

**MEASURES OF REPLACEMENT RATES
FOR THE PURPOSE OF INTERNATIONAL COMPARISONS:
A NOTE**

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INTRODUCTION

The problem of high and persistent unemployment which has dogged many OECD countries over the past two decades has given rise to a vast literature on its causes, consequences and remedies. Within that debate, much prominence has been given to the potential role of unemployment benefits and related social welfare benefits as determinants of unemployment

Theoretical explanations for the growth of unemployment and its persistence have given some credence to this hypothesis¹ Several different theories of unemployment lead to the following prediction: the “generosity” of unemployment and related welfare benefits is one potential determinant of the natural rate of unemployment. Recent empirical studies attempting to explain cross-country patterns of unemployment in OECD countries provide evidence in support of this hypothesis² In addition, the generosity of benefits may also influence the speed of adjustment of the actual unemployment rate back to a new equilibrium following shocks³

However, this theoretical and empirical work and the policy implications which flow from them depend crucially on the ability to measure relatively accurately the so-called “replacement rate”, i.e the proportion of expected income from work which is replaced by unemployment and related welfare benefits. This task, which seems on the face of it to be a fairly innocuous one, is in fact fraught with difficulty There is no such thing as *the* replacement rate in any OECD country, rather there are a myriad of replacement rates corresponding to the specific personal and family characteristics of the unemployed, their previous history of work and unemployment, and the different structures and entitlements of unemployment insurance (UI) and social assistance (SA) systems in OECD countries and the ways in which these systems interact with tax systems Once one tries to grapple with these complexities in order to compute replacement rates for the purpose of international comparisons, the task becomes a daunting one

The OECD has devoted much time and effort recently to gathering comparable data on gross and net replacement rates and it makes extensive use of these data in monitoring progress in its Member countries on implementing the policy recommendations of the *Jobs Study* The aim of this note is to describe these data briefly and illustrate how they compare with similar measures computed by other cross-country studies

THE OECD SUMMARY MEASURE OF BENEFIT ENTITLEMENTS

The basic approach adopted by the OECD to measure replacement rates is to compute the total benefit payable in a year of unemployment for a variety of "typical" worker and household cases. These cases include:

- i) three different durations of an unemployment spell for a person with a long record of previous employment: the first year, the second and third years, and the fourth and fifth years of unemployment;
- ii) three family and income situations: a single person, a married person with a dependent spouse, and a married person with a spouse in work; and
- iii) two different levels of previous earnings in work: average earnings and two-thirds of average earnings.⁴

In all cases, the replacement rates refer to a 40-year-old worker who is considered a good approximation to the average situation of an unemployed person.

These different cases produce 18 replacement rates. In order to make this readable, Table 1 shows nine replacement rates by expressing them as averages over the two earnings levels (average earnings and two-thirds of average earnings).⁵ The final column in Table 1 shows the simple (*i.e.* unweighted) average of the replacement rates in all the preceding nine columns. This simple average is taken to represent the OECD summary measure of benefit entitlements. As a result, the OECD summary measure need not be close to the *initial* replacement rate which unemployed people are legally entitled to when they lose their job, or to the *average* benefits currently paid out to the unemployed. The data in Table 1 are *gross* replacement rates, *i.e.* they are not adjusted for the effects of taxation (see below).

In addition, there are significant variations in the individual replacement rates in Table 1, implying that one could weight them differently to compute an alternative summary measure. For instance, instead of taking a simple average of all the replacement rates, an alternative approach would be to weight them in line with the actual demographic, family and duration composition of unemployment in each country and each year. This would make the summary measure more meaningful for countries such as Japan and the United States which generally have benefit durations of less than one year and a relatively low incidence of long-term unemployment. However, the problem with using population weights is that the population sizes respond to incentives in benefit systems, potentially giving rise to bias in the summary measure. For this reason, the OECD has opted for a simple average of the different replacement rates as its preferred summary measure.⁶

The calculations presented in Table 1 assume that claimants get their *legal* entitlements. However, Atkinson and Micklewright (1991) highlight the fact that incomplete take-up of entitlements is a serious problem in some OECD countries,

Table 1. Gross unemployment benefit replacement rates' by duration categories and family circumstances, 1995²

