INCOME SUPPORT
AND WORK INCENTIVES:
IRELAND AND THE UK

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Edited by Tim Callan

Dedication

Mary McElhone

There is a deep sense of loss at the Institute following the unexpected and untimely death of Mary McElhone. For many years Mary guided manuscripts safely to publication. She took great pride in her work, and rightly so. Her warmth and good humour made what could sometimes be a troublesome task a brighter one. She will be sadly missed. We dedicate this paper to her memory.

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Acknowledgements

PREFACE

The papers gathered together in this volume were originally presented at a conference in September 1996, co-hosted by The Economic and Social Research Institute and the Foundation for Fiscal Studies. The theme of the conference was to examine the rôle of the tax/transfer system in providing income supports, while minimising negative consequences for work incentives - one of the issues highlighted in the recent report of the Expert Working Group on the Integration of the Income Tax and Social Welfare Systems (1996). The conference papers focused particularly on what could be learned from tax-benefit models, which deal with the consequences of tax and benefit policy changes at individual and family level; and on what could be learned by comparisons of the Irish and UK situations.

The rationale for using microsimulation models - i.e., models which are based on detailed data for a representative sample of households and individuals, and which *simulate* the impact of actual or potential tax and benefit policies on that sample - is set out in Chapters 1 (Walker) and 2 (Callan). *SWITCH*, the ESRI tax-benefit model is now capable of very similar analyses to those undertaken with the most widely used UK models (POLIMOD, from the Microsimulation Unit in Cambridge, and TAXBEN, from the Institute for Fiscal Studies). These models represent a major advance on earlier methods of assessing tax and benefit policy changes, which relied on a small number of supposedly "typical" cases, but could be highly misleading. Chapter 1 illustrates how this approach can be further developed, to take into account estimates of the labour supply responsiveness of particular groups to tax and benefit policy changes.

At international level, the recent OECD *Jobs Study* (OECD, 1995) highlighted tax/transfer systems as one of the key areas where policy changes could help to reduce unemployment and stimulate employment. A further OECD study, examining these issues in more depth, contributed both directly and indirectly to the present volume. Chapter 3 (Pearson and

Whitehouse) summarises the overall results, which help to put the Irish and UK tax-transfer systems into a broader perspective, and provide the latest insights from OECD work into the complex relationships between taxes, benefits, employment and unemployment.

The last three chapters undertake more detailed bilateral comparisons of the tax and transfer systems, and the pattern of work incentives for Ireland and the UK The work in Chapters 5 (Duncan and Giles) and 6 (Callan and Nolan) is based on, and develops further, the contributions from the national microsimulation models to the OECD project. Chapter 4 (Callan and Sutherland) draws on a work done as part of the exploratory phase for EUROMOD, a tax-benefit model for European Union countries (Sutherland, 1996).

The Irish and UK tax/transfer systems have much in common, reflecting historic and continuing links between the two countries. But the relative levels of income support provided by the Irish and UK systems have changed quite dramatically in recent decades. For example, in 1978, a three-child family on Unemployment Assistance would have received just under half the average wage in manufacturing in Ireland, while a similar UK family would have received up to 60 per cent of the average UK wage. By 1994, payments under the UK safety-net scheme had fallen to 43 per cent of the average wage, while payments under the Irish scheme had risen to close to 60 per cent of the average Irish wage. Callan and Sutherland (Chapter 4) set out some of the main changes in tax and transfer policy in the two countries, and explore some of the issues arising from these changes.

Much of the analysis in Chapters 5 (Duncan and Giles) and 6 (Callan and Nolan) is based on "static" microsimulation modelling. These analyses document the pattern of incentives faced by individuals in their current situation, using "replacement rates" and "average effective tax rates" – summary measures of the financial incentive to work, based on simulations of the incomes individuals would receive in and out of work. Individuals may respond to high *marginal* tax rates by reducing or increasing their hours of work to avoid them: under these circumstances, high marginal tax rates may simply not be observed. But unemployed

individuals facing high *average* tax rates (or high replacement rates) cannot avoid them in this way, and high average tax rates will be observed. Thus, replacement rates and average effective tax rates can be used, as in these chapters, to provide a comparison of the financial incentive to work faced in Ireland and Britain by different sub-groups of the population.

Overall, the results of the bilateral comparisons in Chapters 4, 5 and 6 can be seen as indicating that changes in Irish and UK tax and transfer policies over the past two decades have tended to increase the relative level of income support in Ireland, and disimprove the financial incentive to work in Ireland relative to that in the UK. Unemployment in Ireland rose more rapidly than in the UK over the past two decades, but rates of income poverty rose much more sharply in the UK than in Ireland. While the papers gathered here can contribute to our understanding of such changes, a great deal of further work is needed - particularly on the responsiveness of labour market participation, unemployment and employment to tax and welfare policy changes - to improve our understanding and guide policy changes in future.

Chapter 1

WORK INCENTIVES, TAXES AND TRANSFER PROGRAMMES[1]

Ian Walker

1.1 Introduction

The analysis of the impact of tax and welfare reforms has advanced rapidly in the last fifteen years. In the early 1980s it was typical to evaluate reforms, if at all, by using simple arithmetic on a small number of hypothetical households. This *first generation* approach was shown to be woefully inadequate by work associated with the Institute for Fiscal Studies (IFS - see, for example, Dilnot, Kay and Morris (1984)) and the Suntory Toyota International Centre for Economics and Related Disciplines (STICERD) at the London School of Economics (see, for example, Atkinson, King and Sutherland (1983)). This body of research replaced the small number of hypothetical households with a large number of real ones and exploited the power and flexibility of modern microcomputers, and the availability of detailed household surveys, to achieve a great deal more sophistication in the analysis as well as a quantum leap in its credibility. Recent work in Ireland (see Callan *et al.* (1996)) and Australia (see Harding (1995)) has replicated this *second generation* microsimulation

methodology pioneered by the IFS and STICERD researchers for other countries.

However, even this second generation microsimulation approach has many limitations and these need to be borne in mind when evaluating their findings. Among other problems the approach makes extreme assumptions about the incidence of taxes, transfers and subsidies and about the impact of the induced changes in wages and incomes on labour market behaviour. Moreover, they will not be able to capture the full complexity of all potential reforms because of shortcomings in the data, and they typically make no allowance for possible macroeconomic effects of reforms.

The importance of these shortcomings will depend on the precise question being asked and the nature of the environment where the reform is being implemented. In some cases existing simulation routines (such as ESRI's SWITCH, IFS's TAXBEN2 and others) seem likely to yield reasonable approximations to the effects of reforms – for example, reforms to relatively competitive economies, which are close to revenue neutral, and which do not have sizeable effects of the marginal wages and the relative prices that agents face seem likely to be good candidates for the likes of SWITCH and TAXBEN2. However, there will be other cases where reforms are specifically intended to generate incentive effects where these non-behavioural simulation models are not likely to capture the effects of the reform very well – unless, of course, the elasticity of behaviour to changes in incentives is actually small.[2]

There are several *third generation* policy simulation models which are specifically designed to allow for the behavioural effects of the reform – indeed, these are typically motivated by a desire to measure the magnitude of such effects in order to evaluate the incentive effects of reforms.[3] The essence of these third generation models is that they embed econometric

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[2] If that were the case, however, there would not be much point in implementing reforms designed to address an unimportant problem.

[3] While much of the literature has been concerned with direct taxes and income transfer programmes there are some examples where the methodologies have been applied to expenditure patterns. An early example is Symons and Walker (1989) which is concerned with indirect tax reform.

estimates of some feature of the behaviour of agents which are of interest: typically this would be an estimated *labour supply* equation to capture the effects of income tax (or income support) reforms on work incentives. While there are many examples in the literature where econometric models have been estimated and the resulting estimates used to predict the impact of some policy change (see Hausman (1981) and Hoynes (1996) for example), there are relatively few examples where the focus has been to develop a simulation model that could easily be used to analyse any desired reform. The earliest work that relates to work incentives specifically is the simulation model known as SPAIN (Simulation Programme for the Analysis of Incentives) developed in conjunction with Elizabeth Symons exploiting much of the computer code in an early version of TAXBEN and econometric estimates provided in Blundell and Walker (1986). Examples of its use are in Symons and Walker (1986), and Blundell, Meghir, Symons and Walker (1989). The simulation routine has subsequently been developed at IFS by Alan Duncan.[4] The model we use here as an illustration is one of the labour supply of lone mothers in the UK.[5] One of the major issues is the analysis of incentives in the UK and US (see also Callan *et al.* (1995) for Ireland) is the extent to which in-work transfer programmes can be used to outweigh the disincentive effects of out-of-work transfers. Our results provide hard evidence that is encouraging: we find that the UK in-work transfer (Family Credit) is quite effective at encouraging lone mothers to work, and has little adverse effect on the incentive to work long hours. Indeed, Family Credit would be all the more effective if its low take-up rate could be improved.[6]

While such third generation work allows, in principle, quite detailed predictions of the labour market effects of reforms it is important to bear in mind that these predictions will be subject to considerable uncertainty.

[4] Now rewritten in GAUSS and referred to as SPAIN II. An example of its use can be found in Duncan (1991).

[5] See Blundell (1992) for a general review of labour supply issues, including references to other studies of the labour supply of lone mothers.

[6] The Irish Family Income Supplement is a similar programme to the UK's Family Credit and also suffers from low take-up.

There is uncertainty associated with using samples of the population which may be quite small samples in some areas of the population – for example, minority groups such as high income households, containing taxpayers who pay high marginal rates, will typically be under-represented in household survey data. In addition to this, third generation studies are based on econometric models of individual labour market behaviour and the estimates in these models are often subject to large standard errors adding further to the potential for predictions to be imprecise.

Nevertheless, it is the fact that third generation models provide hard evidence that is important. All too often, policy proposals have been based on a view of the world based more on prejudice, ignorance or hope than a detached evaluation of evidence. A recent report of the Social Security Advisory Committee (1994) concluded that:

> Most unemployed people ... are anxious to return to the
> labour force at almost any price which does not leave them
> poorer than the benefits they received while unemployed.

It is difficult to envisage a statement that is more at variance with the available empirical evidence (see Atkinson and Micklewright (1991). Despite their inability or willingness to grasp how the labour market works the report goes on, on the same page, to add that:

> ... we do not believe that this [a disregard of maintenance in
> Income Support] would have any influence on decisions
> about taking employment or remaining on income support.

That such a policy would increase the replacement rate for parents bringing up children alone because maintenance payments count as income for purposes of computing Income Support entitlement was acknowledged earlier in the report.[7]

The Committee could hardly have been more confusing in its attempt to argue in favour of its own prejudices for reform. The importance

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[7] The report referred to the decision to allow a maintenance disregard in the Family Credit (an in-work benefit) rules which would increase the net incomes of FC recipients (who, by definition, work) as *major steps forward in removing disincentives for lone parents*. See Bingley, Lanot, Symons and Walker (1995) for an evaluation of the incentive effects of child support reform.

of the third generation methodology is that it clears away such confusions and prejudice and replaces it with scientific predictions – albeit statistically imprecise ones.

This strength of the third generation methodology reveals a weakness in second generation work which is important to realise. That is, second generation work allows one not only to compute net income pre- and post-reform, which one might regard as a short-run first round effect, but also allows one to compute the marginal tax rates (or replacement rates, in the case of the unemployed) that individuals face. One might then be tempted to evaluate reforms on the basis of, not just the effects on the distribution of net incomes, but also on the number of individuals facing high marginal tax rates. The argument behind this is that the efficiency loss of a tax is proportional to the square of the tax rate. However, the argument ignores the fact that, if the labour supply behaviour of individuals were relatively sensitive to the marginal tax rate, so that disincentive effects were important, then they would not choose to be in positions where they faced high marginal rates. Indeed, if we observe that a high proportion of the population are in positions where they do face high marginal rates then this would be evidence that their behaviour was actually not very sensitive to this and therefore the disincentive effects of high marginal rates could be said to be unimportant.[8] Evaluating the incentive effect of reforms by counting the number of people facing high marginal rates is not a well-found approach.

Moreover, if it is the case that individuals put some value of their "leisure" time (which induces then to forgo more of it when the net return for doing so is higher) then the implications of reforms which change net incomes *and* change the amount of leisure that individuals consume for the well-being of individuals cannot be evaluated by net income alone. One needs to know how individuals value their time in order to know how to price the reform-induced change in the amount that they enjoy.

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[8] Second generation studies further confuse the issue since, when labour supply is sensitive to marginal changes in net wage rates they may choose to make non-marginal adjustments so as to relocate at "spikes" or convex corners in their constraints such as non-participation or the lower hours limit to FC.

Thus, a second generation approach to the analysis of tax reforms should be regarded as a stepping stone towards more sophisticated and useful work.

1.2 Labour Supply Theory

Computing the impact of tax and benefit reforms on the labour market behaviour of individuals requires a knowledge of the determinants of that behaviour. Economic *theory*[9] suggests that individuals are more likely to work longer hours the poorer they are (for example, the less unearned income they have) because the need for earned income to finance an adequate level of consumption will be correspondingly higher. Thus, one might expect women with poor working husbands to be more likely to work and more likely to work full-time as opposed to part-time than an otherwise identical woman with a richer husband (on the assumption that the wife regards her husband's earnings as her unearned income[10]). Economic theory also suggests that individuals working low hours would work longer hours if the wage increased because the return to working longer had risen; this "incentive" or *substitution* effect outweighs the effect that a higher wage has on reducing one's *need* for higher income because earnings at the existing level of hours will have risen (this latter effect is known as the *income* effect). On the other hand, individuals working long hours may find that a wage rise causes such a large increase in earnings at the existing level of hours that they would rather reduce hours – that is they would trade some of their additional income for additional "leisure". In this case the income effect outweighs the substitution effect and labour supply (hours of work) falls in response to a wage rise.

A change in unearned income induces only an income effect – a rise in unearned income will induce a fall in labour supply. A change in the wage induces both substitution and income effects. A wage rise induces a rise in labour supply via the substitution effect but a wage rise raises

[9] See Killingsworth (1983) for an exhaustive, but simple to follow, survey of the labour supply literature. Recent advances can be found in Mroz (1987) and in Blundell (1992).
[10] The implicit assumption made in the overwhelming majority of the existing literature is that household members *pool* their resources and act in a collective fashion.

income at the existing hours (unless hours are zero) and this has an income effect which tends to reduce hours. Thus the net effect depends on the relative strengths of these two effects – the income effect will be stronger at high hours. So at low hours we would expect a wage rise to raise hours, and at high hours we might expect a wage rise to induce a labour supply fall, i.e., *backward bending* labour supply.

These propositions can be derived from the assumption that individuals do the best they can given the constraints that they face (i.e., that they are *rational* – or at least not systematically irrational). More precisely, it is assumed that an individual will maximise (or, behave *as if* they maximise) a *utility function* which describes his/her preferences,[11] by choosing the level of hours of work (h) and the level of net income or consumption (y) subject to the economic constraint the individual faces that consumption expenditure equals earned plus unearned income (i.e., $y = w.h + \mu$ where w is the wage per hour and μ is the level of unearned income). The utility function describes precisely how willing the individual is to trade more leisure for less consumption and is therefore a function of both, i.e., $U = U(y,h; Z)$ and of Z, a vector of characteristics that affect preferences (such as the number and ages of dependent children in the household, say).

The solution to this problem defines the *labour supply equation*, $h = h(w,\mu; Z)$ which indicates precisely how hours of work depend on the economic factors that determine the nature of the economic constraints that individuals face, and on Z, a vector of individual characteristics that affect preferences (for example, the number and ages of dependent children).

However, the *theory* itself does not tell us any more than this. In particular, it does not tell us how *strong* these income and substitution effects might be in practice. This requires that we attempt to estimate the sizes of these effects by investigating the relationship between hours of work (and labour force participation) and the levels of the wage and unearned income for a large sample of individuals. The empirical literature

[11] More typically, a *household* utility function would be used which represents the agreed collective preferences of the household.

on labour supply is, at least for the US, voluminous. In the UK a relatively small number of studies have been conducted (see Blundell (1992) for a short survey). It is traditional to summarise the findings of labour supply studies in the form of wage and income *elasticities*, which show the effects of a 1 per cent change in wage and in unearned income, respectively, on hours of work. Typically, it is found that the labour supply elasticities for males are very small (see Pencavel (1986)) while those for women are somewhat larger.[12]

1.3 An Empirical Example

Here we illustrate the theory with empirical estimates of the labour supply of UK lone mothers. These are an interesting group because: their numbers have risen dramatically, their attachment to the labour force has fallen dramatically, and they attract much policy interest in many countries.

The difficulty with this group is that the budget constraints faced by UK lone mothers are likely to take a complicated piecewise-linear form with two important non-convexities due to the Family Credit system – one due to the notch at 24 hours interacting with the 100 per cent tax faced by those on Income Support, and one arising from eligibility ceasing as earnings rise.[13] There are severe difficulties associated with estimating a model that allows for the possibility of continuous hours substitution[14] in

[12] However, recent work suggests that the larger elasticity for women arises partly because of the effect of wages and income on labour force participation rather than on hours of work for participants. Methods that allow for economic variables to have different effects on hours than on participation tend to have smaller elasticities compared to methods which restrict participation and hours to have the same responsiveness to economic variables. See Blundell (1992) and Mroz (1987).

[13] Moreover, we find strong evidence of non-convexity in the *gross* budget constraint induced by a marked differential between the wages of full- and part-time workers.

[14] See MaCurdy *et al.* (1990) for an approach based on a quadratic approximation of the budget constraint. However, the possibility of finding a suitable continuous approximation to the constraint faced by UK lone mothers is remote. Blundell *et al.* (1992) take another approach, sidestepping the problem by a "deep selection" of high earning women, correcting for the resultant bias using some reduced form. The weakness of this approach is the absence of valid exclusion restrictions to achieve identification.

the face of such complex budget constraints. Our approach follows much of the literature on simultaneous labour supply and programme participation modelling and approximates the continuous choice with a choice among discrete alternatives. Each alternative is characterised by some specific hours level and individuals choose between these alternatives. Though obviously an approximation, one could argue that choice between discrete hours offers is an empirical regularity, and modelling hours as a continuous choice may, in fact, be a mis-specification.

The model applied here is an extension to the *Random Utility Model* introduced by Hausman and Wise (1978) and is detailed in Bingley and Walker (1996). Labour market behaviour is driven, in our modelling, by the level of net income corresponding to each labour market state.[15] The estimates allow us to compute probabilities of being in each labour market state for each individual, which then allow us to evaluate reforms by computing these probabilities pre- and post-reform.

In order to address the question of the effects of economic opportunities on labour market behaviour we need to compute exactly what these opportunities might be. We use predicted gross wages to generate income levels at each labour market state via a version of the IFS tax/benefit program which also computed out-of-work income. The essential structure of the model is that the probability of choosing a position is a cumulative Normal transformation of the utility *differences* between labour market states – and these, in turn, are assumed to be a linear function of the income differences. In contrast to all of the existing published work we also allow for there to be non-takeup of Family Credit

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[15] Since we only observe the net income for the *actual* observed labour market state for any one individual we need to introduce a model of the determination of income that allows us to predict income in other states. Thus, we run separate wage equations for full-time and part-time workers, since experience has shown that the responsiveness of wages to its determinants is different for the two kind of jobs. However, this requires that we correct our wage modelling for the *selection bias* associated with individuals choosing the job type according to their comparative advantage. We do this with a bivariate probit extension to the usual Heckman selectivity model.

and for non-workers to be involuntary unemployed as well as voluntary non-participants.

We approximate the budget constraint by just four discrete points which we think of as labour market non-participation (NP), part-time work (PT) and full-time (FT) work[16] where part-time workers may choose to participate in FC (PT(1)) or not (PT(0)). Since FC entitlement at zero hours is zero and is typically small at full-time hours, and since the participation rates for IS and HB are close to 100 per cent for lone parents we assume that FC participation is the only welfare participation issue, and even then only at the part-time position.

The Family Expenditure Survey (FES) asks those with zero hours in the labour market whether they are actively looking for a job and we use this information to discriminate between voluntary non-participation and involuntary unemployment. This is important because individuals who are involuntary unemployed are not observed to be in their most preferred state, and must be classified appropriately in a choice model. This group is assumed to reveal that some positive hours state is preferred to zero. Individuals observed in any positive hours labour market state are assumed to prefer their observed state to all alternatives *and* are not rationed in exercising this preference.

Selected results are given in Table 1.1.[17] PT(0) is part-time with FC non-participation, PT(1) is part-time work with FC participation. The maintained hypothesis is that individuals know what their budget constraints look like. Despite the importance of this assumption, it has proved difficult to test and attempts to allow for it have been made in the

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[16] We define these as: usual weekly hours less than 15, between 15 and 34, and 35 or greater, respectively. We then compute their incomes at zero hours, 24 hours and 40 hours. An important criticism of discrete choice modelling is the arbitrary nature of the definition of the alternatives. Sensitivity of the estimates to different definitions of what constitutes part-time and full-time was tested. The parameters were not significantly affected by the definition of part-time but the full-time criteria of 35 hours is obviously more crucial since increasing this brings the "full-time" hours peak into the part-time definition.

[17] Full estimates are given in Bingley and Walker (1996).

simplest of cases. Thus, it is important to bear these points in mind when interpreting the parameters.

Indeed, leaving these issues aside, the interpretation of the parameters is less than transparent since they tell us about the impact of characteristics on the probability of choosing one state rather than the default (of voluntary non-participation). Thus the constant terms tell us what the utility *rise* would be of a move to voluntary non-participation for the default individual, while the coefficients on the characteristics tell us how different individuals depart from this default.[18] Thus, denoting utility as $U(y,h,PP)$ where y is income, h is hours of work, and PP is an indicator of FC programme participation, it is interesting to derive the utility difference associated with FC programme participation as

$$U(y,PT,1) - U(y,PT,0) = [U(y,PT,1) - U(y,NP,0)] - [U(y,PT,0) - U(y,NP,0)]$$

which for the default individual is 0.274 (=0.732-0.458). In order to put some perspective on this figure we need to compare it with the utility gain associated with an additional pound on income (the coefficient on Y in Table 1.1 divided by 100) which is estimated to be 0.077. Thus, we can infer that the utility loss associated with participating in FC is, for given income, the same as the utility loss associated with a reduction in income of £3.56 (i.e., 0.274/0.077) which can be thought of as psychic (stigma) costs or real (transaction) costs. The association between low take-up probabilities and low entitlements is generating this result and our interpretation is consistent with the maintained hypothesis that individuals do not suffer from any imperfect information with respect to their budget sets. If imperfect information were the problem behind low take-up we would not expect a correlation with the level of entitlement (unless imperfect information is endogenous in which case it begins to sound like a transactions costs explanation). We can compute this figure for all individuals in the data and we find that the average utility loss from FC participation is £5.91 (s.d. = 1.47).

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[18] More than the usual degree of heroism is required to make welfare inferences from the estimates. In particular, in addition to cardinal comparability we maintain that utility is linear in income.

We can also use the estimates to infer the utility loss associated with working. That is, we can compute the loss associated with part-time work as $U(y,PT,0) - U(y,NP,0)$ which, again by comparing it with the utility gain associated with an additional pound of income, implies that part-time work reduces utility by an average of £16.34 (s.d. = 2.77). Similarly, full-time work reduces utility by £26.93 (s.d. = 4.86), and the average utility loss from rationing is £10.67 (s.d. = 3.50). Note that although the standard deviations around these estimated means are high the distributions are highly skewed and there are, in fact, no instances where the value falls to zero.

