

MEASURING THE CHANGING GENEROSITY OF  
UNEMPLOYMENT BENEFITS: BEYOND EXISTING INDICATORS

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**Abstract:**

There has long been a consensus that generous unemployment benefits probably raise unemployment rates. The link has been difficult to demonstrate, however, since existing indicators on the generosity of unemployment benefits overlook key aspects of the system that may influence worker response. The author develops a new indicator for unemployment benefits in 21 countries in the 1950-2003 time period which combines the amount of the subsidy with their tax treatment, their duration and the conditions that must be met in order to collect them. The new indicator shows that benefit generosity has indeed risen over time and differs greatly among countries, opening up future directions for empirical research.

**Keywords:**

unemployment benefits, eligibility conditions, labor market reform, unemployment



## Introduction

Every industrialized country has a scheme that provides the jobless with temporary compensation for lost earnings, as long as they meet certain conditions. Most of these programs were put in place after World War II, with the purpose of providing income security for workers and their families. Since unemployment falls hardest on lower-income categories of workers, the programs are also intended to promote greater equality.<sup>i</sup> And they also have an efficiency objective: to enable workers to take the time to find a better “match” between their abilities and the needs of the job market, thus enhancing efficiency overall.

Unemployment benefits may, however, work against these objectives and actually increase unemployment rates. If the benefits are high in relation to the expected market wage, they give workers incentives to remain jobless for longer periods, and boost the “reservation wage” at which they would be willing to reenter the job market. Many empirical studies find that the duration of unemployment spells is linked to the level of benefits: in recent studies, the outflow rates from unemployment were found to increase considerably at around the time that unemployment benefits were exhausted in the United States, Canada, Japan, France, Spain<sup>ii</sup>, Sweden<sup>iii</sup>, the Netherlands<sup>iv</sup> and Germany<sup>v</sup>. Other studies have shown that the way that benefits are administered—what the requirements are for job search or for reporting to officials—have a substantial effect on unemployment duration.<sup>vi</sup> This effect is more intense when benefits are combined with other provisions for the jobless, such as child care or housing allowances, which are provided in many countries.<sup>vii</sup>

Since unemployment benefits provide an alternative to work, they generate wage pressures that spread throughout the economy. Unions may make stronger wage demands if they know that dismissed workers will be well provided for; and the higher “reservation wage” that results from the availability of non-work income also puts upward pressure on wages.<sup>viii</sup> This is particularly true in countries where low-income groups face high average tax rates.<sup>ix</sup> If unemployment insurance has a high budget cost, the government may find it necessary to raise payroll or other taxes to finance the benefits. This will further boost labor costs and the impact on unemployment will be intensified.<sup>x</sup> Generally, it is accepted that generous unemployment benefit systems raise unemployment rates.<sup>xi</sup>

Do unemployment benefits achieve their goal of promoting equity and efficiency? Some economists argue that they are not effectively targeted at the poor and are “inherently inefficient and inequitable” as currently practiced in most countries.<sup>xii</sup> There is also evidence that they may affect employment rates. The availability of benefits may raise joblessness, but it may also attract people into the workforce so that they can eventually qualify for benefits.<sup>xiii</sup>

## Discussion: How Can the Generosity of Unemployment Benefits Be Measured?

Most empirical studies that have attempted to evaluate the impact of benefit levels on employment, unemployment and equity have used the OECD's comprehensive indicator for gross replacement rates to represent the unemployment benefit system. This complex index, first published in the 1994 *Jobs Study*, covers odd years in the 1961-1999 period and attempts to summarize the level of gross unemployment benefit entitlements relative to gross earnings in each OECD country. To do this, it takes an unweighted average of 18 gross replacement rates which include three household types (single, dependent spouse and spouse in work) and three time periods (the first year, the second and third year, and the fourth and fifth years of unemployment), during which benefits typically vary. It divides this figure by the average of two earnings levels: average earnings for a production worker and two-thirds of average earnings.<sup>xiv</sup> The result is the most comprehensive indicator available for the monetary generosity of unemployment benefits across countries and over time.

Despite its complexity, however, the OECD indicator overlooks several key features of unemployment benefits that could conceivably have a large impact on the net reservation wage. One of these is taxes. Different tax treatment of wages and unemployment benefits might alter the replacement rate and have an impact on workers' decisions whether or not to work. OECD countries differ widely in their taxation of unemployment benefits: in Australia, Austria, Germany, Japan, New Zealand and Portugal, for instance, unemployment insurance benefits are not subject to income tax, while in other countries they are taxed, at different rates.<sup>xv</sup> Tax treatment has also varied in given countries over the postwar period. So far the OECD has developed no "net replacement rate" that covers as long a time span as its gross replacement rate: the available data, based on its tax-benefit models, are only for selected years.<sup>xvi</sup>

Another important feature of unemployment benefit systems that may condition workers' job-market decisions is the duration of benefits. OECD countries vary widely in the amount of time that unemployment benefits are paid out to the jobless (and before they qualify for social assistance schemes, which are means-tested in many countries). In 1999 they could be collected for periods as short as six months in some countries (e.g., Italy, the United Kingdom and the United States) and as long as 60 months in others (Denmark, France, the Netherlands).<sup>xvii</sup> These different time periods, combined with identical replacement rates, could conceivably have dramatically different effects on the behavior of the unemployed. In fact, some studies have found that outflow rates from unemployment increased considerably at around the time that unemployment benefits were exhausted in several countries; and whether or not an individual would continue to receive benefits was found to be the key factor in exit rates from unemployment in the Spanish and Portuguese cases.<sup>xviii</sup>

Possibly the most important factor influencing the decisions of the unemployed, and the most difficult to quantify, is how onerous it is to qualify for and collect unemployment benefits. Again, countries vary enormously in both the eligibility conditions they impose for the unemployed to qualify for benefits, and the strictness with which these conditions are enforced. In countries like Switzerland and the United States, for example, the jobless must present evidence of job search on a weekly basis, while in other countries like Spain, the

unemployed need only display an identity document at a government employment office every three months to continue receiving benefits. These conditions have also changed considerably over time in the countries in this study. For instance, the unemployed in the immediate postwar period typically lost their benefits if they refused a suitable job offer, while by the 1980s they could refuse a job offer and continue collecting unemployment insurance after a brief “sanction” period during which benefits were suspended (typically one to several weeks). These changing conditions may have had a large influence on the decisions of the jobless on whether or not to look for work.