Duration categories	First year			Second and third year			Fourth and fifth year			Overall average
	Single	With dependent spouse	With spouse in work	Single	With dependent spouse	With spouse in work	Single	With dependent spouse	With spouse in work	
Australia	29	52	0	30	53	0	30	53	0	27
Austria	35	38	21	33	37	0	33	37	0	26
Belgium	51	51	47	34	51	29	34	51	29	42
Canada	54	54	54	14	28	0	14	28	0	27
Denmark	71	73	69	71	73	69	71	73	69	71
Finland	65	65	64	47	47	40	30	30	0	43
France	58	58	58	40	40	34	25	25	0	38
Germany	35	38	35	31	34	0	31	34	0	26
Greece	44	53	44	19	19	19	0	0	0	22
Ireland	26	42	26	27	43	0	27	43	0	26
Italy	45	45	45	15	15	15	0	0	0	20
Japan	30	30	30	0	0	0	0	0	0	10
Netherlands	70	70	70	46	58	18	34	48	0	46
New Zealand	33	54	0	34	57	0	34	57	0	30
Norway	62	62	62	47	47	47	8	8	8	39
Portugal	65	65	65	39	43	39	0	0	0	35
Spain	65	65	65	30	30	30	0	0	0	32
Sweden	76	76	76	6	6	6	0	0	0	27
Switzerland	70	70	70	19	19	19	0	0	0	30
United Kingdom	18	29	18	19	30	0	19	30	0	18
United States	27	29	25	5	8	0	5	8	0	12

¹ Benefit entitlement before tax as a percentage of previous earnings before tax. Data shown are averages over replacement rates at two earnings levels (average earnings and two-thirds of average earnings). For further information, see OECD (1994, Chapter 8)

² Data refer to 1995 for all countries except the United States where the data refer to 1994

Source: OECD Database on Unemployment Benefit Entitlements and Replacement Rates

especially for means-tested SA benefits. It is not possible to adjust for different take-up rates in these cross-country comparisons because of lack of data.

With these caveats in mind, the estimates reveal wide cross-country variation in the summary measure. The OECD average (unweighted) replacement rate was 31 per cent in 1995; the standard deviation was 13 percentage points. Denmark had the highest average replacement rate of 71 per cent while the lowest replacement rate of only 10 per cent was recorded in Japan. Italy, the United Kingdom and the United States all had relatively low overall replacement rates of 20 per cent or less.

As noted, the OECD estimates of gross replacement rates are available on a time-series basis since 1961 – strictly speaking they are available for every odd-numbered year from 1961 to 1995. Figure 1 shows the results for 21 countries.

What are the broad patterns revealed by the summary measure of benefit generosity? First, the broad-brush impression is of a significant rise in the summary measure across the OECD area since 1961. This is confirmed by a computation of the (unweighted) mean value of the summary measure across countries.

	1961	1967	1973	1979	1985	1991	1995
OECD Europe	14	16	19	25	30	32	34
Total OECD	16	16	19	24	28	29	31