Table 1.1: *Labour Supply, Family Credit Participation and Rationing Estimates*

Variable	Choice						Ration	
	$PT(0) \rightarrow NP$		$PT(1) \rightarrow NP$		$FT \rightarrow NP$			
Constant	0.458	(0.218)	0.732	(0.062)	0.041	(0.345)	-0.818	(0.300)
Child 0-4	0.934	(0.072)	1.557	(0.223)	1.865	(0.296)	0.427	(0.057)
Child 5-10	0.296	(0.048)	0.496	(0.108)	1.028	(0.165)	0.199	(0.038)
Regional unemploy-ment							0.233	(0.116)
$\bar{\gamma}$			7.687	(0.944)				
$\hat{\gamma}$			1.812	(0.207)				
Observations	4248							
Mean log L	-0.95853							

Thus the estimates suggest that the economic framework appears to be broadly supported by the data in that there is a utility loss associated with FC programme participation, there is a gain associated with additional income, and there is a loss associated with additional work.

Our results suggest that FC possesses the two most desirable features of an in-work transfer programme – it strongly encourages individuals to work, and it has little adverse effect on the incentives of those already in work. Thus it is interesting to see if the extent of FC support is set at the most appropriate level. Thus we simulate the impact of changes in the level of the Maximum Family Credit (MFC) (just for this sample of lone mothers): when the MFC is set to zero all FC entitlements

disappear, and as MFC increases more and more individuals become entitled and the levels of entitlement rise. In Figure 1.1 we show the effect of variations in the MFC on the proportion of individuals in each category.

Doubling the MFC effectively: reduces voluntary non-participation by about 10 percentage points from a base of 66.1 per cent, increases the involuntary unemployed (because more individuals wish to work the higher is FC), reduces PT workers who do not participate in FC (PT(0)) because participation is more attractive the greater is the level of entitlement, increases PT(1) for the same reason, and FT also rises (even more so than PT(1)) because of greater income at FT hours (as well as at PT hours).[19] Eliminating FC by setting MFC to zero has the opposite effects although not symmetrically so.

One might hope that, by reducing expenditure on IS, increasing the MFC would be relatively inexpensive. Figure 1.2 shows that FC expenditure rises (falls) steeply as MFC rises from its existing level and that this offsets the additional cost by around 40 per cent through rising income tax and NI and falling IS. Note that abolishing FC altogether reduces FC expenditure to zero from its current (1992 on lone parents) cost of approximately £350m. However, the impact of reducing the MFC on total government expenditure (tax and NI less benefits payments) leads to a reduction in total expenditure as MFC falls to around £35 per week but that government expenditure *rises* as MFC falls below this point. The reason for this is that a small reduction in MFC causes a large rise in non-participation and hence additional Income Support expenditure, while a larger drop causes full-time work to begin to rise and FC participation falls steeply as entitlements get very small.

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[19] In simulations we assume FC participation at full time. This is consistent with the estimation since full-time FC entitlements are found to be relatively small in the data.

Figure 1.1: *Simulated Labour Market and Programme Participation Effects of Variations in Maximum Family Credit*

Labour Supply Change
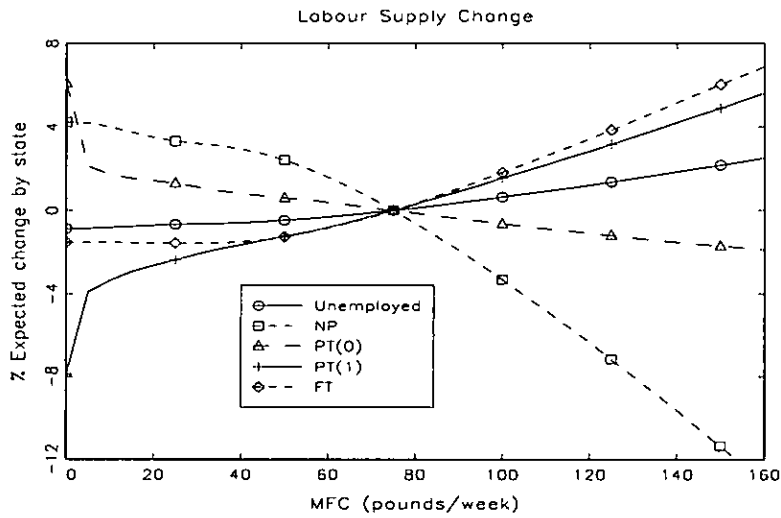
Figure 1.2: *Simulated Effects of Variations in Maximum Family Credit on Government Expenditure*

Government Expenditure Change
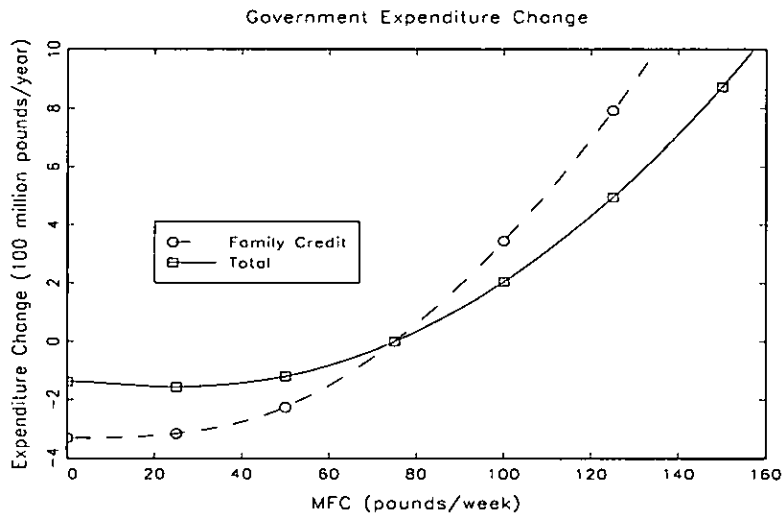
1.4 Conclusion

This paper was motivated by the desire to demonstrate the power of third generation methods for analysing tax and welfare reforms. The essential ingredient is some model of labour market behaviour. The results are extremely important for public policy and could only have been demonstrated with third generation methods.

There are two important findings. First, we show that an increase in FC has a large impact on the probability of taking up part-time work and some impact on wanting (but not being able) to participate *but* essentially no adverse effect on the probability of working full-time. Thus, FC seems to contribute to overcoming the unemployment trap without inducing a serious poverty trap problem for those already in work. Second, however, we find evidence of not inconsiderable "stigma" (and/or other costs) which implies that FC is not as effective at countering the disincentive effect of the Income Support programme or at countering poverty amongst the working poor as it might otherwise. If it were possible to simply eliminate the costs associated with claiming FC this would have an important impact on the labour force non-participation rate for lone mothers and would imply large savings in government expenditure on Income Support for non-working lone mothers.

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Chapter 2

SWITCH: THE ESRI TAX-BENEFIT MODEL

Tim Callan

2.1 Introduction

The publication of a report documenting *SWITCH,* the ESRI tax-benefit model (Callan, O'Donoghue and O'Neill, 1996) marked the culmination of a long-term programme of work on microsimulation modelling at the Institute. The release of the model software to academic users and government departments represented a new phase of the ESRI model's development. This chapter takes stock of the current state of the model - used in new ways in later chapters in this volume - and outlines potential future developments, some of which are already under way as part of a new research programme.

The need for a tax-benefit model was identified at an early stage in the design of the ESRI Project on Income Distribution, Poverty and Usage of State Services. Section 2.2 briefly summarises the key reasons why a tax-benefit model is needed. The ESRI's 1987 Survey included detailed information on incomes, family composition, labour market participation, and social welfare receipts designed to allow the construction of a tax-benefit model. An initial project, focusing primarily on taxation modelling, was co-funded by the Foundation for Fiscal Studies and the ESRI. A programme of work leading to the construction of a full-scale tax and benefit model was then sponsored by the Department of Social Welfare, and it is this model which is described in Callan *et al.* (1996). An outline of the model structure is given in Section 2.3, and an illustration of its use in exploring alternative forms of tax cut is given in Section 2.4.

Section 2.5 deals with future developments. A new model, based on data gathered in the 1994 *Living in Ireland* Survey, is currently being constructed. The redesigned model will have greater capabilities, and substantially greater flexibility than the current version. There is potential,

too, for extensions to the new model which could incorporate estimation and simulation of behavioural responses, along the lines discussed in the previous chapter (Walker, 1996).

2.2 *The Need for a Tax-benefit Model*

During the past 20 years, few areas of public policy have received such a high and sustained level of interest as the reform of the income tax and social welfare systems. However, much of the debate on tax and welfare reforms has had to proceed on the basis of rather restricted analyses. Usually, these analyses have looked at the effects of tax and social welfare policy changes on a small number of supposedly "typical" families. While this approach can help to understand the nature of a policy change, it can also be highly misleading. The most commonly analysed "typical" family at Budget time is a one-earner couple, with 2 children, taxed under PAYE. Less than 1 family in 20 actually falls into this category, and those who do differ widely in terms of income, housing tenure and other characteristics relevant to their social welfare entitlements and income tax liabilities.

Concentration on the effects of a policy change on a small number of hypothetical households cannot provide an overall picture of the gains and losses associated with complex reform packages; and by concentrating on a small number of supposedly "typical" families may lead to the neglect of effects which are important for significant groups. Carefully chosen hypothetical examples may be constructed "to prove almost anything" (Johnson, Stark and Webb, 1990).

Microsimulation models, *simulate* the tax and benefit position of a large-scale sample of families, using *micro*-level data on individual and family incomes and other characteristics. These microsimulation models have a number of advantages. A tax-benefit model based on a large-scale representative sample of the population automatically takes account of the wide diversity of circumstances in the population; can help to identify the overall pattern of gains and losses; and can help to assess the impact of policy changes on financial incentives to work.

2.3 An Overview of SWITCH, the ESRI Tax-benefit Model

SWITCH, a model for Simulating Welfare and Income Tax CHanges, is the tax-benefit model constructed by the ESRI, as part of the programme of research sponsored by the Department of Social Welfare. It simulates the amounts of social welfare entitlements and tax liabilities at the individual and family level for a large scale national sample of Irish households on a "static" basis, i.e., it does not incorporate behavioural responses to the policy change. The usefulness of static microsimulation models in analysing tax and social security policy has been amply demonstrated by international experience. Tax-benefit models have been constructed for most OECD countries, with the US and the UK having a particularly rich experience in their construction and use. (For a recent cross-country survey, see Sutherland, 1995.) In many instances, models of this type are the only way in which aggregate costing of complex changes to taxes and benefits can be derived. But the more fundamental advantage of such models is that they permit a representative picture to be constructed of the overall effects of a policy change, from which it is possible to identify the characteristics of gainers and losers from a policy change, the overall impact of a change on the distribution of income, and the impact on financial incentives to work.

A tax-benefit model requires a dataset containing detailed information on the characteristics relevant to taxes and benefits of a large-scale representative sample of individuals and households. The database for SWITCH, the ESRI tax-benefit model, comes from the ESRI's 1987 Survey of Income Distribution, Poverty and Usage of State Services. The 1987 Survey contains information on the incomes, labour market participation and other relevant characteristics of almost 3,300 households, containing almost 8,500 adults and over 4,600 children. While the original survey data refer to 1987, these data have been uprated to take into account the most important changes since that date, including increases in employment and in registered unemployment, the fall in average family size, growth in incomes, and, of course, changes in income tax and social welfare policies. The procedures used in uprating the data are described in more detail in Callan, O'Donoghue and O'Neill (1996, Chapter 3).

The tax-benefit model groups these individuals into almost 6,000 "tax units" - a sub-household level comprising single persons or married couples, together with their dependent children, if any.[1] Given the structure of the current income tax and social welfare systems, this "family unit" or "tax unit" is fundamental to the operation of the tax/transfer system.

The other main component of a tax-benefit model is a suite of programmes which calculate the social welfare entitlements and tax liabilities of the sample households. Figure 1.1 gives an overview of how these programmes work. The operations performed by the programme can be broken down into three main stages. The first stage involves setting the policy parameters for the baseline simulation and for the policy change of interest. In most cases, an up-to-date baseline simulation, setting policy parameters such as social welfare rates, tax rates and tax bands equal to their current values is of greatest interest. The reform policy could be a simple change to income tax rates and bands, or a more complex package involving substantial changes to the income tax and social welfare systems.

The second stage is to read in the information referring to all the tax units in an individual household, and calculate the tax-benefit position for each tax unit under both the baseline and reform policies. As shown in Figure 1.1, this involves reading the household data; and then simulating the social welfare entitlements and tax liabilities for the tax units in that household, first under the baseline policy and then under the reform policy. This calculation yields the level of disposable income for each tax unit in the household and the marginal income tax rate it faces for each policy regime. At this stage, the model also calculates the *changes* which are brought about by the policy change of interest (the gain or loss in disposable income for each tax unit; and the increase or decrease in the marginal tax rate faced by each tax unit). These detailed calculations are repeated for each tax unit in the sample.

[1] Children aged 15 or under, or children of any age who are in full-time education.

