|
| **1.    Standard competitive model** | |
| 1.1    The supply-demand model | Negative effect on employment if MW is fixed above the equilibrium level (market clearing wage). |
| 1.2    Two-sectors model | Depends on: (i) the elasticity of labour supply to wages, (ii) the reservation wage of those who do not obtain job in the covered sector, (iii) the relative size of the covered sector. |
| 1.3    Two-sectors model with queuing for covered-sector jobs | Effect on unemployment depends on: (i) the elasticity of the activity-rate vis à vis MW as well as change in employment-rate. |
| **2.    Alternative models** | |
| 2.1    Monopsonistic market | Positive effect on employment in case of small increase in MW. |
| 2.2    The efficiency-wage theory | There might be a positive effect on employment. |
| 2.3    Minimum wage, unemployment and growth | Under certain conditions, positive effect on employment in the long run. |

**Conclusion**

The theoretical effects of introducing a MW seem, as we have seen, far from being certain. Indeed, the conventional view has been challenged by alternative economic models. The idea according to which: "the introduction of a MW legislation that raises the wages of a fraction of workers above what they would, otherwise, have received, would automatically reduce the employment prospects of that particular category of workers", is far from being a dominant view.

However, while the alternative models suggest that the link between MW and employment is not automatically negative, and might be positive, it would not be reasonable to think that such a link is always true. It might be negative in certain circumstances, though weak as the evidence suggests, and nil or positive in other contexts. All in all, as we will see below when we come to the results of the empirical studies, the correlation between MW increase and employment movement is not uniform as the standard model had predicted.

## 2. Review of the main empirical studies on the link between MW and youth employment

The empirical studies carried out to assess the MW effects on employment have been abundant. These studies have proliferated since the beginning of the seventies as unemployment started growing in developed countries. They have focused in particular on the experiences in OECD countries on the one hand, and on the effects of MW on youth employment/unemployment on the other. The focus on youth employment is due to the fact that: (i) young workers are considered those most likely to be paid at or near the MW, and hence the most likely to be affected by any change in the MW legislation; (ii) youth unemployment reached a much higher level than that of adults in many countries (cf. table 1, appendix 2).

As stated earlier, few empirical studies have been carried out in transition and developing countries on the effect of MW on employment and *a fortiori* youth employment. This situation is due to the lack of reliable data and the fact that often the MW does not play an important role because of its low relative value and limited coverage and the low level of compliance.

The empirical studies conducted have relied on different approaches and have led to different findings and often opposing conclusions. This shows the highly controversial nature of the issue. Indeed, in this field we are far from reaching a consensus.

For example, in the United States a number of studies conducted in the 1970's found that there was a significant negative link between MW and youth employment: a 10 per cent increase in the Federal MW would lead to a decline in the employment rate ranging from 1 to 3 per cent. Subsequent studies, however, reached less significant results. In addition, several studies conducted at the end of the 1980's and the beginning of 1990's found that the Federal MW had no or some positive effect on youth employment.

In Canada, the most recent studies found that MW had a negative effect on youth employment, while in the United Kingdom, most of the empirical studies carried out did not find that the MW had any negative effect on employment. The results reached have rather shown that, to a certain extent, MW had positive effects on employment.

In France, where the debate is still impassioned, the results of the recent studies, carried-out since the beginning of the 1990's have led to a less significant negative effect of MW on youth employment: the decline of youth employment in response to a 10 per cent increase in MW would range from 1 to 3.5 per cent, compared to that found in the beginning of the 1980s (3.5 and 4.1 per cent).

In developing and transition countries the result of the studies examined revealed the existence of a negative correlation between MW and employment in four out of five cases, namely, Botswana, Czech Republic, Indonesia and Kenya. One has, however, to mention that in some cases the estimation was conducted without resorting to econometric studies (Botswana, Kenya), and that in an other case (Indonesia), the elasticity that was found was very weak. In this context, caution should be exercised in drawing conclusions.

In this section, we will review first the studies carried out in the OECD countries (2.1), starting with Northern America, namely the United States and Canada (A & B), followed by European countries, namely France, the United Kingdom, the Netherlands, Portugal, Greece (2.1.2), and other OECD countries (2.1.3). The results of a few studies pertaining to developing and transition countries will be discussed in Sub-section 2.2, starting with

developing countries, namely Indonesia, Brazil, Botswana and Kenya (2.2.1), followed by transition countries, starting with the case of the Czech Republic (2.2.2).

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**Warning**

The estimate on MW effects on employment for each country, which will be discussed below should be examined for their own value, and under no circumstances be compared with each other. Indeed, the situations prevailing in the countries examined in this study, in terms of the role of MW in the wage formation and income distribution, its weight (coverage and proportion of MW earners, etc), its value relatively to average earnings, are very different. Thus any comparison is nearly impossible. What one has to retain are the results of the empirical studies for each country taken separately.

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## 2.1 OECD countries

### 2.1.1 The studies in Northern America

#### A.    *The United States*
*Brief description of the MW system in the country*

The Fair Labour Standards Act of 1938 forms the basis for the present federal minimum-wage legislation. According to the provisions of this Act, any adjustment to the MW must be done through the legislative process. The MW has been up rated irregularly, particularly since the early 1970s.

**Table 2.    Federal MW uprating since 1973**

| Hourly MW | Dollars | Percentage increase |
|---|---|---|
| 1971 | 1.6 | |
| 1974 | 1.9 | 18.8 |
| 1975 | 2.1 | 10.5 |
| 1976 | 2.3 | 9.5 |
| 1978 | 2.65 | 15.2 |
| 1979 | 2.9 | 9.4 |
| 1980 | 3.1 | 6.9 |
| 1981 | 3.35 | 8.1 |
| 1990 | 3.8 | 13.4 |
| 1991 | 4.25 | 11.8 |
| 1996 | 4.75 | 11.2 |
| 1997 | 5.15 | 8.4 |

There is some debate about the exact number of MW earners in the United States. Indeed, the estimates differ according to studies and sources. For example, Freeman (1993, p. 520) estimated the proportion of workers at the MW as lying between 3 and 5 per cent of the work force in 1993, while Card and Krueger (1995) have put forward the figure at 7 per cent in 1990-1991 (p. 279). The fact that the authors were not referring to the same period of time does not explain such an important difference. Therefore, the difference between the estimates is probably due to the fact that the authors were not talking about the same thing. Indeed while Freeman used the expression "percentage of workers at MW" ($4.25 in 1991), Card and Krueger talked about the "percentage of workers directly affected by the 1990 and 1991 MW hikes". The latter figure includes those who were paid at the MW-level as well as those workers whose wages were just above and whose wages were affected by the new MW. Typically, discussions about the MW include those workers who are earning at or near the minimum wage. Many workers in the United States earn 50 cents or more than the minimum, and their wages would increase if the Federal minimum increased.

The fraction of teenage workers between 16 and 19 years of age affected by the MW reached 25.6 per cent of all MW earners in 1993 (Mishel, Bernstein, Rasell, 1995). The fraction of teenage MW-earners differs across states. It ranges from less than 20 per cent in New Jersey and California, to more than 70 per cent in some southern and north central states (Card and Krueger, 1995, p.114).

The relatively low proportion of those workers who are paid at the MW in the United States, in comparison with certain European countries, for example France where such a figure is much higher (8.6 per cent), might be due to the fact that: *firstly,* the real value of MW has dropped dramatically, particularly following its freeze during the 1980s (the relative value dropped from 20 per cent from 1979 to 1990); *secondly:* several states have MW rates that exceed the Federal standard (they were 15 in 1989). While in a number of European countries the relative value of MW to average wage still lies near 50 per cent, in the United States the figure was 37 per cent in 1993, down from 45 per cent in the mid-1960s (Manning, FT, 14 October 1996; cf. table below).

**Table 3.  Minimum wages as per cent of average wages**

|  | Early 1960s | 1990s | |
| --- | --- | --- | --- |
| United States | 45 | 37 | (1993) |
| United Kingdom | 40 | 40 | (1993) |
| Germany | 60 | 55 | (1991) |
| France | 50 | 50 | (1993) |
| Spain | 55 | 32 | (1994) |
| Netherlands | 50 | 55 | (1993) |
| Source:  Drawn from *FT* dated 14/10/1996 and Economic Policy paper, No. 23, Oct. 1996. | | | |

There have been a great number of empirical studies in the United States in this area since the beginning of the 1970s. They might be broken down into three categories:

*(i)    Category one: studies conducted in the 1970s, showing: negative but weak effect of MW on youth employment/unemployment*

In 1982 a team of three economists, namely, C. Brown, C. Gilroy and A. Kohen (BGK) was asked by the Minimum Wage Study Commission of Congress to survey the results of existing studies assessing the MW effects on employment and unemployment. The authors examined around a dozen studies conducted from 1970 to 1981. Two sorts of studies were surveyed, namely, times-series studies of teenagers and youth and cross-section studies of teenagers.

*Time-series studies of teenagers and youth*

Basically time-series studies aim at examining the effect of MW on employment over time. Therefore, the reliability of the results reached depends on the period covered, the number of observations considered (the length of the time-series), and the manner with which the different shocks (increase of energy cost, changes in the exchange parity, etc) occurring in the economy and consequently affecting the labour market have been controlled in the model specification.

As mentioned earlier, most of the time-series studies present estimates of MW effects only for youth (16-24 years) and some only for teenagers (16-19 years). In some studies the groups are desegregated by age, sex and race, while in others employment of teenagers is desegregated by industry.

As BGK pointed out, the times-series studies that attempt to estimate the linkage between MW and youth employment have used a single equation model of the type:

$$Y = f(MW, X, P, T)$$

where:
-    the dependent variable Y is a measure of the labour force status (rate of youth employment/unemployment),
-    the independent variables included:
     -    MW, (nominal MW, real MW, or ratio MW/average wage),
     -    X, as a business cycle variable, expressing the output movement,
     -    P, as a variable to control for labour supply,
     -    T, as a trend variable.

To measure the employment effect of the MW, the studies surveyed used more often the ratio of employment to population as a dependent variable. Unemployment equations were less used on the grounds that the concept of unemployment is not as precise as is that of employment. Indeed, it seems that employment equation captures more precisely the effects of MW than does that using the unemployment rate as dependent variable. The MW effects on unemployment were derived from the effects of the MW on the employment-population and labour force-population ratios.

The key variable, MW, has generally been measured by the ratio of the nominal legal MW to average hourly earnings weighted by coverage, the so-called Kaitz Index. The weight is the number of persons employed in the economy/industry as a proportion of total employment.

*The results*

According to BGK, **all studies conducted during the 1970s found a negative employment effect for all teenagers.** In addition, the elasticity[6] signs are almost exclusively negative for the various age-sex-race subgroups. **On balance, a 10 per cent increase in the MW is estimated to lead to a range of 1-3 per cent reduction in total teenage employment**. However, the authors regarded the "*lower part of this range as most plausible*" (p. 08), to the extent that "*differences in results can be attributed to differences in the specification chosen, the better choices seem to produce estimates at the lower end of the range*" (p. 524). This implies that the Federal MW increase, which occurred during the period covered by the studies, have affected less negatively teenage employment, than postulated by the empirical studies. This means that studies Nos. 7, 8, 11 and 12 presented in the table below might have over estimated the negative effects of MW on teenage employment.

**Table 4. Estimated impact of a 10 per cent increase in the MW on employment of teenagers (16-19 old)**

| | Per cent change in employment (elasticity) | Change in unemployment rate (in percentage points) |
|---|---|---|
| 1. Kaitz (1970) | -0.98 | -0.006 |
| 2. Adie (1971) | / | + 2.525 |
| 3. Moore (1971) | / | + 3.649 |
| 4. Kosters and Welch (1972) | -2.96/ | / |
| 5. Kelly (1975) | -1.204 | / |
| 6. Gramlich (1976) | -0.94 | / |
| 7. Mincer (1976) | -2.31 | + 0.445 |
| 8. Welch (1976) | -1.78 | / |
| 9. Ragan (1977) | -0.65 | + 0.75 |
| 10. Mattila (1978) | -0.84 | + 0.10 |
| 11. Freeman (1979) | -2.46 | 0 |
| 12. Wachter and Kim (1979) | -2.519 | + 0.512 |
| 13. Iden (1980) | + 2.26 | / |
| Range | -0.98 / -2.519 | -0.006 / + 3.649 |
| Source: | Drawn from Brown, Gilroy and Kohen, (982, p. 504). | |

[6] The elasticity indicates the proportional change in employment, given a proportional change in the MW.

Moreover, the results of the survey show that the disemployment[7] and unemployment effects seem larger: (i) for teenagers aged 16-17 than for those who are older, and (ii) unemployment effects are more often larger for female teenagers than male (cf. table 2, appendix 2). As regards the unemployment effect, the results seem slightly different. Indeed, the survey found that the unemployment effects of the MW for all teenagers range from very small negative effects to 3.6 percentage points, taking into account that many of the unemployment effects are derived from employment and labour force equations, as mentioned earlier. According to the authors, there is a tendency for unemployment effects to be smaller in studies using data that include the experience of the 1970's. The negative effect on youth unemployment is lower than that on employment because of the withdrawal from the labour force by teenagers in response to a decline in job-prospects. Finally, the survey revealed that there was no support for the view according to which black teenagers suffer larger employment losses than their white counterparts, although there was some evidence that unemployment effects of the MW were larger for blacks than for whites.

### The cross-section studies of teenagers

Contrary to the time-series studies which aimed at assessing how teenage employment would react over time to the MW increase, the Cross-section approach consists in comparing areas which differ in terms of their importance to the MW. There were two types of studies: those that focused on differences in state laws and those that examined the effect of the Federal minimum wage on different states and regions. The studies surveyed (6 in total) have used, in general, as the dependent variable the ratio of employment/total population as discussed earlier.

### The results

BGK (1982) pointed out that the estimated employment effects range from a 1 to 3 per cent decrease in total employment. These figures appear similar to those found in the time-series studies, but seem higher than those found by another economist, Richard Freeman who undertook a lot of research in this particular area. Freeman (1994) found that the **MW had even a lower adverse effect on employment of between 0.1 and 0.2 for teenagers** most affected by the policy: that is a 10 per cent increase in the MW would lead to a fall in youth employment ranging between -1 and -2 per cent. He added that a 10 per cent higher MW raises the earning of a representative minimum wage worker by 8-9 per cent and increases joblessness by 1-2 per cent, concluding that this is a redistribution in workers' interests.

Meyer and Wise (1983) resorted to a different approach. To put it simply, one can say that they used individual data for several years in the 1970s to assess what impact the MW has on different individuals, in terms of earnings and employment prospects, at a point in time as well as shifts in the minimum over time. In fact, what the authors wanted to know was *"the distribution of wage rates and employment outcomes that would exist in the absence of the MW"* (p. 7). The results are as follows: if there had been no MW during the 1973-1978 period, employment among:

- Out of school men, 16-24, would have been 4 per cent higher than it was,
- Young men, 16-19, 7 per cent higher,
- Black youth, 16-24, 6 per cent higher,
- White youth, 16-24, 4 per cent higher,

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[7] Disemployment effects mean the decline of employment as a result of MW increase.

-        Black youth, 16-17, 10 per cent higher.

In addition, they pointed out that they couldn't find any positive effect on average earnings which could have offset the negative effects on employment, through for example an increase in demand for goods and services. They argued that the *"increased earnings of the youth who are paid the legislated minimum, are offset by the non-employment and thus zero earnings of others"* (p. 98). This study is part of a group that found the most adverse employment effects arising from MW increase.

*(ii)    Category II: studies undertaken in the 1980s with: on average, a slightly weaker negative effect of MW on employment*

In the 1980's the United States had experienced a drop in the relative value of the MW to average earnings following its freeze from 1981 to 1990 at $3.35 per hour, while joblessness among the less skilled workers rose. Meanwhile, the linkage between MW and youth employment continued to be subject to a series of studies conducted by several economists. A survey of the bulk of these studies show, in general, that the estimate of the employment effects of MW are even smaller than those found in the course of the 1970s. Indeed, in a study carried out for the Minimum Wage Study Commission, Hamermech (1981) cited by **(**Eccles and Freeman, 1982, p. 228) found that a 10 per cent MW increase would lead to a 1.2 per cent decline in youth employment, adding that such a decline would be higher in manufacturing and lower in services and retail trade. This prediction seems slightly counter-intuitive because one would expect a greater effect in services and retail trade than in manufacturing. This might be, however, because enterprises in the manufacturing sector are open to international competition and as such more sensitive to labour costs than their counterparts in services and retail trade. Moreover, the existence of monopsony power in some sub-sectors of the labour market, such as fast-food restaurants (Freeman, 1993), might also explain such results.

In their updated study of 1983 (Times-Series Evidence of the effects of Minimum Wage On Youth Employment and Unemployment, 1983), BGK found even a smaller elasticity: **a 10 per cent increase in the Federal minimum wage (or the coverage rate) would reduce teenage employment by about 1 per cent.** They pointed out that "*because of substantial labour force withdrawal, the unemployment effects are practically zero*" (p. 1). This behaviour contrasts with that observed in France in the beginning of the 1980s, where the new entrants to the labour market were attracted by the prospects of higher wages due to he MW increase, and did not withdraw from the labour market, which led to an increase in the unemployment rate.

BGK's study was criticized by Solon (1985), on the grounds that the method used to correct the residuals correlation was not appropriate, adding that the serial correlation structure displayed some residual seasonality. In other words, Solon's reproach to BGK's approach was that: (i) the " irregular points" of the time-series used had not been smoothed properly (the seasonality had not been eliminated totally), and as a result (ii) the residual[8] remained high, leading to a less precise estimate. According to Solon, had this variable (seasonality) been correctly modelled, the results would have rejected the hypothesis of no MW effect. This means that there would have been a negative effect of the MW increase on youth employment.