Many economists believe that the eligibility conditions for collecting benefits—the definition of loss of work and availability for work, valid reasons for quitting, the definition of suitable work, and requirements to actively seek work<sup>xix</sup> are a key policy tool for managing the unemployment problem. The reasoning behind this argument is simple. Whereas with the replacement rate (gross or net) or the duration issue, the jobless are pondering a decision over collecting more or less money, strict eligibility criteria can effectively reduce a given replacement rate to zero. In fact, some economists believe that well designed and enforced eligibility criteria can not only offset the disincentive effects of unemployment benefits, but they can reduce the unemployment rate to less than the natural rate. This is their line of reasoning:

The behavior that is supposed to be induced by eligibility criteria—such as being ready to start work at short notice—should directly increase the chance of finding work. The criteria also imply a disutility effect, which encourages a more intense search for work, and an “entry” effect: if the requirements are onerous (and hence the disutility effect is sufficiently large), some people will drop their benefit claim rather than comply. Benefits can actually be made conditional upon an intensity of job search higher than the individual would undertake in the absence of a benefit entitlement; hence benefit systems can be designed to generate unemployment levels below those arising under laissez faire (in the absence of a benefit system).<sup>xx</sup>

One study of four European countries that achieved success in labor markets found that much stricter enforcement of job search and suitable work provisions had been a key element in all of their reform programs.<sup>xxi</sup>

It appears, then, that any study attempting to evaluate the impact of the unemployment insurance system on labor markets must include its eligibility features. This aspect, however, is so difficult to quantify that it has been omitted from nearly all studies. Like the EPL indicator, it would require a thorough country-by-country, year-by-year review of labor legislation, and even such an exhaustive review would leave out the enforcement factor discussed in relation with EPL above.

Some attempts have been made to quantify on a piecemeal basis the strictness of eligibility criteria. One example is a study by the Danish Ministry of Finance, which constructed in 1997 an index for the strictness of eligibility criteria based on independent job search requirements, occupational and geographical mobility criteria for suitable work, and the

standard duration of benefit sanctions following voluntary quits and refusals of job offers. It evaluated the situation in 19 OECD countries in eight areas:

1. demands on job search activity,
2. demands on job availability when participating in active labor-market programs,
3. demands on occupational mobility,
4. demands on geographical mobility,
5. extent of valid reasons for refusal of job offers or participation in active labor-market programs,
6. sanctions applied for self-induced resignation from a job,
7. sanctions applied for refusal of a job offer or active labor-market programs, and
8. sanctions applied for repeated refusal of the above.

A survey was sent to participating countries, which reported what the legal situation was in each of these areas, and also gave an idea of how strictly existing rules were actually enforced in their countries. The answers were scored, as with the OECD's EPL indicator above, and a weighted average was taken that made it possible to rank countries by the strictness of their eligibility criteria.<sup>xxii</sup>

The Danish survey gave researchers a fairly comprehensive cross-country indicator for a single year. The indicator has the same weaknesses as the EPL indicator discussed above. Legislation can often be obscure and difficult to interpret; variations in enforcement may be very large; and the final score is sensitive to the weighting system that is applied. With its weaknesses, however, it does give a good picture of differences across countries in eligibility criteria.

Since this study aimed to evaluate the impact on employment and unemployment rates of all of the major labor-market policies and institutions, it required a good indicator for the unemployment benefit system. To portray as completely as possible the disincentive effects of the unemployment insurance system, it had to incorporate all of the features discussed above: income levels of recipients, duration of benefits, taxes and the eligibility criteria. Since no such indicator existed, developing a time series that would approximate a "net reservation wage" became another key pursuit of the study.

The logical starting point was the OECD's gross replacement rate time series, which was converted roughly into a net replacement rate by using a ratio of net to gross replacement rates given by the OECD in an appendix to its 1997 *Jobs Study*.<sup>xxiii</sup> This ratio estimates the effect on the replacement rate of personal income taxes and social security payments applied to unemployment benefits in four different time periods.<sup>xxiv</sup>

Incorporating the duration of unemployment benefits into the same indicator was more difficult. Although data could be obtained on the frequent changes in the maximum duration of benefits from journals and national legislation, simply multiplying the net replacement rate by the number of years that benefits could be collected produced differences in the final

figures that appeared to be too large to reflect the real income options faced by the jobless. Since in fact an unemployed person is more likely to be making a job-search decision on the basis of the income he/she expects to receive from the benefit system over the next few months, it was decided to reflect different duration periods only up to one year. Thus the net replacement rate was multiplied by some number between 0 and 1: 0 if no benefits were available (which was the case in some OECD countries in the immediate postwar period), some intermediate number if they were available for a fraction of a year (e.g., 6 months = 0.5), and 1 if they were available for a full year or longer. By the end of the period under study, this meant that most countries, even those where benefits were practically indefinite, were assigned a 1.<sup>xxv</sup>

Finally, a way had to be found to incorporate the strictness of eligibility criteria into the indicator.<sup>xxvi</sup> Since these criteria can be seen as determining the probability of collecting benefits, the scheme developed by the Danish Finance Ministry was adapted and converted into an average probability of collecting unemployment benefits, based on the strictness of eligibility criteria.

The Danish questionnaire was taken as a starting point, with some questions omitted because information was very difficult to obtain from a review of legislation and the literature. The scores used by the Danish researchers were converted into probabilities and the weightings were changed somewhat, leaving the questionnaire and its scores as follows (the full questionnaire is given in Appendix 1):

<Insert Table 1 here>

Items 1 through 5 were assigned a weight of one, item 6 a weight of 0.75, and item 7 a weight of 0.25 in the final indicator. The resulting number was divided by six (the sum of all the weights) to give a (weighted) average probability of qualifying for unemployment benefits.