Figure 2.1: *Structure of the ESRI Tax-benefit Model*

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┌─────────────────┐              ┌─────────────────┐
│     Specify     │              │     Specify     │
│ baseline policy │              │  reform policy  │
└─────────────────┘              └─────────────────┘
          ↘                        ↙
              ┌──────────────┐
      ┌───────│     Read     │
      │       │  household   │
      │       │     data     │
      │       └──────────────┘
      │           ↙        ↘
      │  ┌──────────────────┐ ┌──────────────────┐
      │  │ Calculate outcome│ │ Calculate outcome│
      │  │  under baseline  │ │   under reform   │
      │  └──────────────────┘ └──────────────────┘
      │            ↘              ↙
      │        ┌──────────────┐
      └────────│   Compare    │
               │   outcomes   │
               └──────────────┘
                      ↓
               ┌──────────────┐
               │   Produce    │
               │    tables    │
               └──────────────┘
```
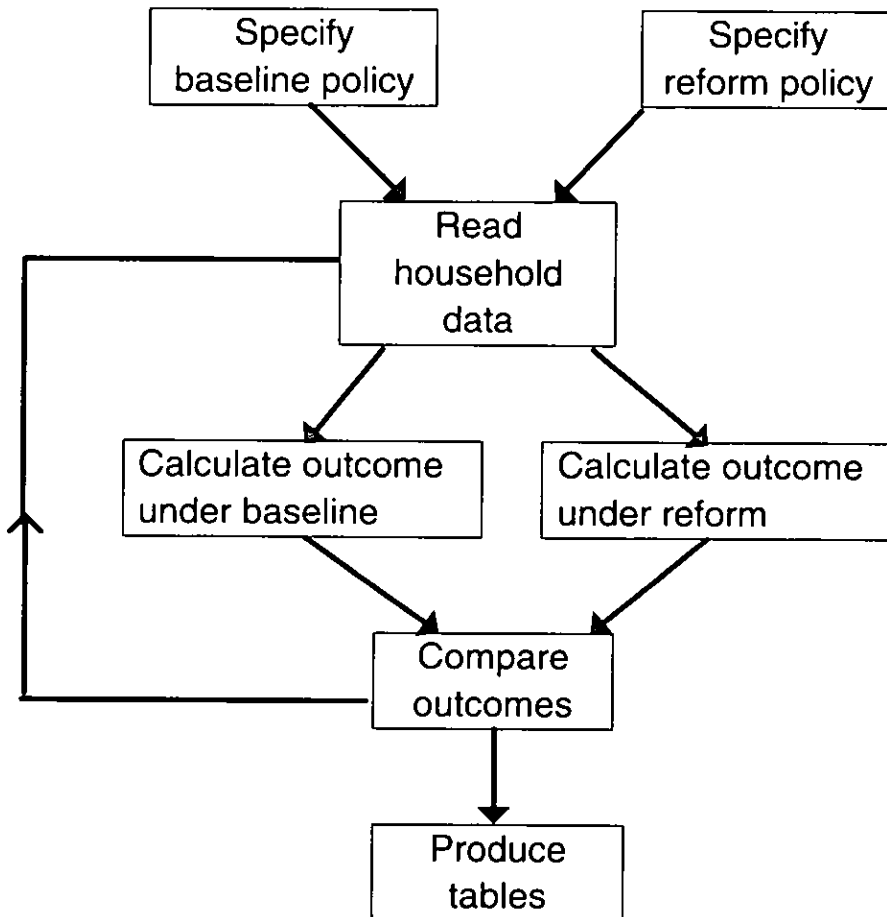
The final stage is to summarise the detailed information now available for each tax unit in order to show the pattern of gains and losses across family types and across the income distribution, e.g., the average gain or loss in disposable income classified by ranges of disposable income under the baseline policy; the change in marginal tax rate classified by the initial marginal tax rate; or the aggregate net cost to the exchequer of the policy change, given by aggregating the gains in disposable income across all tax units.

The information gathered in the survey is sufficient to predict or "model" current receipt of most social welfare benefits.[2] For social insurance (contributory) benefits, we model the amount of the payment, which depends on family circumstances including the earnings of a spouse. For social assistance (non-contributory) benefits, the model uses information from the survey to establish whether the individual falls into a category covered by a particular scheme; and then whether the individual is entitled to any payment, based on the means test applicable to that scheme or broad group of schemes. Similarly, information gathered in the survey is used to estimate gross income for tax purposes, allowances depending on age, employment status and family situation, deductions for mortgage interest and medical insurance premia. This allows simulation of income tax liabilities for each tax unit. PRSI contributions are also modelled, distinguishing between private sector employees, public sector employees on the modified rate, and the self-employed.

The usefulness of the model depends largely on the representativeness of the data which underlie it, and the accuracy of the model's procedures in capturing the key features of the tax and social welfare systems. A battery of checks and cross-checks on the 1987 survey (see Callan, Nolan *et al.*, 1989) has already shown that the database is generally representative of the national situation. More specific investigations (Callan, 1991) have attested to the model's capacity to represent the income tax base and the broad social welfare client population in 1987 terms, despite underrepresentation of some of the smaller schemes. The size of the sample (about 3,300 households) does, of course, impose limits on the the analysis of policy changes to small schemes, or policy changes which affect only small groups of people. The fact that the data are drawn from 1987 is a further limitation, but Callan, O'Donoghue and O'Neill (1996, Chapter 3) outline the procedures used to adjust or "uprate" the data to represent the 1994 situation, and present some additional checks of the model's representativeness. These suggest that it is

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[2] It is not sufficient to predict receipts of social welfare payments during the past year; for this reason, current income rather than estimated annual income is at the heart of the model.

reasonable to continue to use the model to investigate incentive and distributional issues, while cross-checking aggregate costs of policy changes against official estimates.

The trade-offs which are at the heart of many policy debates can be explored using this uprated model. The capabilities of the model include:

- Estimation of the net budgetary cost of packages of tax and welfare changes. Alternative reform packages with the same budgetary cost can therefore be constructed.

- Estimation of the pattern of gains and losses from a policy change. The numbers of families gaining and losing and the size of their gains and losses can be estimated, and the distribution of gains and losses across family types and income levels can be investigated.

- Investigation of the effects of a policy change on work incentives, focusing in particular on the impact on marginal tax rates for employees, and, with some additional modelling effort, on replacement rates and average effective tax rates for employees, the unemployed, and those not in the paid labour force.

Model results can be tabulated to show the patterns of gains and losses over the income distribution, or by family type, and to give an indication of the changes in marginal tax rates over the working population.[3] The policy change under consideration could be a simple change in one tax rate; or a complex programme of tax and welfare reform. The model can be used to explore long-term packages of reforms, and then examine alternative paths towards the selected long-term objective.

A more detailed description of the model database and model structure, together with the validation and uprating of the model are given in Callan, O'Donoghue and O'Neill (1996, Chapters 2 and 3). But the power of the model is perhaps best illustrated by considering some of the

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[3] The model can also be used to explore the impact of policy changes on replacement rates for the unemployed, although this cannot be undertaken as part of the user-friendly package.

uses to which it has been put. To date, *SWITCH* has been used to explore policy options such as a shift away from child dependant additions in the social welfare code towards a (taxable or non-taxable) child benefit payment (Callan, O'Donoghue and O'Neill, 1994); reforms to the Family Income Supplement scheme, or its replacement by a Child Benefit Supplement (Callan, O'Neill and O'Donoghue, 1995); and the evolution of work incentives facing the unemployed (Callan, Nolan and O'Donoghue, 1996). In the next section, we give a further illustration of how the model can be used.

2.4 An Illustration: Alternative Forms of Tax Cut

Tax rate cuts, band-widening and allowance increases can, potentially, have quite different effects on the incentives facing particular groups and on the distribution of gains from the tax cuts over the income distribution. When, as in recent years, tax cuts are being contemplated, budgetary policy must decide on what mix of these or other routes will be used. In recent years, there have been some quite substantial changes in each of these areas: the standard and top tax rates have fallen from 35 and 58 per cent to 27 and 48 per cent respectively; the standard rate tax band has been substantially widened; but personal allowances have not kept pace with earnings or with price inflation in the 1987 to 1994 period. A detailed analysis of the impact of policy changes over that period will be the subject of another report. Here we simply illustrate some of the differences between alternative forms of tax cuts, each involving similar total cost to the exchequer. The analysis is undertaken from a baseline which represents the 1994/5 situation.

The model suggests that a cut in the standard rate of tax of 2 percentage points would cost in the region of £140m per annum on a full year basis.[4] Alternatively, it is estimated that such a sum could finance an increase in the personal allowance of approximately £350, or a widening of the standard rate band by roughly £1,400.

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[4] This is in line with official estimates, as discussed in Chapter 3.

Figure 2.2: *Distributive Impact of Alternative Tax Cuts*
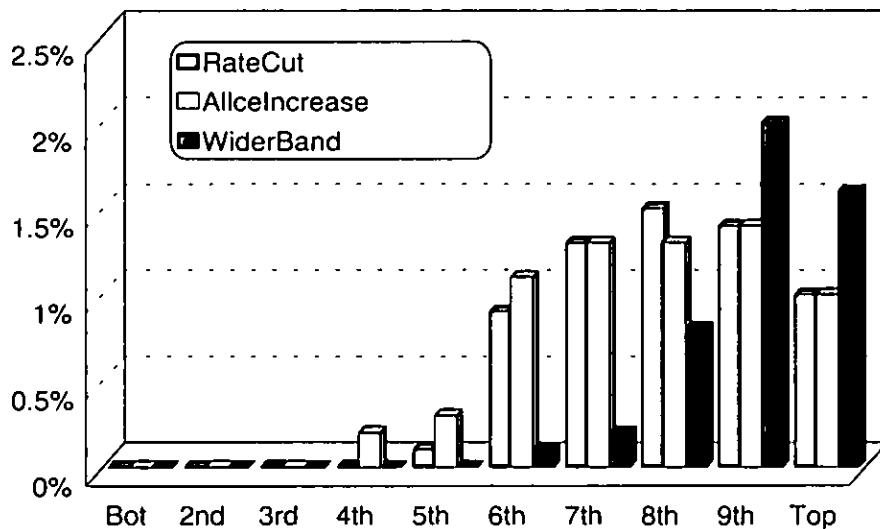
Figure 2.2 illustrates the distributive impact of these alternative forms of tax cut. It shows the percentage change in disposable income for tax units ranked from the lowest to the highest incomes, adjusted for family size and composition, in ten groups of approximately equal size (deciles). The lowest income groups see little or no change in their income,[5] as most tax units at these income levels are below the income tax threshold. The middle income groups (deciles 4 to 6) gain more from an increase in personal allowances than from either a rate cut or a widening of the band. For both rate cuts and allowance increases the greatest proportionate gains are in the upper middle reaches of the income distribution (particularly deciles 6 to 9) with substantial proportionate gains also at the top.[6] Widening of the standard rate band is of greatest benefit to those towards the top of the

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[5] Some people - mainly young, unemployed and living with their parents - could actually lose from a tax cut: the results above abstract from this factor, which is dealt with in Chapter 4 of Callan, O'Donoghue and O'Neill (1996).

[6] Greater differences in the distributive impact of a standard rate cut as against allowance increases have been found in the UK; an investigation of the reasons for this would be of interest, but is not within our scope here.

income distribution. A widening of the standard rate band gives no immediate benefit to those who are already standard rate taxpayers (though it may help to avoid increases in income moving them into the top rate band). Its immediate impact is on those who are top rate taxpayers, who are concentrated in the top third, and particularly in the top fifth of the income distribution. For those who remain top rate taxpayers, the absolute amount of the gain from the widening of the band is a fixed amount; this explains why the greatest proportionate increase does not occur at the very top of the income distribution, but among those close to the top (in the ninth decile of income).

Some indication of the differences in incentive impact can be gleaned from the model's estimates of changes in marginal tax rates. The standard rate cut leads to a fall in the marginal tax rate of 2 percentage points for over 400,000 tax units; a further 20,000 see a more substantial fall as they move off the marginal relief rate of 40 per cent on to the new standard rate of 25 per cent. An allowance increase sees a fall of more than 10 percentage points for over 60,000 tax units: some top rate taxpayers are drawn onto the standard rate, while others, at lower incomes, are taken out of the income tax net or move off the marginal relief rate and on to the standard rate. A widening of the standard rate band would see over 70,000 tax units move from the top rate of tax to the standard rate of tax - a fall of 13 percentage points.

Our concern here is not to attempt a comprehensive evaluation of income tax strategy. But the illustrative figures given above indicate how the model can be used to gain insights into the relative advantages and disadvantages of different approaches. The model has also been developed to allow analysis of the impacts of policy changes on replacement rates (see, for example, Callan, Nolan and O'Donoghue (1996); and the recent report of the Expert Working Group on the Integration of the Income Tax and Social Welfare Systems (1996)). Taken together, such insights can help to inform choices as to the long-term structure of the income tax system, and the short- and medium-term adjustments which will move the system in the desired direction.

2.5 Current and Future Developments

SWITCH now constitutes a valuable tool in the analysis of budgetary options for income tax, PRSI and social welfare changes. It allows analysis of long-term strategic changes, and possible phasing-in of changes over a number of years. In order to realise the full potential of the model for policy analysis within government departments and other public sector bodies, and to allow these bodies to understand and interpret results generated by independent users of the model, a *Microsimulation Forum* has been established. This is a group comprising government departments and institutions with a central interest in tax and social welfare policy, including the Departments of Finance, Social Welfare, Enterprise and Employment, as well as the Revenue Comissioners, the Combat Poverty Agency and the ESRI.

A new model is currently being developed. It will use the 1994 data gathered as part of the *Living in Ireland* Survey - the first wave of the Irish element of the European Household Panel Survey. This work forms part of a programme of research sponsored by the Department of Social Welfare and the Combat Poverty Agency. The redevelopment of the model involves much more than simply updating the data on which it is based. Many enhancements to the power and flexibility of the model to undertake policy-relevant analyses are also being developed. For example, it will be possible to analyse the impact of policy changes on the effective marginal tax rates facing different groups in the population and on the "replacement rates" - a measure of the balance between incomes in and out of work - facing employees and the unemployed. A number of applications of the model-based analysis will be undertaken as the model's capacity is developed. These will begin with an examination of the rate of take-up for the Family Income Supplement; and will include an assessment of policy changes in the 1987 to 1994 period.

Some work on econometric estimation of the labour supply decisions of married women was undertaken using the 1987 data (Callan and Farrell, 1991). Callan and Van Soest (1996) present a more extended and sophisticated analysis. This is based on a simplified representation of the tax-benefit system, which captures some of the key features relevant to

labour supply decisions - a high withdrawal rate on benefit income, and the high effective tax rates on second earners which arise from the income-splitting provisions of the tax code. It also uses the type of information gathered on work search for ILO definitions of unemployment to distinguish between those who are involuntarily unemployed - or "rationed" at zero hours, as in Walker (1996) - and those who choose not to seek work. Married women's labour supply decisions are found to be more sensitive than those of their husbands to wage rates, in line with findings elsewhere. A revenue-neutral change in the tax structure, involving greater independence of taxation between husbands and wives, is found to have a positive effect on married women's labour supply which greatly outweighs any negative effect on the labour supply of married men.

The 1994 data and model have the potential to support more in-depth analysis of labour supply responses than was undertaken with the 1987 data. A full-scale "third generation" model, along the lines outlined by Walker (1996), is an ambitious target, but something close to this could be achieved, given the type of data gathered in the *Living in Ireland* surveys, and the flexibility of the new model structures.

Some of the chapters which follow will show how Irish and UK models can be used, with some adjustments, to provide useful comparative analyses. But there can be considerable difficulties in widening the comparisons to include other countries or in deepening the analysis to deal with some obstacles which are currently "side-stepped" e.g., the nature of housing supports in Ireland and the UK.[7] A proposed European-wide tax-benefit model (EUROMOD) aims to overcome many of these problems. The design of EUROMOD - a tax-benefit model for most EU countries - would take these inter-country comparability issues into account. This would involve a degree of harmonisation of data, of methods of describing taxes and benefits, and of modelling structures. The end result would be a model which would greatly facilitate cross-country comparative modelling, and would, uniquely, allow an exploration of the impact of common policy changes (e.g., some form of common minimum income standard) on a

[7] See Callan and Sutherland (1997) and Pearson and Whitehouse (1996) for further details on the difficulties involved in widening and deepening comparisons.

Europe-wide basis. A feasibility study for EUROMOD is currently under way, including the assembly of information on data and policy structures, and the construction of a prototype model for a small selection of countries. A conference in April 1997 will report on the results of this work, and will assess the potential benefits of EUROMOD as an analytic tool.

The wider release of the current version of *SWITCH*, and the planned future developments to its capabilities, mean that the ESRI tax-benefit model can help to move the policy debate on income tax and social welfare issues onto a new plane. Proposals can be developed, investigated and refined quite rapidly using the model. Information on the cost, distributive and incentive implications of alternative reforms can complement existing analyses of policy changes to provide a much fuller picture of the likely impact of a reform package. Model-based analyses can be of enormous assistance in analysing the strategic choices for the income tax and social welfare systems, and in planning the implementation of a long-term strategy. It is our hope that the potential of the model in these areas will be fully exploited by policy makers and by academic analysts; and that future developments will enhance the contribution made by the ESRI model to the policy debate.

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Chapter 3

MAKING WORK PAY: THE OECD STUDY OF TAXES, BENEFITS, EMPLOYMENT AND UNEMPLOYMENT

Mark Pearson and Edward Whitehouse[1]

3.1 Introduction

Taxes and benefits are the most direct way in which governments can affect the financial incentives for individuals to work and for employers to hire them. But current tax and benefit systems owe many of their features to a bygone era and have failed to keep pace with recent changes in the labour market. The OECD *Jobs Study* highlighted tax and benefit systems as a cause of some labour market problems. Taxes increase the costs of employing workers, particularly low-wage workers; and benefit systems may leave little incentive to work, especially for low-wage families.

Restructuring tax and benefit systems to improve work incentives must be consistent with the fundamental purpose of the systems. Taxes must raise revenues and benefits provide for those with insufficient incomes. Nearly all reforms which "make work pay" involve trade-offs between these fundamental objectives.

Financial incentives to work are important for three reasons. Although many people will seek work even if they would get more money receiving benefits, still more will seek work when there is a financial incentive to do so. Second, taking up work involves costs for travel, work clothing and equipment and possibly child care. If work does not pay, those with very few resources may not be able to afford to undertake it. Employers will not offer jobs at wages which they know no job-seeker could accept without being worse off than they would be were they to

remain unemployed. Finally, empirical studies suggest financial incentives
to work matter (see OECD (1994*b*)). This is not to deny the importance of
other factors which influence whether people work or not. A low-paid job
is often the first step on the ladder towards higher earnings or there may be
non-pecuniary, for example, social benefits to working.

Section 3.2 outlines some of the main changes in the labour market
since unemployment benefit schemes first appeared in something like their
modern form. Section 3.3 considers in more detail the level of incomes
available to those without jobs relative to the incomes they might receive
were they to be employed, and notes some recent policy changes to
systems of income support. Section 3.4 looks at the rate at which benefits
are reduced and taxes increase as family incomes rise. Particular attention is
given to two areas where there has recently been a great deal of interest
among policy makers: employment conditional tax credits or benefits, and
the interactions of the tax and benefit system with part-time work.
Conclusions are drawn together in Section 3.5.

3.2 Taxes, Benefits and the Changing Nature of the Labour Market

The 1994 Australian White Paper recently stated, in proposing
major reforms, that

> Social Security arrangements for unemployed people still
> largely reflect the unemployment benefit system introduced
> in the 1940s, around the time of the release of the White
> Paper on Full Employment [in 1945]. (Australia, 1994,
> p. 143).

This applies with equal justification to most OECD countries; there
have been major changes to OECD labour markets since benefit systems
were first designed.

- Unemployment is at a much higher level than when unemployment
  insurance schemes were put in place after 1945.
- One-third of the unemployed are out of work for more than a year in
  around half of OECD countries. Many who lose jobs suffer extended
  bouts of unemployment and as a result exhaust their basic
  unemployment benefit entitlement.

- Youth unemployment is high and has increased in many countries. Youths have limited or no work experience: they have not contributed to insurance schemes and so are often not entitled to these benefits.
- The labour force participation of adult men has declined with many of those withdrawing on benefits for invalidity, sickness or early retirement. Female participation has grown. Two-earner couples are more common, as are lone-parent families.[2] Insuring individuals against loss of wages is less effective in ensuring adequate *family* incomes when increasing numbers of households of working age are not part of the labour force.
- Part-time work has grown in most OECD countries. Not all part-time workers have rights to insurance benefits, leaving a gap in benefit coverage.
- The dispersion of income before taxes and transfers has widened since 1980 in Australia, Japan, The Netherlands, Sweden, the United Kingdom and the United States, but in some cases tax and benefit systems have meant that changes in the distribution of disposable incomes have been small.

As working and family patterns have become more diverse, so have the types of benefits received. Although unemployment benefits are the largest single form of social expenditure directed at people below retirement age, they account for less than 25 per cent on average across the OECD.

3.3 The Unemployment Trap

The unemployment benefit system provides insurance against job loss which individuals would find extremely difficult to obtain privately. Benefits allow the unemployed to search for a job which matches their

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[2] In the United States, the proportion of "traditional" households (couples with the husband as sole earner) has declined from 70 to 20 per cent since 1940. Two-earner households have increased from 9 to 40 per cent (Hayghe, 1990). The number of lone-parent families has doubled in almost all OECD countries since the early 1970s and accounted for 15 per cent of all families with children in 1990-1991 (OECD, 1993; Ermisch, 1990; Eurostat, 1995).

abilities. Having the right people in the right jobs raises productivity and reduces the chance of them becoming unemployed in future. Although unemployment benefits can help labour markets work more effectively, they can also have negative effects. By freeing the unemployed from having to take less ideal jobs, they increase the duration of unemployment spells. They alter incentives in wage bargaining. If the financial consequences of unemployment are harsh, workers will be wary of pushing up wages and so risking their jobs. Unemployment benefits can subsidise seasonal employment patterns. Without countervailing factors, the higher benefits are relative to earnings (the so-called "replacement rate"), the higher unemployment will be.

Have unemployment benefit systems become more generous?

The OECD *Jobs Study* found that gross (before-tax) unemployment benefit entitlements relative to gross earnings increased from an OECD (unweighted) average of 16 per cent of earnings in 1961 to 29 per cent in 1991. This rise could have contributed to the increase in unemployment over that period, but long time-lags are likely before the full effects were felt.[3] Figure 3.1 updates the analysis to 1995. Governments have not cut benefits in response to high and persistent unemployment (Box 1). Indeed, the OECD-wide summary index has risen slightly since 1991, to 31 per cent in 1995.

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[3] "This comparison [between unemployment benefits and aggregate unemployment rates] suggests that, although there is not an immediate statistical link between unemployment rates and unemployment benefit entitlements, the hypothesis of a longer-term link is plausible (OECD, 1994*b*)." However, using the same data, Blondal and Pearson (1995) find that the index is also statistically linked with labour force participation. Higher benefits encourage labour force participation. Hence, there is no statistically significant effect of the index on the employment to population ratio.

Box 1
Recent changes in unemployment benefit systems and
their impact on the index of benefit entitlements

The index is an average of replacement rates, calculated at average earnings and two-thirds of average earnings, for people unemployed for one year, for 2 to 3 years and for 4 to 5 years, and for single people, married people with an employed spouse, and married people with an unemployed spouse. The index does not give an average level of *actual* unemployment benefit receipts. For example, a cut in entitlement in the fourth and fifth year of unemployment would affect very few of the actual unemployed, but would have a relatively large effect on the index. The index is, on the other hand, a good indicator of the generosity of a country's unemployment benefit system. If high benefits were paid in the first months of unemployment but nothing thereafter, most people, actual and potential recipients, would conclude that it is a less generous system than one which paid a lower level of benefit indefinitely. However, average benefit receipt would be higher in the former system than in the latter. It is also perfectly possible for changes in the benefit system to have resulted in budgetary savings while at the same time increasing the index of unemployment benefit entitlements. (For more discussion, see Annex 8a of the OECD *Jobs Study: Evidence and Explanations*, Part II, (1994).)

Some recent changes in benefit systems and their effects on the index are as follows:

Australia: A shift to independent entitlements for husband and wife and reduction in benefit withdrawal rates in 1995. Both changes make it easier for a member of the household to have some earnings without losing all benefit entitlements. Earnings are assumed to be high in the "working spouse" case in the index, so the changes have had no effect on the summary measure.

Austria: Reduction in maximum benefit levels in 1993. Minimum contribution period increased to 26 weeks in 1995.

Belgium: Recent restrictions in access to benefits and tighter policing of job search are not captured by the index.

Canada: A reduction in benefit amounts for couples in 1993.

Denmark: Extensions in the legal duration of benefit entitlements to seven years in 1994 have increased the index markedly. However, as it was relatively easy in the 1980s to re-qualify for the benefit through public work and training programmes, the *de jure* change has appeared to increase the generosity of the scheme whereas the *de facto* outcome may have been to reduce it.

Finland: Means-testing of the basic unemployment allowance was ended in 1994. The Labour Market Support benefit introduced in 1994 has increased gross benefit entitlement.

France: The level of benefit declines the longer someone is unemployed. Benefit reductions are now smaller, but more frequent, than previously. The system is more generous in the second year of unemployment, less generous in years 4 and 5 of unemployment than previously. But the net effect of these changes has been to raise the index slightly.

Germany: Insurance benefit was reduced in 1993 by 3 percentage points for single people and 1 percentage point for couples.

Greece: Eligibility conditions changed making it easier to get longer UI benefits in 1989 and UA benefit entitlement was extended in 1991, increasing the index.

Ireland: Benefits were increased more rapidly than inflation until 1993; in 1995 the earnings-related element was abolished.

Italy: In 1991, a mobility benefit was introduced for certain categories of the unemployed. Mobility benefit is included in the OECD index, unlike the benefit for short-time working, the Cassa Integrazione Guadagni Straordinaria, which is not included because its recipients are not formally counted as unemployed. The basic unemployment benefit was increased in stages to 30 per cent and then to 40 per cent of average earnings over the previous three years. An average of the mobility benefit and the ordinary UI benefit, based on the number of recipients of these two benefits has been used to compute the index post-1990.

The Netherlands: Conditions for receipt of earnings-related insurance benefits were tightened in 1993. The work test in social assistance was tightened in 1996.