In 1988, Brown surveyed again the existing studies conducted up to 1988. However, his conclusions were different along with the approach used. For the time-series studies, he found

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[8] What we call the residual is the part of the variance which is not explained by the model. The wider the residual the less precise is the model estimate.

that the disemployment effects of MW ranged from: -1 to -3 per cent without a time variable, and from -1 to -2 per cent with a time variable [9], for a 10 per cent increase in the MW. On the other hand, he pointed out that he would not attach a great deal of credit to the cross-section studies on the grounds that the rate of youth employment is likely to be higher in those regions where wages are higher. In this case, he concluded that the employment effect of MW could not be proven.

Examining data pertaining to the 1980s period during which MW experienced a decline of 20 per cent in its relative value, Wellington (1989), attempted to test the hypothesis of whether the decrease in real MW value had increased employment. For that purpose, she used an empirical model based on the single equation broken down earlier: Y= $f$(MW, B, X1, ....., Xn), where Y represents the measurement of labour force status, MW is a measure of the minimum wage, B is a business cycle variable, and X's represent other exogenous explanatory variables such as the capital cost and time variable.

*Remark*
In the specification of the model used, Wellington added some variables such as seasonal dummies with a view to taking into account the criticism addressed by SOLON to BGK. According to the results of the study, **the disemployment effects of MW were rather insignificant, since a 10 per cent increase in the MW was estimated to reduce teenage (16-20 year olds) employment by less than 1 per cent** (the elasticity is less than -0.1). In addition, the author did not find any negative effect on teen unemployment because this small disemployment effect had been offset by a labour force withdrawal (p. 42), thus confirming BGK's results. As regards young adults (20-24 year olds), the author found no evidence that an increase in the MW had any effect on the employment of that category of workers. Finally, breaking down the MW effects on employment by race and sex, the study resulted in the following results:

- the effects for teenage whites, males and females are similar to that found for the group as a whole (elasticity of -0.1),
- for young adults, the employment and labour force participation of non-whites seemed to have a positive response to MW increase.

*(iii)* *Category III: new generation of studies (1990s) using new approaches and calling into question the previous findings*
Katz and Krueger (1992) and Card and Krueger (1995**)** have inaugurated a new approach while assessing the effects of the Federal MW increase on youth employment: "natural experiments evaluation". It consists of examining wages and employment behaviour in enterprises, for the time before and following the MW uprating, using the technique of managers' interviews. In addition, the survey was conducted in two areas simultaneously: an area where MW rose (experiment-group) and a second area where MW did not move (control-group). According to Card and Krueger, such a approach has several advantages, and particularly it is " *model-free: the results can be construed as a test of a particular theoretical model but their interpretation does not hinge on the maintained assumptions of a specific model* (p. 24). However, one has to say that such an approach is specific to Federal/state systems and

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[9] The time variable is used to measure the natural trend of youth employment movement.

cannot be used easily in countries where the MW is generally a national MW such as in France and the Netherlands.

In their study, Card and Krueger surveyed 410 fast-food restaurants located in (i) New Jersey (331 units) where the state MW had been increased from $4.25 to $5.05; (ii) Pennsylvania (79 units) where the state MW did not rise, remaining at $4.25, with a view to examining the impact of MW on employment. The approach used was as follows: the restaurants were surveyed twice: the first time in February-March 1992, before the MW rose in New Jersey (April 1992), and a second time about eight months after the MW movement (November-December 1992). The surveys were conducted by telephone.

In addition to the comparison made between New Jersey and Pennsylvania fast-food restaurants, the authors undertook a second set of comparison between high-wages restaurants in New Jersey that had been paying $5.00 or more per hour before the law took place, and lower-wage restaurants which had to increase their wage rates in order to comply with the law. The authors chose fast-food restaurants for several reasons, particularly because: (i) they are leading employers of low-wage workers, the most likely to be affected by a MW increase, and fast-food workers tend to be younger than workers in other industries; (ii) fast-food chains comply with MW laws, in such a way that the MW has a stronger effect on them than on many other restaurants. In other restaurants, workers can earn less than the MW because they receive tip income as well. Furthermore, Card and Krueger pointed out that "*such a case offered an opportunity to test the predictions of the Employment Demand Theory, using natural experiments*".

*The results*

The results of the study conducted by Card and Krueger show clearly that **the MW increase in New Jersey did not lead to employment contraction.** On the contrary, the results of the comparison indicate that, on average, employment expanded in New Jersey relative to Pennsylvania where the MW remained constant. The comparison within New Jersey between high-wage restaurants and low-wage restaurants that were affected by the MW increase led to similar results: **relative to high-wage restaurants, employment increased at restaurants affected by the MW.**

**Table 5.   Employment movement in New Jersey and Pennsylvania restaurants**

| Percentage of restaurants with | New Jersey | Pennsylvania |
|---|---|---|
| Decline in employment | 44 | 53.3 |
| Constant employment | 4.5 | 5.3 |
| Increase in employment | 51.5 | 41.3 |
| Source:      Card and Krueger (op. cit, p. 45). | | |

Did employers in New Jersey take some measures to offset the labour cost increase, such as a reduction in the amount of fringe benefits or on-the job training, as the theoretical literature predicts? According to Card and Krueger, there is "*no strong evidence that New Jersey employers changed either their fringe benefits or wage profiles to offset the increase in*

*the MW*" (p. 51). Furthermore, the authors examined whether the MW had led to a change in the number of hours or cash registers in restaurants. Consistent with the employment results, none of these variables shows a significant decline in New Jersey restaurants relative to Pennsylvania restaurants. A change in the number of hours, say a decrease in New Jersey restaurants, would have implied that even if the number of workers did not fall, they would have worked shorter hours. This would mean that the MW would have had a negative effect on overall employment.

The Card and Krueger study has been criticized by another economist, John Kennan (1995), who pointed out in his article that the approach used contains some weaknesses such as measurement problems, and concluded that the result reached (increase of employment as a result of MW increase) "is surely as fragile as the competing results that they criticize" (page 1964).

Along the same lines, Katz and Krueger (1992) surveyed 104 fast-food restaurants in Texas in 1991 with a view to measuring the effect of the Federal MW increase, from $3.80 to $4.25 per hour, which took place in April 1991. This two-wave survey rested on the comparison between higher and lower-wage restaurants within the same state. The conclusions reached are similar to that found in the New Jersey-Pennsylvania survey: **fast-food restaurants that had to increase pay to meet the new federal MW experienced faster employment growth** than did those (high-wage restaurants) that were paying $4.25 per hour or more, and that were not affected by the law. While one would have expected a decline of employment in response to a MW increase, according to the predictions of the competitive model, the results of the surveys examined above show that the demand for labour responded positively to such a move. This probably suggests that wages were too low in low-wage restaurants, in such a way that following the Federal MW uprating, the employers managed to attract more workers to the labour market. It is also worthwhile noting that fast-food restaurant jobs are generally seen as one of the less-desired jobs, so employers have to offer higher wages in order to attract and retain workers.

While the estimated elasticity of employment to MW increase was very modest ranging between + 0.00 and + 0.04 in the Card and Kruegar study, the survey carried out by Katz and Krueger found a rather substantial positive impact, ranging between + 1.85 and + 2.64 depending on the variable used, whole employment or full-time employment only: that is a 10 per cent increase in the MW would lead to an increase of whole employment by 18.5 per cent, and the full-time employment by 26.4 per cent. In the last study in particular, increased MW was accompanied by an increase in average wages and employment. This suggests, as Freeman (1993) pointed out, the existence of a monopsony power in local labour markets, particularly in Texas because of the high elasticity found there, which is consistent with the predictions of the theory of the monopsonistic labour market (cf. sub-section 2.1). Employers may have managed to attract more workers into the labour market as they offered higher wages.

Card and Krueger did not limit their research to the natural experiments' approach only. Indeed, in order to check the above findings, they undertook a wide updating study to evaluate the results of previous studies carried out by other authors. The conclusions of the authors regarding the re-examination are as follows: (i) evaluation of time-series evidence: "*If one estimates exactly the same time-series models that have been estimated in the past but includes more recent data, then the minimum wage has a numerically smaller and statistically insignificant effect on employment*" (p. 205). Hence, their findings call into question the relevance of such an approach in evaluating the MW effects on employment. In doing so, Card and Krueger wanted to show the weaknesses of the time-series approach: to add few

observations will suffice to modify the results of the estimate; (ii) evaluation of cross-section and panel-data evidence: "*Under close scrutiny, the bulk of the empirical evidence on the employment effects of the MW… suggest that increases in the MW have had, if anything, a small, positive effect on employment, rather than an adverse effect. The controversial view that increases in the minimum wage necessarily have an adverse effect on employment has a very weak empirical evidence*" (p. 236).

The studies conducted by Card and Krueger and Katz and Krueger have not gone unchallenged, since Neumark and Wascher (1992) questioned the relevance of the natural experiments' approach to capture the effects of the MW increase on employment. Their criticisms may be summarized as follows: *firstly*, they think that the "natural experiment approach" failed "*to consider lagged effect of MW*" (p. 78), arguing that these effects may occur later. This means that aggregate employment adjusts with lag to MW increase (teenage employment might have fallen after the completion of the survey)*; secondly,* the model used by Katz and Krueger in their studies of 1992 had a bias because "*it did not control for the school enrolment rate*" (p. 78), knowing that such a variable may have an endogenous impact on teenage employment.

In their study Neumark and Wascher carried out a study using a "more classical approach" the so-called "panel data" approach. It consists in assessing the impact of the MW increase, not at the Federal level, but at the state level, using data on MW (levels of MW, coverage, etc.), teenage employment, youth school enrolment rate, and other local economic conditions prevailing in each of the 50 states and the District of Columbia. The detailed results obtained for each state have led to the calculation of an "average" correlation between change in MW and youth employment movement:

C    for teenagers, aged 16-19 years, the elasticity lies between -0.1 and -0.2: that is a 10 per cent increase in MW would lead to a decline in teenage employment from 1 to 2 per cent. In specification controlling for school enrolment rate, the elasticity seems closer to -0.2 than -0.1. This means that, with the inclusion of the school enrolment rate variable, the elasticity is higher;

C    for both teenagers and young adults, aged 16-24 years, the elasticity-range is -0.15/-0.2: thus a 10 per cent increase in the MW would lead to a decline in youth employment ranging from 1.5 to 2 per cent. These results are, thus, in line with the average range found in the bulk of the studies conducted during the 1980s.

### B.    *Canada*

In Canada the MW is set by province. In some provinces, separate MW for male and female workers continued to exist until the early 1970s. The studies conducted in Canada are much less numerous than in the United States. In 1987, Mercier undertook a review of the different empirical studies on MW and employment carried out in Canada. He pointed out that few studies were reliable, in the sense that the elasticities found were ranging between zero and -0.9. He said that the most reliable results were those which ranged between -0.1 and -0.3, adding that he would believe much more on the first figure namely, -0.1.

Since the beginning of the 1990s two studies have been conducted: (i) the first one by Cousineau, Tessier and Vaillancourt (1992) focusing on MW impact on unemployment of two categories of workers, namely women and youth, and covering the experience of one province (Ontario); (ii) The second one done by Cousineau (1993) who examined the MW effects on employment, unemployment and the participation rate of young workers aged less than 25 in Canada as a whole.

The first study has relied on a model in which the dependent variable studied is the unemployment rate for the two categories of workers considered, with the independent variables being: the overall unemployment rate on the one hand, and the relative MW rate on the other.

*The results*

The study found that the MW had a negative impact on both female and youth employment: **a 10 per cent increase of the relative MW in Ontario (Quebec) increases the unemployment rate of women by 1.4 per cent and that of youth by 1.53 per cent.** According to the authors, the impact is even more important when they change the estimation approach. Indeed, using the quadratic regression[10] approach the authors found a negative impact estimated as being, respectively: 1.82 and 1.99.

Cousineau (1993) focused on the MW effect on employment of young workers aged less than 25. He retained an alternative approach based in particular on the regression of youth employment on different explanatory variables (in comparison with the preceding study), namely: real GDP, MW, a capital-cost index, and a trend. The equation estimated had the following form: Ej= f(PIB, SM, R, t), where:

- Ej, represents youth employment (dependent variable),
- PIB or GDP, representing the business cycle,
- SM, the MW,
- R, the cost of the capital,
- T, time variable.

The results reached show that **the MW impact on youth employment aged 15-24 reaches -0.5**: that is a 10 per cent increase of MW would lead to a decline in youth employment of 5 per cent. This figure is much higher than the results generally found (-0.1/-0.2). Therefore one can wonder whether this elasticity does not reflect in part the impact of a demographic variable. Indeed, a part of the studies which found a lower elasticity did include among the explanatory variables a demographic variable such as a young population/total population ratio. Cousineau seemed to dismiss such a criticism. He pointed out that this result shows that the youth employment response to MW increase in the long run were compatible with the employment-wages elasticities found in the studies based on the models of long term demand for labour.

In a second phase the author attempted to delimit the MW effect on the youth activity rate to see whether the unemployment rate would follow the employment rate drop[11].

The results reached show in particular that the elasticity of the youth activity rate to MW is positive and equals to 0.04 (10 per cent increase in MW would increase the youth activity-rate by 0.4 per cent). This means that the rise of MW, and consequently the prospect of higher wages, attracts more teenagers to the labour market. From this equation (activity-rate equation) and the preceding one (employment-rate equation), the author has simulated the impact of a 10 per cent increase of MW on youth unemployment. He obtained such a estimate by summing

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[10] This approach means that more explanatory variables are incorporated into the equation.

[11] To assess the MW impact on the activity-rate Cousineau has designed an equation in which the dependent variable, the youth activity-rate for instance (TAj) was regressed on the following explanatory variables: MW, the youth employment rate (TEj), the unemployment rate of adults as a Business cycle variable (TCA), and an endogenous variable with a one period lag (t-1).

up the activity-rate decrease stemming from the decline of employment and the activity-rate increase resulting from the MW increase. The comparison of such a result to the employment variation allowed him to evaluate the MW effects on the unemployment rate. The final results are as follows:

**Table 6.    The effect of a 10 per cent increase of MW on:**

|  | (i) Employment | (ii) Act. Pop. (effect of employment decline) | (iii) Act. Pop. (effect of MW increase) | (iv) Unemployment | (v) Unemploymen t rate |
|---|---|---|---|---|---|
| Young male | 58 000 (-5%) | -51 000 | + 6 000 | + 13 000 | + 1.8% |
| Young female | -52 000 | -52 000 | + 7 000 | + 7 000 | + 1.1% |
| Total | 10 000 | -103 000 | + 13 000 | + 20 000 | + 1.5% |
| Source: | Cousineau (1993, p. 280). | | | | |

The above data show that: the **MW effects on youth employment appears high**, even though they are partially attenuated, in terms of impact on the unemployment rates, by the decline of active population.

### 2.1.2 The studies in Western Europe

### A.    *United Kingdom*
The United Kingdom had a legal MW fixing machinery until its abolition by the Conservative Government in 1993, except for the agriculture sector, on the grounds that it had caused jobs losses. Before 1993, there were MW rates established by the trade boards and then the wage councils, as from 1986, for certain sectors employing around 15 per cent of the work force (2.3 million). The rates set varied between sectors since each sector had its own wages councils. Each year, the wages councils fixed MW rates through a form of collective bargaining with independent members arbitrating when no agreement could be reached. Relative to average earnings, the MW rates were set at around 40 per cent.
The empirical studies conducted in this country are twofold: (i) macroeconomic and (ii) microeconomic.

*Preliminary remark*
There have been no studies in the United Kingdom devoted specifically to the MW effect on youth employment. Therefore, the results of the studies discussed below concern the link between MW and total employment including youth employment.

*(i)    The macroeconomic studies*
Bazen (1990) and Gregg (1992) carried out empirical studies on the MW effect on employment at the macroeconomic level. Such studies, particularly that of Gregg, were

conducted in the course of the debate opposing the Labour Party and the Conservatives prior to the 1992 General Elections. They simulated the impact that would result from the introduction of a national MW representing half male median earnings. Both reached the conclusion that MW would cause the loss of 100 to 150,000 jobs. Bazen did report a figure of up to 250,000 but this was considered as being extreme as it was based on artificial assumptions.

The approach used to reach such a conclusion has been criticised by many authors because it contained some weaknesses. Indeed, they started first by assessing the effect of the introduction of MW on average wage; Then they attempted to estimate the macroeconomic consequences of such a change by using a macroeconomic model. The most important criticism addressed in this approach is that it didn't take into account the fact that there were different labour markets in the United Kingdom economy, which did not react equally to an exogenous shock such as the average wage increases. Hence, according to Stephen Machin and Alan Manning (1992, p.1), the rise in women's pay relative to men's that followed the Equal Pay Act of 1970, which led to a rise of average wage, *did not lead to a decline of women's employment*; adding that " *the United Kingdom had rather experienced an increase in women's employment.*" Moreover, it seems that Gregg himself admitted later such a weakness in his approach. The two million job losses might have been caused by the effects of other factors than MW (recession, …), which have not been captured by the model used.

*(ii)    The microeconomic studies*
Some microeconomic studies have been carried out to assess the effect of wages councils on employment. Among them one can cite Machin and Manning (1992), who stressed that the macroeconomic models are not appropriate to analyse changes in relative wages such as those brought about by MW legislation.
Using data pertaining to 10 wages councils, Machin and Manning attempted to evaluate the impact of MW wage councils' regulation on employment and wage dispersion. For that purpose they relied on an equation in which they measured the correlation between the employment change and the change of the ratio minimum wage/average wage called "toughness", in 4 low-wage sectors, namely: catering, retail, clothing and hairdressing. The results reached are presented in the table below:

**Table 7.    Correlation between change in the ratio minimum wage/average earnings and change in employment**

| Sectors | Employment/MW correlation |
| --- | --- |
| Catering | Positive association (significant) |
| Retail | Positive association (but insignificant) |
| Hairdressing | Negative association (but insignificant) |
| Clothing | Positive association (but insignificant) |
| Source:      Machin and Manning, (1992, p.22). | |

The authors pointed out that such a result contradicts the predictions of the competitive model according to which a rise in the relative value of MW to average wage might reduce employment. They concluded their study by stressing that "*there is no evidence that the activities of minimum councils have acted as a restraint on employment in Britain in the 1980s*" (p.15). They added, "*if anything, MW have been good for employment, and particularly in the catering industry*". The positive relationship between the wage councils's activities and employment in the United Kingdom, has been confirmed by the findings of another empirical research carried out by Dickens, Machin and Manning in 1994 (The effects of minimum wage on employment: Theory and evidence from Britain).