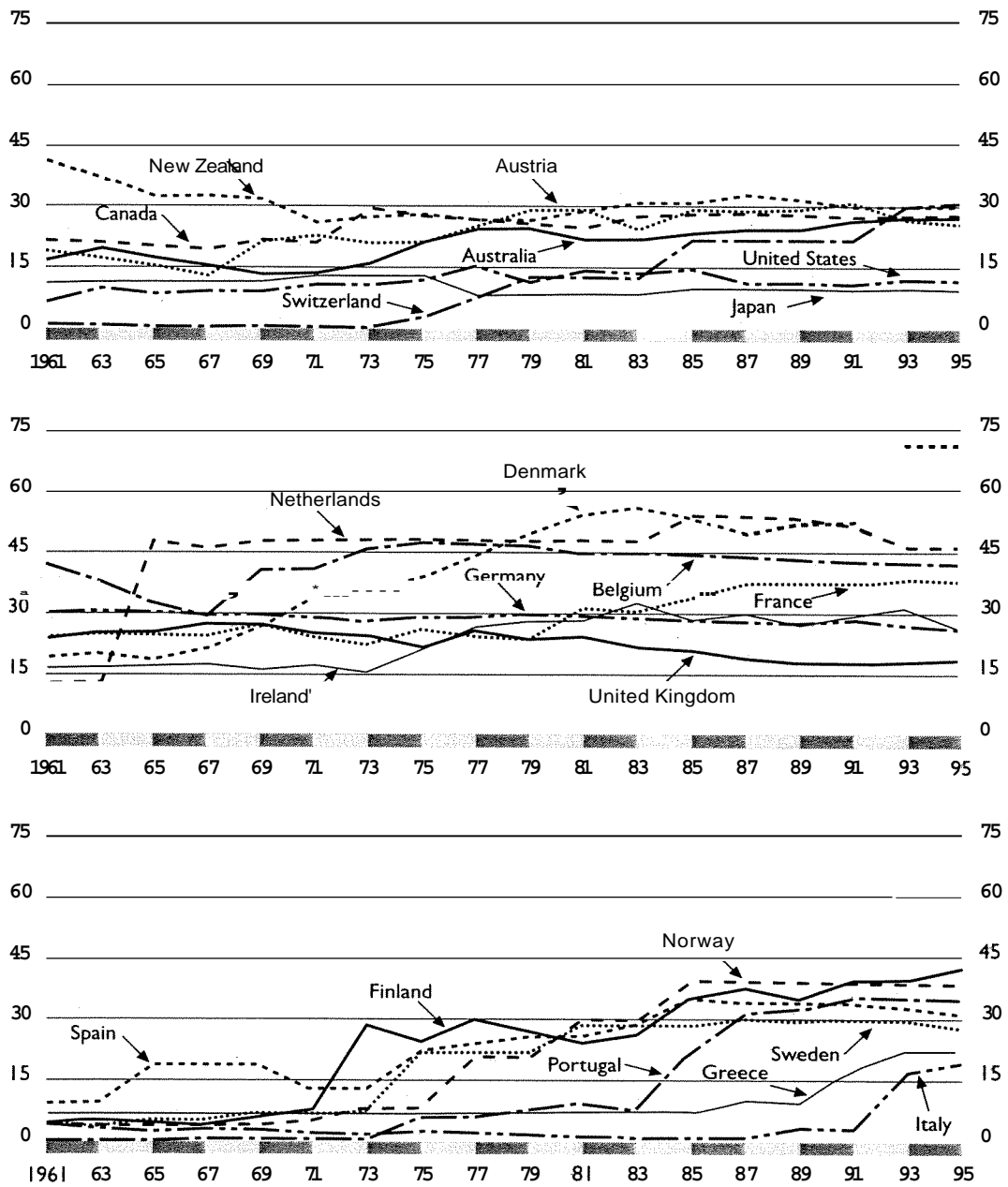
The OECD average summary measure has almost doubled over the period since 1961, with a slightly larger increase in OECD Europe. However, some OECD countries have not recorded a rising trend in the summary measure since 1961. Figure 1 reveals that the summary measure remained rather stable or even fell over the period in Belgium, Germany, Japan, New Zealand, the United Kingdom and the United States.

Second, it is worth noting that the rising trend in the summary measure across most countries was accompanied by a significant convergence in levels of gross replacement rates. The coefficient of variation across the 21-country sample declined from 78 per cent in 1961 to 42 per cent in 1995.

Finally, this rising trend appears to have persisted into the 1990s. In most countries for which 1995 data are available, the summary measure is either rising since 1989 or stable.⁷ Declines in the summary measure in Austria, Belgium, Canada, Germany, Ireland, the Netherlands, New Zealand, Spain and Sweden are the only exceptions to this trend.

The widespread rise in the summary measure in recent years is, on the face of it, surprising since many OECD governments have taken steps recently to reform their UI systems with the aim of raising work incentives and cutting public spending. These measures are described in OECD (1995a). However, some of these

Figure I. *Summary measure of benefit entitlements,' 1961-1995²*
 Percentages



1. The average of the unemployment benefit replacement rates for two earnings levels, three family situations and three durations of unemployment. For further details, see OECD, *The OECD Jobs Study: Evidence and Explanations*, Chapter 8. The earnings data used to compute replacement rates for 1995 are Secretariat estimates.
2. Final-year data refer to 1994 for the United States.