This probability was then multiplied by the other features of the unemployment benefit system described above, to yield a single number that would reflect the global generosity of the unemployment benefit system and its incentive or disincentive effects on the jobless. In other words, the final indicator consists of all four features discussed above, as follows:

$$\text{Net reservation wage (NRW)} = \text{gross replacement rate} * (\text{ratio net RR/gross RR}) * \text{duration} * \text{probability of collecting benefit}$$

where duration and probability are both some number between 0 and 1.

The result, again, is far from being a perfect indicator. Legislative information on unemployment benefit systems was difficult to obtain, and there were gaps after an exhaustive review of labor law for 21 countries and 50 years, using the same sources given above. These gaps could only partially be filled in from discussions in the specialized literature, and much guesswork was necessary to construct an indicator spanning the entire postwar period. In

countries like the United States, Canada or Australia, where no Federal law exists setting out guidelines for the unemployment insurance system and definition and administration is left up to the individual states<sup>xxvii</sup>, information could only be taken from the literature.<sup>xxviii</sup> Enforcement, of course, was also omitted, as were many other aspects of benefit systems.

One highly relevant feature that had to be omitted due to the complexity of the schemes and the difficulty of obtaining homogeneous information was the housing and other benefits that are available to the unemployed in many OECD countries. In the United Kingdom, the generous housing benefits given to the unemployed may play a key role in job market decisions. In fact, the United Kingdom's replacement rate as reported in the OECD indicator is one of the OECD's lowest, but experts say that housing and other benefits may make it one of the highest.<sup>xxix</sup> One study conducted by the Dutch Centraal Planbureau in 1995 compared the OECD's estimates of replacement rates with a much broader definition of income support to the unemployed that included child support, supplementary social assistance and housing benefits, and additionally estimated the impact of relevant tax on benefits. For the United Kingdom, this study estimated a replacement rate of either 69.8% or 41.4%<sup>xxx</sup> in 1993, compared to an OECD figure of 18.5% in the same year. Differences for other countries were less dramatic, but all of the replacement rates calculated by the CPB were higher than those obtained by the OECD.<sup>xxxi</sup>

Another important omission resulted from the decision to use in the indicator only the income available under unemployment insurance schemes. Nearly all countries have supplementary income assistance which can be collected once unemployment benefits run out and which may extend by months or even years the time that an individual can remain unemployed while collecting benefits. (These supplementary sources of income were included in the estimates by the Dutch Centraal Planbureau, cited above.)<sup>xxxii</sup> There are countries like Italy where supplementary schemes are the main form of unemployment insurance, and where the OECD's replacement rates seriously understate the income that the unemployed can expect to receive. Although Italy's replacement rates are the OECD's lowest, most jobless during the postwar period have received benefits from alternate support systems like the the Cassa de Integrazione Guadagni Straordinaria (CIG S), which started as a system providing compensation for short-time working in a limited range of industries and was extended in 1947 to cover temporary lay-offs. It has gradually become a shadow unemployment compensation scheme which offers benefits that are often indefinite and much higher than those available under the official unemployment scheme.<sup>xxxiii</sup>



**Conclusion: New Indicator Shows How Benefit Generosity Has Risen**

Despite its omissions and weaknesses, the relatively complex indicator developed for this study offers some surprising contrasts with the gross replacement rate as a reflection of the generosity of countries' unemployment insurance systems. Unemployment benefits understood in their fullest sense, as the compendium of incentives offered to the jobless, grew steadily more generous from the 1960s onward in most countries, with particularly large increases coinciding with periods of high unemployment. They were trimmed in various countries in the 1990s in an effort to reduce the incentives to remain jobless. This trimming often took the form of stricter conditions to collect the benefit. This effect had escaped earlier studies but is faithfully reproduced here, by a falling average probability of being able to collect benefits.

The indicator also shows a relatively sharp contrast between benefit generosity in European and non-European countries, and between non-English-speaking and English-speaking countries. In general, unemployment benefits are higher and easier to collect in the former than in the latter, as Charts 1 and 2 below show.