Finally, following the abolition of the wages councils in 1993, a study undertaken by the low pay network organization [12] entitled "After the safety net" (1994), found that "whilst pay rates in the former wages council sectors have certainly dropped, there has been very little positive effect on employment. The study found that in the retail and catering sectors a net loss of 18,000 jobs was recorded between September 1993 and March 1994.

### B.    France

Among developed countries France has one of the most complete form of MW protection. It has a national MW which has a legal basis and which applies to the whole economy and all categories of workers aged over 18 years. This system provides for a special rate for workers aged under 18, apprentices and handicapped workers.

In France the debate on MW is far from having the intensity it reached in the United States, despite the fact that it plays an important role (economic and social) in terms of income distribution and wages formation. Hence MW is linked directly to inflation as well as to the real average wage of manual workers. Unlike the Federal MW in the United States for example, the relative value of the "SMIC" in France has tended to rise over the period ranging from 1970 (date of the introduction of the SMIC) and 1992 (cf. chart below).

**Figure 2.   Ratio MW/average wage**
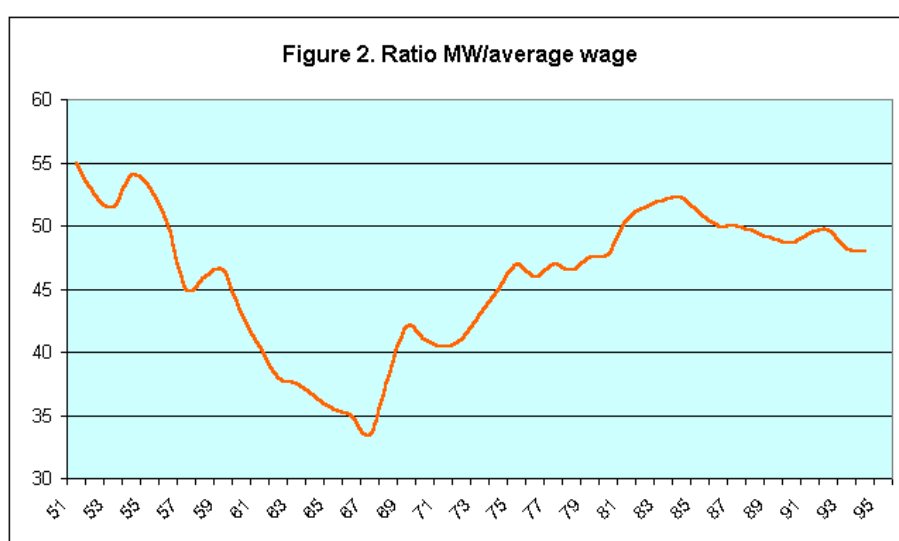


Source:        National Institute of Statistics (INSEE).

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[12] This is an organization which seeks to improve the pay and conditions of low-paid workers.

In addition, MW is used as an indicator for the determination of several social benefits such as certain unemployment benefits, trainees stipend, etc. The importance of the role of MW in France can also be measured through: (i) its relative value to average wage which reaches 49 per cent, and (ii) the proportion of MW-earners: 1.16 million workers in the private sector (8.6 per cent of the work force), plus 200 000 domestic workers, 140 000 employees in the civil service and 60 000 in the agricultural sector. The proportion of MW earners among young workers, below 26 years, is high: it reached 32.2 per cent in 1997 cf. table below).

**Table 8.    Evolution of MW earners proportion (private sector) (per cent)**

|  | Young aged under 26 | Adult | |
|---|---|---|---|
|  |  | 26-49 old | over 50 |
| 1990 | 31.1 | 7.6 | 7.5 |
| 1991 | 31.0 | 8.0 | 8.2 |
| 1992 | 28.4 | 7.3 | 6.9 |
| 1993 | 32.2 | 7.6 | 7.5 |

Source:        INSEE (Employment Survey, March 1993).

Since the beginning of the 1990s France has experienced a sharp increase of unemployment, in particular among youth. Such a movement has triggered a debate among economists and some politicians on the fact that the MW might explain, at least partially, job losses during the 1990s. To ascertain whether MW had a negative impact on employment, and particularly youth employment, several authors have carried out empirical studies: Benhayoun (1990, 1993), Bazen-Martin (1991), Skourias (1992-1993). Before surveying these "new" studies, we will survey the results of some other studies which were conducted during the 1980s, namely Rosa (1980 and 1985) and Martin (1981). We conclude the survey on France in referring to the findings of a very recent study (Dolado et al., 1996), according to which: (i) the negative impact attributed to the SMIC uprating, in particular during the first half of the 1980s might be due to other variables such recession/weak economic growth, and (ii) the SMIC rise might have increased employment in low-wages regions.

*(i)    The Studies of the 1980s: significant negative effect of MW on employment, with results presenting some statistical biases*

While Rosa (1980) found that the MW had exerted a negative impact on youth employment: the elasticity was estimated at -0.41, Martin (1981) reached a slightly lower figure, -0.381: that is a 10 per cent increase in the MW would lead to a decline in youth employment estimated at 4.1 per cent (ROSA) and 3.81 per cent (Martin). In 1985, Rosa used longer time series (1963-1984 against 1963-1979 for the first study) including the strong uprating of MW (+ 10 per cent in nominal value) decided by the socialist government in 1981.

He found that the elasticity of employment to MW was equal to -0.35 (slightly lower than the 1980's figure) for young workers aged 15-24. However, as more young workers were attracted to the labour market by prospects of higher wages due to MW increase, the impact on youth unemployment reached -1.099 . This situation contrasts with that observed in the United States where the MW effects on teenage unemployment were weaker than the effect on employment because of the labour force withdrawal from the labour market,  probably following the decline in employment prospects as discussed earlier (see BGK's survey of category II studies).

The results of these studies have been subject to major criticisms by several authors. Skourias (1995) for example has stated that: *firstly*, "*the equations used by Rosa had left aside some important explanatory variables such as the trend variable*"; and *secondly*, "*the model used by Martin contained a serious problem of residuals auto-correlation which biases the results obtained*" (p. 265). The first remark means that the equations used have attributed to MW some negative effects which might be due to other variables which have not been incorporated into the model. Moreover, the authors concerned did not react to such criticism. This might be interpreted that they may recognise the weaknesses of their approaches.

*(ii)    The 1990s studies: they led to much lower negative estimates*
The bulk of the studies conducted since 1990 have attempted to assess the MW effect on youth employment by using the approach evolved by Mincer (1976) who was the first economist making a distinction between MW effects on employment and those on unemployment, depending on the active population reaction (cf. Section 1.3 above). Hence, Mincer's approach is based on two equations: employment-rate equation and activity-rate equation. In matching the results of two equations they indirectly infer the MW effect on youth unemployment.

The studies conducted in the 1990s have taken into account some of the weaknesses which characterized the previous studies, particularly in incorporating trend variables into equations .

Three studies could be retained in this survey: Bazen and Martin (1991), Skourias (1992, 1993) and Benhayoun (1993). They will be followed by a brief discussion of a very recent study conducted by a team of European economists, namely Dolado et al. (1996)

*The study by Bazen and Martin (1991)*
The authors used an approach based on the theory of the demand for labour on the grounds that Mincer's model does not allow a precise assessment of the MW effect on employment. They argued that the equation used in this model cannot be considered as a demand for labour equation unless the following conditions were satisfied: (i) youth are the sole category affected by MW; (ii) only the MW exerts an impact on young workers earnings; (iii) the adult unemployment rate expresses the industrial output's movement. They considered that the MW effect on employment should not be estimated before having estimated two prerequisite equations. The first one should assess the impact of MW (as exogenous shock) on average wages, while the second equation should estimate the demand for labour with a vector of wages including average wage[13] as an explanatory variable. Using the results of these two equations, the authors have calculated the impact of MW movement on employment.

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[13] The average wage is supposed to have incorporated the MW increase.

*Findings*

While the authors found that the MW uprating had exerted an upward pressure on average real earnings of young workers, they pointed out that "*they couldn't establish, in a satisfactory manner, that the rise of youth labour cost had a negative impact on its employment*" (p. 242). Therefore, the elasticities of youth employment to MW movement, ranging between -0.1 and -0.2, seem very modest and fragile. They seem close to that found in some studies conducted in the United States during the 1990s (category II).

Skourias carried out three studies, in 1992 and 1993, using different approaches. The first approach relied on the model established by Cousineau whose features have been discussed earlier. The second one was inspired by Mincer's model. Finally, he attempted to estimate an equation inspired by the model used in the Bazen and Martin study.

The results of these studies are discussed below:

**Table 9.  Elasticity of youth unemployment rate to MW: results obtained in using Cousineau's approach**

|  | Young males | Young females | Total |
|---|---|---|---|
| Hourly gross minimum wage | 0.31 to 0.5 | 0.34 to 0.46 | 0.35 to 0.51 |
| Monthly gross minimum wage | 0.34 to 0.6 | 0.4 to 0.55 | 0.40 to 0.50 |
| Relative minimum wage | 1.23 to 1.5 and | 0.29 to 0.58 | 0.79 to 0.92 |
| Real MW | / | / | 0.471 to 0.605 (after correction of the bias of residuals auto-correlation) |

Source:      Skourias (1993).

**Table 10.  MW effects on youth employment rate: results of the study using Mincer's approach**

|  | Estimate results through the method of ordinary least squares (OLS) | Estimate results through the method of auto-regressive ordinary least squares (OROLS) |
|---|---|---|
| Hourly gross minimum wage * | -0.106 | -0.147 |
| Hourly gross minimum wage ** | -0.112 | -0.148 |
| Real total minimum labour cost * | -0.089 | -0.121 |
| Real total minimum labour cost ** | -0.096 | -0.124 |

*    deflated by the index of consumer prices
**   deflated by the index of output prices

Source:      Skourias (1995, p. 270).

As regards the third approach, Skourias found that the elasticity of youth employment to the MW was ranging between -0.2 and -0.22: that is a 10 per cent increase in the MW would lead to a decline in youth employment ranging between 2.0 and 2.2 per cent.

The above results show that the MW has a negative, though modest, effect on youth employment: whatever the estimate approach used, the elasticity of youth employment to MW lies around -0.1/-0.2. This figure is close to that found by Bazen and Martin (1991), but much lower in comparison to that obtained by Rosa who found a rather strong MW effect on youth employment, lying around -0.4. According to Skourias (1995), "*these results do not allow to conclude that MW contributes very significantly to the youth employment decline*" (p. 271); if any, it must be attributed to the whole labour cost of young workers which include employers' contributions to the financing of the social security regime. Finally, the results of Skourias' studies show that when the MW uprating has been moderate, its disemployment effect were very limited, as it appears from the table below:

**Table 11.  Youth employment decline according to average growth of MW**

|  | Average growth of MW (yearly) (per cent) | Average decline of youth employment rate (yearly) (per cent) | Youth employment decline |
| --- | --- | --- | --- |
| 1970-1975 | 5.3 | 0.3  to 1.1 | 53 000 to 213 000 |
| 1975-1980 | 2.1 | 0.1  to 0.4 | 19 000 to 76 000 |
| 1980-1985 | 2.1 | 0.1  to 0.4 | 6 000 to 64 000 |
| 1985-1990 | 0.8 | 0.05 to 0.15 | 5 000 to 22 000 |

Source: Skourias (1995 p. 119).

According to the above data (column 4), the MW uprating seemed to have led to a loss of jobs ranging between 93,000 and 375,000 in the course of the period 1970-1990. However, the loss of jobs seems much higher between 1970 and 1985 than after 1985. This means that the moderate rise of MW experienced in France after 1985 had a very limited impact on youth employment. Given the role MW plays in the French system of wage formation and income distribution, such an impact appears limited.

The weak linkage between MW and youth employment was confirmed by the empirical study carried out by Benhayoun (1993). In an attempt to update a previous study, conducted in 1990, Benhayoun has resorted to an approach inspired by Mincer's model as well. He regressed the youth employment rate (by sex) on the following explanatory variables: an indicator of MW, business cycle variable (unemployment rate of adults), the proportion of youth in total population aged less than 50, time variable, and a dummy representing the effect of the different measures taken by the government in favour of young workers.

The results reached suggest that: (i) the elasticity of youth employment to MW movement is lower than that found in his 1990's study; (ii) the coefficient of MW, measuring its impact on youth employment, is significant only for young men: it ranges between -0.13 and -0.35. However, it seems that these results would have been instable, in particular if the first years of the period covered by the estimate had been taken out. Finally, as Benhayoun pointed out

"*the relationship between MW and youth employment has been confirmed but remains very fragile*" (p.124).

Finally, the idea according to which the substantial rise of the MW during the first half of the 1980s had led to a significant job losses has been questioned by a very recent study carried out by a team of European economists, J. Dolado et al., (1996). The authors of this study stated that "*other explanations can be offered for the deterioration in the labour market position of the low paid in France levels*", than the levels reached by the SMIC. They pointed out that the decline in employment of the population paid near the MW might be attributed to the very weak growth/recession which had characterised the economy of this country during the first half of the 1980s (p. 341).

To ascertain whether the MW had any negative effect on employment in France, Dolado et al. have resorted to the approach used by Card and Krueger while studying the impact of Federal MW rise in the United States. To put it simply, these authors examined data on wages and employment by region (Département) for a long period: 1967-1992, to see whether the increase of the MW in low-wage regions did destroy jobs. The results of the study show that "**low-wage regions performance in terms of employment were relatively higher than that of high-wage regions**", in the period 1967-1985, during which the SMIC was increased strongly. This means that employment growth was higher in regions that initially had low levels of pay. These findings probably suggest the existence of a sort of local monopsonistic power, in fixing wages, which the employers used to attract more labour into the labour market. One can say too that without MW increases, and consequently the upward movement of the whole wage structure, a part of the work force might have left low-wage regions for high-wage regions. Such a movement would have not allowed an increase of employment in low-wage regions.

### C.   *Netherlands*

The Dutch system is based on a national MW, comprising most of the working population. The only groups that are excluded are domestic workers and apprentices. The wages of the latter are regulated by collective agreements. During its first two years of existence, the minimum wage applied only to workers aged 24 years and older. In 1970 the age limit was changed to 23 and four years later a legal youth minimum wage were introduced. Since 1974, lower rates are applicable to young workers aged 15 to 22 years. These rates were reduced between 1980 and 1983, in response to a sharp increase of youth unemployment (cf. our analysis in Part 3). The Dutch system also excluded part-time workers from the MW coverage until 1990.

The number of people earning the MW represented 2.6 per cent of the workforce in 1991 against 5 per cent in 1985 (cf. table below). Among young workers, 16 to 22 years old, the proportion of MW-earners is close to 10 per cent. Most of those on the MW are women, with 5.1 per cent of female employees compared with only 1.8 per cent of male employees on the minimum wage.

**Table 12.  Number of minimum wage earners by age, October 1992**

| Age | Number of MW earners | Number of MW earners as a per cent of the age-group workforce |
|---|---|---|
| 16-64 | 121 600 | 2.6% |
| 16-22 | 41 600 | 9.5% |
| 23-64 | 80 100 | 1.9% |
| Source: | Drawn from ILO questionnaire on MW (1994). | |

*The empirical studies*

Van Soest (1993) carried out an empirical study to examine the link between MW and youth employment/unemployment. He looked at both macro and micro evidence of the employment and unemployment effects of MW. In the macro analysis he resorted to the standard approach which consists in examining the MW's effects on unemployment in two phases: in phase I he estimated the impact of MW increase on average wages, and in phase II he measured the impact of average wages on unemployment. The results found seemed to have led to ambiguous results. Indeed, it has been found, surprisingly, that the long term effects of the MW on unemployment rate movement were lower for the young (the elasticity found was 0.31 and 0.36), than for adult workers (an elasticity of 0.37 and 0.56) [14]. These estimates were very surprising because among MW earners the proportion of young workers is much higher than that of adults (10 per cent against 2.6 per cent). They might be due to the fact that the MW's effects were not estimated independently of average wages movement. This criticism is often addressed to the macro-approach of examining the correlation between MW and employment/unemployment (cf. criticisms addressed to Gregg and Bazen's studies). Another element which might explain such a result is the short length of the time series (van Soest).

The micro-econometric analysis has led to different results, with youth employment substantially affected by the MW. According to the author, such effects are stable over time.

The elasticities found in van Soest's estimates seem higher, in average, in comparison with those found in other European countries examined in this survey. The table below shows that **a 10 per cent increase in MW would lead to a decline of total employment estimated at -5.9 per cent in 1984 and -5.1 per cent in 1987 for males and -5.4 per cent and -5.9 per cent for females**. However, while earlier estimates of the same author had shown wider figures, studies carried out by other authors did not find any negative linkage between MW and employment. For example, Bosch and van der Hoeven (1991, cited by van Soest, p. 1054) and Salverda (1989) (cited by van Soest, p. 1054) claimed respectively that **lowering the MW did not lead to more employment growth for low wage earners**, and that the MW had no impact on employment.

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[14] These figures mean that a 10 per cent increase of MW would lead in the long term to a rise in the unemployment rate estimated as being + 3,1 per cent - + 3.6 per cent for young, and + 3.7 per cent-+ 5.6 per cent for adults.

**Table 13.   Elasticity of employment and unemployment to MW increase**

|  | Males | | Females | |
|---|---|---|---|---|
|  | 1984 | 1987 | 1984 | 1987 |
| Employment | -0.34 | -0.35 | -0.41 | 0.46 |
| Youth employment | -0.59 | -0.51 | -0.54 | 0.59 |
| Unemployment | 1.5 | 2.63 | 1.38 | 1.12 |
| Source:     Van Soest, (1993 p. 1070). | | | | |

Van Soest's conclusions have been questioned by Dolado et al. (1996) in their recent study which covered the experience of the Netherlands. They stated that *"evidence from the Netherlands about the adverse employment effect of a MW is scarcely compelling"* (p. 345), because of the methodological problems discussed earlier.