New Zealand: In 1991, benefits were reduced (for example, by 25 per cent for young single adults). Tests and sanctions were tightened and waiting periods increased.

Portugal: Increased benefit entitlement.

Spain: A reform in 1993 altered contribution periods and rate structures. The index decreased.

Sweden: Unemployment insurance was reduced first to 80 per cent of previous earnings, and more recently to 75 per cent.

Switzerland: Duration increased in 1993 with a small cut in the replacement rate. The overall effect of the changes has been to increase the index.

The index does not capture all changes in unemployment benefit generosity and (its limitations are discussed in detail in OECD, 1994*b*). In particular, it focuses on changes in benefit levels and durations, not on eligibility or administrative controls on job-search requirements.

Typical net replacement rates

Gross replacement rates of 30 to 40 per cent (Figure 3.1) would suggest that benefit systems do not impose large work disincentives. But this conclusion is premature. Taxation, including social security contributions, benefits to children, social assistance and housing benefits, are not included in Figure 3.1, yet can have large impacts on the level of replacement rates. Table 3.1 presents a comparison of gross and net (after-tax) replacement rates which different families might face in different circumstances. Columns 1 and 2 are similar to two of the three cases which

make up the index of Figure 3.1;[4] the other columns are refinements of that measure. (See OECD (forthcoming), for a more detailed discussion of replacement rates facing a wider variety of family types than are considered here.) Gross earnings are related to those earned by the average production worker (APW) in each country (see OECD (1995c) for a description). The main conclusions are:

- Taxation means that net replacement rates are higher than gross replacement rates. Benefits are sometimes untaxed and are usually not subject to social security contributions. Even when they are taxed, credits, allowances and progressive marginal tax rates usually ensure that earners face a higher average tax rate than those out of work. Comparing columns 2 and 3, it can be seen that the difference is particularly large when benefits are not taxed (as in Germany and Belgium).

- Benefits paid to families with children are often higher than for those without children, so in countries like Australia, Germany, Ireland and the United Kingdom, replacement rates are higher for these families. In other countries, such as Belgium and France, provisions in the tax system mean that net incomes in work are also relatively high for families with children. In these countries, replacement rates for families with and without children are similar.

- Fourteen countries have some form of income-related housing benefits payable to the unemployed and those on low incomes.[5] Column 5 indicates that replacement rates appear relatively low in the United Kingdom compared with other countries unless housing benefits are taken into account.[6]

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[4] Table 3.2 considers the first month of unemployment. The index in Figure 3.2 relates to an average of replacement rates over time. Otherwise, the benefits included and their calculation are the same.

[5] Countries with no benefit payments for housing costs are Belgium, Ireland (although an element can be added to Social Welfare payments), Italy and the United States (although local schemes exist).

[6] It is assumed that housing costs are always 20 per cent of gross APW earnings regardless of the income level or family type. This approximates to actual average

- Net replacement rates at two-thirds of APW earnings are sometimes little different from those at APW earnings in the first month of unemployment (compare panels A and B). The exceptions are countries with either flat-rate benefits (Australia, Ireland, New Zealand and the United Kingdom), or minimum benefit levels (Belgium and France) which have a strong effect on replacement rates at this level of earnings. Families with children in the United States can receive food stamps even when they are working. Replacement rates are lower for low-earning families with children than for higher-earning families.

- After 60 months, unemployment benefits are often lower or sometimes not paid at all (compare column 6 with column 2). However, if the individual who has been unemployed for 5 years is eligible for social assistance, replacement rates can still be relatively high, except in Italy and the United States (compare column 7 with column 5). Indeed, in eight countries, the estimated net replacement rates exceed 90 per cent.

Social assistance complicates the pattern of employment incentives. Columns 1 to 5 are calculated for the main unemployment benefit, usually unemployment insurance. However, social assistance rates can be higher than the unemployment insurance level; they can even be higher than the two-thirds of APW earnings level assumed in the lower panel of Table 3.1. Cases where social assistance is payable at a higher rate than unemployment benefit are highlighted in italic in Table 3.1. However, eligibility for social assistance is circumscribed to some extent by income and asset tests which, in some cases, are very restrictive. In Sweden, for

housing costs across the OECD area, but may not be representative of the housing costs of families on benefit in any one country. Replacement rates are expressed before housing costs. In this respect, the income definition differs from that adopted by the Seven Country Study (1996) which uses an income concept net of housing costs including utility costs, and that of the Dutch Central Planning Bureau (1995), which uses an income concept net of housing costs and private medical insurance. As discussed in Martin (1996), these differences in the income definition account for nearly all the large variation in net replacement rates reported in the different studies for certain countries.

example, the social assistance rate suggested by the government (the benefit is administered by local authorities) for a family with two children exceeds the APW level of income. In order to receive this benefit for more than a short time, all assets must be sold, including owner-occupied housing if alternative rental accommodation is available.[7] In other countries, social assistance is discretionary. Finally, where employment rates remain high and unemployment is low, fewer households need assistance. Although the level of social assistance may be high in some countries, relatively few people of working age may receive such benefits for one or more of these reasons (for example, Switzerland and Japan). This contrasts with other countries, such as Finland, where access to social assistance is easier.

Benefits supplementing incomes of families with low earnings are used to raise work incentives in Australia, Canada, Ireland, Italy, New Zealand (where a new Independent Family Tax Credit was recently announced), the United Kingdom and the United States. These benefits are often focused on groups who would otherwise have high replacement rates, particularly families with children. In most cases, the upper limits for earnings eligibility mean that most full-time employees do not receive such benefits. However, they can make a dramatic difference to replacement rates for groups not included in Table 3.1, such as part-time workers (and in particular for lone parents).[8]

[7] Even so, countries have recently recognised the problems caused by having social assistance at a level higher than unemployment insurance. The maximum in Denmark, for example, is limited now to 90 per cent of the maximum UI benefit.

[8] For example, in the United Kingdom, someone working 16 hours per week at £5 per hour would earn £80 gross. A lone parent would typically be entitled to benefit income of £133 per week, so there would be little incentive to work. However, with the employment-conditional benefit, Family Credit, worth in this case £68 per week, the replacement rate drops dramatically to 65 per cent. Employment-conditional benefits must be withdrawn from those with higher incomes leading to high marginal tax rates (in the United Kingdom case above, the marginal tax rate would be over 86 per cent). See United Kingdom Department of Social Security (1995) for full details of the United Kingdom tax and benefit system

Duration of benefits

The likelihood of an unemployed person leaving unemployment increases markedly in the period before a fall in benefit entitlement (Atkinson and Micklewright, 1991). But the destination can be either a job or inactivity (including another benefit, such as invalidity or early retirement). Unemployment benefit systems often have limited durations of entitlement. Figure 3.2[9] summarises the major benefit transitions over an eight-year spell of unemployment. Unemployment insurance duration often varies by employment record (Germany, Greece, Japan, The Netherlands, Spain and Switzerland) or by age (Austria, Germany,[10] Luxembourg and Portugal), or by family type (Belgium). In Sweden, benefit entitlement can be renewed by participation in labour market programmes. With durations ranging from 3 months (Japan) to unlimited (Belgian families[11]), the initial replacement rate upon entry into unemployment is an inadequate guide to benefit generosity.

The distribution of work incentives over the population

Microsimulation models can be used to calculate labour market incentives by comparing the incomes of those currently employed with what they might expect to receive if they became unemployed. The labour market incentives are hypothetical – based on assumptions about what might happen if employed people lose their jobs, or those without jobs find them.[12] The tax and benefit system can have particularly large disincentive effects on some of the latter groups.

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[9] For more detail on benefit transitions in some countries, see the Seven Country Study (1996).

[10] Those aged over 45 also have a longer duration of benefit.

[11] Although theoretically unlimited, in practice unemployment insurance in Belgium may be limited to one-and-a-half times the average duration for similar unemployed people.

[12] There is relatively little evidence on what happens when people actually change labour force status. The results of a study of how much people actually gained when they moved into employment from being without work in the United Kingdom showed that most gained a large amount, the mean difference between earnings and benefits being £69 per week. However, 3 per cent of the sample were worse-off in work than when unemployed, and a third of females earned less than 20 per cent more than they

Incentives of employees

The pattern of incentives found using microsimulation models for 12 OECD countries,[13] summarised in Figure 3.3, broadly confirms the picture from the hypothetical cases in Table 3.1.[14] In Australia and the United States, the most common replacement rate[15] is in the 21 to 40 per cent range. In Denmark and Sweden, replacement rates are concentrated in the 81 to 100 per cent range. In Germany, Ireland, New Zealand and the United Kingdom, the most common replacement rates are in the range 41 to 60 per cent and in Belgium, Canada, Italy and Norway they are between 61 and 80 per cent. Few workers in any country will benefit financially from moving into unemployment.[16]

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received in benefit. When considering the benefit/earnings ratio (approximately the same concept as replacement rate), high ratios were predominantly found in those families with children and who get housing benefit.

[13] Definitions of employment status, family type, earnings and taxation have been standardised as much as possible. Nevertheless, in so far as sample sizes differ; the year of the data underlying the models differ; and other features of the models cannot be made identical, the estimates are not strictly comparable. For more details of the models and the procedures followed, see OECD (forthcoming).

[14] Italy is an exception: microsimulation analysis points to much higher replacement rates than in the stylised cases. This reflects both the complexity of the Italian benefit system and, in particular, the treatment of the mobility allowance, the Cassa Integrazione Guadagni Straordinaria and employers' social security contributions (see OECD, forthcoming).

[15] The replacement rates are "individualised" (otherwise known as average effective tax rates). They are the change in net family income as a percentage of the change in earnings as employment status changes. The replacement rate is calculated for the first week of unemployment, ignoring waiting periods. In the absence of evidence to the contrary, it is assumed that previously employed individuals qualify for unemployment insurance (see OECD, forthcoming).

[16] Very high (over 100 per cent) replacement rates are often the result of special provisions in the benefit system. For example, in Norway the benefit level is based on income in the previous year or the average of the income over the past 3 years. A decline in earnings can leave the benefit based on the latter rule appearing to be relatively high. Furthermore, older workers are entitled to a minimum benefit based on a wage level which may be higher than their current earnings, again resulting in high replacement rates.

Incentives of those out of work

The incentive to work for the unemployed of course depends on the expected wage. At the median full-time wage, the replacement rate is under 40 per cent for most Australians and Americans who are not currently working,[17] much higher for non-working Danes and Swedes, and somewhere in between for other countries. If only low-wage jobs are available (at the lowest decile of earnings), at least a third of people without jobs in Canada and the United States would face replacement rates of over 100 per cent. In Sweden, the proportion of those unemployed with replacement rates below 80 per cent is much higher in the bottom household income decile than for those with higher incomes. This is because unemployment insurance is voluntary and a higher proportion of those in the bottom decile are not insured. Those unemployed who are not covered by insurance receive lower benefits and, as a result, have relatively low replacement rates

Generally, the unemployed face higher replacement rates than others without jobs. For example, two-thirds of the unemployed in Denmark face replacement rates of 80 per cent or more. In Italy, the unemployed have replacement rates of 61 to 80 per cent, whereas others without jobs are found predominantly in the 41 to 60 per cent region. In New Zealand, around half of the unemployed have replacement rates of 61 to 80 per cent, whereas other without jobs have much lower replacement rates.

Incentives facing different family types

Figure 3.4 shows how high replacement rates are concentrated on particular family types. If the bar is above the line, a disproportionately large proportion of that family type has replacement rates of over 80 per cent. For example, in Denmark, Germany, Italy and New Zealand there are fewer single people and couples with no children with high replacement rates than lone-parent families and couples with children. In Belgium, Canada, Ireland, Norway, Sweden and the United Kingdom, the

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[17] Those not working include the unemployed and those who are non-employed but who are in a position to work. They exclude students in full-time education and those in receipt of invalidity or early-retirement benefits.

pattern is different. Although benefits to families with children in Canada, Ireland and the United Kingdom are higher than for families without children, these countries also provide benefits and tax concessions targeted to families in employment, reducing replacement rates for this group. High replacement rates in Belgium and Norway are concentrated on single people, with or without children. Replacement rates for couples with children are relatively low because the tax system is relatively generous to spouses and dependent children.

Are replacement rates "too high"?

The question of whether benefits paid to those out of work are "too high" or not is more complex than a simple trade-off between economic efficiency and social preferences. For example, the rôle of the public employment service and active labour market policies should also be considered when setting benefit levels. People may work despite high replacement rates for a number of reasons, but, in the medium term, high replacement rates will undermine work incentives. Systems have been reformed in some countries with the highest replacement rates (see Box 1). In many cases, the main reason for reform has been the high budgetary cost of the benefits, although the subsidiary effect has been to improve work incentives. But some of these apparent reductions in generosity are illusory. In Finland, social assistance can be used to "top-up" incomes below the social assistance level, and, while unemployment insurance has been reduced, social assistance has not. There was a large rise in the number of social assistance recipients (from 165,000 households in 1989 to 333,000 in 1994). Although higher levels of unemployment amongst those not eligible for insurance benefits and increased take-up as a result of greater awareness of social assistance contributed to this increase, the "top-up" of the insurance benefit was the main cause. In 1989, 18 per cent of social assistance recipients were also receiving unemployment payments. By 1994, the proportion had risen to 52 per cent. Benefit reforms must take account of these kinds of system-wide interdependencies.

Other out-of-work benefits and unemployment benefits

In many OECD countries more people of working age receive benefits which do not require any job search than are supported by

unemployment benefits or active labour market programmes. Recipients of invalidity benefits outnumbered the registered unemployed in 1990 in 12 of the 23 OECD countries for which data [18] are available. Their number has been growing rapidly, increasing by over 50 per cent since 1980 in Greece, Ireland, Luxembourg, Spain, Sweden and the United Kingdom (Blondal and Pearson, 1995). Along with early retirement schemes, invalidity benefits remove a substantial part of the working-age population from the labour force.

If invalidity benefits were restricted to those incapable of work, there would be few grounds for concern. However, there is evidence that invalidity and other out-of-work benefits substitute for unemployment benefits. These benefits are usually unlimited in duration, do not require evidence of job search and are often at a higher level than unemployment benefits. Blondal and Pearson (1995) compare gross invalidity, sickness and early retirement benefits with the index of unemployment benefit entitlements shown in Figure 3.1. Under similar assumptions about earnings before receiving benefit, they found replacement rates for the partially disabled were usually much higher than for the unemployed, and for those fully disabled were on average 25 percentage points higher. A range of early-retirement benefits was found to have even higher replacement rates, especially where the beneficiary had been in employment for a long period before benefit receipt.

From the individual perspective, it is better to receive one of these benefits rather than unemployment benefit. Governments reap the political gain from lower headline unemployment rates and employers may find it easier to reduce their work forces if those losing their jobs receive relatively generous benefits.. Medical requirements for invalidity benefits, either as explicit government policy or by default, appear not to have been rigidly enforced in Austria, Germany, Italy, The Netherlands, Norway, Sweden, and the United Kingdom.

Some early retirement schemes allow individuals to retire on actuarially reduced pensions, giving individuals control over their own

[18] Austria, Finland, Greece, Iceland, Italy, Japan, Luxembourg, The Netherlands, Norway, Portugal, Sweden and Switzerland.

labour supply. More controversial are schemes explicitly designed to remove from the labour force those who might otherwise be unemployed. They may reduce measured unemployment temporarily, but do nothing about the number of families relying on benefits.[19]

Income support for lone parents raises similar issues. In some countries, lone parents are not required to look for work until their youngest child reaches a certain age (16 in Australia and the United Kingdom).

Incomes and expenses in and out of work

Sometimes benefits in-kind supplement cash transfers and help may be restricted to those in receipt of benefits (Table 3.2).[20] The most substantial of these payments is probably Medicaid in the United States, which covers health care costs for some low-income groups. Since 1991, more has been spent on Medicaid for the 12.1 million recipients of Aid to Families with Dependent Children (AFDC) ($21.9bn in 1991), than was spent on AFDC cash benefits themselves ($20.9bn) (US House of Representatives, 1994*a*). Medicaid is received until AFDC entitlement is exhausted. In order to reduce the disincentive to work which this rule implies, Medicaid entitlement is kept for 9 to 15 months after losing AFDC. Ireland has introduced a similar scheme whereby the long-term unemployed continue to receive health-care cover for three years after taking a new job. A recent reform of non-cash benefits in New Zealand increased the qualifying income for a Community Services card by 7.7 per cent, thereby extending benefits to more low-income working families and smoothing the transition from unemployment to work.

There are also increased costs for those in work, including commuting expenses, special clothing and tools, trade union dues and child

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[19] See Blondal and Pearson (1995) for an econometric examination of the effects of non-employment benefits on unemployment, employment and labour force participation rates.

[20] An Irish study suggests that the value of the non-cash benefits (medicard, butter, footwear and fuel) is nearly IR£12 per week for a couple with two children. This is 10 per cent of the cash assistance the family can receive (Ireland, Department of Enterprise and Employment, 1996).

care.[21] Fourteen OECD countries report deductions for work-related expenses in the personal income tax (OECD, 1995c) at the earnings of the average production worker, although they vary enormously in value.[22] Although the cost of providing such deductions is difficult to assess, tax expenditure accounts give an indication. In France, for example, identifiable revenues forgone for work-related expenses in 1992 include contributions to trades unions (FF 190m), child-care costs (FF 1bn for the purchase of such care; providers also receive concessions on the social contributions they are required to make); food vouchers or work canteens (FF 650m); holiday vouchers (FF 25m); and transport costs (FF 255m) (France, Ministère des Finances, 1993).

As these data on revenues forgone indicate, child-care costs are often the most substantial in-work expense. They are commonly identified as a barrier to taking employment, especially for lone-parent families or when one partner is already working. Public policies to provide access to affordable child-care facilities are diverse, such as day-care facilities subsidised by central or local government, with only nominal charges to users.

Other countries, including Belgium, Canada, The Netherlands, New Zealand and Norway allow some or all of expenses on formal child care to be deducted from personal income tax liabilities.[23] Although administratively straightforward, these deductions may be worth more to people paying higher tax rates, and nothing for those earning below the tax threshold. They have little effect on replacement rates of the low paid.

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[21] Garman et al. (1992) found that two-thirds of the unemployed in the United Kingdom reported average travel-to-work costs of nearly 7 per cent of earnings. Of the unemployed moving into a job, 18 per cent reported increased expenses, mainly one-off, "back-to-work" costs, such as tools or clothing.

[22] The largest deduction is in Norway (nearly 14 per cent of APW earnings). Generally, deductions are 3-7 per cent of APW earnings (OECD, 1995c).

[23] For example, in Canada these are limited to two-thirds of earnings and C$5,000 for children under 7 and C$3,000 for children aged 7 to 14 (1994 figures). In the United Kingdom, employer-provided child care has not been taxed as a benefit-in-kind since 1990.

Table 3.3 underlines the fact that child-care costs can be a serious barrier to work. Columns 2 and 5 show the gain in net income a one-earner couple receives from working compared with being unemployed (it reflects the first-month unemployment assumption of Table 3.1, including all benefits). At both APW and two-thirds of APW earnings, there is a clear financial gain from working in all the countries included in the table. Columns 3 and 6 show the gain in net income if the child-care costs of column 1 are taken into account (it is assumed that child care is purchased only when employed). Work no longer brings significant financial reward; on the contrary, in some of the cases in Table 3.3, the family would be better off remaining on benefit than working. Columns 4 and 7 show that special provisions in tax and benefit systems can substantially reduce the barriers to work from child-care costs.

Such barriers will be particularly important where informal arrangements for child care are unavailable, in particular for lone-parent families and families where both earners wish to work.[24] Australia has increased the level of support for child care through subsidising provision and through cash rebates and benefits. In the United Kingdom, up to £40 per week of child-care costs are disregarded when determining benefit receipt. It is estimated that 40,000 extra lone-parents will work as a result of this change in the rules (Duncan *et al.*, 1994).

Policy responses to promote employment

Cutting replacement rates. General reductions in replacement rates have been rare and most reforms have been targeted. Denmark in 1994 and 1995 restricted the maximum amount of social assistance compared with lost earnings[25] and the period over which high levels of social assistance can be received. Maximum rates of housing benefit in the United Kingdom

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[24] These family types were not included in Table 3.3 in order to retain comparability with the single-earner family cases discussed in more detail in Table 3.1. However, the size of the barriers to work caused by child-care costs are similar to those indicated in Table 3.3.

[25] The rule pre-exists 1994, but it was possible to receive more than 90 per cent if total income was less than 80 per cent of the maximum unemployment benefit.

will be reduced.[26] In addition, *some* countries have up-rated their benefits or the minima and maxima in the insurance benefits in line with price inflation rather than earnings. This led to a slight increase in replacement rates around 1992-1993, as real earnings fell. Over a longer period of time, however, this has more often led to a reduction in replacement rates (e.g., in the United Kingdom). Young people have been the focus of a general trend, with removal of rights to benefit for 16- to 17-year-olds in Canada and New Zealand, restrictions on the amount of benefit paid to young people in The Netherlands and the duration of benefits for young people in Denmark.[27]

Reinforcing the insurance principle. Canada is considering a reform which would reduce entitlements to those who repeatedly become unemployed. Austria may experience-rate employers' social security contributions to reflect the numbers they lay off. Other countries are reducing entitlements to unemployment insurance benefits (Belgium and Norway have reformed unemployment insurance for part-time work; longer contribution periods before receipt of unemployment insurance benefits are now required in Spain and Sweden). In Finland, access to the basic unemployment insurance for those without work experience was restricted in 1994, with a new means-tested benefit introduced for those who no longer qualify. In The Netherlands, access to wage-related benefit has been tightened.

Encouraging job search. Belgium has tightened the administration of the requirement to search for work. As a result 35,000 people lost their unemployment insurance entitlements in 1993. A similar tightening has recently taken place in Denmark and the United Kingdom. In The Netherlands, 90,000 recipients of unemployment insurance were "sanctioned" in 1993 compared with around 40,000 in 1990. In 1996, more detailed proof of job-search activity was required to gain access to the

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[26] Maximum rents covered by housing benefit for new claimants will be restricted to the average for the type of accommodation and area.

[27] An exception to the trend is Belgium, where benefit receipt has been extended to 18-21 year olds.

means-tested benefit in The Netherlands. Job-search requirements were tightened in Spain in 1992.

Improving access to child care. Some countries with relatively poor records in providing child care have recently focused more attention on this area. In Australia, child-care costs are refunded in part according to parental income, suppliers are subsidised and a third of remaining expenditures is granted a cash rebate. Some families pay as little as A$19 for a full week of child care (12 per cent of the cost of provision). Government expenditures on child care now amount to A$1bn (12 per cent of expenditure on unemployment benefits). The United Kingdom increased the earnings which are disregarded for expenditure on child care and has started a programme giving vouchers to parents of young children which can be used to purchase nursery school places.