<Insert Chart 1 here>

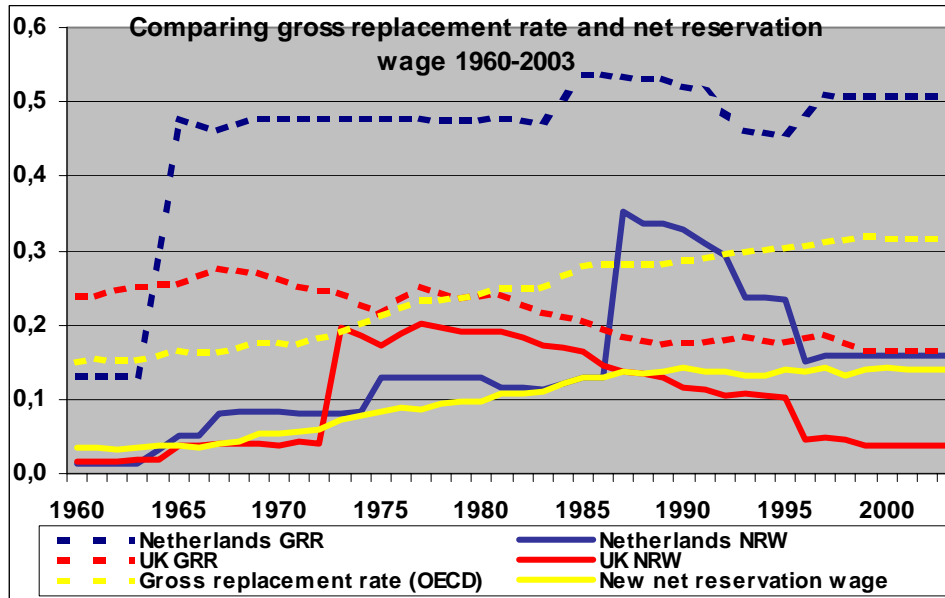
<Insert Chart 2 here>

## Tables and Figures

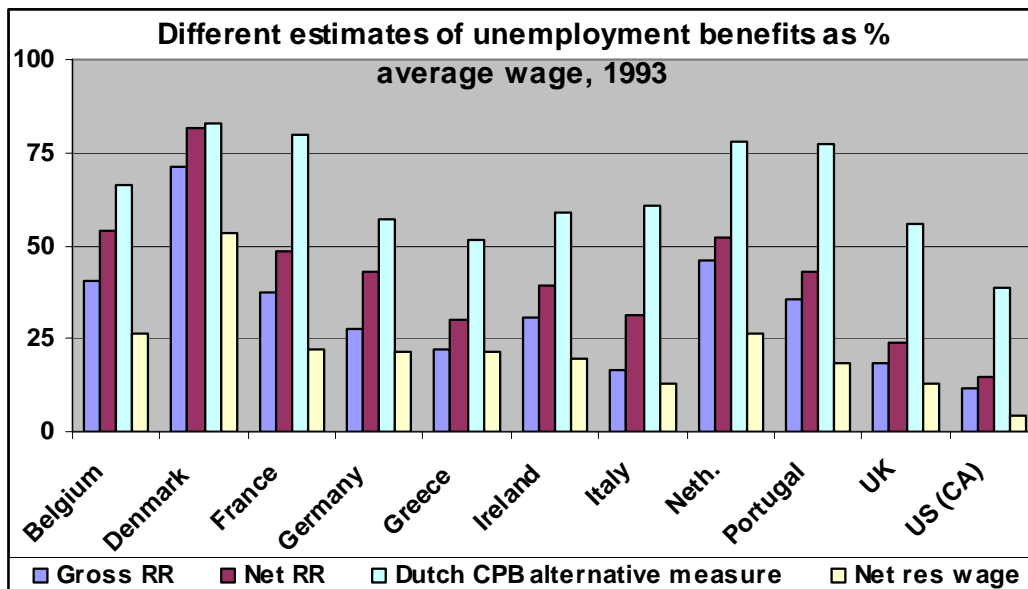
**Table 1: Unemployment benefit eligibility questionnaire**

<b>Question</b>	<b>Score assigned to answer</b>
1. Demands on job search activity	.75=no systematic check; .5=unemployed must regularly prove job search activity; .25=the unemployed must often, i.e., every week or every second week, prove job search activity
2. Demands on occupational mobility	.9=the unemployed can refuse job offers in other occupational areas for 6 months or more; .7=can refuse for less than 6 months; .5=no explicit reservations, but the unemployed's qualifications and the length of the unemployment spell are taken into account; .25=no reservation, meaning the unemployed must accept all jobs he is capable of doing
3. Demands on geographical mobility	.9=no demands; .7=must accept daily transportation time of less than 2 hours per day; .5=must accept transport time of 2-3 hours; .3=must accept transport of 3-4 hours or more; .1=must be willing to move
4. Extent of valid reasons for refusal of job offers or ALMPs	.75=relatively large number of valid reasons for refusal; .5=average amount of restrictions; .25=relatively few valid reasons for refusal
5. Sanctions applied for refusal of job offer or ALMP	.9=0-4 weeks; .7=5-9 weeks; .5= 10-14 weeks; .3=more than 14 weeks; .1=suspension of unemployment benefit
6. Sanctions applied for repeated refusal of job offer or ALMP	.9=no further sanctions in case of repeated rejections; .7=sanctions are more rigorous after third rejection; .5=sanctions are more rigorous after second rejection and unemployed could lose entitlement to benefits; .3=suspension of unemployment benefits after second rejection; .1=benefit has already been suspended after first rejection
7. Sanctions applied for self-induced resignation from job	.9=0-4 weeks; .7=5-9 weeks; .5= 10-14 weeks; .3=more than 14 weeks; .1=suspension of unemployment benefit

**Chart 1: Different measures of unemployment benefit generosity in selected countries and OECD (unweighted average), 1960-2003**



**Chart 2: Various estimates of unemployment benefit generosity**



**Appendix 1: The Questionnaire for Benefit Eligibility**

The questionnaire below lists (in bold face) the specific questions that were asked regarding each law approved during the period in the countries surveyed, to evaluate the relevant aspects of eligibility for unemployment benefits. The scores assigned for each possible answer (which are an attempt to reflect the probability of being eligible to collect benefits) are given in plain type below the question.

Name of Law	Number	Date
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**ELIGIBILITY FOR UNEMPLOYMENT BENEFIT**

**Is the unemployed person required to demonstrate that he/she is actively seeking work in order to collect unemployment benefits?**

0.75=no systematic check

0.5=the unemployed must regularly prove job search activity

.25=the unemployed must often, i.e., every week or every second week, prove job search activity

**Is the unemployed person required to accept a job that is offered which is outside the occupational area that he/she is trained for or has worked in?**

0.9=the unemployed can refuse job offers in other occupational areas for 6 months or more

0.7=the unemployed can refuse job offers in other occupational areas for less than 6 months

0.5=there are no explicit reservations, but the unemployed's qualifications and length of the unemployment spell are taken into account

0.25=no reservation, meaning the unemployed must accept any job offered that he is capable of doing

**Is the unemployed person required to move to a different geographical area if a job is offered to him/her there?**

0.9=no demands

0.7=must accept daily transportation time of less than 2 hours per day

0.5= must accept transport time of 2-3 hours

0.3= must accept transport of 3-4 hours or more

0.1=must be willing to move

**What acceptable reasons can be given for refusing a job offer or a training program while collecting benefits?**

0.75=relatively large number of valid reasons for refusal

0.5=average amount of restrictions

0.25= relatively few valid reasons for refusal

**If a person leaves a job voluntarily, what sanctions are applied?**

0.9=0-4 weeks without unemployment benefit

0.7=5-9 weeks without unemployment benefit

0.5= 10-14 weeks without unemployment benefit

0.3= more than 14 weeks without unemployment benefit

0.1=total suspension of unemployment benefit

**If a person refuses a job offer or refuses to participate in a training program while collecting benefits, what sanctions are applied?**