### D.   Portugal

In Portugal the MW was introduced in 1974 to improve the pay conditions of the poorer workers. This goal went through many changes. During the 1970s the MW policy pursued a balance between the satisfaction of workers needs and the capacity to pay of the firms. During the 1980s, the objective was to improve the minimum wage relation to the average wage, and in the 1990s the aim was to contribute to the convergence of inflation rates to the European levels, while remaining compatible with the employment promotion policy.

Initially the MW system covered only non-agricultural workers over 19 years of age, who worked in enterprises which employed over 5 workers. The exclusion of rural workers was due to a poor statistical coverage of this group. In 1977, the coverage of the non-agricultural MW was extended to workers of every enterprise, regardless of their size, and of all ages, although at different rates. In the same year the authorities established an agricultural MW below the non-agricultural rate. In 1978, the authorities fixed a minimum wage for the last remaining excluded group, the domestic workers, at a rate below the agricultural MW. The adjustments of the agricultural and domestic workers' MW were above the non-agricultural, specially after 1984, in such a way that in 1991 the agricultural MW reached the non-agricultural level. In addition, between 1975 and 1989 small enterprises with less than 10 workers could be exempted from the application of the MW, after an evaluation of the Ministry of Labour. The enterprises benefitting from exemption had to be receiving state assistance or had to be located in areas that were experiencing an economic crisis. These exemptions which were very limited have finally been abandoned. As regards coverage, the percentage of workers receiving the MW was 6.3 per cent in 1994 against 8.6 per cent in 1991 (cf. table below). However, these figures underestimate the reality since the domestic sector which employs a high proportion of low-skilled workers is not covered by the survey carried out by the Ministry of Labour.

**Table 14. Percentage of workers on minimum wage (non-agricultural sector)**

|        | 1991 | 1992 | 1993 | 1994 |
|--------|------|------|------|------|
| Male   | 6.6  | 4.4  | 4.1  | 4.7  |
| Female | 12   | 9.9  | 7.5  | 8.8  |
| Total  | 8.6  | 6.4  | 5.4  | 6.3  |
| Source: | Ministry of labour and ILO questionnaire (1994). | | | |

*Empirical study*

Ribeiro (1993) carried out an empirical study to assess the disemployment effects of MW. In her attempt Ribeiro relied on a very classical equation similar to that used by Cousineau and Skourias, discussed earlier. To conduct the estimate, Ribeiro selected 6 groups of workers: male-teenagers aged 15-19, female teenagers aged 15-19, young male aged 20-24, young female aged 20-24, adult men aged 25-64 and adult females aged 25-64. The results of estimates are given in the table below.

**Table 15. Employment rate elasticity to monthly minimum wage increase**

| Groups of workers | Elasticity |
|-------------------|------------|
| Men 15-19 old     | -0.082     |
| Women 15-19       | -0.195     |
| Men 20-24         | -0.078     |
| Women 20-24       | -0.474     |
| Men 25-64         | -0.018     |
| Women 25-64       | -0.036     |
| Source: | Ribeiro (1993, p. 894). |

The above results show that the impact of MW increase on employment is weak except for the group of young women aged 20-24 for which the elasticity reaches nearly -0.5. The strong elasticity of young women in employment is probably due to the fact that the proportion of MW earners is higher on average among this group of workers. The main other results are as follows:

- the impact is higher on women employment than men's,
- the impact of MW is higher on youth employment than on that of adults,
- globally, **the impact of MW on youth employment ranges between -0.1 and -0.2**: that is a 10 per cent increase in MW would lead to a decline in youth employment ranging between -1.0 and -2.0 per cent, except for young women aged 20-24. This figure is close to that found in some other studies undertaken in the United States and France. They suggest that the disemployment effect of MW on youth employment remains very modest.

### E. Greece

According to Law 2339 the national minimum wage in Greece is determined through the National General Collective Agreement. Once reached, this agreement becomes binding and

applies to the whole private sector. The full adult minimum rate applies to full-time blue-collar workers aged over 18 years as well as white-collar employees aged over 19 years. A youth wage differential existed in Greece until 1989 before being abolished.

As regards the proportion of workers earning the MW/near MW, existing data estimate it as being around 20 per cent of the private sector work force.

*Empirical study*

In a study carried out in 1994 to assess how the MW relates to employment in the manufacturing industry, Koutsogeorgopoulou (1994) found that **a 10 per cent increase in the MW reduces employment by about -0.6 per cent (low estimate) to -1 per cent (high estimate)**. As it appears from the table below, the figures are nearly the same for male and female workers.

**Table 16. Estimated impact of a 10 per cent increase of MW on employment**

|  | Low estimate | High elasticity (high estimate) |
|---|---|---|
| Males | -0.59 | -1.09 |
| Females | -0.60 | -1.11 |
| Source: Koutsogeorgopoulou (1994, p. 94). | | |

These findings concern the impact of MW on total employment and show a very weak correlation, despite the fact that: (i) MW affects a high proportion of workers in the private sector (20 per cent), and (ii) its relative value to average wage is high (62 per cent). In addition, even if the study didn't focus specifically on youth employment, the results reached confirm the fragility of the estimates regarding the disemployment effects of MW.

### 2.1.3 The studies in other OECD countries

#### A. *New Zealand*

While minimum wages have existed in this country since 1899, the first legislation on the minimum wage was set up in 1945. Until recently, teenagers in New Zealand were specifically exempt from any coverage under the minimum wage. Since March 1994, a youth MW rate has been applying to workers aged between 16 and 19: $3.68 per hour. This is equal to 60 per cent of the adult minimum wage. The rationale for setting up a sub-minimum rate was that a higher wage floor might reduce the employment opportunities of teenagers.

*Empirical study*

There are very few empirical studies in New Zealand which examined the MW legislation impact on youth employment. The most recent has been carried out by Maloney (1994**)**, just before the introduction of a youth MW in the country. This author attempted to assess: (i) *Firstly,* the possible directs effects of changes in the adult minimum wage on the employment and unemployment of young adults aged 20 to 24; and Secondly, the indirect effects on the employment rate of teenagers to see whether MW uprating had led employers to substitute less expensive teenagers aged less than 20 (not covered by MW) for more expensive young adult workers, aged between 20 and 24 (covered by the MW legislation).

*Findings*

The author found that: while the MW increase had a disemployment effect among young adults who were covered by MW legislation, teenagers, used as a control group (not covered by MW legislation), experienced an increase in their relative employment rate. This means that, following MW rise, employers would substitute low-paid uncovered workers for better paid covered workers. However, what is worth noting here is that the increase in teenage employment was higher than the loss of young adult employment: over a year-and-a-half, 10 per cent increase in MW raises the relative employment of teenagers by 6.85 per cent (the elasticity is equal to + 0.685), and decreases the relative employment of young adults by -3.51 per cent (elasticity of -0.351). The latter elasticity lies above that found in other studies conducted in the United States, as from the 1980s and in France during the 1990s (-0.1 / -0.2). According to Maloney, these effects do not occur simultaneously. In fact employers start by reducing the employment of young adults covered by MW legislation before hiring the less expensive labour force, teenagers for instance (not covered by MW legislation). The negative impact of the MW rise on young adult employment is even higher (-0.571) when the focus is on the low-skilled category of workers. However, one has to say that these findings remain somewhat fragile because in particular of the short period of observation used (1985:4,1993:4).

**Table 17.  Estimated impact of 10 per cent increase in MW on**

|  |  |  | Variation (%) |
|---|---|---|---|
| 1.1. Employment of young adults: | - | skilled | -3.51 |
|  | - | unskilled | -5.71 |
| 1.2. Unemployment of young adults: | - | skilled | + 3.0 |
|  | - | unskilled | + 6.5 |
| 2.1 Teenage employment (control group) |  |  | + 6.85 |
| 2.2 Teenage unemployment (control group) |  |  | -3.0 |

Source:   Maloney (1994).

## 2.2 The studies in developing[15] and transition countries

The number of studies assessing the impact of the MW on employment in developing and transition countries is limited (even more limited on the link between the MW and youth employment), in comparison with the huge number of studies conducted in developed countries.

As mentioned earlier, economists have not focussed much attention on this issue because:

(i)     in **developing countries**, when the MW exists, often it plays a minor role because it firstly covers only a small fraction of workers (the formal sector), and secondly, when its relative value tends to increase it faces a problem of compliance since firms might ignore MW legislation (see below the case of Indonesia and Botswana). Finally, the non-availability of data often prevents economists from undertaking empirical studies on the subject.

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[15]The term *developing countries* is used in a broad sense and includes developing and emerging countries such as Brazil.

(ii)    in **transition countries**, the fall in real wages following price liberalization in most countries of Central and Eastern Europe has led to severe deterioration of the relative value of the MW (cf charts 1 and 2, appendix 2) (Vaughan-Whitehead et al, pp. 15-16). In this context, few people are paid the MW, and consequently the MW does not exert a significant impact on labour market functioning.

## 2.2.1 Developing countries

### A.    *Indonesia*
The history of MW fixing in Indonesia can be traced back to the early 1970s, when the Government, employers and workers reached a consensus on the urgency of introducing a MW. The objective pursued was to prevent a deterioration of the lowest wage level as well as to improve the standard of living of the lowest paid workers.

In 1989,new legislation was introduced with a view to improving the system and particularly in setting its levels in line with: (i) the basic needs of the workers, while (ii) taking into account the capacity to pay of the firms. Since then, the increase in the average MW was important leading to the rise of its relative value versus average earnings in manufacturing between 1988 and 1991, as it appears in the figure below:

**Figure 3.    Minimum wage in real terms (all Indonesia averages)**



Figure 3. Minimum wage in real terms (all Indonesia averages)
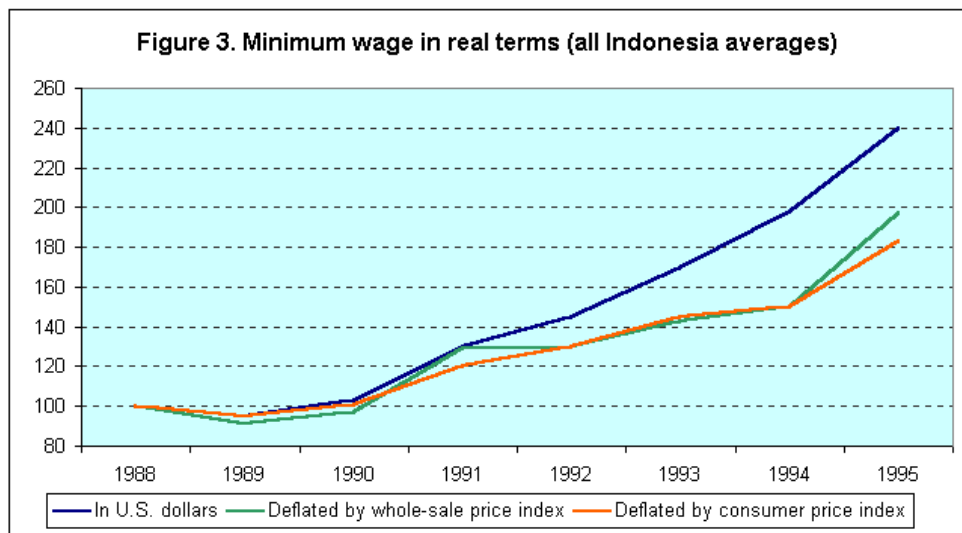
Note:   Price indexes refer to the beginning of the year, while the exchange rate is an yearly average. The wholesale price index excludes oil exports.
Source: Rama, World Bank (1996, p.22).

*The question of the link between MW and youth employment*
In Indonesia young workers are not subject to a specific MW rate, thus enjoying the same rates as adult workers. Following new legislation in 1989, the MW tripled in nominal terms and doubled in real terms, on average, between 1989 and 1995 (ILO-SEAPAT, 1996). As a result, the ratio of minimum wage to average wage rose from 48 per cent in 1990 to 60 per cent in 1994. The proportion of full time workers paid less than the MW in 1993 was significant, as it appears in the table below:

**Table 18.  Workers paid below the MW (per cent) in 1993**

|  | Young workers (15-24 years old) (%) | Female workers (%) | All workers (%) |
|---|---|---|---|
| Urban workers | 29.0 | 33.9 | 14.5 |
| Manufacturing workers | 20.6 | 26.9 | 14.7 |

Source: Rama, World Bank (1996, p. 22).

The fraction of young workers paid less than the MW is high: 29.0 per cent in the urban sector and 20.6 per cent in manufacturing, although lower than that of female workers (33.9 and 26.9 per cent respectively). This suggests that there is a big problem of compliance with MW legislation in Indonesia, which might have influenced the results of the empirical study discussed below.

*The empirical study*

Rama (World Bank, 1996) attempted to assess change in employment in response to MW hikes. In his model he regressed the ratio: urban young workers[16] aged 15 to 24 years/overall urban population aged 15 to 24, the so-called urban youth employment rate, on different indicators of MW hikes, namely:

- minimum wage/average earnings of urban workers,
- minimum wage/average wage in manufacturing,
- minimum wage/labour costs per worker in large manufacturing,
- minimum wage/value added per worker in large manufacturing,
- minimum wage/GDP per worker (excluding the oil and gas sectors).

The results reached, as it appears from the table below, show that the urban youth employment rate is negatively correlated with relative MW increase in 4 regressions out of 5. However, the elasticity found is very weak, and as Rama pointed out, statistically insignificant (p. 30). Furthermore, the disemployment effects of the MW on young workers are close to that found in the case of the workers in general as the table below shows:

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[16] The term workers here include blue and white collar workers.

**Table 19.    Elasticity of urban youth employment rate versus average urban employment rate with respect to relative MW**

| Explanatory variables | Urban youth employment rate (workers aged 15 to 24) | Average urban employment rate (workers aged 10 and above) |
|---|---|---|
| Minimum wage/average earnings of urban workers | 0.0259 | -0.0204 |
| Minimum wage/average wage in manufacturing, | -0.0794 | 0.0057 |
| Minimum wage/labour costs per worker in large manufacturing, | -0.0038 | -0.0151 |
| Minimum wage/value added per worker in large manufacturing | -0.0174 | -0.0215 |
| Minimum wage/GDP per worker excluding oil and gas | -0.0447 | -0.0553 |

Source:  Drawn from Rama (1996, tables 8 and 9).

These results should, probably, be taken cautiously given the high fraction of workers, in particular among female and young workers, who are being paid below the MW because of the firm's non compliance with MW legislation.

### B.    Brazil

The necessity of ensuring that all workers receive an adequate living wage was first recognized by the 1934 Constitution of Brazil. A few years later, in 1940, a national minimum wage system was introduced. Since then, the minimum wage system was modified several times, but its main objective has remained unchanged, namely, to provide protection for almost all workers against unduly low wages.

As regards the coverage, one has to say that originally the MW was fixed at different levels for various regions, with women and young workers having a lower minimum. Although the differentiation by age and sex was abolished in 1946, the number of regional minimum rates kept increasing, reaching 39 in 1963. It was then reduced step by step; and since 1984 there has been a unified minimum rate for the whole country.

According to an estimation[17] the MW affected about 10 per cent of  the urban labour force in the early 1990s, particularly women, youth under the age of 30, and workers with lower levels of education.

In terms of industrial distribution, low-paid workers are over represented in services, trade and the light industry.

#### Minimum wage adjustment

In the 1970s and the beginning of the 1980s, the real value of the MW was stable as adjustments followed consumer price changes. With the acceleration of inflation over the last

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[17] Ramos L., 1995, "Minimum wage in Brazil", ILO, Geneva (manuscript).

decade, the real MW has, however, fallen considerably. As a result, the real value of the MW in 1994 was less than half of its level in 1980.

*Empirical study*

In 1988 José M. Camargo (ILO, 1988) carried out an empirical study to examine the relationship between the real MW and the employment level in the formal sector. He estimated an equation in which the dependent variable, for instance the level of industrial employment, regressed to:

- the real average wage in the industrial sector (which depends on the MW according to the author);
- the total industrial output;
- the time variable.

The period covered was 1966-1976.

*The results*

According to the author, the industrial level of employment "is insensitive to variations in the real average wage of industrial workers" and is directly related to the volume of industrial output (ILO, p. 77). The elasticity found is equal to -0.04, namely, a 10 per cent increase in the real average wage would lead to a decline in employment of 0.4 per cent. One has, however, to say that during that period the MW had experienced a fall in its real value in comparison to the previous period (1950-1960), as shown in the chart below. In the mean time, the industrial output yearly growth rates reached the impressive level of 12 to 15 per cent a year between 1967 and 1974 (op. cit., p.79). This means that the potential effect of the MW on employment might have been hidden by the high growth rate of industrial output and employment.