Increasing in-work incomes. Tax reductions for those on low incomes can increase net incomes in work, although the effect on replacement rates depends on the tax treatment of benefits and the financing of the tax reduction. An area of tax and benefit policy which has received much more attention is the payment of benefits or income tax credits on condition that the recipient is in employment. But they raise another labour market problem, that of high marginal effective tax rates, which is considered next.

3.4 The Poverty Trap and High Marginal Effective Tax Rates

If benefits were withdrawn as soon as earnings rose above zero, there would be a severe disincentive to work. Hence, countries withdraw benefits *gradually* as earnings rise. The rate at which benefits are withdrawn and taxes and social security contributions are increased as earnings rise is the marginal effective tax rate (METR). People facing very high METRs have very little financial reward for increased work hours and effort, and lose very little if they work less.

Table 3.4 shows that many examples of high METRs arise from policy towards families (as in Australia, Germany, Ireland, the United Kingdom and the United States). Child tax-allowances and universal child benefits are paid in most OECD countries but the budgetary cost means

that they are usually not very high. In those countries where unemployment benefit levels are low, such payments are insufficient to prevent child poverty, and as a result additional child payments are sometimes made to families receiving benefits.

To avoid the sudden loss of family income on entering employment, two policies have been followed. In some countries – Australia, Germany and New Zealand – the family payment is withdrawn gradually as income rises (although the means tests for family payments were eliminated in Germany in 1996). In Ireland and the United Kingdom, a separate benefit is paid to families in employment, which again is withdrawn as incomes increase. In each case, the withdrawal of the benefit leads to high METRs.

High METRs are more general, both in these and other countries. Payments which are means-tested on family income are often reduced by the amount of all other income, i.e., the METR is 100 per cent. The numbers of benefit recipients who have exhausted their unemployment insurance benefits or have never contributed to unemployment insurance schemes have risen, leading to greater reliance on means-tested benefits. Some of the more dramatic increases are noted in Table 3.5. In addition, most special benefits for lone parents are means tested.

High METRs and the labour market

Most labour market decisions are not marginal in the sense of working only a few more hours, or trying to earn a slightly higher wage. Instead they consist of large, discrete changes in status, for example, from not working to working full-time. Where high METRs exist for only a short range of earnings, they are unlikely to distort labour market behaviour. But there are cases where high METRs do matter. Where the marginal rates are high over a relatively wide range of earnings they indicate a breaking of the link between effort and reward which reduces work incentives.[28]

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[28] Means tests can have effects outside the labour market as well. Assets can be held in such a way as to ensure that incomes are minimised, so avoiding the means test.

The poverty trap

The most common source of high METRs is the receipt of benefits which are reduced as family income rises. Small changes in work effort may bring little or no increases in net family income, and sometimes even reduce it. As benefits which are reduced in this way are often "last resort" benefits, such as social assistance, the effect is to create a "poverty trap". Part-time or low-paid work for those in receipt of such benefits may bring no reward. A study of AFDC recipients in the United States concluded that, after taking account of work expenses, METRs can be more than 100 per cent, with "pernicious" effects (Giannarelli and Steuerle, 1994).

A second problem the interaction between people's work incentives and the labour market position of other members of their family. The earnings of one spouse reduce the benefit entitlement of the other. This has long been recognised as a problem in countries with extensive means testing, such as Australia and the United Kingdom (Scherer, 1978). Disincentives in the benefit system are not the sole cause of the strong correlation between spouses' employment. Spouses usually have similar educational profiles and, of course, are usually searching for jobs in the same local labour market. However, econometric analyses in Germany, The Netherlands and the United Kingdom,[29] controlling for characteristics which might explain wives' participation rates, suggest that the shortfall in employment rates of women married to unemployed men cannot always be explained by these factors alone.

If earnings' potential is low, more than one wage may be necessary to lift families off benefit income. But the structure of the benefit system may mean that, if one member of a household is unemployed, other members may have little incentive to work. To get out of this trap, both members of a couple must find a job simultaneously. Hence, poorly

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[29] For Germany, see Giannelli and Micklewright (1995); for The Netherlands, see Kersten *et al.* (1993); and for the United Kingdom, see Kell and Wright (1990) and Davies *et al.* (1992). However, a recent Australian study (Bradbury *et al.*, 1995) suggests that all the differences in employment rates of married women can be explained by differences in background characteristics.

designed means-tested benefits run the risk of polarising the population into so-called "work-rich" and "work-poor" households.

Recent reforms in Australia have addressed this problem by giving each partner in a household where neither partner has a high level of earnings an individual benefit entitlement and reducing the METR below 100 per cent.[30] The Australian White Paper (1994, p. 187) put it thus: "The major rationale for moving towards individual entitlement is that it would encourage greater and more effective job search by both partners of a married couple. This would respond to the fact that many of the job opportunities are more likely to be gained by women than men given the increase in part-time work and the greater increase in jobs in traditionally female areas of the labour force." Similar effects can be achieved by employment-conditional benefits paid to those with low incomes. Increasingly, recipients of Family Credit in the United Kingdom are not the unemployed finding low-paid jobs, but spouses in two-earner couples when one partner loses a job (Marsh and McKay, 1993).

Employment-conditional benefits and tax credits

These benefits are designed to shift the balance between incomes in and out of work to encourage labour force participation. By phasing out the benefit as earnings rise, resources are wholly targeted on low-paid workers. This is difficult to achieve with other policy instruments such as changing the structure of income tax or social security contributions. This phasing out means higher METRs reach further up the earnings' scale, reducing work incentives for those already in work. Table 3.6 gives a brief description of the main examples of such benefits in OECD countries.

In the United States, the value of the EITC (Earned Income Tax Credit) increases as gross earnings rise, reaches a plateau at the maximum credit and is then phased out at higher earnings. Around 3.5 million families will lie in the phase-in range when the extensions of the credit envisaged in the Omnibus Budget Reconciliation Act, 1993, are fully implemented. The mean marginal rate from the federal income tax and social security

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[30] Individual income testing cannot in itself promote participation in part-time work by the wives of unemployed men unless means tests are structured to permit this, as in Australia (Heady and Smyth, 1989; Moylan *et al.*, 1984).

contributions will be minus 21.3 per cent (i.e., a credit). For the 2.5 million families on the plateau, the marginal rate is unchanged (averaging 17 per cent), but marginal rates for 9.8 million families in the phase-out region are increased to around 44 per cent (Holtzblatt *et al.*, 1994). Many more families face higher marginal rates than lower as a result of the EITC. This creates an incentive for workers to reduce their hours of work. However, by increasing net income in work at all levels of earnings up to the end of the phase-out, the effect on the incentive to take a job is unambiguously positive. Canada introduced a more modest tax credit for working families with children as part of a more general reform of child support in 1993.

The Irish employment-conditional benefit, Family Income Supplement (FIS), in contrast to the American one, tends to be received by those in the middle of the income distribution. As a poverty-prevention measure, it is less well targeted. Because of this, FIS raises METRs substantially. Its interaction with income tax and social security contributions allows METRs to exceed 100 per cent. But FIS also enhances the incentive to take a job. Microsimulations which assume full take-up of FIS, suggest that replacement rates are reduced substantially (by over 10 percentage points) for 8,200 families; 6,400 see a reduction of 5 to 10 percentage points and 11,900 see a smaller reduction compared with a system without this benefit.[31]

The employment-conditional benefit in the United Kingdom requires claimants to work 16 hours or more, while social assistance is restricted to those working fewer than 16 hours. The net cost of Family Credit, taking account of reduced receipt of other benefits, is two-thirds of the gross expenditure shown in Table 3.6. The effect of Family Credit on incentives follows the pattern in Ireland and the United States. METRs are increased for four-fifths of the 0.5 million recipients to 70 per cent or more. Replacement rates are reduced for nearly all recipients. However, about 250,000 two earner couples who together earn just too much to be eligible for Family Credit have a reduced incentive to work. If one of them were to

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[31] Results provided to the Secretariat by The Economic and Social Research Institute, Dublin. See OECD (forthcoming) for a discussion of the microsimulation models.

leave their job, the family would be entitled to Family Credit and net family income would be little reduced. Incentives for those out of work to take a low-paid job are increased.

Employment-conditional credits and benefits (and indeed all benefits paid to those in work) involve a trade-off between increasing the incentive for people to take a low-paid job and encouraging those in work to reduce their hours of work. Evaluating this trade-off is an empirical question. Simulations by Scholz (1996) suggest that the increase in employment as a result of the EITC in 1996 will be around 350,000. The proportion of lone parents working will increase by 6.6 percentage points (see also Dickert, *et al.*, 1995). A smaller, 0.4 percentage point, rise is predicted for married couples, since one partner in most couples already works. For secondary earners, a small reduction in participation results because their additional earnings often take a family into the phase-out range, thus reducing the credit received. Scholz also estimates the reduction in hours among those working in response to the higher METR. With an assumption about the hours of those encouraged to take jobs, he estimates that the negative effect on current workers offsets around one-third of the effect of increased participation. On balance, the EITC increases aggregate hours worked (by around 90 million hours in aggregate).

Policy reforms are often discussed on the basis of their aggregate effects. If the hours worked by those entering employment as a result of a policy reform exceed the reduction in hours worked by those already in employment, a policy reform is judged to be a good one. The above discussion suggests that existing employment-conditional benefits and tax credits probably would pass a criterion of success defined on this basis, but only just. However, using *aggregate* hours as a way of determining policy desirability implies that the *distribution* of hours worked is of no interest. For both social and labour market reasons, it may be desirable to introduce reforms which promote employment of those who would otherwise be excluded from the labour market, even if the net effect is to reduce total labour supply. On this latter basis, it is rather clearer that such policies can be desirable.

There are grounds for believing that employment-conditional benefits have had positive effects in the countries where they already exist. Whether this means that they can be introduced in other countries with equal success is far less clear. To be worthwhile, the benefit must raise in-work incomes for low-wage families significantly above out-of-work incomes. But on grounds of cost and because of the effects of high METRs on work incentives, the benefit must be fully withdrawn from earnings which are received by the bulk of the working population. These constraints suggest that employment-conditional benefits will be most successful in countries where benefits are low relative to average earnings and/or the earnings' distribution is wide. Finally, the design of the employment-conditional payment is crucial to the success or otherwise of the policy (Box 2).

Box 2
The design of employment-conditional tax credits and benefits

Transparency: The impact of employment-conditional benefits depends on workers correctly perceiving the change to their net income received at a particular level of earnings. In the United States, fewer than 1 per cent of recipients use the advance payment option enabling their employers to pay the credit through the year. The credit is therefore mainly received as a tax refund after the year end. Although this occurs in part due to ignorance of the option, in many cases people were unwilling to ask their employer for a regular payment or were concerned that they might have to re-pay the credit at the year-end if their circumstances changed (US General Accounting Office, 1992). Given the marginal rate structure resulting from the credit, fluctuating income and non-cumulative withholding of income tax, the fear of over-payment is justified (Alstott, 1994, 1995; Holt, 1992). Over half of EITC (Earned Income Tax Credit) recipients also rely on professional assistance in preparing their income tax returns, so may not understand the relationship between their work effort and net incomes (Olson and Davis, 1994). The new Independent Family Tax Credit in New Zealand will either be received fortnightly with Family Support or paid at the end of the year as a lump-sum tax credit. The link between the end-of-year credits in these schemes and work experience during the year is not likely to be clear. In contrast, payments made through the benefit system may be more transparent although there may be a trade-off with benefit take-up (Whitehouse, 1996).

Take-up: If people do not claim their in-work benefit entitlement, due to stigma, costs of claiming or ignorance, then again the beneficial effect on incentives is lost. Assessment for taxation is automatic and private compared with claiming means-tested benefits. In the United States, a taxpayer will be informed by the Internal Revenue Service if they have filed a return appearing to be eligible for the EITC but have not claimed it. Empirical studies tend to show EITC take-up of over 80 per cent (Scholz, 1990, 1994). The figures for means-tested benefits are much lower: for food stamps, the rate is 59 per cent (US House of Representatives, 1993). Similarly, Family Credit and Family Income Supplement suffer from less than full take-up. The take-up rate is around 25 per cent in Ireland (Callan *et al.*, 1995). In the United Kingdom, it has risen from a little over 50 per cent when Family Credit was introduced in 1988 to over 70 per cent now by case-load and over 80 per cent by expenditure.[32]

Non-compliance: Take-up of the EITC exceeds the number of families eligible. The IRS (Internal Revenue Service) conducted a study of 1,000 EITC claimants who filed electronically in a two-week period in January. (These taxpayers may not be typical, because the majority file paper returns and the filing season extends into April.) The study found that the total credit paid out exceeded entitlements by 26 per cent. The study did not take account of IRS enforcement work or recent modifications to the

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[32] The source for these figures is private correspondence with the United Kingdom authorities.

EITC. If these changes are included, the rate of over-claim falls to 19 per cent. It has been suggested that the EITC is vulnerable to deception (Steuerle, 1993; Yin and Forman, 1993). The benefit means-testing process is often more rigorous than a tax audit. A problem with Family Credit is that once a claim is settled, the resulting entitlement is paid for six months regardless of fluctuations in income. The initial assessment covers earnings over a period of six weeks. This opens the scheme to deliberate manipulation of earnings to ensure eligibility, with no reassessment for six months. There is no evidence on the degree of manipulation, but estimates suggest that half of recipients would not be eligible given their *current* income (Fry and Stark, 1993).

Assessment of entitlement: Tax and benefit systems operate very different sets of rules about the unit of assessment (individual or family), period of assessment (weekly, monthly, annual), the definition of income and the treatment of wealth. Using the family as the unit of assessment targets help towards those with high replacement rates. Under an individual system, women married to relatively well-off men, for example, would be eligible, although they face few work disincentives from the tax and benefit system. Hence, most of these schemes are focused on families with children. In the majority of OECD countries, individual assessment of income tax and the fact that tax authorities do not collect information on children would preclude use of the tax system to implement an employment-conditional payment. The definition of income for tax purposes is often less comprehensive than the one used in assessing benefits. The EITC is assessed against gross earnings and "adjusted gross income" (taxable income), which excludes certain income sources which are exempt from income tax (such as a portion of social security and interest from municipal bonds). According to the United States General Accounting Office (1995), including all social security benefits, tax-exempt interest and non-taxable pensions in the measure of income used to determine EITC eligibility would save almost 6 per cent of total expenditure. But it would add significantly to the burden of administering the income tax (see also O'Neil and Nelsestuen (1994)). From 1996, taxpayers will be ineligible for the EITC if income from interest, dividends, rents and royalties exceeds $2,350, excluding around 3 per cent of EITC recipients. The US General Accounting Office (1995) concluded that operating a wealth test in the EITC would be "impractical". In contrast, means-tested benefit systems can successfully operate assets tests (including Family Credit in the United Kingdom and AFDC in the United States).

In-work benefits and wages: If gross wages are relatively sensitive to changes in taxation, wage rates will fall in response to employment-conditional benefits. The benefit will in effect act as a wage subsidy. If wages adjust fully, then net incomes in work are unchanged, and no labour supply response can be expected. Due to the shift in labour costs, a demand-side response may occur, however. There is no empirical evidence of whether this is the case. Attitudinal evidence in the United Kingdom suggests that employers are insufficiently aware of the structure of Family Credit for it to have a direct effect on the setting of wages or hours of work (Callender *et al.*, 1994). There may, however, be an unconscious response to increased labour supply at low wages.

Tax and benefit systems and part-time work

Policy towards part-time work oscillates between two competing views: first, that part-time work is desirable because it keeps benefit recipients in touch with the labour market; and second, that support for part-time work may reduce labour supply by making part-time work more attractive relative to full-time work. Increasingly, policies have been aimed at reducing disincentives to working part time. For example, those currently receiving the Revenu Minimum d'Insertion in France face a withdrawal rate of 50 per cent of earnings. Employers' social contributions are also reduced by 30 per cent for some categories of part-time workers. In Germany, an unemployed person (who was formerly in full-time employment) is allowed to work up to 18 hours per week with half of his pay deducted from benefits. Subject to certain limits, half of all earnings of the unemployed in the United Kingdom are paid as a re-employment bonus when they find a full-time job. Ireland has a part-time job incentive scheme paid to those receiving the long-term rate of unemployment assistance who work for less than 24 hours a week. The first $90 per month is disregarded from AFDC benefits in the United States, with a further $175 per month available for child-care expenses.

In many cases, special rules allowing part-time work to be combined with benefits are limited to those who were previously unemployed. Australia has gone further and allows those who were working full-time and whose hours have been sufficiently reduced to be entitled to means-tested benefit (although benefit entitlement remains conditional on availability for full-time work if it is offered). About 15 per cent of Australian unemployment benefit recipients work part time.

Table 3.7 illustrates the effects of the various disregards and special schemes that apply to part-time work. It is assumed that an unemployed person with a family and two children works two days a week, earning two-fifths of the APW level of earnings (other assumptions are as in Table 3.1).

The first year of unemployment in Ireland, in Norway when social assistance is received, and in the United Kingdom when less than 16 hours are worked, all follow the "traditional" social assistance model. Apart from

(small) earnings disregards, there is no immediate financial incentive to work part time.[33] In other cases, the features of the benefit system mentioned above have an impact. Hence, the incentive to work part-time is sometimes significant, for example, in Australia. But the trade-off is apparent: the higher is the incentive to work part-time, the less attractive is full-time work.

The effective administration of job-search tests is important when there is an incentive to work part time. The experiences of Belgium and Norway illustrate the problems caused by increasing the attraction of part-time relative to full-time work. Both employers and employees altered their behaviour to take advantage of the possibility of working part-time while claiming benefit. The result was "a costly growth in the incidence of part-time work among people who would otherwise be working full-time" (OECD, 1994b). Both countries have since attempted to reduce such unintended use of the benefit system. New Zealand has recently experienced rapid growth in part-time and seasonal employment. Administrative measures and an extension of the waiting period for re-qualification for benefits are being used to prevent inappropriate combinations of these work patterns with benefit receipt. In the United Kingdom, Family Credit is paid to those who work at least 16 hours. A supplement has recently been introduced for those working 30 hours to provide an incentive to move beyond part-time work.

One partial response to the dilemma of wanting to promote part-time work without unnecessarily discouraging full-time work is to recognise that for some groups, such as lone parents, part-time work may be a more realistic option than full-time work. Benefit systems could be adjusted so that benefit reduction rates for these groups are lowered, increasing the incentive to take part-time work, albeit at the cost of making full-time work less attractive (Duncan and Giles, 1996). Similarly, METRs for the long-term unemployed on the first segment of earnings could be

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[33] This is so unless part-time work is not declared to the authorities. Thus, when means tests are reduced, it is not possible to measure the extent to which any declared increase in part-time work is a genuine increase or simply increased reporting.

reduced to encourage them to maintain contact with the labour market even where it is not possible to lift someone fully off benefit.

Policy responses to reduce high METRs and tackle the poverty trap

Earning while receiving benefits. Some countries have increased the amount which can be earned before means-tested benefits are reduced or otherwise altered the benefit system to permit a modest amount of part-time work. These earnings disregards provide an incentive for those on social assistance to maintain a link with the labour market. Such reforms have taken place in Australia, Canada, Denmark, Ireland, The Netherlands, New Zealand and the United Kingdom. Benefits specifically for those in part-time work have been introduced in Ireland. However, Belgium and Norway have restricted the extent to which part-time work and benefits can be combined, in order to curb abuses. Italy provides direct subsidies to employers and reductions in employers' social security contributions, and France has recently extended its contributions exemption for part-time work. Spain reduces employer contributions for some categories of part-time work.

Reducing the prevalence of high METRs. Taxes on low earnings have been reduced in several countries (Denmark, New Zealand, the United Kingdom), but budgetary constraints limit the possibilities of extending this and many other policies. Benefit reduction rates for older workers have been cut sharply in Japan. The current reform in New Zealand will lower the reduction rate from 70 to 30 per cent over a NZ$100 earnings range for lone parents and invalidity benefit recipients.

Ensuring women married to unemployed men have an incentive to work. Australia has reduced very high METRs by individualising the benefit system. Some incentive to work is retained by the spouses of the unemployed, even where they are in receipt of means-tested benefits. A similar effect is achieved through employment-conditional benefits, as in Ireland and the United Kingdom, which reduce the incentive for both spouses to leave employment when one becomes unemployed.

3.5 Conclusions

If work does not pay, people will be reluctant to work. For the majority of the population in the OECD area, there are clear, immediate, financial incentives to work. But such incentives may be lacking for many people with low potential wages, particularly if they have children. Some will work in spite of this, because work experience improves long-run job prospects or for other reasons. Nevertheless, for these groups, social and labour market goals may clash. Benefits need to be high enough to ensure income is adequate, but this may mean that taking a job brings little or no extra income, trapping families in a cycle of dependency.

Two problems caused by tax and benefit systems were considered: the "unemployment trap" – when benefits are high compared with expected in-work incomes when working – and the "poverty trap", where low-wage workers have little immediate financial incentive to increase their hours worked or move up the wage ladder is blunted.

Tax and benefit systems are pursuing multiple objectives, including, *inter alia,* raising revenue: insuring against labour-market risk: supporting families without resources: and trying to preserve incentives to work. It is inevitable that not all of these goals can be achieved simultaneously. But this paper has identified avoidable barriers to employment caused by administrative complexities, poor integration of the various parts of the tax and benefit systems and badly designed means tests. It has also indicated several policy areas where policies will increase employment opportunities for the most disadvantaged, but reduce work incentives for the majority. The social and labour market consequences of permanently excluding a significant minority of the population from the world of work are apparent in too many OECD countries for such policies to be spurned.

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Figure 3.1: *Index of Benefit Entitlements[a], 1961-1995[b] (Percentages)*
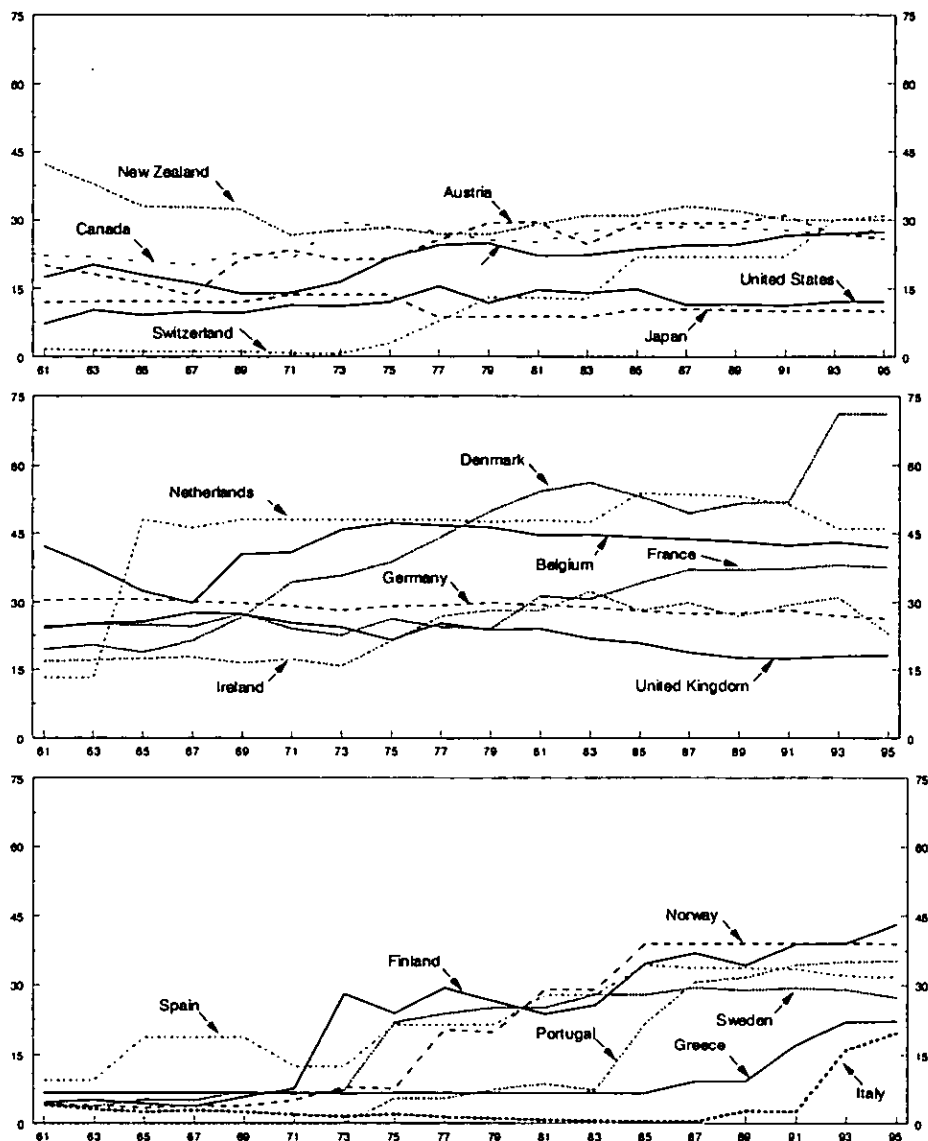
Notes: a. The average of the unemployment benefit replacement rates for 2 earnings levels, 3 family situations and 3 durations of unemployment. For further details, see OECD (1994b), Chapter 8. The earnings data used to compute replacement rates for 1995 are Secretariat estimates.

            b. Final year data refer to 1994 for the United States

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

Figure 3.2: *Duration of Unemployment Benefit Entitlements in 1996*