0.9=0-4 weeks without unemployment benefit

0.7=5-9 weeks without unemployment benefit

0.5= 10-14 weeks without unemployment benefit

0.3= more than 14 weeks without unemployment benefit

0.1=total suspension of unemployment benefit

**If a person repeatedly refuses job offers or training programs while collecting benefits, what sanctions are applied?**

0.9=no further sanctions in cases of repeated rejections

0.7= sanctions are more vigorous after third rejection

0.5= sanctions are more vigorous after second rejection and unemployed could lose entitlement to benefits

0.3= suspension of unemployment benefits after second rejection

0.1=benefit has already been suspended after first rejection

**What is the maximum period during which unemployment benefits can be collected (as a fraction of one year)?**

**How long must a person work in order to be able to collect unemployment benefits (number of weeks)?**

**Appendix 2: Unemployment Benefit Indicator (“Net Reservation Wage”) for 21 OECD Countries, 1950-2003**

	AUS	AUT	BEL	CAN	DEN	FIN	FRA	GER	GRE	IRE	IT	JAP	NTL	NZ	NOR	POR	SP	SWE	SWI	UK	US
1960	1.5	6.9	20.7	6.4	0.0	0.2	7.6	4.4	1.5	4.0	1.1	0.9	1.4	11.6	0.3	0.0	0.0	1.3	0.0	1.7	0.7
1960	1.5	6.9	20.7	6.4	0.0	0.2	7.6	4.4	1.5	4.0	0.8	0.9	1.4	11.6	0.3	0.0	1.0	1.3	0.0	1.7	0.7
1962	1.7	6.6	18.9	6.4	0.0	0.2	7.6	4.5	1.5	4.1	0.7	0.9	1.4	11.0	0.3	0.0	1.0	1.2	0.0	1.7	0.8
1963	1.8	6.3	18.3	6.4	0.0	1.9	7.7	4.5	1.5	4.1	0.6	0.9	1.4	10.4	0.2	0.0	2.0	1.1	0.0	1.8	1.0
1964	1.7	5.9	17.1	6.2	0.0	1.8	7.7	4.5	1.5	4.1	0.6	0.9	3.3	14.6	0.2	0.0	3.0	1.4	0.0	1.8	0.9
1965	1.6	5.6	15.8	6.1	0.0	1.6	7.7	4.5	1.5	4.2	0.5	0.9	5.2	13.6	0.2	0.0	4.1	1.6	0.0	3.7	0.9
1966	1.5	5.1	13.1	5.9	0.0	1.5	7.6	4.4	1.5	4.2	0.5	0.9	5.1	13.5	0.2	0.0	4.1	1.6	0.0	3.8	0.9
1967	1.4	4.6	12.5	5.8	6.7	1.4	7.5	4.4	1.5	3.6	0.6	0.9	8.1	13.5	0.2	0.0	4.1	1.6	0.0	4.0	0.9
1968	1.3	6.1	14.8	6.2	7.5	1.8	8.0	4.4	1.5	3.5	0.5	0.9	8.2	13.4	0.2	0.0	4.1	1.9	0.0	4.0	0.9
1969	1.2	7.5	17.0	6.6	8.3	2.2	8.4	22.8	1.5	3.3	0.5	0.9	8.4	13.3	0.2	0.0	4.1	2.1	0.0	3.9	0.9
1970	1.2	7.8	17.1	6.4	8.1	2.6	7.9	22.5	1.5	3.4	0.4	0.9	8.4	12.1	0.3	0.0	3.4	2.1	0.0	3.8	1.0
1971	1.4	9.1	18.4	10.4	9.6	1.6	7.6	23.9	1.5	4.2	0.4	1.1	8.1	12.1	0.3	0.0	2.7	2.3	0.0	4.2	1.1
1972	1.5	8.7	19.6	12.4	9.7	3.8	7.4	23.6	1.5	4.0	0.4	1.1	8.1	12.3	0.4	0.0	2.7	2.5	0.0	4.1	1.1
1973	1.6	14.8	20.7	14.5	9.9	5.9	7.1	23.2	1.5	5.0	0.3	1.1	8.1	12.6	0.7	0.0	2.7	4.5	0.0	19.6	1.1
1974	1.9	14.9	21.0	14.2	10.4	5.5	7.7	23.6	1.5	5.9	0.4	7.5	8.5	12.7	0.7	0.0	3.7	5.8	0.0	18.4	1.7
1975	2.0	15.0	21.4	13.9	10.8	5.1	8.3	23.9	1.5	6.7	0.5	7.5	12.9	12.8	0.7	0.5	4.6	8.7	0.0	17.3	1.7
1976	2.2	16.5	21.3	13.7	11.5	5.6	8.0	24.0	1.5	7.6	0.4	6.2	12.9	12.5	1.2	0.5	6.4	9.0	0.0	18.8	2.0
1977	2.3	10.5	21.1	13.5	12.6	6.2	7.7	24.1	1.5	8.5	0.3	4.8	12.9	12.2	3.6	0.5	5.4	9.4	0.8	20.3	2.2
1978	13.1	11.3	21.0	13.0	13.4	5.9	7.7	24.4	1.5	8.7	0.3	4.8	12.9	12.2	3.6	0.6	5.4	16.7	1.1	19.7	2.6
1979	13.2	12.1	20.9	12.6	16.4	5.6	6.5	24.7	1.5	8.9	0.2	4.9	12.8	12.2	3.5	0.8	5.4	17.2	1.4	19.1	2.3
1980	12.5	12.1	20.5	12.5	17.2	5.3	7.5	24.5	1.5	8.9	0.2	4.9	12.9	12.7	4.3	0.8	7.0	17.2	1.4	19.2	2.5
1981	12.3	12.8	30.8	11.6	17.7	5.1	15.2	25.8	1.6	9.8	0.3	5.1	11.5	13.5	3.9	0.9	9.4	17.2	1.3	19.2	2.4
1982	12.3	11.8	30.5	12.5	18.1	5.3	15.0	25.6	1.6	10.5	0.3	5.0	11.5	14.0	3.9	0.8	9.4	18.2	2.0	18.2	2.3
1983	12.4	10.8	30.1	13.5	18.4	5.4	14.8	25.4	1.6	11.2	0.2	5.0	11.4	14.6	3.9	0.7	9.4	19.2	1.2	17.3	2.3
1984	12.7	11.8	30.0	13.5	17.9	19.2	15.7	25.0	1.6	10.5	0.2	5.5	12.2	14.6	4.6	1.5	11.3	19.2	6.5	16.9	2.3
1985	13.1	12.8	29.8	13.5	34.1	18.4	16.7	24.7	1.6	19.7	0.2	5.9	13.0	14.6	5.3	2.2	16.3	16.0	8.3	16.5	2.4
1986	13.4	12.6	29.6	13.5	32.9	18.8	17.4	24.4	1.9	20.2	0.2	5.9	12.9	14.9	5.3	2.7	16.2	16.4	8.3	14.5	2.1
1987	14.7	12.4	29.4	13.5	31.7	17.4	18.2	24.1	2.2	20.7	0.1	5.9	35.1	15.1	5.3	3.1	16.1	16.8	8.3	13.7	1.8
1988	14.7	12.0	27.3	13.6	32.4	16.9	18.0	24.2	0.0	19.7	0.6	5.8	33.6	15.0	5.3	3.2	16.1	16.7	8.3	13.4	1.9
1989	13.7	12.1	27.2	13.5	34.8	16.4	17.9	24.2	2.2	18.7	1.2	5.7	33.5	14.9	5.3	8.7	16.1	16.5	8.3	13.0	1.9
1990	13.1	12.5	27.0	13.3	34.9	17.6	18.0	24.8	7.6	19.6	1.1	5.7	32.9	14.5	5.3	9.0	16.0	16.6	9.9	11.7	1.8
1991	12.6	11.5	10.9	13.0	34.7	18.8	19.6	26.1	9.8	21.4	0.8	5.8	31.0	13.6	5.2	10.1	16.2	16.5	9.3	11.2	1.6
1992	12.8	10.7	10.7	11.6	34.7	18.8	19.6	25.7	11.2	21.9	3.1	5.8	29.4	13.5	5.2	10.3	15.7	16.3	10.9	10.6	1.6
1993	12.9	8.0	10.6	11.5	34.7	18.8	19.6	20.9	12.7	22.5	5.3	5.8	23.7	13.3	5.2	10.4	15.3	16.0	13.1	10.8	1.7
1994	11.2	7.9	10.3	11.4	37.4	19.8	19.5	20.5	12.7	20.8	5.7	5.9	23.6	12.7	5.2	10.4	16.7	15.7	13.1	10.6	1.1
1995	11.2	7.8	10.1	11.3	42.1	20.9	19.5	20.0	12.7	19.2	6.1	6.0	23.5	12.1	5.2	10.4	16.7	15.3	13.1	10.3	1.1
1996	10.8	8.5	10.3	16.0	41.9	19.9	19.1	20.9	11.8	20.6	5.9	6.1	15.0	13.2	5.2	11.0	16.7	15.4	12.9	4.7	1.2
1997	10.3	9.3	10.4	16.8	41.2	18.9	18.7	22.2	10.9	22.5	5.7	6.2	15.8	14.2	16.3	11.5	16.7	15.5	11.5	4.8	1.3
1998	10.3	10.0	10.3	16.8	40.4	19.1	19.0	22.7	10.8	22.1	6.0	6.7	15.8	12.5	16.6	12.3	16.5	15.0	13.2	4.5	1.3
1999	10.3	10.3	10.2	16.8	40.1	19.2	19.2	23.2	10.7	21.8	6.4	7.2	15.8	12.0	16.9	13.1	16.2	14.4	14.8	3.8	1.3
2000	10.3	10.3	10.2	16.8	40.1	19.2	19.2	23.2	10.7	17.5	6.4	7.2	15.8	12.0	16.9	13.1	13.8	14.4	14.8	3.8	1.3
2001	10.3	10.3	10.2	16.8	40.1	19.2	19.2	23.2	10.7	17.5	6.4	7.2	15.8	11.5	16.9	13.1	13.8	14.4	14.8	3.8	1.3
2002	10.3	10.3	10.2	16.8	40.1	19.2	19.2	23.2	10.7	17.5	6.4	7.2	15.8	9.2	16.9	13.1	14.6	14.4	14.8	3.8	1.3
2003	10.3	10.3	10.2	16.8	40.1	19.2	19.2	23.2	10.7	17.5	6.4	7.2	15.8	9.2	16.9	13.1	14.7	14.4	14.8	3.8	1.3