**Figure 4.     Real minimum wage (Basis: May/95=100; Deflator: ICV-RJ)**



Figure 4. Real minimum wage
(Basis: May/95=100; Deflator: ICV-RJ)
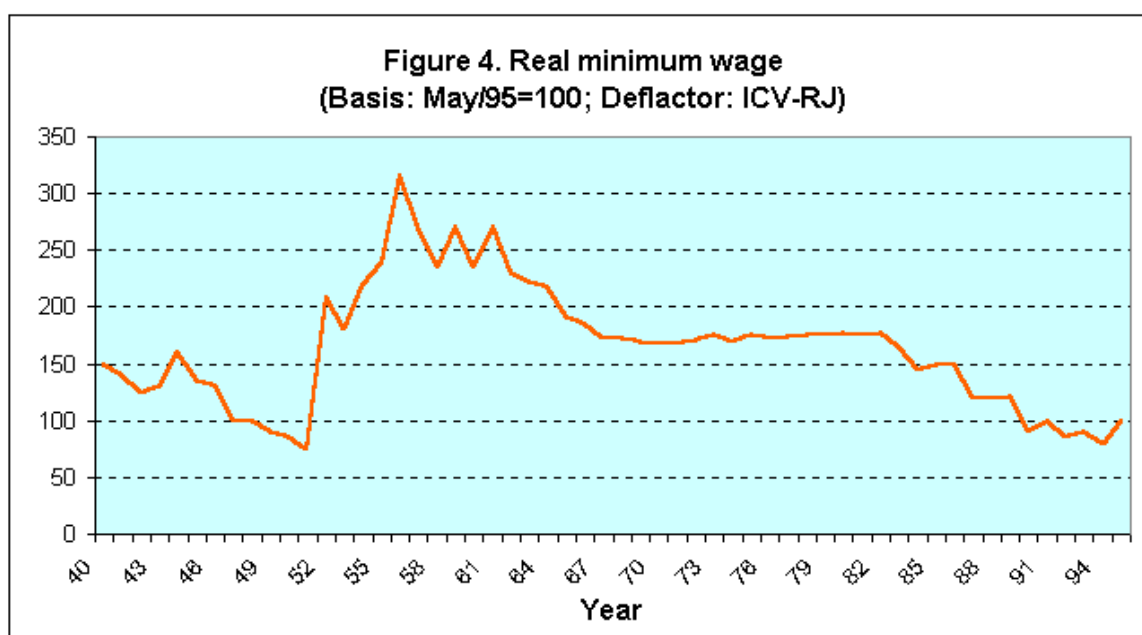
Note:     Annual average, May 1995.
Source:  Ramos (1995)

### C.     Botswana

*The history of MW fixing[18]*

The MW was fixed in Botswana in 1974. Since then it has been fixed from time to time for 5 basic sectors, namely, construction, manufacturing, services and repair trades, transport and hotels. As of July 1977, a uniform MW of 20 thebe/hour was introduced for all five sectors. It was raised to 24 thebe and to 36 thebe as of August 1980. As regards coverage, "the existing orders cover all the low wage employees in the private sector, with the exception of agriculture and domestic service (op. cit., p.6).

As regards MW trends, according to the data available, the MW was adjusted several times between 1976 and 1982 so that it represented a significantly higher proportion of the poverty datum lines in 1982 in comparison with 1976 (op. cit., p.7). Meanwhile the ratio MW/average wages stagnated in some sectors (manufacturing) while it rose in others (such as commerce and construction; cf. tables below).

*Empirical study*

To assess the effect of MW on employment growth, a special survey was carried out in 1978 to evaluate the impact of the 1977 MW adjustment of 100 per cent. This survey encountered a number of difficulties (inability to separate MW effects from other developments, such as the outbreak of foot and mouth disease, recovery from a recession, etc.).

**Table 20.     Poverty datum lines (pula per month) and minimum wages, 1976 and 1982**

|  | Urban centre | 1976 (September) | | 1982 (April) | |
| --- | --- | --- | --- | --- | --- |
|  |  | PDL | MW as % of PDL | PDL | MW as % of PDL |
| Single male | Gaborone | 44.36 | 61 | 79.54 | 88 |
|  | Lobatse | 39.21 | 70 | 69.76 | 101 |
|  | Francistown | 42.58 | 64 | 72.34 | 97 |
|  | Selebi Pikwe | 47.21 | 58 | 67.75 | 104 |
| Family of 5 | Gaborone | 112.56 | 24 | 220.28 | 32 |
|  | Lobatse | 105.50 | 26 | 202.50 | 35 |
|  | Francistown | 105.66 | 26 | 196.89 | 36 |
|  | Selebi Pikwe | 111.69 | 24 | 191.49 | 37 |

Source: ILO (1988), p.13.

[18] Drawn from ILO, South African Team for Employment Promotion (SATEP), op. cit., p.-4.

The results of the survey indicate that although the overall employment levels were not greatly affected by the major MW adjustment of 1977, the lowest paying and more vulnerable sectors did experience more adverse trends (p. 32). This was the case in the wholesale and retail firms surveyed. Employment and hours of work were subject to decline in these firms. In this regard, unskilled employment suffered a decline of one per cent after the MW adjustment; the more skilled categories, on the other hand, experienced increases of about 7 to 8 per cent (op. cit. pp. 32-33).

These results were obtained through a survey which did not use more rigorous techniques, for example the econometric analysis. They should therefore be interpreted with caution. As the author himself has stated "surveys of this kind (by interviewing managers) are generally thought to underestimate the likely long-term effect of MW changes (op. cit. p. 33). It is widely recognised today that the impact (in one way or another) of the MW increase on employment, wage structure, profits, etc., may occur in the long term only. This explains why it would have been more appropriate to carry out a second survey to confirm whether the employment trend was the same as that following the MW adjustment in 1977. Another study was conducted in Botswana to assess the impact of the MW[19]. The authors resorted to employer interviews because of the lack of reliable data. They interviewed 29 employers and three trade unions in six cities, villages and towns. The firms selected were a reflection of the businesses operating in Botswana. The three trade unions were selected to represent a range of skills and labour market situations (Scoville and Nyamadzabo, 1988, pp. 39-40).

**Table 21.    Cash earnings (pula per month) for citizens and approximate monthly minimum wage by industry**

| Year | Manufacturing | | | Construction | | | Commerce[a] | | | Private sector[b] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) AE | (2) MW | Ratio (2):(1) | (1) AE | (2) MW | Ratio (2):(1) | (1) AE | (2) MW | Ratio (2):(1) | (1) AE | (2) MW | Ratio (2):(1) |
| 1973[c] | 42 | - | - | 55 | - | - | 37 | - | - | 44 | - | - |
| 1974 | 50 | 27 | 54 | 57 | 27 | 47 | 38 | 20 | 53 | 49 | 27 | 55 |
| 1975 | 56 | 27 | 48 | 61 | 27 | 44 | 42 | 20 | 48 | 56 | 27 | 48 |
| 1976 | 65 | 27 | 42 | 61 | 27 | 44 | 55 | 20 | 36 | 74 | 27 | 36 |
| 1977 | 69 | 39 | 57 | 74 | 39 | 53 | 61 | 41 | 67 | 78 | 39 | 50 |
| 1978 | 85 | 39 | 46 | 81 | 39 | 48 | 71 | 41 | 58 | 88 | 39 | 44 |
| 1979 | 101 | 47 | 47 | 88 | 47 | 53 | 78 | 49 | 63 | 108 | 47 | 44 |
| 1980 | 137 | 70 | 51 | 116 | 70 | 60 | 103 | 74 | 72 | 144 | 70 | 49 |

Notes:
[a]    Covers wholesale and retail trade, hotels and catering.
[b]    Includes parastatals and education.
[c]    Data for 1973 not strictly comparable with other years as they include, to some extent, the value of payments in kind.
AE    Average earnings
MW    Minimum wage
Source:   ILO (1988, p.18).

[19] Report of the Impact of the MW in Botswana, prepared by James G. Scovile and Tanfila Nyamadzabo for the National Employment, Manpower and Incomes Council, May 1988.

According to the results of the survey, only three employers reported reductions in permanent staff as a result of increases in the MW (op. cit. p. 41). In consistence with the results of the previous study and according to the trade unions, the reduction of employment has especially affected small shops.

According to the authors, the other employers reported a variety of reasons (see below) for the absence of any effect related to MW adjustment on their levels of employment:

C      on government construction projects, increases in mandated costs led to upward adjustment of project costs. This is in fact a sort of government subsidy to maintain employment;

C      the firms' skill mix was so high that all wages were way above the minimum.

*Compliance*

One of the means that might have been used by the employers to avoid MW increase could have been compliance. Between 1985 and 1986 Botswana conducted 1,335 inspections which yielded 373 contraventions (28 per cent) (Scoville-Nyamadzabo, p. 42). In retail and wholesale trade the infringement rate for the various provisions of the MW order seemed even higher and reached 90 per cent (ILO, SATEP, p. 20).

Finally, as stated earlier, this survey was carried out through interviews. The results should therefore be interpreted with caution since it is not easy to interpret the effects of a MW increase without resorting to more rigorous techniques.

## D.    **Kenya**

*Description of the MW fixing system in Kenya*

MWs were first fixed in Kenya in 1946. To begin with, only Nairobi was covered by he Minimum Wage Ordinance; other urban areas gradually followed.

In Kenya a permanent General Wages Advisory Board is responsible for inquiring, on request, into the fixing of a basic MW and for examining the expediency of establishing wage councils in given industries or trades. An Agricultural Wage Advisory Board has similar functions in respect of agricultural workers.

In Kenya the different sectors/regions are subject to different MW rates. As regards coverage, the MW legislation covers the whole modern sector, but as mentioned, there are special rates applying to the urban and rural areas.

One has also to note that among unskilled workers the Regulation of Wages and Conditions of Employment Act foresees a special MW rate for young workers aged under 18 years; they earn 71 per cent of the adult rate.

*Empirical study*

In May 1982, (J. Vandemoortele and S.M. Ngola) arried out a study[20]for the Central Organization of Trade Unions (COTU). Among the issues addressed was the effect on employment of the MW adjustment of May 1980. An equation was set up for both the public and private sectors. The results found show that the impact of a change in the MW on employment differs, depending on the sector concerned (Vandemoortele, Ngola, 1982, p. 11).

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[20] The setting of a MW and its consequences on employment and earnings in the modern sector in Kenya. Institute of Development Studies, University of Nairobi, 1982.

In the private sector, they found that the MW had a negative effect on the number employed and that it left the average wage rate unchanged (op. cit., p.11).

They added that from 1972 to 1978, employment in this sector rose by hardly one per cent per annum, before concluding that "had the MW not changed during that period, then employment would have risen by 3.3 per cent a year." (op. cit., p.11).

In the public sector, however, the authors pointed out that the rise in the MW had no significant impact on total employment in the public sector (op. cit., p. 12). This might be due to wages being higher in the public sector (at the time of the study) than in the private sector, so that the MW increase did not affect the structure of wages and hence, employment in the public sector.

**Table 22.    Average wages in the public and private sectors**

|  | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 |
|---|---|---|---|---|---|---|---|---|
| Average wage (current price) |  |  |  |  |  |  |  |  |
| Private sector (1) | 431 | 443 | 507 | 601 | 729 | 815 | 885 | 974 |
| Public sector (2) | 616 | 676 | 710 | 818 | 975 | 1 052 | 1 142 | 1 206 |
| Ratio 2/1 | 1.4 | 1.53 | 1.4 | 1.36 | 1.34 | 1.29 | 1.29 | 1.24 |
| Source: Vandemoortele and Ngola (1982, p.9). |  |  |  |  |  |  |  |  |

According to the available information, these findings have not been confirmed by further research. As stated earlier, before drawing any conclusion, further research is needed to assess the impact of the MW on employment in the long run.

### 2.2.2 The studies in transition countries: The case of the Czech Republic

The history of the new system of MW in the Czech Republic is very recent. It was set for the first time in 1991 on the basis of a tripartite national agreement before being confirmed by Government Directive No. 99/1991. Its initial value was determined in reference to the average wage and represented 60.2 per cent of that wage. This MW applied to all workers irrespective of their age or the sector of activity to which they belonged. Between 1991 and 1993, the MW was adjusted only twice. However because of a more rapid movement of average wage the ratio MW/average wage fell to 37.7 per cent in 1993. In view of the falling of the relative value of MW to average wage, the proportion of MW earners fell too. In fact, most of the firms had to offer wages above the official minimum wage to attract workers.

Buchtikova (1995) addressed the question of the implications of MW on employment as follows: she attempted to simulate how the level of employment would react in industrial firms to a rise in the wage bill entailed by an increase in the MW. First, she estimated the effect of a rise in MW from CSK 12 to CSK 13 (+ 8 per cent), CSK 14 (17 per cent), CSK 16 (+ 33 per cent), CSK 18 (50 per cent), CSK 20 (+ 67 per cent) and CSK 22 (83 per cent). Then she estimated the effect of the wage bill increase on the level of employment. The results obtained are presented below:

**Table 23.       Effects of minimum wage growth on low-skilled employment (%)**

| New level of minimum wage | Rise of wage bill | Reduction of employment |
|---|---|---|
| 13 CSK | 0.024 | 0.69 |
| 14 CSK | 0.052 | 0.73 |
| 16 CSK | 0.189 | 1.14 |
| 18 CSK | 0.540 | 1.47 |
| 20 CSK | 1.258 | 2.30 |
| 22 CSK | 2.456 | 4.10 |
| Source:   Buchtikova (1995, p. 113). | | |

The above results show that the MW increase may have adverse effects on low-skilled jobs because they are the most concerned by MW movement. However, one has to consider these results with caution for different reasons: (i) the study was based on information from individual Czech state-owned enterprises, and cannot be generalized to the whole economy; (ii) the number of observations on which the simulations relied are too low (1991-1993) to allow any definite conclusions; (iii) the model used didn't incorporate an important explanatory variable, namely a trend. Such a variable is very important and may explain a significant part of employment decline in countries like the Czech Republic where state-owned enterprises have been facing severe problems of overstaffing. This means that the reduction of employment which came out of the estimate might be due to the deterioration of the financial situation pertaining to the transition period than to MW increase.

**Conclusion**

Two types of conclusion might be drawn from the empirical review given below in Tables 24 to 26:

(i) There is no consensus among economists, at least in three countries, namely Netherlands, the United States and the United Kingdom as regards the MW effects on youth employment (overall employment in the United Kingdom). The studies concluding that the MW has caused job-losses have been challenged by other studies suggesting that: (a) the MW had no negative impact on youth employment (Netherlands); (b) there is no evidence that the activities of the MW councils acted as a restraint on employment in Britain in the 1980s (United Kingdom); (c) the Federal MW increase, at least following its 1990 and 1991 uprating, did not lead to employment contraction (United States). However, in the case of the United States, there was a quasi consensus among US economists on the existence of a negative link between MW increase and youth employment movement, on the basis of the studies conducted during the 1970s and the first half of the 1980s. Such a consensus began fraying following the release of the results of Card/Krueger and Katz/Krueger studies carried out as from the beginning of the 1990s, as discussed earlier.

(ii) In France and Canada the studies conducted have concluded on the existence of a negative correlation between MW and youth employment (cf. table summarizing the results). However, in France, most of the authors have admitted that *the link was weak and the results fragile.*

Finally, in the other OECD countries examined in this survey, such as Greece, New Zealand and Portugal, the studies show that the MW hike may harm overall/youth employment.

However, the effects detected seem weak, at least in Greece and Portugal (except for young females aged 20-24), and the number of studies carried out is very low. Therefore, further studies and evidence would be very useful to confirm/validate the existing findings.

In the developing and transition countries that were examined in this study, the situation appears different. The studies carried out are fewer for the reasons mentioned earlier and have focused more on the relationship between the MW and overall employment, except for Indonesia, where the impact of the MW increase on youth employment in the urban sector has been assessed. The results of the studies reviewed show that:

C    **developing countries**: in the four countries examined the change in MW is reported to have been negatively correlated with employment. In Brazil and Indonesia, however, the elasticity found is very weak and even statistically insignificant in the case of Indonesia.
     In Botswana the MW increase seems to have had some adverse effects on employment in low-pay sectors and shops. In Kenya, the MW adjustment of 1980, for example, seems to have negatively affected employment in the modern private sector, but had no significant impact on employment in the public sector.
     All in all, according to the studies reviewed in the developing countries, the MW adjustment could cause harm to employment in some industries of the formal sector. The degree of harm, however, seems to depend on the rate of the adjustment. For example, in Botswana, the major adjustment of MW (100 per cent) in 1977[21] is reported to have had significant adverse effects on employment in vulnerable sectors rather than in subsequent ones.
C    **transition countries**: in the Czech Republic the simulation carried out showed that the MW increase could have adverse effects on low-skilled jobs because of the upward pressure exerted on the wage bill in the enterprises covered by the study.

The results of the studies conducted in the developing-transition countries show that the link between the MW and employment depends particularly on the sector and the rate of the MW adjustment. These results cannot, however, be generalized and do not allow us to draw definite conclusions because:

C    they are very few and should be validated by further research;
C    in some countries, Kenya and Botswana for instance, the impact of the MW on employment has been assessed through surveys with managers of enterprises and trade unions (Botswana). It is recognised that such techniques could capture the impact the MW might have on employment in the long term;
C    the data on which the statistics were based were either old (Botswana and Brazil for example) or insufficient (Kenya, Czech Republic). In these two countries the number of observations on which the estimation relied are too low, respectively 1991-1993 and 1972-1978;
C    the problem of firm's compliance with regard to the MW legislation may reach a significant proportion (Indonesia and Botswana).

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[21] Following the 1977 adjustment, the ratio MW/average wage reached a high level 57 per cent against 42 per cent in 1976 in the manufacturing sector.

These studies, however, have the merit of existing and showing that the issue of MW and employment in developing-transition countries might be as pertinent as in developed countries.

**Table 24.      Summary of the main empirical results of studies in the United States**

| Category of studies | Estimated impact of a 1O per cent increase in the MW on employment of teenagers (16-19 years old) |
|---|---|
| | Per cent change in employment (elasticity) |
| **Category I (first studies)** | |
| 1.      Kaitz (1970) | -0.98 |
| 2.      Kosters and Welch (1972) | -2.96 |
| 3.      Kelly (1975) | -1.204 |
| 4.      Kelly (1976) | -0.66 |
| 5.      Gramlich (1976) | -0.94 |
| 6.      Mincer (1976) | -2.31 |
| 7.      Welch (1976) | -1.78 |
| 8.      Ragan (1977) | -0.65 |
| 9.      Mattila (1978) | -0.84 |
| 10.     Freeman (1979) | -2.46 |
| 11.     Wachté and Kim (1979) | -2.519 |
| 12.     Iden (1980) | + 2.26 |
| **Category II (intermediate studies)** | |
| 1.      Hamermech (1981) | -1.2 |
| 2.      Brown, Gilroy and Kohen (1983) | -1 |
| 3.      Meyer and Wise (1983) | |
| 4.      Solon (1985) | -0.99 |
| 5.      Brown (1988) | -1.0 to 3.0 |
| 6.      Wellington (1989)       (teenage employment: 16-19) | -1.0 |
|                                 (young adult: 20-24) | 0.0 |
| **Category III (1990s)** | |
| 1.      Card and Krueger (1995) | |
|        a.    New Jersey-Pennsylvania, Fast food restaurants | + 0.4 |
|        b.    Reanalysis of Newmark and Wascher (1992) Cross State Data | + 0.3 |
|        Card California teenagers       (following California MW rises to $4.25 in July 1988) | + 1.2 |
| 2.      Katz and Krueger (1992), Texas fast food restaurants | + 18.5 to 26.4 |
| 3.      Newmark and Wascher (1992) | -2.0 to -2.4 |

Sources:      Category I      Drawn from Brown, Gilroy, Kohen (1983, (p.5.3).
              Category II.1: Drawn from Eccles, Freeman (1982, p. 228).