```
0          1          2          3          4          5          6          7          8      (in years)

Australia: unlimited assistance benefit

Austria: 20 - 30 or 52 weeks insurance (depending on age)
              unlimited unemployment assistance

Belgium: if dependents, unlimited insurance

        for singles, unlimited reduced rate after 1 year

        other households, reduced rate after a 1 year, for 3 months + 3 months per year insured

                                                          unlimited flat rate

Canada: maximum of 50 weeks insurance
        social assistance

Denmark: 5 years insurance
                                        social assistance

Finland: 500 days insurance (5 days per week) (depending on age and employment record)
              social assistance

France: maximum of 27 months insurance (depending on age and employment record)
                    maximum of 33 months at declining rate every 4 months
                              allocation de solidarité spécifique

Germany: 6 - 12 or 32 months (depending on age and employment record)
                    unlimited unemployment assistance

Greece: 5 - 12 months insurance (depending on employment record), no subsequent benefit

Iceland: 52 weeks insurance, renewable after 16 weeks

Ireland: 15 months insurance, then unemployment assistance

Italy: 6 months insurance, no subsequent benefit (or 1 - 3 years mobility allowance, without subsequent benefit)

0          1          2          3          4          5          6          7          8      (in years)
```

Figure 3.2 (contd.): *Duration of Unemployment Benefit Entitlements in 1996*

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | (in years) |

Japan: 90 - 300 days insurance (5 days per week)
social assistance

Luxembourg: 1 year insurance (maximum benefit reduced after 6 months), extension of up to 1 year insurance if older worker
social assistance (RMG)

Netherlands: 6 - 54 months insurance (depending on age and employment record)
1 year flat rate | social assistance

New Zealand: unlimited assistance benefit

Norway: 80 + 13 weeks insurance, twice
social assistance

Portugal: 10-30 months insurance (depending on age)
unemployment assistance for | half of the insurance period

Spain: 4 - 24 months insurance (depending on contribution), reducing after 6 months
6 months of unemployment assistance
social assistance (in most regions, IMI or RM)

Sweden: 300 - 450 days insurance (5 days per week) (depending on age), renewable with 5 months job offers

Switzerland: 170-400 days insurance (depending on contribution)
social assistance (possibly: local variation)

United Kingdom: 12 months insurance, then unemployment assistance

United States: 26 weeks insurance (39 if high unemployment state)
Food Stamps / AFDC(-UP) / General assistance

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | (in years) |

Figure 3.3: *Distribution of Work Incentives: Replacement Rates of the Unemployed*

Note: Replacement rates are individualised.
Source: National microsimulation models (see text).

Figure 3.4: *Which Family Types Face Strong Disincentives? Over- or Under-*
            representation Compared to the Average of the Country, of Family
            Types Facing Replacement Rates of more than 80 %
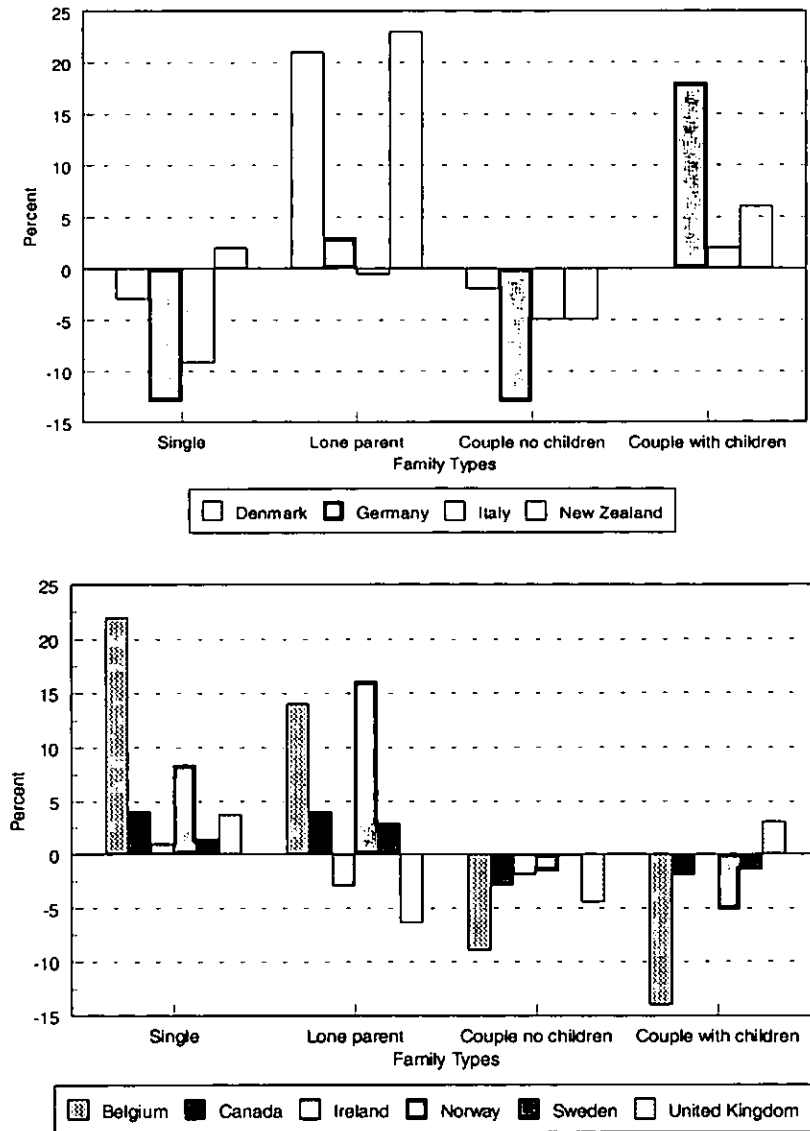
Note: Replacement rates are individualised.
Source: National microsimula⁺ion models (see text).

Table 3.1: *Replacement Rates[a] for Single-earner Households, 1994*

Panel A: Replacement Rates at the APW Level of Earnings

	Replacement Rates in First Month of Unemployment: No Social Assistance					60th Month of Unemployment: Including Social Assistance	
	Gross Replacement Rates (before tax)		Net Replacement Rates (after tax and other benefits)			Gross Replacement Rates (before tax)	Net Replacement Rates (after tax and other benefits)
	(1) Single	(2) Couple, No Children	(3) Couple, No Children	(4) Couple, 2 Children	(5) Couple, 2 Children, Housing Benefits	(6) Couple, No Children	(7) Couple, 2 Children, Housing Benefits
Australia[b,c,d]	22	40	49	64	71	40	71
Belgium	46	46	64	66	66	42	70
Canada	55	55	63	67	67	0	47
Denmark[e]	60	60	69	73	83	60	83
Finland	53	53	63	75	88	25	98
France	57	57	69	71	80	36	65
Germany	37	42	60	71	78	37	71
Ireland[c]	23	37	49	64	64	37	64
Italy	30	30	37	47	47	0	11
Japan[c]	37	37	43	42	42	0	68
The Netherlands	70	70	77	77	84	0	80
New Zealand[c,d]	21	35	39	55	63	35	63
Norway	62	62	67	73	73	0	83
Spain	70	70	75	75	74	0	46
Sweden[b,e]	80	80	81	84	89	0	99[b]
Switzerland	70	70	77	89	89	0	71
United Kingdom[c]	16	26	35	51	77	25	77
United States	50	50	60	68	68	0	17
Mean (unweighted)[f]	48	51	60	67	72	19	66

Table 3.1: *Replacement Rates[a] for Single-earner Households, 1994 (cont.)*

Panel B: Replacement Rates at Two-thirds of the APW Level of Earnings

	Replacement Rates in First Month of Unemployment: No Social Assistance					60th Month of Unemployment: Including Social Assistance	
	Gross Replacement Rates (before tax)		Net Replacement Rates (after tax and other benefits)			Gross Replacement Rates (pre-tax)	Net Replacement Rates (after tax and other benefits)
	(1) Single	(2) Couple, No Children	(3) Couple, No Children	(4) Couple, 2 Children	(5) Couple, 2 Children, Housing Benefits	(6) Couple, No Children	(7) Couple, 2 Children, Housing Benefits
Australia[b,c,d]	34	61	66	76	78	61	78
Belgium	60	60	75	76	76	55	91
Canada	55	55	64	67	67	0	61
Denmark[e]	86	86	92	93	95	86	95
Finland	60	60	67	83	89	37	100
France	65	65	79	81	88	54	83
Germany	40	44	60	70	77	39	80
Ireland[c]	35	66	67	70	70	66	70
Italy	30	30	36	45	45	0	14
Japan[c]	43	43	49	48	48	0	86
The Netherlands	70	70	79	78	84	0	95
New Zealand[c,d]	31	52	57	69	78	52	78
Norway	62	62	66	75	75	0	100
Spain	70	70	74	78	77	0	66
Sweden[b,e]	80	80	82	85	89	0	121[b]
Switzerland	70	70	75	87	87	0	97
UK[c]	24	39	52	67	90	38	90
United States[f]	50	50	66	60	60	0	19
Mean (unweighted)	54	59	67	73	76	27	79

Notes: In the first month of unemployment it is assumed that families possess enough assets to be ineligible for social assistance. In the 60th month it is assumed that they no longer have such assets and so social assistance (SA) is assumed to be paid where it is higher than other benefits to which they may still be entitled. Figures in *italics* indicate those cases where families would be entitled to SA on the basis of their income, were they not to have been assumed to have been disqualified by an assets test. The replacement rates reflect a strict application of legal provisions rather than common practice, where these differ.

a. It is assumed that the worker is 40 years old, and started work at 18. The replacement rates are for the first month of unemployment, after waiting periods have been satisfied. This entitlement is then multiplied by 12 to give an annualised equivalent, on which tax is calculated. The person is fully unemployed. Social assistance is calculated according to a "typical rate" for the country concerned. This may involve making assumptions about housing costs.

b. Benefit amounts for couples are calculated on the basis of both spouses actively seeking work.

c. Figures for Australia, Ireland, New Zealand and the United Kingdom are for 1995. Unemployment benefit parameters for Japan are for 1996.

d. There is no social insurance in Australia or New Zealand. All figures in the Table, including columns 1-5, refer to the assistance benefit.

e. SA is only available when there is a "social event" such as unemployment. Low earnings are not themselves a social event.

f. The taxes and benefits are calculated using the rules applying in Detroit, Michigan. All figures include AFDC and Food Stamps. If these are treated as being equivalent to social assistance, columns (3), (4), and (5) would read 60, 59 and 59 at the level of APW, and 59, 52 and 52 at two-thirds APW.

Source: OECD Database on taxation and benefit entitlements.

Table 3.2: *Typical Extra Benefits Which Can Be Given to Those Receiving Social Assistance or Unemployment Benefits*

Country	Some of the Items Which Can Be Made Available to Those on Benefit Income
Australia	Health care card (reduced cost medicines). Public and private providers sometimes use the card as a passport for other concessions of which reduced cost transport is the most important. School uniforms; books; help with utility payments are given in some states. (Benefit recipients get these cards as of right; low-earning households can get them on application.)
Canada	Clothing, health premiums, prescriptions, dental, optical (varies by province), educational costs, removal costs. For example, Ontario pays a winter clothing allowance of $104, and a "back-to-school" allowance of $126. Six out of ten Provinces give these benefits to those on low wages as well.
Denmark	Medical expenses.
Finland	Various one-off payments. Health care costs sometimes covered.
Germany	Medical insurance, prescriptions, lower price public services.
Ireland	Back-to-school allowance. Free school meals/transport. Fuel allowance. Medicard.
Japan	Exempted from inhabitants tax (local tax). Cheap rail travel.
Luxembourg	Free transport. Medical insurance.
New Zealand	Health-care costs (including prescriptions). Available to all those with low incomes, not just benefit recipients.
Norway	Municipal services (child care, etc.) are often income related.
Spain	Health insurance.
Sweden	Prescription costs, glasses, dental benefit.
United Kingdom	If on income support: cold-weather payments; school meals; prescriptions; optical and dental benefit. Other people on low incomes must apply for some of these payments.
United States	Medical insurance (Medicaid).

Sources: Eardley *et al.*(1996) and information provided by national authorities.

Table 3.3: *Child-care Costs and Benefits: a Barrier to Work? Percentage Gain in Net Income from Work, for a One-earner Couple with Two Children Taking Account of Child-care Costs and Benefits*

Percentage Gain in Income from Work	Child-care Cost Assumption	Two-thirds of APW			APW		
	(1) $ per week	(2) Ignoring Child-care Costs and Benefits	(3) After Child-care Costs for Those in Work	(4) After Child-care Costs and Benefits for Those in Work	(5) Ignoring Child-care Costs and Benefits	(6) After Child-care Costs for Those in Work	(7) After Child-care Costs and Benefits for Those in Work
Australia	167 (max)	28	-27	-1	41	-25	-5
	75	28	-21	3	41	-19	0
Canada	140 (max)	50	5	20	50	18	45
	75	50	3	18	50	15	43
Finland	(145)	15	-43	15	116	-32	16
Japan	(242)	108	50	108	138	92	115
United	60 (max)	27	-2	50	54	27	30
Kingdom	75	27	-10	45	54	21	24

Notes: In columns (2) and (5), child-care costs and benefits are ignored. In Columns (3), (4), (6) and (7), it is assumed that when in work the costs in column (1) must be incurred. When unemployed the family is assumed not to use child-care facilities (see text for a discussion of the treatment of child-care for the unemployed). The table gives the percentage increase in net income compared with that which would be received when in the first month of unemployment. In Australia, Canada and the United Kingdom, two cases are included in the table. The maximum level of child-care costs which will qualify for help may be above typical child-care costs, so the effects of having costs of $75 per week are illustrated. The gains in net income are calculated for a one-earner couple with two children (except in the United Kingdom, where the benefit provision applies only to lone parents). The pattern of incentives for other family types closely follows that in the table; the case of a one-earner couple is included as this family type is discussed in more detail in Table 3.1. For detailed country notes on Finland and Japan see OECD (1996), Table 2.3.

Source: OECD Database on taxation and benefit entitlements.

Table 3.4: *Incidence and Causes of High Marginal Effective Tax Rates Caused by Cumulative Benefit Receipt (One-earner Couples)*

	METR %	Region where METR applies (% of APW earnings) %	Tax and Benefit Combinations Causing High METRs
Australia	90	38 – 62	Income tax (20%), Parenting allowance (70%).
	38	62 – 78	Income tax (34%), low-income rebate withdrawal (4%).
	104	78 – 84	Income tax (34%); Medicare payments (20%); Additional family payment (50%).
	85	84 –100	Income tax (34%); Additional Family Payment (50%); Medicare levy (1.45%).
France	78	57 – 91	RMI disregard (50%), social security (18.7%), CSG (2.3%), Housing Benefit (16.5% average).
Germany	89	72 – 82	Milderungszone (phase out of income-tax free zone (this has now been abolished)): income tax (51%), social security (18.3%), housing benefit (20%).
Ireland	105.5	62 – 76	Social Security (5.5%), Income tax (40%), Family Income Supplement (60%).
Sweden	72	147 –160	Income Tax (20%), social security contributions(2%), local tax (31%), Housing Benefit (20%).
United Kingdom	97	46 – 65	Income Tax (20%), social security(10%), Family Credit (70%), Housing Benefit (65%) Council Tax Benefit (20%).
	80.5	65 – 77	Income Tax (25%), social security(10%), Family Credit (70%).
United States	72.0	62 – 71	Social Security (7.65%), Income Tax (15%), Local Tax (5%), Food Stamps (24%), Earned Income Tax Credit (17.68% for family with two children).

Note: 1994 systems except for Australia and the United Kingdom (1995). Family Credit is only revised every 6 months, so the long-term METR given in the table for the United Kingdom may be substantially higher than that faced in the short term. Fewer than half of Ireland's Family Income Supplement recipients are on earnings' levels that are exposed to the METR indicated. The benefit level, once set, is not revised downwards for 12 months even if income increases in the meantime. The long-term rate presented in the Table is substantially higher than that faced in the short term. Figures for individual taxes and benefits do not sum to the overall METR in France and the United Kingdom because benefits are withdrawn against net rather than gross income. The 38 per cent rate for Australia is included to give a more complete impression of Australian METRs.

Source: OECD database on benefit entitlements.

Table 3.5: *Growth in Receipt of Means-tested Benefits(1980=100)*

	1980	1985	1990	1992
Austria (Unemployment Assistance)	100	1,233	1,067	967
Belgium (Minimex)	100[a]	174[b]	195	252[c]
Canada (Social Assistance)	100[a]	144	144	228[c]
Finland (Social Assistance) (Number of Persons)	100	143	187	343[c]
France (RMI)	-	-	100	155[d]
Germany (Sozialhilfe)	100	156	219	276
Germany (Unemployment Assistance)	100	549	355	
The Netherlands (RWW – Unemployment Assistance)	100	378	319	300
Spain (Assistance Benefit)	100	562	581	687[e]
Sweden (Social Assistance) (Number of Persons)	100	156	150	208
United Kingdom (Income Support, Excluding Disabled or Over Age 60)	100	238[b]	178	247
United States (Food Stamps)	100	104	104	139[d]

Notes: Number of households except where noted otherwise. The French RMI was introduced in 1989. Figures for the United Kingdom are for supplementary benefit in 1980 and 1986.

a. 1981
b. 1986
c. 1994
d. 1993
e. 1991

Source: Eardley *et al.* (1996).

Table 3.6: *Employment-conditional Tax Credits and Benefits*

	Canada	Ireland	Italy	New Zealand	United Kingdom	United States
Name	Child tax benefit	Family Income Supplement	Family benefits for employees[a]	Independent Family Tax Credit (to be introduced)	Family credit	Earned income tax credit
Cost	C$250m =$200m	IR£21.3m =$33.9m	LIT 5763bn = $3.76bn	NZ$210m	£1.1bn =$1.7bn	$26.7bn
Number of recipients	0.7m	11,000	-	150,000	0.5m	19m
Average receipt	C$357	IR£1,925 =$3,075	-	NZ$ 27	£2,400 =$3 800	$1,450
Responsible department	Tax administration	Social welfare	Social security	Tax administration	Social security	Tax administration
Maximum benefit	C$500pa	b	Lit 2.76m pa	NZ$15pw per child	£67.80pw[c]	$2,152/3,556/323 pa
Minimum earnings	C$3,750	none	d		none	$0
Phase in rate	8%	none	none		none	34/40/7.65%
Earnings when phasing out begins	C$20,921	immediately	Lit 15.984m		£73pw	$11,610/11,610/5,280 pa
Withdrawal rate	10% of gross income	60% of gross income	10% of gross income	18% between NZ$20,000 and NZ$27,000, 30% above[e]	70% of net income	16.0/21.1/7.7% of gross income
Minimum hours worked	no limit	20 (19 hours from July 1996) hours	no limit[f]		16 hours. Supplement for 30 hours or more.	no limit
Family type	Families with children	Families with children[g]	Families receiving unemployment benefit		Families with children. Pilot scheme for childless.	First figure is for 1 child families, 2nd for 2 or more children, 3rd for no children.

Notes: Data on the entitlement rules refer to 1995 except for New Zealand (IFTC, 1997) and the United States (1996). Data on costs, number of recipients etc., refer to 1993 for Canada and Ireland, 1990 for Italy and 1994 for the United Kingdom and United States. IFTC figures for New Zealand are forecasts for when the scheme is fully implemented in 1998-99. The pre-existing Guaranteed Minimum Family Income, which is a smaller employment-conditional payment, will continue to be paid. The GMFI is paid to lone parents working more than 20 hours and couples working more than 30 hours. The maximum benefit is around NZ$110 per week. The difference between family income and NZ$320 is paid. As all eligible families receive family benefits, and there is a minimum wage of around NZ$6.25 per hour, maximum benefit for lone parents is around NZ$110, substantially less (around NZ$30) for single-earner couples. It has approximately 5,000 recipients. It is operated through the tax administration. Figures for the EITC are total programme costs including the outlay on repayments and the tax expenditure component (the reduction in tax liabilities).

a. In addition to this payment, Italy has income-related tax credits for dependent spouses and children.

b. Payment is 60 per cent of the difference between family income before tax and a weekly threshold of IR£165 plus IR£20 per child with a minimum payment of £5.

c. Rates depend on age and number of children. The above figure is for 2 children aged under 11.

d. Ordinary unemployment benefit only lasts for 6 months in Italy, so the allowance operates *de facto* as an employment-conditional benefit.

e. IFTC and Family Support are subject to the same means test.

f. At least 70 per cent of family income must be from earnings (or pensions).

g. There are other employment-conditional benefits in Ireland. The *Part-time Job Incentive Scheme* is open to the long-term unemployed (15 months or more) who work for less than 24 hours a week. A flat-rate payment (IR£40 per week for singles, IR£66 for one-earner couples) is paid where this is more beneficial than means-tested unemployment assistance. The *Back to Work Allowance* is paid to the long-term unemployed (1 year or more) who are aged 23 years or more and to Lone Parents (no age limit) where the person takes up self-employment or a new job (i.e., additional in the economy). 75 per cent of the standard means-tested unemployment or Lone-Parent assistance is paid in the first year, 50 per cent in the second year and 25 per cent in the third year.

Sources: United Kingdom Department of Social Security (1994); United States House of Representatives (1994*b*); and information supplied by national authorities.

Table 3.7: *The Incentive to Work Part-time for an Unemployed Person with Two Children*

	Benefit	Percentage of Net Income in Full-time Work	
		Fully Unemployed	*Part-time Worker Earning 40 per cent of Full-time Weekly Wages*
Australia	Job-search Allowance	71	86
Denmark	UI	83	88
Germany	Arbeitslosengeld (UI)	78	92
Ireland	UI/UA	64	64
	UA/Part-time Job Incentive	64	84
The Netherlands	UI	84	91
	SA with disregard	80	91
	SA without disregard	80	82
Norway	UI	73	84
	Social Assistance	83	84
Spain	UI	74	85
UK	Income Support (less than 16 hours work)	74	78
	Family Credit (more than 16 hours work)	74	79

Note: Incomes are expressed as percentages of net incomes in full-time work at APW wages. Figures are for a couple with 2 children. An earnings disregard of 15 per cent of benefit is applied for a maximum of 2 years in The Netherlands. Thereafter, there is no earnings disregard.

Source: OECD database on taxation and benefit entitlements.

Chapter 4

INCOME SUPPORTS IN IRELAND AND THE UK

Tim Callan and Holly Sutherland

4.1 Introduction[1]

How have the Irish and UK tax and benefit systems evolved over recent years? How do benefit rates and direct taxation levels compare at present? And to what extent have differing policy developments contributed to differences in key outcomes in terms of labour market performance and poverty rates? These are the questions we raise and explore in this paper. We do not claim to have comprehensive answers, but our analysis does provide some new insights into these issues.

The recent *Jobs Study* (OECD, 1995) suggests that the cross-country relationship between unemployment benefits and the level of unemployment is a complex one. On a simple cross-sectional basis some countries with relatively high levels of benefit, may have low levels of unemployment. This may reflect, *inter alia*, elements of reverse causality - high benefits can be afforded if unemployment is relatively low, but not if unemployment is widespread. But the OECD analysis suggests that, taking data on benefit entitlements and unemployment rates for 14 countries over a number of years, a rise in benefit levels tended to increase measured unemployment some years later.

If a relationship of this type holds, the trade-off between generosity of benefits and the level of unemployment becomes crucial.[2] A cut in

[1] POLIMOD uses data from the Family Expenditure Survey (FES) which are Crown Copyright. They have been made available by the Office for National Statistics (ONS) through the ESRC Data Archive and are used by permission. Neither the ONS nor the ESRC Data Archive bear any responsibility for the analysis or interpretation of the data reported here.

[2] There are, of course, other issues of relevance in the setting of benefit rates - particularly if they are designed as general income supports, not only for the unemployed but also for pensioners, lone parents etc. as in the UK.

benefits may boost employment, but lead to a fall in the living standards of those who remain unemployed. A rise in benefits may boost the living standards of those who are unemployed, but lead to the loss of jobs for some of those currently employed. A comparison between Ireland and the UK over the 1978 to 1994 period is of particular interest in this context, as the relative generosity of income maintenance payments changed considerably over that period.

A comparison with the UK is of further interest in Ireland because migration and return migration flows mean that UK tax, welfare and labour market developments have a strong impact on the Irish labour market. Despite this, comparative analysis of the tax/transfer systems has been somewhat neglected. Individual aspects have been highlighted from time to time, such as the lower threshold at which Irish workers – particularly single people or dual-earner couples – pay the top rate of tax; and differences in the structure of social insurance contributions, especially those affecting low wage industries. But a broader comparison of the Irish and UK tax/transfer systems has not yet been undertaken:[3] this paper represents a step in that direction.

The remainder of the paper is set out as follows. Section 4.2 gives a brief overview of policy developments in the two jurisdictions from the end of the 1970s until the mid-1990s. This simply sets out the evolution of social welfare rates, income tax rates and thresholds, and the rates and limits applying to social insurance contributions. While this description helps to summarise what has happened over a 16 year period, it cannot take account of the diversity of the populations to which these rules apply. Section 4.3 deals with this issue, summarising the results of some microsimulation analyses which compare the 1994/5 tax and transfer systems in the two countries. A direct simulation of the UK system on the Irish model, or vice versa, is not possible. But each country's system can be compared with a simple common standard: a basic income paid to all at a fixed proportion of average income, and financed by a flat rate tax on all

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[3] A helpful description of the income tax and social welfare systems in Ireland and the UK was set out by the National Social Services Board (1995a and b).

other income. This indirect comparison gives some interesting insights into the nature of the current system, which do not depend on assessments of the merits of the basic income scheme itself. In Section 4.4, we sketch out alternative views of the outcomes which could be expected from these different policy developments, and compare them with the actual outcomes. Section 4.5 draws together our conclusions and some suggestions for further work.

4.2 Comparing Policy Developments

In our analysis we take the policies prevailing in the year 1978/79 as a starting point. In the UK, 1979 marked the advent of a new Prime Minister, Mrs Thatcher, who was to serve in office for more than 10 years, and a period of Conservative government which continues to the time of writing. Ireland saw several changes of government during this period, but 1979 was, none the less, a significant turning point. It marked the end of the rapid fiscal expansion of the 1977-79 period, and the beginning of a long period in which the public finances were dominated by the overhang of debt and deficit from that period. We focus on changes in tax rates and income supports from that time to the year 1994 - at present, the latest year for which any outcomes in terms of poverty rates are available. Policy changes for an intermediate year, 1987, for which these outcomes can also be measured are also presented.

Table 4.1 presents the basic data on the income tax systems in the two jurisdictions. It could be argued that the tax systems in 1978/79 were quite similar in structure: personal allowances represented similar proportions of average earnings, joint taxation applied to husbands and wives, with some special provisions for the earnings of a married woman, standard tax rates of 33 per cent and 35 per cent were quite close, and while higher rates applied at lower thresholds in Ireland, the top tax rate was somewhat lower in Ireland than in the UK. During the 1980s, each system was simplified down to two or three marginal rates, with top rates of tax being cut, and the standard rate band being widened. But by 1994/95, it is differences rather than similarities which are more striking in comparing the systems. The standard tax rates are still rather similar (25

per cent in the UK, 27 per cent in Ireland) but basic personal allowances in Ireland are very much lower than their UK counterparts - except for one-earner couples. Top rate tax thresholds are very much lower in Ireland than in the UK – even for one-earner couples – and the top rate of tax is significantly higher (at 48 per cent as against 40 per cent).

Table 4.1:   *Income Tax Systems in Ireland and the UK, 1978/79, 1987/88 and 1994/95*

Income tax parameters	*1978/79*	*1987/88*	*1994/95*
UK (UK£ p.a.)			
Single person's allowance (SPA)	985	2425	3445
One-earner couple allowance	SPA+550	SPA+1370	SPA+1720[a]
Reduced rate	25%	-	20%
Standard rate	33%	27%	25%
First higher rate	40%	40%	-
Top rate	83%	60%	40%
Thresholds (taxable income p.a.)			
Standard rate	750	0	3,000
First higher rate	8,000	17,900	23,700
Top rate	24,000	41,200	23,700
Ireland (IR£ p.a.)			
Single person's allowance	865	2,000	2,350
One earner couple allowance	+865	+2,000	+2,350
Reduced rate	20	-	-
Standard rate	35%	35%	27%
First higher rate	45%	48%	-
Top rate	60%	58%	48%
Thresholds (taxable income p.a.)			
Standard rate	1,500	0	0
First higher rate (single/married)	4,500	4,700/ 9,400	-