Source: OECD Database on Unemployment Benefit Entitlements and Replacement Rates.

reforms, *e.g.* steps to tighten eligibility contributions (Canada, Belgium, Norway, Spain and Sweden) and to administer benefit controls and job-search criteria more stringently (Belgium, Denmark, Norway, Spain and the United Kingdom), are unlikely to show up in the OECD summary measure. Others should show up, *e.g.* cuts in replacement rates for some groups (Austria, Canada, France, Germany, Ireland and Sweden) and cuts in the duration of benefits (Canada and France).⁸ However, as the summary measure is an average replacement rate over a number of typical cases and reforms have tended to cut replacement rates and/or duration of benefits for some groups while raising them for others, it is perfectly possible for changes in the benefit system to have resulted in budgetary savings while at the same time the summary measure of benefit entitlements remains unchanged or even increases.⁹

The recession in OECD labour markets in the early 1990s may be partly responsible for the widespread small rise in the summary measure between 1989 and 1995. Average earnings fell or did not increase in line with past trends while benefits continued to be indexed to prices in most countries. In some other countries, however, benefit entitlements were increased and this is reflected in the summary measure. For example, Switzerland has recently extended the maximum duration of benefits, and Greece and Italy have increased basic unemployment benefits substantially. Finland raised benefit entitlements in 1994 by introducing a new benefit for first-time jobseekers and persons who have exhausted their UI entitlements.

OECD ESTIMATES OF NET REPLACEMENT RATES

Despite the fact that the OECD summary measure covers a wide variety of typical cases and is computed for almost all OECD countries on a time-series basis since 1961, it is still only an approximate measure – a point highlighted in OECD (1994). The data presented in Table 1 do not include several important sources of variation in replacement rates. First, they do not allow for the influence of taxation. *Net* (*i.e.* after-tax) replacement rates are generally higher than gross replacement rates for essentially two reasons. *i)* benefits are exempt from deduction of most employee social security contributions in many countries; and *ii)* the progressivity of the tax system ensures that the average tax rate on benefits is less than the average tax rate on earnings. In terms of behavioural responses, net replacement rates should be more significant than gross replacement rates. Second, there is no allowance in the calculations for housing benefits. Third, there is no allowance for child-related benefits; hence, none of the typical cases considered in Table 1 deals with a family including children. Finally, the duration of benefits underlying the calculations refers to legal entitlements; they take no account of the fact that the guarantee for the long-term unemployed of a place on an active labour market programme, which often lasts long enough to guarantee a new period of benefit

Table 2 Net unemployment benefit replacement rates' by duration categories and family circumstances, 1994/5²

Duration categories	First year			Second and third year			Fourth and fifth year			Overall average
	Single	With dependent spouse	With spouse in work	Single	With dependent spouse	With spouse in work	Single	With dependent spouse	With spouse in work	
Australia	36	57	0	36	57	0	36	57	0	31
Belgium	79	70	47	55	64	47	55	64	47	59
Canada	60	76	54	42	56	0	42	56	0	43
Denmark	79	83	80	79	83	80	79	83	80	81
Finland	74	93	34	74	93	0	74	93	0	59
France	79	80	60	63	62	26	61	60	0	55
Germany	66	74	74	63	72	0	63	72	0	54
Ireland	40	58	36	40	58	5	40	58	0	37
Italy	43	43	43	13	13	13	0	0	0	19
Japan	78	80	45	41	58	0	41	58	0	45
Netherlands	79	90	75	78	88	56	73	85	0	69
New Zealand	50	67	0	50	67	0	50	67	0	39
Norway	67	77	67	61	76	63	54	75	15	62
Spain	69	70	70	54	55	48	32	39	0	49
Sweden	81	81	81	76	100	10	75	101	0	67
Switzerland	78	86	77	68	81	22	64	80	0	62
United Kingdom	64	75	44	64	74	0	64	74	0	51
United States	34	38	32	9	14	0	9	14	0	16

1 Beneht entitlement on a net-of-tax and housing beneht basis as a percentage of net-of-tax earnings. Rent is assumed to be hxed at 20 per cent of the national earnings of an average production worker in industry.

2 Data refer to 1995 for Australia, Ireland, Sweden and the United Kingdom, 1994 for all other countries.

Source: OECD Database on Unemployment Beneht Entitlements and Replacement Rates.

entitlement, makes the *de facto* duration of benefits virtually indefinite in some countries, e.g. Denmark (prior to 1994), Norway and Sweden

Work is under way at the OECD to overcome some of these omissions, in particular to compute *net* replacement rates.¹⁰ Housing benefits are included in these calculations for those countries where such benefits exist. A standard assumption is made that housing costs in any country are a fixed proportion (20 per cent) of the earnings of an average production worker in that country. The country-specific housing benefit provisions are then applied to the imputed housing costs.¹¹

Estimates of net replacement rates for 18 countries for 1994/95 are presented in Table 2. As can be seen, they are in all cases higher than the gross replacement rates in Table 1 with the sole exception of Italy.¹² However, a comparison of Tables 1 and 2 reveals that the country rankings of gross and net replacement rates are strongly correlated (Spearman's rank correlation coefficient = 0.73).