**Table 25.    Summary of the main empirical results of studies carried out in France**

Estimated impact of 10 per cent increase in the MW on youth employment (elasticity)

|  |  | Male | Female | Total |
|---|---|---|---|---|
| **1. Earlier Studies** |  |  |  |  |
| 1.1 | Rosa (1980),  period of observation, (1963-1979) | -6.1 | NS | -4.1 |
| 1.2. | Martin (1981), period (1963-1979), 15-24 years old | -1.37/ -2.36 | -0.34/ -1.51 | -3.81 |
| 1.3 | Rosa (1985), period (1963-1984), 15-24 years old | -4.55 | NS | -3.5 |
| **2.  Recent Studies** |  |  |  |  |
| 2.1 | Benhayoun (1990), period (1968-1988), 15-24 years old | -2.35/ -6.24 | -1.88/ -1.99 | -3.5 |
| 2.2 | Bazen-Martin (1991), period (1963-1986),  15-24 years old | -- | -- | -1.0/ 2.0 |
| 2.3 | Skourias (1992), period (1968-1990), 15-24 years old | -1.9/ -2.6 | -2.6/ -3.6 | -0.89/ -1.48 |
| 2.4 | Skourias (1993), period (1968-1990), 15-24 years old | -- | -- | -2.0/ -2.2 |
| 2.5 | Benhayoun (1993), period (1968-1991) | -1.3/ -3.5 | NS | NS |

**Table 26.    Summary of main empirical results of studies in other countries: Estimated impact of 10% increase in the MW on youth employment (elasticity)**

| Countries | | Male | Female | Total |
|---|---|---|---|---|
| **Netherlands** | | | | |
| 1. | Van Soest (1993) | -5.1 | -5.9 | -- |
| 2. | Salverda (1989) | N      o | M      W      I      m      p      a      c      t | |
| **Portugal** | | | | |
| 1. | Ribeiro (1993) | | | |
| | -   15-19 years old | -0.82 | -1.95 | -- |
| | -   20-24 years old | -0.78 | -1.11 | -- |
| **Greece** | | | | |
| 1. | Koutsogeorgopoulo (1994) | | | |
| | -   Total employment) | -0.59/-1.09 | -0.60/-1.1 | -- |
| **New Zealand** | | | | |
| 1. | Maloney (1994) | | | |
| | -   20-24 years old | | | -- |
| | -   Skilled | | | -3.51 |
| | -   Unskilled | | | -5.71 |
| **Canada** | | | | |
| 1. | Cousineau, Tessier, Vaillancourt (1992) | | | |
| | -   Youth unemployment | | | + 1.4 |
| 2. | Cousineau (1993) | | | |
| | -   Young workers aged less than 25 | | | -5.0 |
| **Indonesia** | | | | |
| 1. | Rama (1998) | | | |
| | -   Urban youth employment rate (workers aged 15-24) | | | + 0.2/-0.4* |
| **Brazil** | | | | |
| 1. | Camargo (1988) | | | |
| | -   Overall employment | | | -0.4 |
| **Botswana** | | | | |
| 1. | ILO (South African Team for Employment Promotion) 1988<br>-   Overall employment | | | Overall employment was not greatly affected by the MW, but lowest paying and most vulnerable sectors did experience adverse effects |
| 2. | Scoville - Nyamadzabo (1988)<br>-   Overall employment | | | Survey: 3 employers out of 25 reported reduction in permanent staff, following MW increase. |
| **Kenya** | | | | |
| 1. | Vandemoortel - Ngola (1988)<br>-   Overall employment | | | No effect on employment in the public sector. Negative effect on employment in the private sector. |
| **Czech Republic** | | | | |
| 1. | Buchtikova (1955)<br>-   Overall employment | | | MW increase may have adverse effect on low-skilled workers. |

*Note: We retained the two extreme estimates of Rama's study (cf. whole table p.35).

# 3. Minimum wage-fixing mechanisms and treatment of young workers

### 3.1 Youth minimum wages and international labour standards

The provisions of ILO Conventions on MW do not provide for the fixing of different MW rates on the basis of age. In this respect, the Committee of Experts on the Application of Conventions and Recommendations of the ILO has expressed no views about whether different wage rates on the basis of age are prohibited by the Conventions on MW fixing. However, while there are no provisions regarding the age criterion, the Minimum Wage Fixing Machinery (Agriculture) Convention, 1951 (No. 99) and the Minimum Wage-Fixing Convention, 1970 (No. 131) provide, respectively that:

- "*Each member which ratifies this Convention shall be free to determine after consultation with the most representative organizations of employers and workers concerned, where such exist, to which, …, categories of persons the minimum wage fixing machinery, …., shall be applied*";
- "*The competent authority in each country shall, in agreement or after full consultation with the representative organizations of employers and workers concerned, where such exist, determine the group of wage earners to be covered*".

This means that ratifying member States may decide to exclude some categories of workers from the scope of MW fixing. If so, the Minimum Wage-Fixing Convention, 1970 (No. 131), provides in its para. 3 of article 3, that the member State concerned "*shall list, in the first report on the application of the Convention submitted under article 22 of the Constitution of the ILO, any groups of wage earners which may not have been covered in pursuance of this article, giving the reasons for not covering them, …*".It appears from the above that the possibility of choosing, and hence of excluding, certain categories of workers, is subject to the agreement of the social partners or at least to full consultation with them.

None of the member States has explicitly reported the use of such a possibility in the case of young workers. The Committee of Experts on the Application of Conventions and Recommendations noted, however, in its 1992 General Report on MW-fixing Machinery, the existence of legal provisions and regulations that allowed the fixing of special MW rates for young workers in member States, including those that had ratified the Conventions on MW (General Survey, para. 177-181). The Committee of Experts has indicated, however, that ***"the reasons which were at the origin of the adoption of lower MW rates for some groups of workers on the basis of age …. shall be re-examined periodically in the light of the principle of equal remuneration."***

However, while the ILO instruments on MW do not forbid explicitly the fixing of different rates on the basis of age, the Committee of Experts stated in the General Survey of 1992 (para. 169) that "the general principles laid down in other instruments, and particularly those contained in the Preamble of the Constitution of the ILO which specifically refers to the application of the principle of Equal Remuneration for Work of Equal Value have to be observed". Also, it might be argued that the work performed by a worker, irrespective of his/her age, should be the main criteria in determining the wage paid rather than the age. Moreover, the Minimum Age Recommendation, 1973 (No. 146) stipulates that special attention should be given to the provision of fair remuneration to young people, bearing in mind the principle of equal pay for equal work (Part IV, para. 13(1) (a)). Therefore, the fixing of lower rates of MW for young workers, all things being equal, comes up against the general principles contained in the different ILO instruments. Hence, the key aspect in this context is the value

of the work performed. The 1945 ILC resolution provides that the measures taken with regard to young workers pay should aim at guaranteeing them payment consistent with the work they perform, while respecting to the extent possible, the principle of equal remuneration for comparable work". Furthermore, as the Committee of Experts pointed out "the quantity and quality of work carried out should be the decisive factor in determining the wage paid" (para. 111 of the 1992 Survey).

On the other hand, a distinction shall be made between two concepts: young workers who are fully involved in the firm/organization's activities and perform the same work as their adult counterparts, and those young persons who perform work involving training, such as apprentices/trainees.

Apprenticeship is based on a system of mutual exchange (training against work). Therefore, it warrants the payment of cash compensation and other indemnity calculated on the basis of the MW, which takes into account the training provided. The case of the young worker in training appears more blurred in comparison to the apprenticeship statute, in particular as regards the question of age. Indeed in some countries the notion of young workers retained in legal provisions and regulations setting up lower rates of MW goes beyond 18 years. For example, in France the persons who are eligible for the professional insertion contract *(contrat d'insertion professionnelle)* as provided for in article 322-4-17 of the Labour Code, are those young workers aged 18 to 26. In the Netherlands, the youth MW regulation applies to young workers up to the age of 23.

The situation appears different in the case of young workers involved neither in training nor in apprenticeship. Like other workers, not benefitting from any training in exchange for the work to be performed, they are entitled only to their pay. The lowering of the wage paid to young workers performing work comparable to that performed by an adult seems unwarranted, unless the age of the worker is considered as a valid criterion of discrimination. All in all, even if the fixing of lower MW rates for young workers is not prohibited by the Conventions on MW, such measures should be implemented in good faith, taking into account the following elements:

C      the principle of equal remuneration for work of equal/comparable value should apply when no formal training or apprenticeship has been provided for by the enterprise;

C      the notion of "young workers" shall be determined with precision;

C      the period during which a lower MW rate is applicable to young workers shall be limited in order to ensure that the application of the age criterion does not lend itself to abuse.

### 3.2 The practice in selected countries

MW-fixing mechanisms vary among countries as regards:

C      *The machinery*: the MW is either fixed by statute where the law plays a vital role, by a Government decision, by an ad-hoc body made up of representatives from the government, employers' and union organizations, or by collective agreements or court rulings;

C      *Coverage:* it might be of overall (whole economy) or partial coverage. In the case of partial coverage, the MW may apply only to some sectors/regions/professions;

C      *Criteria* of fixing and adjustment;

C      *Treatment* of some categories of workers, and particularly young workers.

As regards the question of status of young workers, countries, irrespective of their system of MW determination (negotiated, set by Government or by law, …) have been reacting differently to the conventional wisdom according to which establishing/increasing the MW harms employment. To be simple, countries for which data exist might be grouped into three categories: (i) *Category I*: those where youth seem treated equally since there is no specific MW system for that particular category of workers: they enjoy the same rate of MW as adults. *Category II*, comprises countries where young workers are subject to special MW rate(s). This category might be split into two sub-categories, namely: *category II.1*, countries where there is a single youth MW rate, and *category II.2*, where youth are subject to a specific rate graded by age; finally, we have *Category III* in which we put countries where young workers do not benefit from any MW protection, because either they have been excluded or because MW legislation has been abolished/does not exist.

**Table 27.    Distribution of selected countries according to the status of young workers as regards MW**

| Category I<br>Youth enjoy the same rate as adults | Category II<br>Countries where youth are subject to special rate | | Category III<br>Young workers excluded from MW coverage |
|---|---|---|---|
| | Sub-Category II.1<br>Unique rate for youth | Sub-Category II.2<br>MW rate grade by age | |
| Brazil<br>Greece<br>Germany<br>Japan<br>Indonesia<br>Czech Republic | Kenya<br>New Zealand<br>Portugal   (since 1988)<br>Spain      (since 1990)<br>USA        (between 1990 and 1993) | Belgium<br>Côte d'Ivoire<br>France<br>Luxembourg<br>Netherlands | United Kingdom<br>(between 1986-1993 - date of abolition of MW Council)<br>New Zealand<br>(Until 1984) |

**Table 28.    Countries of category II.1: Youth MW as a percentage of adult rate**

| | Kenya | New Zealand | Portugal | Spain<br>> 1990 | USA<br>1990-1993 |
|---|---|---|---|---|---|
| Youth minimum wage rate as a percentage of adult rate | 71 | 60 | 75 | 66 | 85 |

**Table 29.    Countries of category II.2: Youth MW as a percentage of adult rate**

| Age | Belgium | Côte d'Ivoire | France | Luxembourg | Netherlands | Spain<br>(before 1990) |
|---|---|---|---|---|---|---|
| 15 | | 60 | | 60 | 30 | |
| 16 | 70 | 70 | 80 | 70 | 34.5 | 39 |
| 17 | 76 | 80 | 90 | 80 | 39.5 | 61 |
| 18 | 82 | 90 | 100 | 100 | 45.5 | 100 |
| 19 | 88 | 100 | 100 | | 52.5 | |
| 20 | 94 | | | | 61.5 | |
| 21 | 100 | | | | 72.5 | |
| 22 | | | | | 85 | |
| 23 | | | | | 100 | |

The above tables call for the following comments:

C      The overwhelming majority of countries, for which data are available, acknowledge that young workers have the right to MW protection. Only one country, the United Kingdom, has a different opinion. (The United Kingdom case will be examined thoroughly below);

C      While countries like Brazil, Germany, Greece, Indonesia and Japan do treat young workers equally and apply to them the same MW as adults, in other countries, much more numerous in our selection, as shown in the above table, young workers are subject to MW rates lower than that of adults. This suggests that policy-makers, particularly in countries where MW rates have been graded by age, might have been influenced by the predictions of the standard economic theory calling for a reduction of relative wages according to age, with a view to facilitating the access of young people into the labour market.

How can the behaviour of countries in category be explained? Is it because they do not believe in such a prediction? Or is it simply because the youth fraction of the active population does not suffer more than adults from unemployment? The answer to this question is not very easy because each country has its own approach. However, a look at the experience of countries like Japan or Germany, shows that the action of public authorities in favour of youth employment focuses much more on training than on MW and labour cost issues.

The establishment of specific rate(s) for young workers in countries belonging to category II might be interpreted as: (i) an action to stimulate the demand for youth through the reduction of their relative wage, and (ii) an action to reduce the supply of young workers in the labour market by keeping them in school.

The picture given in the above table is not immutable, in the sense that institutional changes affecting MW-fixing systems have been continuing. Indeed, in response to an increase in youth unemployment relative to that of adults since the beginning of the 1980s, many countries are still experiencing changes in their MW-fixing systems as regards a youth statute.

Below we examine the experiences of selected countries where significant changes have been taking place, in order to show to which extent the MW is being used as an instrument of youth employment promotion. One has, however, to note that the most significant changes have been occurring in OECD countries where the problem of youth employment is being considered as a top priority by the majority of governments.

In *the Netherlands* for example, which counts among the first countries that introduced a special rate of MW for young workers, the system has been subject to several reforms since its introduction in 1969. Indeed, in 1974 the Government introduced lower rates applicable to young workers aged 15 to 22 years. Furthermore, in response to a sharp increase of youth unemployment in the late 1970s and early 1980s, the Government made several decisions regarding the MW: (i) it reduced the relative value of the youth MW; for example, the rate applicable to young workers aged 20 years or less, as a percentage of the adult rate, was lowered from 77.5 in 1980 to 70.0 in 1981 and 61.5 in 1983; (ii) in terms of movement, the MW (including the adult rate) was reduced by 3 per cent in 1984 and then frozen until 1989.

**Table 30.     Youth unemployment movement at the end of the 1970s and beginning of the 1980s**

| Youth aged | 1973 | 1975 | 1979 | 1983 | 1989 |
|---|---|---|---|---|---|
| 15-24 | 2.8 | 6.3 | 8.1 | 24.9 | 12.2 |

Source:   OECD, Labour Force Survey (1971-1991, Part III),Paris, 1993.

**Table 31.     Minimum wage rates applicable by age**

| Age | Percentage of adult minimum wage |
|---|---|
| 23-64 | 100.0 |
| 22 | 85.0 |
| 21 | 72.5 |
| 20 | 61.5 |
| 19 | 52.5 |
| 18 | 45.5 |
| 17 | 39.5 |
| 16 | 34.5 |
| 15 | 30.0 |

Source:          Drawn from ILO questionnaire on MW (1994).

It has been considered that the different rates applying to younger workers reflect their lack of work experience and thus can be considered fair. The main objectives of these lower rates were: (i) to ease their access to the labour market, and (ii) to discourage premature school leaving.

In addition, one had to note that in order to make the  adjustment system more flexible and linked to an objective parameter, the former indexation mechanism was replaced by the Linkage Law in 1992. This Law provides that the MW and social benefits, should, in principle, be linked to the average wage increase. However, suspension of this principle is possible in the event of an above average increase in wages and/or an increase in the number of people claiming social security benefits. The suspension of indexing has been reduced to the result of one formula, namely the relationship between the volume of unemployed (I) to the employed (A), the so-called I/A ratio, expressed in benefit years and work years respectively.

Initially, the I/A ratio had been set at 82.6. When the ratio is below the threshold, the Government is obliged to apply full indexation. However, if the ratio rises over such a limit, the Government can suspend the indexation or apply only a partial indexation. In 1992 for example, the MW was  increased by 3.03 per cent, whereas the average had increased by 4.3 per cent. In 1993 and 1994, the MW was frozen, as the I/A ratio was above the pre-set threshold.

Finally, business and labour leaders have agreed very recently, that in principle it should be made easier for companies in financial difficulties to pay less than the applicable MW (Industrial Relations Europe, November 1996's issue). Hence, a national agreement for the catering industry signed earlier in 1996 allows employers cutting down the scale starting rates for new recruits the bulk of whom are young. This recent change suggests that the MW is still considered by policy-makers as an obstacle, despite the definite improvement of labour market functioning since 1994 (op. cit., p. 67).

In **Portugal**, three years after the introduction of the MW system in 1974, the Government decided to create a special rate for young workers, equivalent to 50 per cent of the adult rate. One year later, in 1978, the youth rate was split into two sub-rates: 50 per cent for young workers aged under 18 and 75 per cent for those aged between 18-19. Such a change was followed by another one in 1987, which had foreseen that only those workers aged 17 and under were subject to a lower MW rate: 75 per cent for those aged 17 and 50 per cent for those under 17 years. Finally, in 1988, the youth MW rate was unified: 75 per cent for all young workers aged less than 18.

**Table 32.       Minimum wage rates applicable to young workers** - **Portugal**

| Year | Young workers | | | | Trainees |
|------|------|------|------|------|------|
| 1974 | under 20 not covered | | | | |
| 1977 | under 20 (50%) | | | | |
| 1978 | 19-18 (75%) | under 18 50% | | 17 and over (80%) | under 17 (75%) |
| 1987 | 19-18 (75%) | 17 (75%) | under 17 (50%) | 17 (80%) | under 17 (75%) |
| 1988 | | under 18 (75%) | | under 25 (80%) | |

Source: Ministry of Labour of Portugal and ILO questionnaire on MW (1994).