Top rate (single/married)	7,000	7,500/ 15,000	8,200/ 16,400

a. The Irish pound was linked at parity to the pound sterling in 1978/79, and had an average value of UK£0.91 during 1987; and £0.98 during 1994. Purchasing power parity adjusted exchange rates were IR£1=UK£0.7741 in 1987, and IR£1=UK£0.9665 in 1994.

Much of the difference between the two systems arises from the different tax treatments of couples. While the starting point – joint taxation, with some rather small provisions for married women's earnings – was similar, the two systems have diverged during the 1980s. The Irish system changed from joint taxation to "income splitting" in 1980, under which the tax liability of a couple is determined by treating each spouse as having half of their joint income, and taxing them as single individuals.[4] The UK structure changed more recently, culminating in 1990 with a more independent treatment of the tax liabilities of husbands and wives. The impact of these different structures is dramatically illustrated by the fact that the income threshold at which a single person faces the top tax rate[5] is less than £12,000 in Ireland, but more than £27,000 in the UK; while for a one-earner couple the gap is much smaller, with the figures being about £22,000 in Ireland and £29,000 in the UK.

Some other developments show more similar trends in the two countries e.g., the restriction of mortgage interest relief, through standardisation of the allowances in both jurisdictions; restriction of the relief to a proportion of the interest in Ireland; and non-indexation of capital limits on the amount of the loan qualifying for relief in the UK.

We now turn to the transfer system, focusing on cash transfers. Our focus is further restricted by the exclusion of housing-related income supports. Ideally, all forms of income support, including those related to housing, would be included. But the complex and changing nature of housing-related support in the two countries means that this task is outside the scope of the present paper. In the UK, housing benefit is a major element of income support, with close to 5 million recipients (about two-thirds of whom are also in receipt of Income Support, the UK safety net scheme) and an average payment close to UK£40 per week. In Ireland, the numbers receiving rent and mortgage supplements under the Supplementary Welfare Allowance have grown rapidly, but from a very low base. By 1994, about 3 per cent of households were in receipt of a rent

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[4] There are additional allowances for employees (the PAYE allowance and, until recently, the PRSI allowance) which are not transferable between husband and wife.

[5] The calculations assume standard personal allowances for employees.

INCOME SUPPORT AND WORK INCENTIVES

Table 4.2:   *Safety Net Income Support Rates[a] as a Percentage of Average Weekly Earnings in Manufacturing[b], 1978/79, 1987/88 and 1994/95*

	1978/79	1987/88	1994/95
UK: Supplementary Benefit/Income Support			
Adult (Maximum rate)	24.0	20.4	14.5
Adult (Minimum rate)	15.5	12.8	11.4
Couple (Maximum rate)	38.0	32.6	22.7
Couple (Minimum rate)	31.6	26.0	22.7
Child Rates			
Maximum rate	15.5	12.8	11.4
Minimum rate	5.5	5.5	4.9
Family Rates:			
couple plus 3 children aged 4, 8 and 12			
Maximum	60.1	51.8	43.0
Minimum	53.6	45.2	43.0
Ireland: Unemployment Assistance/Supplementary Welfare Allowance			
Adult (Maximum rate)	17.8	20.1	24.1
Adult (Minimum rate)	17.2	18.1	23.3
Couple (Maximum rate)	30.7	34.6	38.6
Couple (Minimum rate)	29.8	31.3	37.8
Child Rates[c]			
Maximum rate	6.5	7.0	7.5
Minimum rate	5.8	5.8	7.0
Family Rates:			
couple plus 3 children aged 4, 8 and 12			
Maximum	49.8	54.8	59.7
Minimum	48.9	50.4	58.9

Notes: a. In the UK, maximum rates are for householder and/or long-term recipients minimum rates for non-householder and/or short-term. In Ireland, maximum rates are for long-term urban rate of Unemployment Assistance; minimum rates are for Supplementary Welfare Allowance.

b. In order to take account of differences in hours distributions, average earnings figures are calculated on the basis of a 40 hour work-week at average hourly earnings - for all workers in Ireland, where part-time work is relatively uncommon; and for full-time workers in the UK. Thus, weekly earnings figures were (Ireland in IR£, UK in UK£) IR£66.16 and UK£74.60 in 1978, IR£187.60 and UK£189.64 in 1987, and IR£252.80 and UK£304.40 in 1994.

c. Child benefit counts as means under the UK system, but represents an additional support to Irish welfare recipients with children. Thus, the child rates quoted for Ireland include child benefit in order to maintain comparability.

or mortgage supplement – a much lower proportion than in the UK. But a great deal of housing support in Ireland is still provided through local authority housing, including the income-related differential rent schemes operated by the various local authorities.

Differences in the systems of housing-related support (and indeed, of other in-kind transfers[6]) are possibly of more importance in relation to incentives than to income support as such. Both the UK Housing Benefit and the Irish rent and mortgage supplements seek to ensure that a family's resources after housing costs are similar to the resources of a family on the safety net scheme (Income Support in the UK, Supplementary Welfare Allowance in Ireland). This means that rates of benefit for the safety-net schemes are of the most fundamental importance, and it is to these that we now turn.

In 1979, the maximum rates under the UK safety net scheme (for householders who were in receipt of long-term rates) were well above the corresponding maxima under the Irish scheme. The minimum adult rates were rather closer, but rates for children were higher in the UK. A three child family on the Irish safety net scheme would have received just under half the average wage in manufacturing; but would have received between about 5 and 10 percentage points more in the UK. By 1994/95, these positions had been reversed. Payments under the UK safety scheme had fallen to 43 per cent of the average wage, while payments under the Irish safety net scheme had risen to almost 60 per cent of the average wage. Thus, measured against average wages, payment rates had fallen by between 10 and 17 percentage points in the UK, and risen by about 10 percentage points in Ireland – a "swing" in the relative positions of between 20 and 27 percentage points.

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[6] For example, the universal nature of the National Health Service in the UK can be seen as neutral with respect to an individual's employment status, whereas a move from being out-of-work to in-work can lead to loss of a medical card in Ireland.

Table 4.3:   *Means-Tested Pension Supports as a Percentage of Average Weekly Earnings in Manufacturing, 1978/79, 1987/88 and 1994/95*

	1978/79	1987/88	1994/95
UK: Supplementary Benefit/Income Support with Elderly Premia			
Adult	24.0	20.4	20.1
Couple	38.0	32.6	31.3
Ireland: Old Age Non-Contributory Pension			
Adult	20.6	25.1	24.1
Couple	30.8	37.7	38.6

A similar "swing" is evident in the levels of support provided through means-tested schemes for the elderly. UK rates were initially higher, at around 24 per cent of average earnings for a single adult, and 38 per cent for a couple, these rates fell to about 20 per cent and 31 per cent respectively. Rates in Ireland followed the reverse course, almost precisely, rising by almost 8 percentage points for a couple and 4 percentage points for a single adult, to reach levels very similar to the initial UK rates.

While the examples given in Tables 4.2 and 4.3 are somewhat limited, they show up clearly the impact of policy developments which had a wider relevance. One key factor in determining these trends was the change in UK policy in the early 1980s, moving away from uprating of benefits in line with earnings - a statutory link in the case of pensions, and an informal one in the case of some other benefits - towards uprating of benefits in line with prices (Hills, 1995). While price-linking of benefits maintained their value in real terms, it resulted in a substantial deterioration in the relative position of the population dependent on benefits, as other incomes grew substantially in real terms.

On the Irish side, real increases in state pension payments – sometimes ahead of other incomes, as well as prices – were a feature of the 1970s and the first half of the 1980s. Following the report of the Commission on Social Welfare (1985), the focus shifted to those on the lowest rates of social welfare – including Supplementary Welfare and Unemployment Assistance. Pension rates were increased at, or just slightly

ahead of price inflation, while the lower rates were increased more rapidly, until they converged with the means-tested pension.

Rates of benefit are, of course, only a part of the story. The incomes provided to the actual population of unemployed persons depend also on the conditions attached to insurance and means-tested benefits, which have changed significantly in each jurisdiction. Earnings- or pay-related unemployment benefits have been restricted and ultimately abolished in each country. In the UK, Atkinson and Micklewright (1989) have catalogued no fewer than 38 changes in the structure of the benefit system affecting unemployed people during the 1979 to 1988 period. The broad thrust of these measures has been to restrict the role of insurance benefits for the unemployed - through tightening of contribution conditions, extension of the disqualification period and a range of other measures. While means-tested income supports therefore became more important to the unemployed, other policy changes tended to reduce the generosity of these supports in a number of respects.

4.3 A Snapshot Comparison: 1994

Comparisons between countries based on a small number of benefit rates are, of course, rather limited. As earlier papers have pointed out, a small number of hypothetical households cannot adequately represent the diversity of the actual household population in terms of characteristics relevant to taxes and benefits. Microsimulation models, based on large scale national surveys, can be used to get over these problems in comparative work as well as in national policy analysis. But even for systems with a common basic structure, such as the Irish and UK systems, direct comparisons using microsimulation models can be difficult. Differences in policy structures and data sources make it difficult, if not impossible, to undertake modelling of the effect of country A's system on the country B population – unless, as in the current Europe-wide project (EUROMOD, on which see Callan and Sutherland, 1997), such comparisons are at the heart of the model design process.

Even where direct comparisons are not possible, however, we can gain insights into the differences between systems by comparing each with

a common benchmark. A simple basic income system, designed to provide a benefit set equal to a common proportion of average income in each country, is particularly suitable for this role. An extensive analysis along these lines was undertaken in Callan, O'Donoghue, Sutherland and Wilson (1996). In this section, we draw on these results to give some further insights into the differences between the Irish and UK tax/transfer systems as of 1994. The analysis is undertaken using microsimulation models of the tax and benefit systems in each country: POLIMOD for the UK (Redmond, Sutherland and Wilson, 1996) and *SWITCH* (Callan, O'Donoghue and O'Neill, 1996) for Ireland, each based on nationally representative survey data which takes account of the wide diversity of household types and situations. Average income per adult equivalent, using a simple common equivalence scale,[7] was calculated using the household survey data on which these models area based (FES for the UK, and the ESRI 1987 survey, uprated to 1994, for Ireland).

The actual tax and benefit systems in each country are compared with a simple basic income system, at a common proportion of average income per adult equivalent, and financed on a revenue-neutral basis by a simple flat rate tax. A key factor in this comparison is the tax rate required to finance the scheme. This can be seen as depending on two main factors: the level of the basic income payment - or in this instance, the proportion of average income the basic income is designed to deliver; and the net revenue required from the tax and transfer system to finance other elements of public expenditure. While social security spending is a somewhat higher proportion of GNP in Ireland than in the UK - reflecting differences in the relative size of the client populations as well as differences in relative benefit rates - the net revenue gathered by each tax-transfer system was rather similar in 1994, at between 8 and 9 per cent of GNP.

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[7] The scale is 1 for the first adult in the tax unit, 0.64 for an additional adult, and 0.38 for each child - an approximation to the McClements scale used in the UK CSO's *Households Below Average Income*, but averaged over age-differentiated scales for children.

Table 4.4:   *Selected Benefit Rates, UK and Ireland, 1994*

	UK	UK rate in IR£	Ireland
"Safety net" for those	UK£	IR£	IR£
aged:			
18-24	36.20	37.46	58.90
25-64	45.70	47.28	58.90
65-74	63.95	66.17	61.00
Social Insurance benefits			
Unemployment Benefit	45.45	47.03	61.00
Old age pension	57.60	59.60	71.00

Notes: A purchasing power parity adjusted exchange rate of IR£1=UK£0.9655 was used in converting UK rates to Irish pound values. (*European Economy*, November 1995). Average weekly earnings in manufacturing, as discussed in Table 4.2: IR£252.80 in Ireland and UK£304.40 in the UK. Average incomes per adult equivalent, IR£117.6 in Ireland and £171.2 in the UK. The greater disparity in incomes per adult equivalent reflect lower participation rates and higher dependency ratios in Ireland.

Table 4.4 illustrates some of the main income support rates in Ireland and the UK, for both social insurance benefits and means-tested benefits. It is clear that for all rates except means-tested support for the elderly, the Irish rates in 1994 were higher than the corresponding UK rates in real terms (i.e., adjusted for exchange rates using a purchasing power parity standard). Irish rates were, *a fortiori*, higher than UK rates in relation to average income, and even the means-tested support for the elderly was higher in relative terms in Ireland.

Table 4.5 puts these comparisons into a wider European Union context, with rates for hypothetical recipients of payments under a number of different schemes being shown in relation to average net earnings. These results confirm that Irish rates were typically higher than UK rates, but show that both Irish and UK rates were in most instances well below the average for EU countries. For example, the figures for Unemployment Benefit refer to a man aged 40, who has been in regular employment at the average wage since the age of 20. On becoming unemployed, his entitlement to Unemployment Benefit is, on average, 60 per cent of average net earnings across all EU countries; but for Ireland the figure is 35 per cent, while for the UK the figure is 23 per cent. The trends noted in Section

4.2 above can therefore be seen as having moved Irish rates of income support closer to the EU average, with UK rates having declined and diverged further from that average.

Table 4.5:   *Selected Benefit Rates as Percentage of Average Net Earnings: UK, Ireland and EC Average, 1992*

	UK	Ireland	EU Average
Unemployment Assistance	23	35	42
Unemployment Benefit	23	35	61
Short-term illness	28	32	69
Disabled	32	35	50
Lone parents	38	44	40
Child benefit (2 children)	9	4	12
Old age pension (soc. ins.)	44	42	75
Widow aged 30, 2 children	53	58	64
Widow aged 50, no children	31	36	55

Source: Social Protection in Europe 1993, Chapter 4.

The basis of the microsimulation calculations is set out in detail in Callan *et al.* (1996). Here we focus on one variant of basic income (BI), which can be thought of as a family basic income scheme. The payment rate for a single adult is set at 40 per cent of average disposable income, adjusted for family size. This amounts to UK£68.50 per week in the UK and IR£47.00 in Ireland. Under the family BI scheme, each adult in a couple would receive 82 per cent of the amount paid to a single adult. This would bring the rate for a couple to 1.64 times the rate for a single adult, in line with the current rates of social welfare payments in each country, which take account of the economies of scale in living together as a couple. The flat tax rates required to finance these schemes are very similar in each country, at around 49 per cent.[8]

[8] An individualised BI scheme would require a flat tax rate about 5 percentage points higher in each country.

Table 4.6: *Distributional Impact of a Standardised Basic Income Scheme, Ireland and UK, 1994*

Decile[a]	Percentage Gain/Loss in Average Disposable Income under Family BI Scheme	
	UK	IRE
Bottom	73.8	17.7
2	18.6	-9.7
3	12.5	-15.0
4	7.8	-8.7
5	6.0	-1.4
6	3.6	4.2
7	0.4	4.3
8	-3.2	-0.6
9	-5.9	0.5
Top	-10.5	0.4
All	0.0	0.0

Note: a. Ranked by disposable income per adult equivalent under existing policies, from poorest to richest.

Table 4.6 summarises the impact of these BI schemes in each country, showing the percentage gain or loss in average income for ten equal sized income groups, from poorest to richest ("deciles"). There are, of course, gains and losses within each income group but here we focus on the gain or loss of the decile group. Under each scheme, there are substantial gains for the bottom decile in each country,[9] which includes many individuals not currently receiving benefits or paying taxes, who would gain from the payment of a basic income. But for the remaining 90 per cent of the population, the distributional impacts in Ireland and the UK are very different. There are losses for the remainder of the bottom half of the distribution in Ireland, whereas the average gain is positive for the whole of the bottom half of the distribution in the UK. There are substantial losses at the top of the distribution in the UK, but in Ireland gains and

[9] The proportionate gains for the bottom decile are much greater in the UK than in Ireland, reflecting the fact that most welfare recipients in these deciles gain in the UK, but lose in Ireland.

losses are quite evenly balanced towards the top of the distribution, with net gains in the top two income groups.

Table 4.7 shows the impact classified by family type. It shows in Ireland that the common basic income system would involve substantial average losses for unemployed couples, with or without children, while losses for single unemployed persons in receipt of full rates of benefit would be offset by gains for those single unemployed persons currently most affected by the provisions of the means tests. In the UK, by contrast, a basic benefit at the same relative income standard would involve substantial average gains for the unemployed. Pensioners would lose in each country, but by rather more in Ireland (about 20 per cent) than in the UK (about 10 per cent). The overall impact of the scheme on most families in employment would be rather similar across the two countries.

Table 4.7: Distributional Impact of Family Basic Income by Family Type, Ireland and UK, 1994

Family Type	UK	IRE
	% Gain/Loss in Disposable Income	
Single employee	3.8	3.3
Employed lone parent	0.5	7.3
One-earner couple	-2.7	-2.6
One-earner couple with children	6.2	7.3
Two-earner couple	-5.2	-4.0
Two-earner couple with children	2.8	2.7
Single unemployed	53.5	1.5
Unemployed couple	11.7	-23.7
Unemployed couple with children	20.2	-18.0
Other lone parent	11.7	-9.6
Single Pensioner	-10.2	-23.3
Pensioner Couple	-12.8	-21.2
Other (includes disabled)	6.0	-18.9

These results can be read as giving us information on the nature of the current systems in the two countries. The Irish system diverges from the common basic income standard by proving more favourable to the unemployed, and to pensioners. The UK system diverges from the common

family BI by being more favourable to pensioners (though less so than in Ireland) and by being *less* favourable to the unemployed.

4.4 Comparing Outcomes

The differences in the evolution of policy in Ireland and the UK over this period can be seen as reflecting quite different choices as regards the trade-offs between economic efficiency and social protection. In the UK, the emphasis on improved work incentives and lower taxes was very strong. In Ireland, while these considerations received some weight, real improvements in social welfare rates for those initially receiving the lowest rates of payment were a major feature of policy development. The outcome in terms of measures of work incentives is dealt with in later chapters. But it is of some interest to examine the overall labour market and distributional outcomes associated with these different policy choices. While a detailed decomposition of the effects of policy choices on these outcomes cannot be expected, there are a number of features of interest in this comparison.

In considering these comparisons, it may be helpful to bear in mind a "favourable" and "critical" interpretation of the impact of the relevant policy changes in each country. Here, we present these alternatives rather starkly. A favourable interpretation of the Thatcher years in the UK would suggest that cuts in direct tax rates, together with restrictions on the growth of welfare payment rates, helped to improve work incentives and the operation of the labour market; and led ultimately to a higher growth in employment and lower unemployment than would otherwise have occurred. A critical interpretation would suggest that the main effects were distributional, with cuts in income tax favouring those at the top of the distribution, and those at the lower end of the scale becoming increasingly marginalised.

A critical view of the Irish experience would suggest that increased welfare payment rates limited the resources which could be applied to reducing taxes on labour, and contributed to disimproved work incentives and the maintenance of high unemployment. It would suggest that an alternative involving lower welfare rates and lower income taxes could have boosted employment growth. A favourable interpretation would stress

that the evolution of policy struck a balance between providing improved income supports for the unemployed while maintaining and in some cases improving work incentives.

A full investigation of these issues would require a major research effort. Here we simply present some simple measures of labour market outcomes in the two countries, in the interests of stimulating debate and further work on these issues. First, we look at what has happened to unemployment rates in the two economies (Table 4.8). Unemployment rates rose in the first sub-period (1979-87) and fell in the second (1987-94) for both countries - unsurprisingly, given developments in the wider world economy during these years. The gap between Irish and UK unemployment is perhaps of more interest in the present context.[10] This rose from 2½ percentage points in 1979 to about 6 percentage points in 1987, and fell back to 4¾ percentage points in 1994.

Table 4.8: *Unemployment Rates, Ireland and UK, 1978, 1987 and 1994*

	1978	1987	1994
	National definitions (LFS)		
UK	4.6	10.4	9.2
Ireland	7.1	17.6	14.8
	Standardised rates (ILO)		
UK	5.0	10.9	9.6
Ireland	n.a.	16.9	14.3

Source: OECD *Historical Statistics 1960-1989* and *1960-1994* Tables 2.15 and 2.20. LFS=Labour Force Survey, ILO=International Labour Organisation.

Tax and transfer policies are, of course, only two elements feeding into the micro- and macroeconomic forces determining the unemployment rate. One cannot, therefore, attribute the entire rise in relative unemployment rates to relative changes in taxes and transfers; nor can one

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[10] A comparison based purely on the standardised ILO definitions would be preferable, but an ILO-based figure is not available for Ireland in 1979. While national definitions (on a Labour Force Survey basis) can and do diverge over certain periods, this does not seem to be a major problem for the particular years of interest here.

be sure that other forces may have limited the extent of the relative rise in Irish unemployment over the period.

Migration may be one force tending to limit the gap between Irish and UK unemployment rates (see, for example, Walsh (1974), Honohan (1992)). A rise in Irish unemployment relative to UK unemployment may lead to net migration from Ireland to the UK, until unemployment rates return towards an equilibrium relationship. Changes in the structure of taxes and transfers may influence the size of the equilibrium gap between unemployment rates, but may also have an impact on the size and structure of migration flows (see Sexton *et al.* (1991)). Many other forces may of course contribute to the extent and nature of migration - such as differences in the growth of population and the potential labour force, and the state of the economic cycle in the two economies - but some consideration must be given to changes in migration over the period as well as to changes in unemployment.

Even if we restrict our attention to the possible impact of tax/transfer policy changes on migration, the potential outcomes are quite complex. At least three possible channels can be identified. First, to the extent that the UK's greater emphasis on work incentives paid off in greater employment creation than in Ireland, migration from Ireland to the UK could have been stimulated by better prospects of obtaining a job. Second, for those with options of employment in each country, tax cuts in the UK may have made it a more attractive destination. But the rise in welfare rates in Ireland relative to the UK may have lessened the stimulus to emigrate for those seeking work, or induced a return to Ireland among some Irish migrants who became unemployed in the UK. The impact on net migration of even these three factors is unclear, but it does suggest shifts in the composition of migration.

The 1970s saw a reversal of the usual migration balance, with net inward migration of about 10,000 per annum. Net outward flows resumed during the 1980s, accelerating from about 14,000 per annum during the first 5 years to about 33,000 per annum during the latter half of the decade. But in the first half of the 1990s, outflows have exceeded inflows by about 4,000 per annum. While the share of the UK in gross migratory outflows

has declined (from over 80 per cent in the 1970s, to about half during the 1990s), net migration to the UK seems to have followed a similar pattern: negative in the 1970s, as return migrants outnumbered new emigrants, accelerating during the 1980s to substantial levels, and then declining to approximate balance during the early 1990s.

It can certainly be argued that the divergences in tax and transfer policy outlined in Section 2 contributed to the rise in Irish unemployment relative to that in the UK, and to the resurgence of emigration during the 1980s. There are, however, other factors which must be taken into account in assessing these outcomes. The unsustainable fiscal expansion in Ireland during the 1970s makes the starting point for these comparisons somewhat artificial. The fiscal expansion had a favourable, but temporary, influence on employment growth; the debt overhang it left had a negative and continuing impact on the labour market through its effects on the public finances. But a comparison of gaps between unemployment rates over a longer period still suggests an upward drift in the gap, to which structural factors such as the relative shifts in taxes and transfers have contributed.