The OECD average (unweighted) net replacement rate of 50 per cent is two-thirds larger than the average gross replacement rate for the same group of countries; the standard deviation of the net rates is 16.5 percentage points. Once again, Denmark and the Netherlands are the highest, with net replacement rates of 81 and 69 per cent, respectively, while Italy and the United States have the lowest rates of under 20 per cent.

Unfortunately, there is no comparable time series of the net replacement rates back to 1961 and the OECD Secretariat has no plans to do this in the near future. However, given the strong positive correlation between gross and net rates noted above, it seems likely that net replacement rates have also tended to rise significantly over the past three decades in most countries in line with the trends shown in Figure 1

A COMPARISON OF THE OECD NET REPLACEMENT RATES WITH OTHER CROSS-COUNTRY ESTIMATES

There is great interest in calculations of net replacement rates, especially on a comparative basis. The 1994 EC Commission report on *Social Protection in Europe* has published net replacement rates on a 1992 basis for a single 40-year-old industrial worker during the initial unemployment period. But since these data refer to the *initial* period and our data refer to averages over the first year of unemployment, it is not possible to make a direct comparison between the EC Commission estimates and the OECD estimates in Table 2

However, the Dutch Central Planning Bureau (CPB) has recently published the results of a major research project it has undertaken to compute *net* replacement rates for 1993 for the EU member states and for the United States.¹³ In addition, national experts in seven European countries – Denmark, Finland, France, Germany, the Netherlands, Sweden and the United Kingdom – joined together recently in a

combined effort to compute *net* replacement rates for a range of family types and income levels.¹⁴ Like the CPB estimates, this exercise, referred to below as Group of Seven (1995), included housing benefits in the calculations.

Table 3 presents a comparison of OECD summary estimates of net replacement rates with both the CPB equivalent average estimates for 1993 and the Group-of-Seven estimates for 1994. In order to achieve greater comparability between the three studies, the net replacement rates exclude the case of a couple with one partner in work and the other partner unemployed (this explains the small differences in the OECD estimates between Tables 2 and 3). However, a careful reading of the notes to Table 3 indicates that there remain some differences in the concept of a net replacement rate (NRR) as it is measured in these studies, notably with respect to the treatment of housing costs and benefits

The OECD and the CPB adopt essentially the same definition of the net replacement rate as

$$\text{OECD, CPB NRR} = \frac{\text{Net unemployment benefits} + \text{housing benefits}}{\text{net earnings} + \text{housing benefits}}$$

the Group-of-Seven net replacement rates have the widest income definition; they include housing costs as well:

$$\text{G7 NRR} = \frac{\text{Net unemployment benefits} + \text{housing benefits} - \text{housing costs}}{\text{net earnings} + \text{housing benefits} - \text{housing costs}}$$

The data in Table 3 reveal several interesting patterns. First, the Group-of-Seven net replacement rates are always lower than either the OECD or CPB averages for the countries in question. This reflects the fact that the Group-of-Seven include housing costs in their definition of the net replacement rate while the OECD and the CPB do not. Second, a comparison of the CPB net rates with those of the OECD reveals that the former exceed the latter for six of the ten countries in question. Finally, despite some large differences in levels between the CPB estimates and the OECD estimates, the country rankings are strongly correlated: the Spearman's rank correlation coefficient between the OECD net replacement rates and the CPB rates is 0.79

Because of the differences between the CPB and the OECD estimates, the OECD Secretariat has undertaken a detailed reconciliation of the two series. This produced the following results:

- i) The estimates are not comparable for Italy and the United States. The CPB has assumed that *all* of the unemployed in Italy are eligible for the Mobility Benefit whereas the OECD estimate, for reasons explained in the Appendix, models the benefit as a weighted average of the Mobility Benefit and the ordinary unemployment benefit. The gap for the United States is partly explained by the geographic coverage of the income measure used in the calculations of the replacement rates. The OECD measure is based on an