In the **United States**, where young workers are mostly affected, the MW was frozen by the Reagan Administration between 1981 and 1989 in such a way that its real value dropped by 20 per cent during this period.

**Figure 5.       Real Value of the US Minimum Wage, 1990-96**



Figure 5. Real value of the US Minimum Wage, 1960-96
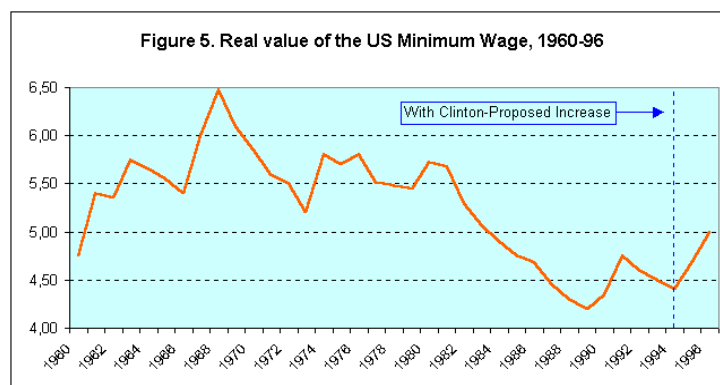
Source: Economic Policy Institute.

In 1990, parallel to the Federal Minimum Wage uprating, signed into law by President Bush, from US$3.35 to 3.80 and then to 4.25 (a two-step increase: 3.80 in 1990; 4.25 in 1991), the Fair Labour Standards Act amendment **established a Sub-Minimum Wage for teenagers**. This amendment enabled employers to pay newly recruited teenage workers a lower MW rate (15 per cent lower than the adult rate), for as long as six months. Essentially, firms were allowed to pay a sub-minimum wage to teenagers for as long as 90 days without providing additional training. However, they could continue to pay a sub-minimum for an additional 90 days only if they set up a training scheme to train teenage workers concerned, as prescribed by the US Department of Labor. Finally, at the end of the period of 180 days, no employee could be paid a sub-minimum.

This youth sub-minimum wage was enacted for a three year trial period. The measure was taken in a period during which unemployment affecting youth in particular was growing (cf. figure below). Therefore, the rationale behind it was to allow employers to hire inexperienced workers who otherwise would have difficulties in finding jobs, because their productivity was thought to be below the level of the prevailing adult rate of the MW.

**Table 33.    Youth unemployment rate movement between 1989 and 1993 (%)**

| Age Group | 1989 | 1990 | 1991 | 1992 | 1993 |
|-----------|------|------|------|------|------|
| 16-19 | 14.7 | 15.1 | 18.2 | 19.6 | |
| 20-24 | 8.2 | 8.4 | 10.3 | 10.8 | |
| 16-24 | 10.5 | 10.7 | 12.9 | 13.7 | 13.4 |

Source: OECD, Labour Force Survey (1971-1991, Part III), Paris, 1993 and 1996 issue.

In the beginning, organized labour in the US opposed the initial proposal of establishing a sub-minimum wage for teenage workers, on the grounds that the employers would take advantage of cheap labour without any compensation and would be less inclined to hire adult workers at the regular MW rate. They actively lobbied with the members of Congress and the President in order to amend the proposal. The compromise was to introduce a training condition: that means that employers would be allowed to pay a sub-minimum but only in return for training at the benefice of those teenage workers paid the sub-minimum wage. As a result, the condition of providing training was introduced into the amendment as discussed earlier.

What was the employers' reaction to the sub-minimum wage?

It seems that very few employers resorted to such a measure. For example, Card and Krueger found in their Texas fast-food restaurants study that fewer than 4.8 per cent of employers used the youth sub-minimum wage during 1991 (p. 166). Such a finding was confirmed by a 1993 Department of Labour Study which found that only 1 per cent of all employers used the federal sub-minimum wage. Given the limited use of the sub-minimum wage, Congress didn't renew the experience once the trial period ended in 1992.

What are the reasons for such a setback in the sub-minimum wage?

It seems that "*MW-employers were extremely reluctant*" to take advantage of such a provision (Card and Krueger, 1995, p. 14). Among the reasons which some employers had put forward to explain their behaviour were: (i) the sub-minimum would not allow them to attract skilled-teenage workers (62  per cent of restaurant managers in Texas), and (ii) the sub-

minimum wage was not a fair wage (20 per cent of them). Furthermore, there might be other reasons to explain why very few employers had resorted to such a measure. Among them one can cite the fact that employers might have found the system too constraining (to provide training) in view of the financial advantages they could draw in terms of labour-cost savings. Indeed, providing training often requires that employers set up specific work organization and provide a trainer to supervise/train the teenage workers concerned. Needless to say, such measures are costly. In addition, employers might have considered that given the high turnover-rate of young workers, at least in the fast-food industry, it was useless to provide them with a training if they could not count on employing them for a long time. These elements are very important and raise the complex question of the deal between youth MW and training.

In **New Zealand** where a Statutory Minimum Wage has existed since 1945, the recent history of youth MW has been agitated too. Indeed, whereas young workers below 21 years of age were excluded from the provisions of the 1945s Minimum Wage Act, in reality most of them were paid above the statutory MW, on the basis of favourable collective agreements. Such a situation had motivated the 1983 Government's endeavour to introduce a bill according to which, employers could not be required to pay a worker aged under 18 the same rate as they paid an adult worker. However, such a proposal, which was backed by employers' organizations, was rejected by a majority in Parliament, on the grounds that "*the implications of the proposal for low-paid workers, particularly women, were unacceptable in both social and human terms*" (Harbridge and Lane, 1994, p. 275).

In 1991 the situation changed. Indeed, following the implementation of the Employment Contracts Act 1991, collective bargaining and the unions position have been seriously weakened. As a result, MW earners and young workers in particular, had lost the protection they had since they were still excluded from the coverage of the Minimum Wage Act of 1945. As a result, the New Zealand Council of Trade Unions and members of the Labour Party have argued for: (i) the introduction of a legislated MW for youth, and (ii) the adult MW to apply to workers once they reach 19 instead of 21 years of age. Consequently, in July 1994 new minimum wage legislation was passed and since then a specific MW rate has been applying to teenage workers aged between 16 and 19 equivalent to 60 per cent of the adult rate. The purpose of setting up a weak sub-minimum was to prevent the job opportunities for teenagers from being reduced.

In **France** where the national MW plays an important role in income distribution and wage formation, the question of a youth MW has always taken on a passionate dimension, in particular when youth unemployment reaches high levels. Despite the fact that the existing system provides for a special rate for workers aged under 18 (cf. table below), the scope of such a provision has always been criticised as being very limited and not allowing employers to hire low-skilled young workers on a large basis. Indeed, according to the Law, only those workers who have less than six months work experience in the same branch can be paid at the sub-minimum.

Since the early 1990s in particular, in view of the sharp increase of unemployment particularly among youth, several economists backed by some employers' organizations and politicians have been asking for the setting up of a real sub-minimum wage for young workers. The most important employers' organization, the CNPF, say that the pay cost represented by the SMIC per employee when social contributions are added are too high. The SMIC should be made more flexible, specially with regard to young workers (EIRR, 227, December 1992, pp. 18-19). This view was shared by the OECD which considered in its report published in 1991 that "*the increases in the minimum wage might have a negative effect on youth employment*". The idea was rejected by the French Government even though it had been

tempted to a certain extent to introduce a specific minimum wage for youth workers. The strong opposition of youth, particularly students, some politicians and unions to such a idea has led to the project being set aside.

**Table 34.     The different exemptions from the SMIC**

| 1.  Youth sandwich course training | | | | | | | |
|---|---|---|---|---|---|---|---|
| Qualifying contract* | | | | Orientating contract | | | |
| As a percentage of SMIC | | | Period of implementation | As a percentage of SMIC | | | Period of implementation |
| < 18 | 18-21 old | > 21 | | 16-17 old | 18-20 old | > 21 old | |
| 30 | 55 | 65 | First year | 30 | 50 | 65 | During the whole period |
| 45 | 60 | 75 | Second year | | | | |

* The duration of these contracts is limited to two years.

Source:  Ministry of Labour.

| 2.  Young workers* | |
|---|---|
| Percentage of SMIC | Age |
| 80 | > 17 old |
| 90 | 17-18 old |

* This sub-minimum does not apply to those workers who have more than 6 months work experience in the activity's branch to which they belong.

Source:  Ministry of Labour.

| 3.  Apprentices | | | |
|---|---|---|---|
| Percentage of SMIC | | | Period of implementation |
| 16-17 | 18-20 | 21 and over | |
| 25 | 41 | 53 | First year of the contract |
| 37 | 49 | 61 | Second year of the contract |
| 53 | 65 | 78 | Third year of the contract |

Source:  Ministry of Labour.

**Table 35.      Youth unemployment rate movement between 1989 and 1995 (%)**

| Groups of age | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|
| 15-19 | 18.4 | 19.2 | 23.4 | | | | |
| | 19.2 | 19.3 | 18.9 | | | | |
| | 19.1 | 19.3 | 19.5 | 20.8 | 24.6 | 27.5 | 25.9 |

Source: OECD Labour Force Survey (1971-91, Part III), Paris 1993 and 1996 issues.

Does this mean that in France young workers are paid adult rates?

In response to the rising unemployment among youth, different mechanisms have been designed since 1984 to promote youth employment and facilitate young workers access to the labour market. These mechanisms which have been targeting primarily the unskilled fraction of the young population offer subsidies to employers both in the private and the public sectors (associations, ..), often in the form of exemptions from social security contributions. Consequently, the labour cost of these populations become lower than the average cost. In certain cases, the schemes foresee also a reduction of the wage received by the worker.

The scope of such mechanisms has been spreading according to data. Indeed, while the number of young workers concerned was 8,000 in 1976, a year during which the youth unemployment rate was not very high, in 1993 the figure reached 900,000. This figure confirms what the OECD said in its 1991 report: the average wage for French teenagers in 1987 was below the official MW. Therefore, it seems that in France, **a significant fraction of young workers, teenagers in particular, are de facto subject to a sub-minimum wage.** However, such a situation did not prevent them from being subject to a very high unemployment rate (cf. table 1, appendix 2).

The **United Kingdom** is the only country that has abolished its minimum wage legislation, in 1993. Before doing so, the British Government had already reformed the wage councils which were seen since their foundation in 1909 as a means to protect low-paid workers who lay outside the scope of collective bargaining. Indeed, in 1986, in the framework of its flexibilization policy the Government considered such bodies as one of the barriers preventing a free working of the labour market and restraining job opportunities, particularly for young people (Employment Department report, 1985). It had considered two options, either the abolition of the whole system or reforming the powers and the functions of the minimum wages councils. Many organizations (unions, CBI, Institute of Personnel Management, etc.) opposed the option of abolition, on the grounds that "*there were insufficient evidence that abolition would lead to the creation of a large enough number of new jobs to make acceptable the loss of protection they offered to those in a weak bargaining position*" (Institute of Personnel Management: Minimum Wage, An Analysis of the Issues, 1991, p. 30). Therefore, while maintaining the minimum wages councils, the Wages Act of 1986 had seriously reduced their powers in the field of wage determination and more importantly, **excluded young workers aged under 21 from MW provisions**. In parallel to such a decision, the British Government denounced Convention No. 26 dealing with MW fixing. In its report under article 19 of the ILO Constitution, the Government stated that its concern was to maximise employment

opportunities, particularly for young people, and that flexibility and freedom of action were essential in this field (Committee of Experts Report, para. 19).

A few years later, following its victory in the 1992 General Election, the Conservative Government decided to abolish the minimum wages councils using the same arguments as during the 1986 reform: they distort the labour market and reduce the freedom of individuals. Is has been argued also that decisions on pay are best left to employers and individual employees. Therefore, the Trade Union and Employment Rights Act of 30 August 1993 abolished all minimum wages councils, except those for the agricultural sector.

The abolition of the minimum wages councils did not serve to bury the debate on the MW in the United Kingdom. Indeed, the new Labour Government is thinking of introducing a national statutory MW. Two reasons seem to lie behind the Labour Government's policy: (i) the abolition of MW councils does not seem to have led to further job-creation, and (ii) such a measure would provide a wage floor for those (low-wage workers) who have been left without any protection. However, the position of the Labour Party has changed in comparison to that which it had during the 1992 electoral campaign. Indeed, the Government is envisaging to introduce a national minimum wage, but with a possible lower rate for young workers. This means that the Labour Party has become more cautious about the question of the youth MW.

For the unions, young workers should be included in the scope of MW provision and benefit from the same rates as adults. The GMB General Unions' National Youth Bureau was campaigning for young workers to be paid the full MW level before the abolition of MW councils. It said that the MW should be paid in full to workers aged 16 and above as long as they are engaged in training schemes. They point out that many young workers in the United Kingdom, employed in a wide range of activities, who receive no training, are used as a cheap substitute for older workers.

**Conclusion**

The above presentation shows that the overwhelming majority of the countries in our selection, for which data could be collected, provides MW protection to young workers. Among them, several apply a lower rate of MW to youth, either a unique rate or graded by age. The objective of such a strategy is to lower the relative wage of young workers with a view to influencing the firms' demand for that category of workers. In acting that way, the countries admit implicitly that youth productivity is lower than that of adult workers. Therefore, if such a reasoning were true, one would expect that the reduction of young workers' relative wages would be accompanied by training in order to improve their skills, and hence to increase their productivity. This opinion was backed by the unions in many countries like the United States. Indeed, they had strongly opposed the proposal made by President Bush to introduce a sub-minimum wage for teenage workers without compensation in terms of training on the part of the employers. They also viewed training as a "cost" to employers in exchange for the "benefit" of paying young workers less than the MW. This cost also served as a disincentive for wide scale use of the sub-minimum, which prevented adult MW workers from being displaced by the youth sub-minimum wage workers.

# Concluding remarks

The question of the link between MW and youth employment has held and still holds a prominent place in the economic literature and the policy debate because of the feeling of disarray of both economists and politicians in front of the high unemployment affecting young people. It happened in some countries that the issue ceased to be topical, because there was a little improvement in the unemployment figures; however, very often, such a situation did not last long. Experience shows that the matter tends to return persistently as presently in the United Kingdom where the Labour Government is considering the introduction of a statutory MW, or in the United States in the course of the last presidential election.

What emerges from the preceding analysis is that the nature of the link between the change in MW and youth employment **is not automatically negative**. Contrary to the conventional view which had dominated the economic debate for a long time, neither the theory nor the empirical evidence **support uniformly such a prediction.** Indeed, several theoretical models predict that MWs may increase employment through productivity and improvements in workers' efficiency. Furthermore, the empirical research conducted in several countries (United States, United Kingdom, etc.) shows that there is still a big uncertainty about both the direction and size of the impact of the MW on youth employment. All in all, it seems fair to conclude that the existing evidence supports both positions in the debate. Whether a MW has a negative or a positive effect depends on many factors such as, its relative level, the structure of the labour market and the country concerned.

As regards the question of how the group of countries of our selection treat young workers in the framework of MW regulation, it emerges that while all of them (except from the United Kingdom) provide MW protection to young workers, there are very few applying the same rates to youth as to adult workers. This probably means that those countries applying lower MW rates to young workers, consider that the adult MW could impede youth access to the labour market. In reducing their relative wages, they expect to restabilise the demand for labour in favour of this category of workers. As a result, in several countries, there was a trend of declining relative wages of young people in the 1980s (OECD 1994, part II. p. 5). Did this situation lead to an improvement of the relative position of young workers in the labour market? The answer to this question is not very easy. However, if one had a look at the unemployment figures below (table 2, appendix 2), one would see that the situation of the labour market is still unfavourable to young workers. This may suggest that while acting on the demand side is a priority, for instance lowering the relative wages of young workers, a number of policy-makers might have neglected to act also on the supply side, namely to improve young people's skills through training. Indeed, training constitutes an important part of the problem. The measures taken to lower the labour costs of young people must go hand in hand with appropriate active labour market policies to improve the efficiency of the young fraction of the labour force through on-the-job training and more adequate education.

With respect to the debate on the MW, it is to be noted that while a large number of studies have been carried out to assess its effects on employment, less attention seems to have been paid to its other potential impacts. For example, its impact on the protection of vulnerable workers and the guarantee of a fairer income/wage distribution seems to have given rise to a lower number of studies. As regards the first aspect, it is widely recognised that the MW can be a key element in wage policy since it can provide protection to a certain number of wage earners against unduly low wages, particularly in those sectors where labour is unorganized. In this context, the MW acts as an instrument of labour welfare.

On the other hand, the MW can play a significant role also in income distribution. Indeed, it has been considered as an attractive redistributive tool in comparison with other economic instruments. Freeman (1993) attributes four characteristics to the MW, namely:

C       "the MW redistributes incomes with no immediate consequences on public finances, since it does not lead to an increase in taxes and so forth;
C       unlike many other instruments that transfer income to the poor, the MW increases the incentive to work ;
C       the MW is administratively simple, particularly in countries with a national minimum;
C       the MW and mandated benefits guarantee a base compensation that takes end benefits out of competition at the bottom of the wage distribution.