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## Notes

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<sup>i</sup> The less educated are more likely to be unemployed: in terms of levels, the ratio of employment to population in selected OECD countries is higher for more educated workers; less educated were invariably more likely to be unemployed than the more educated; and the differences in unemployment associated with education tended to rise. Benefits redistribute income from the rich, higher-skilled or educated, to the poor, less educated. The unemployed are also less likely to find jobs as time goes on. See Richard B. Freeman, ed., *Working Under Different Rules*, 1994, p. 41.

<sup>ii</sup> In fact, the factor that was shown to have the most important impact on exit rates from unemployment in the Spanish and Portuguese case was whether an individual received unemployment benefits or not (see Olympia Bover, Pilar García-Perea, Pedro Portugal, “A Comparative Study of the Portuguese and Spanish Labour Markets”, *Estudos e Documentos de Trabalho*, Banco de Portugal, March 1998, pp. 17-18).

<sup>iii</sup> Sveinbjorn Blondal and Mark Pearson, “Unemployment and Other Non-Employment Benefits”, *Oxford Review of Economic Policy*, vol. 11, no. 1, pp. 137-140.

<sup>iv</sup> Abbring, van den Berg and van Ours (2000).

<sup>v</sup> Hunt (1995) finds very large effects of the level of potential duration of benefits in Germany.