Table 3 A comparison of OECD summary estimates of net replacement rates with those computed by the Central Planning Bureau and the Group of Seven'

Entitlements calculated over 5 years of unemployment, in % of previous earnings

	OECD (1994/95) ²	CPB (1993) ³	Group of Seven (1994) ⁴
Belgium	65	66	n a
Denmark	81	90	73
Finland	83	n a	75
France	68	75	52
Germany	68	68	55
Greece	n a	28	n a
Ireland	49	67	n a
Italy	19	61	n a
The Netherlands	82	78	67
Portugal	n a	44	n a
Spain	53	59	n a
Sweden	86	n a	67
United Kingdom	69	63	46
United States	19	41	n a

n a = not available

1 The overall OECD average shown here differs from that in Table 2 because it excludes the replacement rate of the couple with one partner in employment and the other partner unemployed in order to be comparable with the CPB and Group-of-Seven averages

2 The OECD averages include housing benefits but exclude housing costs. Data refer to 1995 for Australia. Ireland, Sweden and the United Kingdom data for all other countries refer to 1994

3 The CPB averages include housing benefits but exclude housing costs. In the calculation of housing benefits, housing costs are defined per family type as a proportion of gross reference earnings. Housing costs therefore change with income status but remain constant as employment status changes. The CPB replacement rates also include private health insurance costs where appropriate (Germany, The Netherlands and the United States)

4 The Group-of-Seven averages include housing benefits. The replacement rates are computed after making an allowance for housing costs. Typical housing costs are assumed for each family type in each country, and it is further assumed that these housing costs do not change as income or employment status changes

Source: CPB (1995), Group of Seven (1995), OECD Secretariat estimates

average production worker living in Detroit, Michigan whereas the CPB measure is based on an average of three states. In addition, the CPB estimates also make an allowance for extended duration of benefits under the Emergency Unemployment Compensation programme; this extension is determined by the state unemployment rate. The OECD calculations do not include this extended duration of benefits.

ii) For Denmark, the Netherlands and the United Kingdom, the main reason for the difference is explained by the different treatment of housing benefits in the two sets of estimates. This factor is also important for Ireland as the CPB estimates include housing benefits whereas the OECD estimates exclude this benefit. In addition, the OECD estimates refer to 1995 and take

account of the abolition of the earnings-related element in benefits whereas the CPB estimates, which refer to 1993, include this factor.

- iii) The difference for France reflects a different treatment of the duration of benefit payments. The CPB assumes that the duration of initial-rate UI benefits is 18 months while the OECD calculations, in line with the Group-of-Seven calculations and French sources, assume that the duration is nine months.
- iv) For Spain, the OECD estimates take account of the fact that unemployment benefits became taxable in 1993 whereas the CPB estimates do not allow for this change in tax treatment.

CONCLUSIONS

Even if it is the case that unemployment benefits are only part of the explanation for high and persistent unemployment, this does not rule out the need for policy reforms in this area as part of a comprehensive strategy to cut unemployment on a durable basis. In order to facilitate international comparisons in this area, the OECD has developed recently a set of benefit replacement rates for almost all of its Member countries covering the period since 1961 for gross replacement rates and the period since 1993 for net replacement rates.

These indicators convey some clear signals about the broad directions of policy in this important area. First, there has been a rise in benefit entitlements in most OECD countries over the past three decades: the OECD average *gross* replacement rate almost doubled from 16 per cent in 1961 to 31 per cent in 1995. Second, replacement rates are higher once allowance is made for the effects of taxation and housing benefits: the OECD average *net* replacement rate was 50 per cent in 1994. Finally, despite popular belief to the contrary, most OECD countries appear to have opted to proceed very cautiously in reforming their systems of unemployment and related welfare benefits. There is little sign yet of reforms showing up in declines in the OECD summary measure of benefit replacement rates in most countries