# APPENDICES

**Appendix 1.**
**Table A1.1       Minimum wage fixing system in selected countries**

| Countries | MW-fixing machinery | Young worker statute | Youth MW as % of adult MW | Ratio of minimum wage to average wage | % of workers at or near MW |
|---|---|---|---|---|---|
| **1.     Selected OECD countries** | | | | | |
| Belgium | Negotiated by union and employers as part of national agreement | Special rates for young workers | Small reduction for young workers aged under 23 | 60% (in 1992) | |
| Canada | Federal MW fixed by labour code, while in some provinces, the MWs are fixed by government regulation | Special rate for young workers and apprentices in some provinces | | | |
| Korea | National MW fixed by a tripartite body | Special rates might be fixed for young workers under the age of 17 who have less than 6 months' work experience<br><br>Apprentices are excluded from MW coverage | | 31.9% (in 1994) | |
| France | Set by government on the basis of a formula foreseen in the law | Special rates for young workers who have less than 6 months' work experience in the same branch.<br><br>Special rates for trainees and apprentices according to age and duration of training | 80% aged under 17<br><br>90% 17 18 years old<br><br>Scheme  trainees: 30% to 65 %<br><br>Scheme - apprentices: 25% to 78% | 49% (in 1994) | 8.6% |
| Germany | Fixed by technical committee at the branch level and approved by the Federal Minister of Labour | | Special rates are embodied in industry agreement | 55% (in 1991) | |
| Greece | Set by a national collective agreement | A youth wage differential existed in 1989.  Presently, no special rate for youth | | 62% | 15-20% |

| Countries | MW-fixing machinery | Young worker statute | Youth MW as % of adult MW | Ratio of minimum wage to average wage | % of workers at or near MW |
|---|---|---|---|---|---|
| Japan | Regional rates are fixed by local wage councils and industry rates are determined by ad hoc committees | Young workers enjoy the same MW as the adults | | 42.5% (in 1993) | |
| Netherlands | Statutory MW | Special rates apply to young workers according to age. | 22 years: 85% | 55% (in 1993) | 2.6% (in 1991) |
| | | Apprentices are excluded from MW coverage | 15 years: 30% | | 10% of youth aged 16-22 years |
| New Zealand | | Until 1994, teenagers 16-19 were excluded from MW coverage before being applied (as from 1994) special rate | 60% for young aged 16-19 | 45% | |
| Portugal | Statutory MW | Special rates apply to young workers | 75% under 18 years | 45% (in 1993) | 6.3% (in 1994) |
| | | Special rates are fixed for apprentices | 80% under 25 years | | |
| Spain | Statutory MW | Special rate for youth | 66% under 18 years | 32% (in 1994) | 6.5% |
| Sweden | Fixed at the industry level through collective agreement | Special rate for youth | 85% under 24 years | 52% (in 1992) | 0% |
| United Kingdom | Before 1993: Set by wages councils in certain low-wage industries; now only in agriculture | Youth, under 22, were excluded | | 40% | |
| United States | Passed by Congress and signed into law by the President at the national level. Also conducted legislatively at the state level. | Special rate for students | | 39% (in 1993) | 3.5% |

## 2. Selected emerging/developing countries

| Countries | MW-fixing machinery | Young worker statute | Youth MW as % of adult MW | Ratio of minimum wage to average wage | % of workers at or near MW |
|---|---|---|---|---|---|
| Brazil | Statutory MW | Adult MW apply to young workers | | | 10% of urban labour forces (in 1990) |

| Countries | MW-fixing machinery | Young worker statute | Youth MW as % of adult MW | Ratio of minimum wage to average wage | % of workers at or near MW |
|---|---|---|---|---|---|
| India | Fixed by central and state governments | Special rates are fixed for young workers | In New Delhi, 75% for young workers aged between 14 and 18<br><br>50% for children below 14 | | |
| Cote d'Ivoire | Statutory MW | Special MW rate only to young workers | 60%: 14-15 old<br><br>70%: 15-16 old<br><br>80%: 16-17 old<br><br>90%: 17-18 old | | Varies between 38% & 90% depending on occupation |
| Mauritius | MW rates are fixed by the Ministry of Labour on the basis of recommendation made by the tripartite national Remuneration Board (WRB) | | | | Varies between 35% and 65% depending on occupation |
| 3. Selected transition countries | | | | | |
| Czech Republic | Fixed through a tripartite national agreement and confirmed by government directive | Youth enjoy the same MW rate as adult workers | | 37.7% (in 1993) | |
| Poland | Set by the Ministry of Labour after negotiations with trade unions | | | 41.3% (in 1993) | |

**Appendix 2.**

**Table A2.  Youth unemployment versus overall unemployment rates movement in selected OECD countries (per cent)**

|  | 1979 | 1983 | 1989 | 1992 | 1995 |
|---|---|---|---|---|---|
| **Canada** | | | | | |
| Global rate | 7.4 | 11.9 | 7.5 | 11.3 | 9.5 |
| Youth rate (2) | 12.9 | 19.8 | 11.3 | 17.8 | 15.6 |
| Ratio (2/1) | 1.74 | 1.66 | 1.51 | 1.58 | 1.64 |
| | | | | | |
| **France** | | | | | |
| Global rate (1) | 5.8 | 8.3 | 9.4 | 10.3 | 11.6 |
| Youth rate (2) | 13.3 | 19.7 | 19.1 | 20.8 | 25.9 |
| Ratio (2/1) | 2.29 | 2.37 | 2.03 | 2.02 | 2.23 |
| | | | | | |
| **Netherlands** | | | | | |
| Global rate (1) | 5.4 | 12.0 | 8.3 | 5.6 | 6.5 |
| Youth rate (2) | 8.1 | 24.9/ | 12.2 | 7.8 | 12.8 |
| Ratio (2/1) | 1.50 | 2.08 | 1.47 | 1.39 | 1.97 |
| | | | | | |
| **New Zealand** | | | | | |
| Global rate (1) | | | 7.1 | 10.2 | 6.3 |
| Youth rate (2) | | | 13.5 | 18.5 | 11.9 |
| Ratio (2/1) | | | 1.90 | 1.81 | 1.89 |
| | | | | | |
| **Portugal** | | | | | |
| Global rate (1) | 7.5 | 7.8 | 5.0 | 4.1 | 7.1 |
| Youth rate (2) | 17.8/ | 18.3 | 11.4 | 9.4 | 16.4 |
| Ratio (2/1) | 2.37 | 2.35 | 2.28 | 2.29 | 2.31 |
| | | | | | |
| **United Kingdom** | | | | | |
| Global rate (1) | 5.0 | 12.4 | 7.2 | 10.1 | 8.7 |
| Youth rate (2) | 10.3/ | 23.4/ | 9.8 | 15.4 | 15.3 |
| Ratio (2/1) | 2.06 | 1.89 | 1.36 | 1.52 | 1.76 |
| | | | | | |
| **United States** | | | | | |
| Global rate (1) | 5.8 | 9.5 | 5.2 | 7.5 | 5.5 |
| Youth rate (2) | 11.3 | 16.4 | 10.5 | 13.7 | 12.1 |
| Ratio (2/1) | 1.95 | 1.73 | 2.02 | 1.83 | 2.20 |

* The mark / indicates a break in the series.

Source:     OECD: Labour Force Survey (1971-1991), part III, 1993, (1974-1994), 1996 issue, and Economic Outlook, December 1996.

**Appendix 2.**

**Table A2.2     Estimated impact of a 10 per cent change in the minimum wage on teenagers 16-19 years, by sex and race**
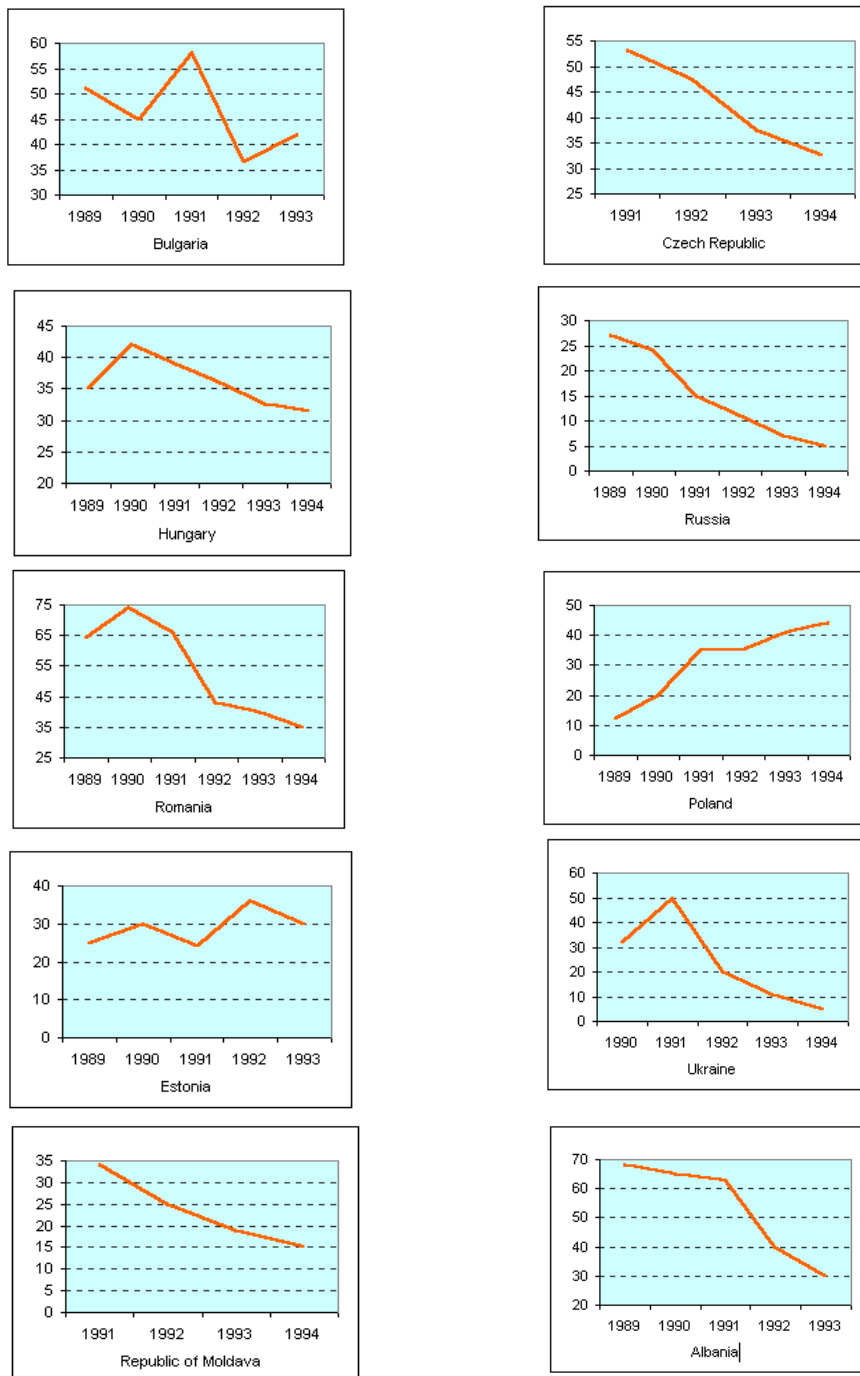
| | | Per cent change in employment (10 x elasticity) | | | | | Change in unemployment rate (in percentage points | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | White males | White females | Non-white males | Non-white females | All workers | White males | White females | Non-white males | Non-white females | All workers |
| Kaitz | (1970) | -1.210 | -.746 | 1.165 | .438 | -.98 | .190 | -.034 | -1.556 | .519 | -.006 |
| Adie | (1971) | - | - | - | - | - | .731 | 3.256 | 5.793 | 12.761 | 2.525 |
| Moore | (1971) | - | - | - | - | - | 2.960 | | 8.901 | | 3.649 |
| Kosters and Welch | (1972) | -3.31 | -2.41 | -3.56 | -3.01 | -2.96 | - | - | - | - | - |
| Lovell | (1972) | - | - | - | - | - | -.067 | .030 | -.210 | .793 | -.001 |
| Adie | (1973) | - | - | - | - | - | .160 | .700 | 1.925 | 2.787 | .518 |
| Lovell | (1973) | - | - | - | - | - | -.475 | -.181 | .494 | .505 | -.249 |
| Kelly | (1975) | -1.620 | -.700 | -1.775 | -.080 | -1.204 | - | - | - | - | - |
| Kelly | (1976) | -.35 | -.96 | - | - | -.66 | - | - | - | - | - |
| Gramlich | (1976) | - | - | - | - | -.94 | - | - | - | - | - |
| Hashimoto   and Mincer       and Mincer | (1970) (1976) | -2.05 | | -4.65 | | -2.31 | .412 | | .693 | | .445 |
| Welch | (1976) | - | - | - | - | -1.78 | - | - | - | - | - |
| Ragan | (1977) | -.81 | -.09 | -.35 | -.10 | -.65 | .91 | .62 | .83 | .10 | .75 |
| Mattila | (1978) | -.72 | -1.00 | - | - | -.84 | .00 | .23 | - | - | .10 |
| Freeman | (1979) | - | - | - | - | -2.46 | - | - | - | - | .00 |
| Wacher and Kim | (1979) | -1.883 | -2.722 | -3.290 | -7.710 | -2.519 | .431 | .306 | .265 | 1.814 | .512 |

**Table A2.2**        **(continuation)**

| | | Per cent change in employment (10 x elasticity) | | | | | Change in unemployment rate (in percentage points) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | White males | White females | Non-white males | Non-white females | All workers | White males | White females | Non-white males | Non-white females | All workers |
| Iden | (1980) | -2.07 | | -4.04 | | 2.26 | | | | | |
| | | -2.31 | | -3.81 | | | | | | | |
| Abowd and Killingsworth | (1981) | - | - | - | - | -2.13 | - | - | - | - | - |
| Al-Salam, Quester and Welch | (1981) | -1.19 | - | - | - | - | - | - | - | - | - |
| Betsey and Dunson | (1981) | -1.50 | | -.33 | | -1.39 | | | | | |
| Boschen and Grossman | (1981) | - | - | - | - | -1.50 | - | - | - | - | - |
| Brown, Gilroy and Kohen | (1981) | -1.08 | | .16 | | -.96 | .12 | | -.74 | | .02 |
| Hamermesh | (1981) | - | - | | - | -1.21 | - | - | - | - | - |
| Ragan | (1981) | -.41 | -.35 | | .51 | -.52 | - | - | - | - | - |

Source:        Brown, Gilroy, Kohen, 1983 (p.503).

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**Figure 1.   Minimum wage compared to average wage in real terms (1989-1994) in transition countries of Eastern and Central Europe**



Bulgaria



Czech Republic



Hungary



Russia



Romania



Poland



Estonia



Ukraine



Republic of Moldava



Albania

Source:        Standing, Vaughan-Whitehead (1995, p. 19).

**Figure 2.   Minimum wage and subsistence (official) levels in Eastern and Central Europe**
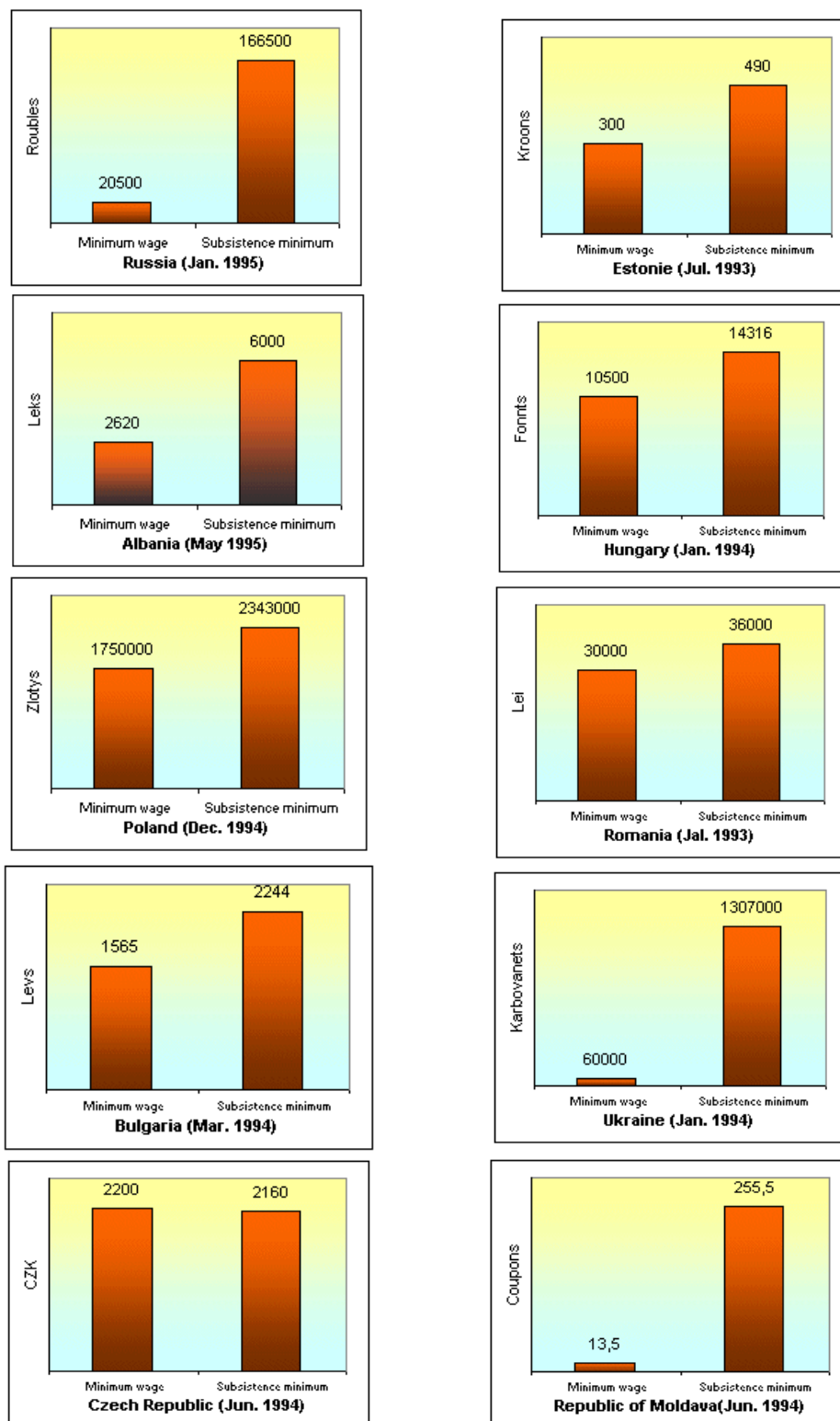


Source:      Standing, Vaughan-Whitehead (1995, p. 20).

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