<sup>vi</sup> The empirical hazard function (or exit rate from unemployment), which shows how the changes of re-employment change as the length of the unemployment spell progresses, can be shown to decline over time; in other words, they are non-constant and are said to exhibit duration dependence. There are reasons for this: first, skill depreciation during unemployment makes the individual less employable; second, stigmatization of long-term unemployed by potential employers leads to decreasing arrival rates of job offers; third, discouragement lowers search intensity; and fourth, unobserved individual heterogeneity causes “spurious” negative duration dependence because in the presence of heterogeneous individuals, the sample of those still unemployed is

<sup>vii</sup> Sveinbjorn Blondal and Mark Pearson, “Unemployment and Other Non-Employment Benefits”, *Oxford Review of Economic Policy*, vol. 11, no. 1, pp. 137-140. Outflow rates have been found to increase considerably at around the times the unemployment benefits are exhausted in the United States, Canada, Japan, France, Spain and Sweden, raising the possibility that maximum benefit periods influence the duration of unemployment spells. Also unemployment benefit recipients have been shown to move to employment at a significantly lower pace than non-recipients; in fact, the factor that was shown to have the most important impact on exit rates from unemployment in the Spanish and Portuguese case was whether an individual received unemployment benefits or not (see Olympia Bover, Pilar García-Perea, Pedro Portugal, “A Comparative Study of the Portuguese and Spanish Labour Markets”, *Estudos e Documentos de Trabalho*, Banco de Portugal, March 1998, pp. 17-18).

<sup>viii</sup> The United States, Canada, the United Kingdom, New Zealand and Ireland have all introduced measures to offset the distortionary effects of high marginal effective tax rates on low incomes, as benefits are phased out and income becomes subject to tax after a low income threshold has been passed. See *Implementing the OECD Jobs Strategy: Member Countries' Experience*, OECD, 1997, p. 63. There are also numerous cases where payroll taxes have been raised to finance rising unemployment insurance costs. See, for instance, *OECD Economic Surveys: Canada, 1996*. There is evidence that the rate of increase in the tax rather than its overall level is the better indicator of potential harm to the labor market.

<sup>ix</sup> A. Lindbeck, “The Welfare State and the Employment Problem”, *American Economic Review* 84 (2: 1994), p. 74.

<sup>x</sup> There are numerous cases where payroll taxes have been raised to finance rising unemployment insurance costs. See, for instance, *OECD Economic Surveys: Canada, 1996*. There is evidence that the rate of increase in the tax rather than its overall level is the better indicator of potential harm to the labor market.

<sup>xi</sup> Layard (1988) summarizes: “The correlation of unemployment duration with unemployment benefits is predicted by almost every known model of unemployment.” It should be noted that the strength of all of these disincentive effects depends on the eligibility criteria for benefits, which make payment conditional upon job search and related behavior. These criteria can offset or even reverse the disincentive effects that arise when benefits are paid without these conditions; and at the aggregate level, the European countries where unemployment fell most sharply in the 1990s had tightened the implementation of their benefit eligibility criteria. See *OECD Employment Outlook 2000*, p. 129 and rest of article. Note that the enforcement of eligibility criteria may have a larger impact on behavior than variations in replacement rates and effective marginal tax rates, because the income implications for the beneficiary are larger: ineligibility means the replacement rate falls to zero.

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<sup>xii</sup> There are numerous cases where payroll taxes have been raised to finance rising unemployment insurance costs. See, for instance, *OECD Economic Surveys: Canada, 1996*. There is evidence that the rate of increase in the tax rather than its overall level is the better indicator of potential harm to the labor market.

<sup>xiii</sup> Sveinbjorn Blondal and Mark Pearson, "Unemployment and Other Non-Employment Benefits", *Oxford Review of Economic Policy*, vol. 11, no. 1, p. 137.

<sup>xiv</sup> The OECD has calculated average gross replacement rates for odd-numbered years from 1961 on. Some countries make available other benefits to the unemployed, which would raise the reservation wage further, and these are not included in the OECD figures. The Centraal Planbureau in The Hague has developed an index that uses net replacement rates plus housing and other benefits available for the unemployed in the European Union and three U.S. states, and this index gives a very different picture of the replacement rate; but this index was developed only for a single year, 1993, and would be too difficult to replicate in this study. However, it might be used for a "snapshot" comparison.

<sup>xv</sup> OECD, *Benefits and Wages: OECD Indicators*, Paris 2002, p. 10.

<sup>xvi</sup> OECD, *Benefits and Wages: OECD Indicators*, Paris 2002, p. 33 gives examples for a single year (1999). Data for net replacement rates can be obtained online for 1997 and 1999.

<sup>xvii</sup> OECD, *Benefits and Wages: OECD Indicators*, Paris 2002, p. 12.

<sup>xviii</sup> Olympia Bover, Pilar García-Perea, Pedro Portugal, "A Comparative Study of the Portuguese and Spanish Labour Markets", *Estudos e Documentos de Trabalho*, Banco de Portugal, March 1998, pp. 16-18). See also Sveinbjorn Blondal and Mark Pearson, "Unemployment and Other Non-Employment Benefits", *Oxford Review of Economic Policy*, vol. 11, no. 1, pp. 137-140. Outflow rates were found to increase considerably at around the times the unemployment benefits were exhausted in the United States, Canada, Japan, France, Spain and Sweden, raising the possibility that maximum benefit periods influence the duration of unemployment spells.

The empirical hazard function (or exit rate from unemployment), which shows how the changes of re-employment change as the length of the unemployment spell progresses, can be shown to decline over time; in other words, they are non-constant and are said to exhibit duration dependence. There are reasons for this: first, skill depreciation during unemployment makes the individual less employable; second, stigmatization of long-term unemployed by potential employers leads to decreasing arrival rates of job offers; third, discouragement lowers search intensity; and fourth, unobserved individual heterogeneity causes "spurious" negative duration dependence because in the presence of heterogeneous individuals, the sample of those still unemployed is increasingly made up of those workers with unobserved characteristics which make them less employable.