Annex

REPLACEMENT RATES FOR ITALY

The estimates of replacement rates for Italy up to 1991 published in OECD (1994) included only "ordinary" unemployment benefits, which provided very low benefits until recently to a minority of the unemployed. As a result, the estimated gross and net replacement rates were very low. No account was taken of benefits for short-time working such as the CIG (Cassa Integrazione Guadagni, Wage Supplementary Fund) on the grounds that most of the beneficiaries are not counted as unemployed. Ordinary CIG (CIGO) benefits are paid to workers affected by collective lay-offs in firms with 16 or more employees as a result of a temporary decline in economic activity including seasonal fluctuations. Benefits are equal to 80 per cent of gross earnings up to a monthly maximum which is equivalent to about 65 per cent of average earnings. In 1968, structural CIG (CIGS) was set up to provide benefits for long-term collective lay-offs in firms and sectors undergoing restructuring; CIGS benefits can be paid for a maximum of two years which can be extended up to four years (see Mosley, 1995, for details). The estimates published in OECD (1994) also took no account of the Special Unemployment Benefit which was established in 1968 for workers who were permanently laid-off; the reason for excluding the latter benefit is that it was little used.

In 1991, the so-called "Mobility Benefit" was established to replace the Special Unemployment Benefits. The Mobility Benefit is initially paid at the same rate as the CIG and reduced by 20 per cent after one year. The number of workers drawing the Mobility Benefit has grown rapidly since 1991, approaching 300 000 by end-1994. For a discussion of the Mobility Benefit, see OECD (1995*b*, pp. 127-130).

Benefits such as the CIGO/CIGS, the Mobility Benefit or the Special Unemployment Benefits cause a problem in computing replacement rates for Italy; they were originally designed to subsidise temporary lay-offs and/or short-time working by the employed. However, it is clear that over time they were also paid to workers who were never recalled by their former employers. While short-time working benefits also exist in some other OECD countries, *e.g.* France, Germany and Spain, they cause less of a problem in computing replacement rates for the unemployed in these countries because they rely for income support almost entirely on unemploy-

ment benefits and related social welfare systems. The obvious solution to this problem for Italy would be to compute a weighted average of the ordinary unemployment benefits and the CIG/Mobility Benefit, using as weights *flows* into unemployment of the various benefit recipients rather than data on the *stocks* of beneficiaries. Such a weighting procedure was used to incorporate a lay-off benefit in the calculations of replacement rates for France over the years 1975-83 – see OECD (1994, Annex 8.A). However, it is impossible to do this for the CIGO/CIGS because of the lack of data on flows into unemployment of workers claiming these benefits.

Instead, the OECD Secretariat decided to incorporate the Mobility Benefit into the calculations from 1991 on by weighting it with the ordinary unemployment benefit (which currently provides benefits equal to 30 per cent of previous earnings for a maximum of six months). The weights used are the stocks of beneficiaries of each benefit and it is assumed that the Mobility Benefit has a duration of two years. While it is felt this procedure gives a more accurate picture of Italian replacement rates in the 1990s, it is clear that the OECD estimates pre-1991 underestimate the generosity of benefits paid to the unemployed because of the inability to incorporate the lay-off and short-time working benefits in the calculations.

NOTES

1. See, for example, Layard, Nickell and Jackman (1991); Johnson and Layard (1986); and Atkinson and Micklewright (1991).
2. See Blondal and Pearson (1995); Layard, Nickell and Jackman (1991); OECD (1994, Chapter 8); and Scarpetta (1996).
3. See Elmeskov and MacFarlan (1993). Scarpetta (1996) provides some cross-country evidence in support of this hypothesis.
4. The annual average earnings measure used in the calculations is itself an average of a) the earnings of an average production worker in industry and b) an average (full-time equivalents) earnings estimated on a National Accounts basis. Full details on the calculations and a justification for this approach are set out in OECD (1994, Chapter 8, Annex 8.A.).
5. The replacement rates in Table I differ from those published in OECD (1994, Chapter 8) in three respects. First, a few errors crept into the published estimates and they are corrected in Table I. Second, the data have been updated to 1995. Finally, a new series for Italy has been computed since 1990 – for details, see the Appendix.
6. There are a few exceptions where explicit weights have been used to compute replacement rates. For details, see OECD (1994, Annex 8.A, p. 22). The Italian replacement rates post-1990 are also weighted averages – see Appendix.
7. The sharp jump in the summary measure in Denmark after 1991 is partly an artefact of the calculation. Up until then, the legal duration of UI benefits in Denmark was 2½ years and this feature was built into the calculation of the OECD summary measure. However, during the 1980s, when an unemployed person exhausted his or her entitlement to benefits, they could get a place on an active labour market programme – the so-called “job offer” scheme – which provided them with a temporary job in either the public or private sectors. These temporary jobs would last long enough to generate entitlement to a new (2½ year) spell on benefits. In this way, the *de facto* duration of benefits in Denmark was virtually indefinite for many of the unemployed – see OECD (1995b, Chapter 3) for details; but this feature of the Danish system was not modelled in the OECD calculations. However, under reforms introduced in 1993 the maximum legal duration of UI benefits was extended from 2½ to 7 years, producing a sharp jump in the OECD summary measure. At the same time, the possibility of using time spent on an active labour market programme to generate renewed entitlements for UI benefits was

abolished. Most recently, plans were announced in the Danish budget for 1996 to cut the duration of UI benefits from 7 to 5 years; this measure will be phased in gradually.

8. Unemployment benefits were made taxable in Spain and subject to social security contributions. These reforms would show up in a reduction in net replacement rates rather than in gross replacement rates.
9. The French case is a good example. The level of benefits declines with the duration of an unemployment spell. Cuts in benefits are now smaller but more frequent than previously. Reforms introduced in 1992 and 1993 had the effect of making the system more generous in the second year of unemployment but less generous in years four and five of unemployment. The net effect of the reforms has been to raise the summary measure slightly while public spending on unemployment benefits has been cut.
10. A first attempt was made in OECD (1994, Annex 8.B) to compute net replacement rates. The work reported here extends that work in two ways, by modelling the effect of taxation more precisely and by including housing benefits. The OECD also has work underway to extend the calculations in two directions by the inclusion of: i) child-related benefits; and ii) a wider range of family cases. Net replacement rates including child-related benefits are published in OECD (1996). The OECD hopes to publish the enhanced estimates of net replacement rates together with a detailed description of the methodology in the autumn of 1996.
11. Ireland is an exception. It has a housing benefit but since very few people claim it, it was decided to omit this benefit from the Irish net replacement rate in Table 2. If the benefit had been included, the overall average net replacement rate would have been 58 per cent instead of 37 per cent.
12. The Italian net replacement rate in Table 2 refers to 1994 whereas the gross replacement rate in Table 1 refers to 1995 and incorporates an increase in UB replacement rates in the latter year.
13. See CPB (1995) for details. Replacement rates for the United States are computed as averages of the benefit systems in the states of California, New York and Texas.
14. See Group of Seven (1995) for details. In this exercise, the estimated replacement rates for the United Kingdom refer to Great Britain only.

BIBLIOGRAPHY

- ATKINSON, A.B. and J. MICKLEWRIGHT (1991), "Unemployment compensation and labour market transitions: a critical review", *Journal of Economic Literature*, Vol. XXIX, No. 4, December, pp. 1679-1727.
- BLÖNDAL, S. and M. PEARSON (1995), "Unemployment and other non-employment benefits", *Oxford Review of Economic Policy*, Vol. 11, No. 1, pp. 136-169.
- CENTRAL PLANNING BUREAU (CPB) (1995), "Replacement rates: a transatlantic view", Working Paper No. 80, The Hague, September.
- ELMESKOV, J. and M. MACFARLAN (1993), "Unemployment persistence", *OECD Economic Studies*, No. 21, Winter, pp. 59-88.
- GROUP OF SEVEN (1995), *Unemployment benefits and social assistance in seven European countries*, (forthcoming).
- JOHNSON, G. and R. LAYARD (1986), "The natural rate of unemployment: explanation and policy", in O. Ashenfelter and R. Layard (eds.), *The Handbook of Labor Economics*, Amsterdam, North-Holland, pp. 921-99.
- LAYARD, R., S. NICKELL and R. JACKMAN (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford, Oxford University Press.
- MOSLEY, H. (1995), "Short-time work schemes in France, Germany, Italy, and Spain: from cyclical to structural intervention", *Employment Observatory: Policies*, No. 52, Winter, pp. 19-27.
- OECD (1994), *The Jobs Study: Evidence and Explanations*, Paris.
- OECD (1995a), *Implementing the Strategy*, Paris.
- OECD (1995b), *Employment Outlook*, Paris.
- OECD (1996), *Employment Outlook*, Paris.
- SCARPETTA, S. (1996), "Assessing the role of labour market policies and institutional settings on unemployment: a cross-country study", *OECD Economic Studies*, No. 26.