<sup>xix</sup> In all of these respects, Norway is a model of all-round strictness: the unemployed must generally accept shift and night work, be prepared to work anywhere in Norway (and a spouse who quits a job to avoid separation of the couple and then claims benefit will be penalized for a voluntary quit), must be ready to accept any job they can do without reference to their previous occupation or wage level, and cannot refuse a job on religious or ethical grounds. The United States, Australia, the Netherlands, Switzerland and the United Kingdom require individuals to report their job search in some detail and specify a minimum frequency of job applications or actions of job search. In the United States, the unemployed in most states have to make two or more job applications every week. In France there is a principle of permanent job search and the unemployed are required to keep documentation and intensive reviews of job search are conducted at intervals of four months or more and are a prime instrument in verification of eligibility.

<sup>xx</sup> Imagine that the unemployed receive a series of job offers at different wage levels, and would reject those paying wages below their "reservation wage". Payment of the benefit raises the reservation wage and could hence increase the expected duration of unemployment spells. But if the public employment service imposes strong sanctions, such as permanent exclusion from the benefit system, if an offer paying a "suitable" wage is rejected, that "suitable wage" can be set below the reservation wage that unemployed people would choose in the absence of any benefit system. Unemployment spell durations should therefore be lower than under *laissez faire*. See Ljungqvist and Sargent, 1995.

<sup>xxi</sup> P. Auer, *Employment Revival in Europe: Labour Market Success in Austria, Denmark, Ireland and the Netherlands*, ILO, Geneva, 2000.

<sup>xxii</sup> Ministry of Finance, Denmark, "Availability Criteria in Selected OECD Countries", *Working Paper* no. 6, November 1998.

<sup>xxiii</sup> Table 8.B.1., p. 226, *The OECD Jobs Study: Evidence and Explanations*. The years included are 1961, 1971, 1981 and 1991.

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<sup>xxiv</sup> This issue is a complex one, since tax is also applied to the average production wage, which the OECD uses as the denominator in its replacement rate, and different personal income tax rates apply to many of the different situations which the OECD estimates in calculating its replacement rate. The OECD ratio, given for four different years, reflects the effect on both personal income tax and social security payments on wages and benefits. I have attempted to pinpoint when possible the year when changes in tax treatment took place, through my review of labor legislation and the literature.

<sup>xxv</sup> Since in most EU countries unemployment benefits can be received for an indefinite period, this does overlook an important aspect of the generosity of the unemployment insurance system: Layard, Nickell and Jackman (1991) show that economies respond well to exogenous shocks if they have an unemployment benefit system that discourages long-term unemployment, by which they mean a system that offers unemployment benefits for a relatively short duration of 15 months or less; and Katz and Meyer (1990) concluded that in the United States, the length of the benefit period had a larger impact on the exit rate from unemployment than the benefit level. In this indicator, the value of 1 represents a duration of one year or more. However, the move from a fraction of a year to a year or more does represent an important change in the generosity of benefits.

<sup>xxvi</sup> Initially the idea was to use a coverage rate as a proxy for the strictness of eligibility conditions for unemployment insurance. However, since this indicator did not appear to correlate well with the scores of the Danish study, and since developing the year-by-year, country-by-country EPL indicator described above involved a thorough review of labor-market legislation, I decided to attempt to develop an equally precise indicator for unemployment benefit eligibility.

<sup>xxvii</sup> Under Social Security Act of 1935, which created the system.

<sup>xxviii</sup> The Social Security Act (1935) also provides the basis for an unusual Federal state unemployment insurance system, under which the federal government establishes minimum guidelines and oversees the operation and performance of the system, while the states are free to enact their own laws as long as they comply with federal standards. See Flanagan, Robert J., "The United States: Decentralized Heterogeneity", *Labour Market Contracts and Institutions*, J. Hartog and J. Theeuwes, eds., Elsevier Science Publishers B.V., 1993, p. 39.

<sup>xxix</sup> According to Layard, et. al. (1991) under the income support scheme, all of an individual's rent (or his/her mortgage interest if a house owner) is also payable (unless the individual has savings of over 3,000 pounds; also account is taken of pension and/or redundancy payments). This obviously increases the replacement ratio. See also Joris Ghysels and Anne Thirion, Final Report to the European Commission under project number V/031/98 To Identify and Compare Social Protection System Benefits and Replacement Rates and Their Effect on Employment Participation in the Light of the 1998 Employment guidelines, 23 April 1999.

<sup>xxx</sup> The first case is for a one-earner couple with two children and the second for a single person. It should be noted that the OECD averages out 18 different situations in its replacement rate, as discussed above.

<sup>xxxi</sup> Centraal Planbureau, "Replacement rates: A transatlantic view", Working paper no. 80 (September 1995), The Hague.

<sup>xxxii</sup> My decision followed the OECD's lead: the OECD also includes only the income available from unemployment insurance schemes in its replacement rates, partly because the other income support systems are so varied and complex, but also because many of them are means-tested and therefore cannot be considered "insurance".

<sup>xxxiii</sup> The CIG, an extraordinary insurance benefit that applies in industrial sectors, offers a special unemployment allowance equal to two-thirds of the last daily earnings paid for 180 days, when unemployment is due to redundancy because of cessation of the enterprise or of reduction in staff. It gives cost flexibility to employers but also freezes a sizeable fraction of the industrial labor force in inactive situations; beneficiaries reportedly work in huge numbers on the black market. CIG benefits and the Mobility allowance are paid only when the firm applies for these benefits in connection with a collective layoff. The CIG was much expanded in the 1970s. The CIGS was introduced in 1968, payable in cases of industry-wide or local economy crises or restructuring of production. This made it possible to pay CIG during long-term layoffs. Legislation in 1977 clarified the principle that CIGS could, in socially relevant cases, be paid even when there was no expectation that the firm's business might recover. Special arrangements were introduced for the INPS to pay benefits directly to workers instead of employers, in cases where the company formally employing them had effectively ceased to exist. In the 1980s there were many cases of workers receiving CIG for five years or more. Law 223/1991 replaced Special Unemployment Benefits with a new Mobility allowance, initially paid at the same rate as CIG and reduced by 20% after one year. Firms must pay into INPS the equivalent of 6 months of benefit for each worker put into Mobility. (Source: various OECD reports)