We now turn to the distributional outcomes, focusing on the out-turn in terms of poverty rates, for reasons we now explain. Considerable attention has been given to increases in the dispersion of earnings in the UK (and indeed in the US). It could be argued, however, that some of this increased dispersion in the distribution of earnings may arise from policies which facilitate the growth of low wage employment, taken up by individuals who might otherwise be unemployed. Alternative policies, which provide greater income support for the unemployed, may crowd-out some low wage employment, and result in higher numbers unemployed. An assessment of outcomes in terms of income poverty takes account of both the impact on unemployment, and the incomes of the unemployed and low wage earners (including any support provided through in-work benefits, such as Family Credit and Family Income Supplement).

Table 4.9 shows the proportions of the population (at individual level) falling below a selection of relative income poverty lines in both the UK and Ireland. The equivalence scales and some of the technical

procedures involved[11] are somewhat different, but this is likely to affect comparisons of levels, rather than of trends, which is the focus in the present context. Poverty rates in the UK were, in 1979, substantially lower than in Ireland at each of the relative income cut-offs (40, 50 and 60 per cent of average income). But by the early 1990s, poverty rates were very similar. The UK saw a rise in rates of income poverty of between 7 and 9 percentage points more than the change in the Irish rates.

Table 4.9:   *Income Poverty in Ireland and UK, 1979/80, 1987 and 1992/94*

Income Standard: Proportion of Average Income	UK		
	1979	*1987*	*1993/4*
40 per cent	2	5	9
50 per cent	8	16	19
60 per cent	18	26	29
	Ireland		
	1980	*1987*	*1994*
40 per cent	9	7	7
50 per cent	16	19	21
60 per cent	30	32	35

Notes: UK figures based on McClements equivalence scale and income averaged over persons. Irish figures based on a scale of 1 for first adult, 0.66 for other adults, and 0.33 for children, incomes averaged over households. For both countries, results are calculated on incomes before housing costs.

Sources: UK: Department of Social Security (1992, 1993, 1994 and 1996) Table F1
Ireland: Callan, Nolan, Whelan, Whelan and Williams (1996).

As with the labour market outcomes, the question arises to what extent these differences in outcomes can be attributed to the dramatic policy differences, and to what extent they are caused by other factors. There have been a number of investigations of the distributional impact of policy changes in the UK (Jenkins, 1994; Johnson and Webb, 1992;

[11] We rely here on published results. Both approaches begin by calculating income per adult equivalent at household level. The HBAI method (Department of Social Security, 1992: *Households Below Average Income*) then attributes that income to each person (adult or child) in the household, and averages over individuals. The Irish figures are based instead on averaging equivalent income over households.

Redmond and Sutherland, 1995), though poverty rates have not been a specific focus. Hills (1995) summarises the results as indicating that taxes and transfers failed to slow the growth of market inequalities. Discretionary changes in taxes and transfers tended to increase inequality, offsetting the automatic rise in the equalising effects of progressive systems as inequality in market incomes grew. In the Irish context, similar investigations into the impact of discretionary policy changes are currently under way, as part of a programme of research commissioned by the Department of Social Welfare and the Combat Poverty Agency. Given the importance of benefit incomes to those in the lower reaches of the distribution, it seems likely that the policy trends identified in Section 2 contributed substantially to the growth in income poverty in the UK, relative to that in Ireland, but a comparison of analyses more directly focused on the issue of relative income poverty in the two countries would be of great interest.

4.5 Conclusions

There have been quite dramatic shifts in the relative levels of income support provided in Ireland and the UK over the past 20 years. Changes in the basic safety net payment for a single adult serve to illustrate this point. In 1978, a three child family on the Irish safety net scheme would have received just under half the average wage in manufacturing; but would have received between 5 and 10 percentage points more in the UK. By 1994/95, payments under the UK safety scheme had fallen to 43 per cent of the average wage, while payments under the Irish safety net scheme had risen to almost 60 per cent of the average wage. Thus, measured as a proportion of the average wage in each country, there was a "swing" in the relative position of between 20 and 27 percentage points.

Comparisons based wholly on selected benefit rates could, of course, be misleading. A microsimulation analysis of the 1994/5 position was able to take into account the diversity of the household population and much of the complexity of the tax and welfare codes in each country. This analysis broadly confirmed the impression that, as regards cash benefits, the Irish system has become more generous to welfare recipients than its UK counterpart; a major caveat in this regard is that the relative roles of

housing benefit or housing-related income supports was not taken into account.

Some of the outcomes in terms of work incentives will be explored in later papers. Here we looked more directly at outcomes of interest, in terms of the labour market and rates of income poverty. The gap between Irish and UK unemployment rates has risen over the period. Net migration to the UK rose to very substantial levels during the 1980s, though it has fallen back to very low levels during the 1990s. At the same time, there have been dramatic increases in income poverty in the UK, while Irish rates have been constant or risen much more slowly. The links between the relative policy trends and the relative performance in terms of labour market and policy outcomes deserve further investigation. On the basis of the evidence assembled here, it appears that the dramatic shifts in relative policy have contributed to significant shifts in relative labour market performance, and substantial changes in relative poverty rates. There is undoubtedly scope for some Pareto improvement within each system - improvements in incentives which do not damage the income support provided to the least-well off. But identifying the nature of the trade-offs between income support levels and employment is of vital importance in the future development of policy. More detailed comparison of the outcomes of very different policy choices made in the UK and Ireland can make a contribution to this important work.

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Table A4.1: *Some Background Information: UK and Ireland, 1994*

		UK	Ireland
(1)	PPP Exchange rate		IR£1 = UK£0.9665
(2)	GNP	UK£601,414m	IR£26,693m
(3)	Average industrial wage	UK£304	IR£263
(4)	Social Security as % of GNP	11.0	14.7
(5)	Income tax and social insurance contributions as % of GNP	19.8	22.8
(6) = (4)-(5)	Net Revenue as % of GNP	8.8	8.1

Chapter 5

MICROSIMULATION ANALYSES OF TAXES, BENEFITS AND FINANCIAL RETURNS TO EMPLOYMENT: UNITED KINGDOM, 1993-94

Alan Duncan and Christopher Giles

5.1 Introduction

This paper highlights the financial returns to employment for employed and unwaged individuals in the UK. The aim of the paper is to evaluate these returns and to compare them to Irish estimates calculated by Callan (1995). It uses a range of summary measures of work incentives based on a representative sample of the UK labour force. The estimates of the financial returns to work have been calculated using TAXBEN, the Institute for Fiscal Studies (IFS) tax and Benefit model.

Similar calculations for the UK were originally undertaken as part of the follow up to the OECD job study using the same data and a similar tax and benefit model. The results in this paper differ from the OECD results to the extent that the assumptions in this paper regarding earnings levels in the UK have been matched as closely as possible to those used for Ireland by Callan (1995).

The paper is organised as follows. In Section 5.2, we set out the assumptions included in this paper. These include the measures of financial returns from employment, our wage assumptions, excluded household types and alternative treatments of housing costs. The section also includes a brief description of TAXBEN. Section 5.3 describes the main parameters of the 1993 UK tax and benefit system. The UK results and a comparison with Ireland are presented in Section 5.4.

5.2 The Calculation of Financial Returns to Employment

In this paper, we calculate the financial returns to employment using two measures, the Average Tax Rate (ATR) and the Replacement Rate (RR). Both measures compare the financial returns to employment with the financial position of unwaged individuals. Hence they help to shed light on the incentives in the tax and benefit system for individuals to take work.

The ATR measures the proportion of their gross wages that employees lose in tax, social insurance contributions and reduced benefits when they take employment. As different countries raise different proportions of direct tax revenue formally incident on employers, the gross wage includes employer taxes. This improves cross country comparisons. Higher average tax rates indicate a higher proportion of any increase in gross earnings is taken by the state. The definition of the ATR is as follows:

$$ATR = 100 * \left(1 - \frac{In\ work\ family\ net\ income - Out\ of\ work\ family\ net\ income}{Gross\ labour\ costs} \right)$$

The replacement rate measures the out of work income as a proportion of in work family income, to give an impression of the proportionate gain of employment, relative to being unwaged. The higher the replacement rates, the greater out of work income is relative to income in work. The RR calculation used in this paper is shown below:

$$RR = \frac{Out\ of\ work\ family\ net\ income}{In\ work\ family\ net\ income}$$

Neither of these measures completely describes work incentives in any country for which we would need econometric estimates of individual preferences subject to full descriptions of budget constraints which incorporate the tax and benefit system.

In particular, these measures of financial returns to employment do not always accord with theoretical interpretations of the effect of taxes and

Figure 5.1: *Incentive Effect of Higher Wages*
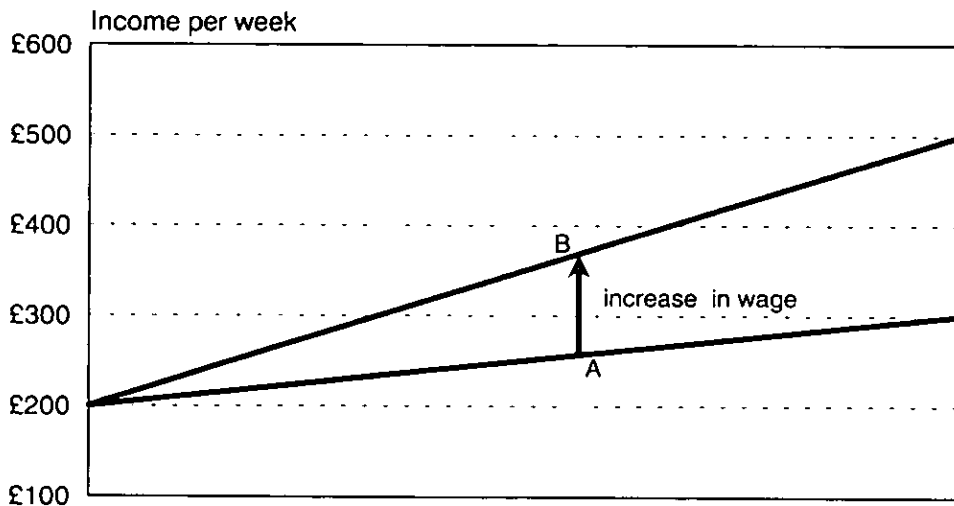
Interpretation: The theoretical incentive effect of a shift from budget constraint A to B is ambiguous. The incentive effect as measured by the replacement rate and/or average tax rate is positive.

Figure 5.2: *Incentive Effect of Higher Income*
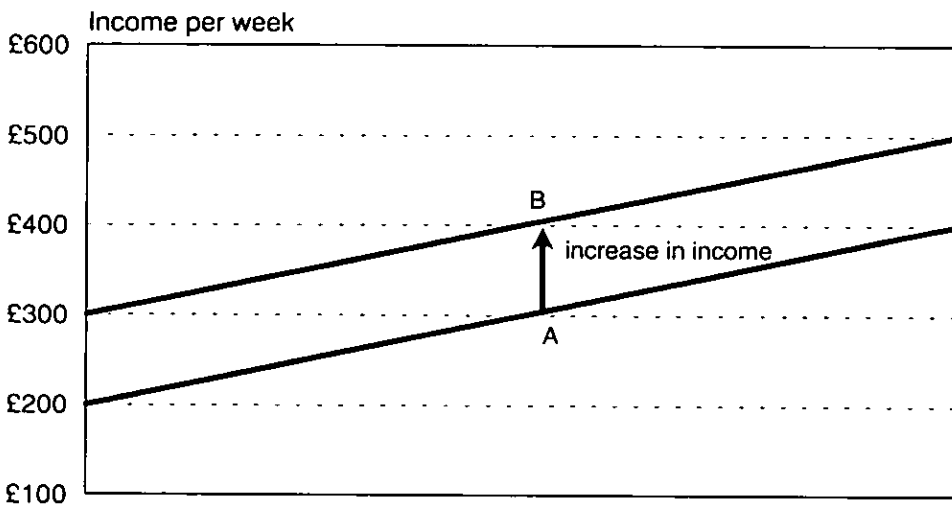
Interpretation: The theoretical incentive effect of a shift from budget constraint A to B is negative. The incentive effect as measured by the replacement rate is negative, but the average tax rate is unchanged.

benefits on incentives. The potential problems are shown in Figures 5.1 and 5.2.

In both these figures, the line which includes letter A can be viewed as the hours/income choice initially available to individuals, and the line including letter B shows the choices available after a reform. Below the figure, we list the changes in incentives according to standard economic theory for an individual starting at point A, and the effects on replacement rates and average tax rates.

Figure 5.1 shows the effect of an increase in the net wage at all hours levels. If individuals start at point A, the theoretical effect on their incentives are ambiguous. On the one hand, they would keep more income from any additional hour of employment, which would imply greater labour supply (*the substitution effect*). But on the other hand they need to work fewer hours to gain the same level of income (*the income effect*). Which of these effects dominates is ambiguous. However, neither replacement rates nor average tax rates show ambiguous results, both measures fall indicating a positive effect on work incentives. This unambiguously positive effect on these measures from an increase in the net wage is only theoretically supported for those not employed.

Figure 5.2 shows the effect of a universal increase in income on incentives. It could be thought of as an increase in a universal benefit or an increase in a partner's income within a family unit. Theoretically a pure income effect, this has an unambiguously negative effect on work incentives because individuals can sustain the same living standard working fewer hours. The replacement rate measure also shows an unambiguously negative effect on financial returns to employment as the relative level of the intercept income is higher. But average tax rates are unchanged and therefore do not reflect theoretical interpretations of an income effect.

Care must therefore be taken in the interpretation of average tax rates and replacement rates, as they sometimes show results that seem perverse and contradictory. But though there are problems in interpretation, nevertheless, average tax rates and replacement rates are interesting summary measures of the financial returns to employment and, used in conjunction with representative samples of the population, improve

markedly on estimates of incentives based upon hypothetical or "average" families.

Average tax rates and replacement rates are sensitive to the precise definition of net income in work, for the unwaged and out of work income for the waged. In this paper, we use only one "unemployment counterfactual", because the out of work incomes in the UK vary little with the length of time on benefits.[1] For the "employment counterfactual" we follow the OECD[2] specification with two full-time employment job scenarios. We used the median and tenth percentile earnings for full-time men (over 30 hours a week) which were respectively £289 and £119 in 1994 prices. For the results, it can be assumed that these earnings levels are at any hours level above 16 hours a week, the threshold for entitlement to the UK Family Credit.

Using these counterfactuals, average tax rates and replacement rates were calculated for all individuals in the 1993 Family Expenditure Survey who were in the potential labour force. Included individuals were employees (using observed hours and wages) and unemployed and unoccupied individuals. Retired, the self employed, the sick and those in full time education were excluded .

As a default, the incentive measures were calculated gross of housing costs and housing benefits. This measure includes all housing related benefits in net income and does not deduct housing costs. The net income level therefore represents the total family resources for all expenditure items including housing. The second basis for comparison was a net of housing costs measure. This deducts housing costs from the gross of housing costs income measure. As the same amount is deducted in both the waged and unwaged scenario, the net basis for housing costs has no effect on average tax rates but reduces the level of replacement rates, as out of work income is reduced. The final housing costs assumption was a zero housing costs assumption, where average tax rates and replacement rates were calculated abstracting from housing costs. Though this is an

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[1] The most significant difference being an increase in the mortgage payments available after 16 week out of work.

[2] OECD (forthcoming).

inappropriate method of calculating returns to employment in the UK, it can be a valid basis for international comparison where data in other countries does not include sufficient housing cost information for valid comparisons. In the UK benefit system, this reduces out of work incomes as there are no housing related benefits. Consequently average tax rates and replacement rates are lower under this measure than under the gross or net of housing measures.

The IFS TAXBEN[3] model was used to calculate the measures of financial returns to employment. It is a static tax and benefit microsimulation model based on the UK Family Expenditure Survey data 1978, 1984 through to 1994-95. TAXBEN can operate using any UK tax and benefit system from 1978 to 1996 inclusive. In this exercise, 1993 data and the 1993 tax system were used in order to overcome problems of uprating the data or the tax system. The model estimates payments of taxes (direct and indirect) social security contributions and receipt of means-tested and non means-tested benefits. It achieves a high degree of accuracy in estimating the aggregate receipt of direct tax revenues and payment of the major UK benefits for the non-sick population (Income Support, the retirement pension, child benefits and housing benefits). It is less accurate in estimating payments of indirect taxes, receipt of more minor benefits and benefits to the sick and disabled.

The income measure is current weekly income so that distinctions can be drawn from income levels in different employment circumstances. The incentive measures were calculated at the immediate family unit level, which includes a couple or single adult plus any dependent children. In these calculations we have assumed full take up of all means-tested benefit entitlements.

5.3 UK Tax and Benefits System (1993)

The parameters of the UK tax and social security system can be found in many relevant Inland Revenue, Customs and Excise and Department of Social Security publications. The following is but a brief

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[3] See Giles and McCrae (1995) for more details.

description of the parameters of the major direct taxes and benefits which existed in the UK for those in the labour force in 1993. Since 1993, there have been many minor changes to the system, but it remains essentially the same in structure.

- The income tax system is based on individual income.

- The basic rate of Income Tax is 25 per cent. There is a higher rate of 40 per cent paid by fewer than 10 per cent of tax payers, and a lower starting rate of 20 per cent for the first £2,500 of taxable income. Each individual is entitled to a personal income tax allowance of £3,445 and each married couple receives an additional allowance of £1,720.

- The main employee rate of National Insurance Contributions (NIC, the UK social security contribution) is 9 per cent. This is payable on earnings above the Lower Earnings Limit (£56 per week) up to the Upper Earnings Limit (£420 per week). A lower rate of 2 per cent is payable on earnings below the LEL. The main employer rate of NIC is 10.4 per cent payable on all earnings, with no ceiling on contributions. There are lower rates of employer contributions for employees on low earnings. Individuals can waive rights to certain social security provisions in return for a rebate of NICs, which is paid into an approved pension plan.

- The social security system includes non-means-tested benefits, (both social insurance benefits and contingent benefits) and means-tested benefits. The role of means-tested benefits has increased significantly since the early 1980s.

- Child Benefit is a contingent benefit payable to mothers of children. In 1993 the rate was £10 per week for the first child and £8.10 for subsequent children. It is not taxable. Unemployment benefit is a social insurance benefit payable at a rate of £44.65 a week for the first year of unemployment in 1993. It is contingent on past social insurance contributions and is generally lower than the rates of means-tested benefits for the unwaged.

- Income Support is the major means-tested benefit in the UK. It provides a safety net level of income for those families with incomes below the level. Most income (private and benefit such as Unemployment Benefit or Child Benefit) is taken into account in the income test, and Income Support is withdrawn at a 100 per cent rate on this income. Income Support entitlement ceases if one member of the family works more than 16 hours a week. The average level of Income Support payments in 1994 was £55.78 per week. The table below gives Income Support rates for 1993, and the proportion of the total entitlement due to the presence of children in a family.

Table 5.1: *Income Support Rates, 1993*

Family type		Income Support Rate £	% of Payment Generated by Children %
Single Adult -	Under 25	34.80	-
	Over 25	44.00	-
Lone Parent -	1 Child age 6	73.60	40
	3 children aged 3, 8, 11	110.80	60
Couple Over 18 -	No children	69.00	-
	1 child age 6	93.70	26
	2 children aged 8, 11	115.85	40
	3 children aged 3, 8, 11	130.90	47

- Family Credit is the principal "in-work" benefit in the UK. It provides additional means-tested income for low income families with children where at least one person works more than 16 hours a week. The main adult credit in 1993 was £42.50 with additional child credits and the effective tax rate on Family Credit is 70 per cent of net income. The average Family Credit payment in 1993 was £45.97.

- Housing Benefit covers 100 per cent of rent payments for families on Income Support, and up to 100 per cent of rent payments for other low income families. Under the income test, the marginal withdrawal rate of Housing Benefit is 65 per cent on net income (after deduction of taxes and withdrawal of benefits such as Family Credit).

- There is an additional benefit for help with the UK local tax, the Council Tax. It provides means-tested help with Council Tax bills on the same basis as Housing Benefit. The withdrawal rate on Council Tax Benefit is 20 per cent.

- Each of the means-tested benefits is subject to a capital test, as well as the income test. Any assets (excluding the primary dwelling of a family) greater than £3,000 will result in some reduction of benefit and if assets exceed £8,000 families lose all benefit entitlement.

5.4 Results

5.4.1 UK Results: Average Tax Rates

A summary of the UK ATR results are shown in the tables below.[4] Table 5.2 shows a summary of average tax rates for employees, and the unwaged (on both high and low wage assumptions). They are also split by gender. It shows that nearly 40 per cent of employees face an ATR of between 20 per cent and 40 per cent, with a further 30 per cent having average tax rates between 40 per cent and 60 per cent. Average tax rates for women employees are generally lower than those for men for two reasons. First, women who are secondary earners have no out of work benefit entitlements and therefore the only withdrawal they face from their gross income are taxes and social security contributions. Second, part-time women will face very low income tax bills as a result of the high UK personal income tax allowance which creates substantial progressivity in the UK income tax system.

Average tax rates for the unwaged using the median earnings assumption are slightly higher than for employees, predominantly because there was a greater proportion of individuals from families with high average tax rates such as lone parents and married couples with children. Amongst this group, women again face lower average tax rates on average than men. Much of the reason for this is the composition of unwaged

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[4] The full list of tables is available from the authors on request.

women. Those that are unemployed face higher average tax rates than those otherwise unwaged as they often lived with an employed partner.

Table 5.2: *Summary of Average Tax Rates in the UK*

	Employees			Unwaged (median wages)			Unwaged (low wages)		
	All	Men	Women	All	Men	Women	All	Men	Women
Negative	5	1	10	0	0	0	0	0	1
0>=20	9	2	17	0	0	0	22	9	28
20>=40	39	37	41	36	19	44	17	12	19
40>=60	30	40	19	34	47	27	22	30	18
60>=80	12	16	9	25	28	24	18	15	20
80>=100	4	4	3	5	6	4	19	31	13
100>=120	0	0	0	0	0	0	1	1	1
>120	0	0	0	0	0	0	1	1	0

The low earnings results showed some interesting features compared with the median earning results. There were more individuals with average tax rates greater than 60 per cent using the low wage assumption, which we would expect because earnings are lower and we would expect proportionately more to be lost in benefit withdrawal. But there were also more individuals with average tax rates lower than 20 per cent than under the median wage assumption, particularly for women. This occurs for individuals with no means-tested benefit entitlement, primarily because their partner is unwaged. If someone has no means-tested benefit entitlement, the higher wage assumption generates substantially more income tax liability and hence a higher ATR. Care must be taken, therefore, not to attribute this lower ATR to worse work incentives if wages are increased for unwaged individuals.

Table 5.3:   *UK Average Tax Rates, by Quintile, Family Type and Economic Status*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	%>40	%>60	%>40	%>60	%>40	%>60
Quintile						
1st	65	35	81	6	76	25
2nd	79	22	86	57	84	66
3rd	75	38	75	56	72	60
4th	45	18	31	16	30	20
5th	28	4	12	0	7	3
Family Type						
Single	80	21	82	11	80	28
Lone Parent	71	42	95	63	87	62
Married no Children	22	6	43	15	41	27
Married with children	45	20	55	37	53	43
Economic Status						
Unemployed	-	-	82	33	80	47
Other unwaged	-	-	52	28	49	34

Table 5.3 shows proportions of UK individuals with high average tax rates broken down by quintile family type and economic status. Average tax rates for the employed fall on average as income quintile rises due to fewer individuals in higher income brackets being entitled to means-tested benefits if they were out of work. The same is broadly true for the unwaged at median earnings although the bottom quintile includes many individuals with average tax rates around 60 per cent, which accounts for the very low proportion over 60 per cent. For the low wage assumption, we again observe a widening of average tax rates relative to the median wage assumption, with more individuals with average tax rates below 40 per cent and more above 60 per cent.

The family type calculations show that lone parents and couples with children are most likely to have very high average tax rates (>60%) but the single childless also have a high proportion of individuals with

average tax rates between 40 per cent and 60 per cent. Most of these groups will be entitled to means-tested out of work benefits, and the level of benefit for families with children is high relative to the childless (see Table 5.1), which explains the higher proportion of families with average tax rates in excess of 60 per cent. The economic status results show that the unemployed have higher average tax rates than the unwaged as they are more likely to be single or married to an unwaged spouse.

5.4.2 UK Results : Replacement Rates

The replacement rate summary results shown in Table 5.4 show similar features to the average tax rates but there are also some important differences. One of the most obvious is that women (especially secondary earners) have higher replacement rates than men. This is because if their partner is employed, the family will still have a relatively high net income when the woman is not in paid employment. Hence her earnings might make proportionately little difference to the family income, and her replacement rate might be relatively high. This is a feature of replacement rates because they include an indication of the income effect on incentives rather than simply effect of the tax and benefit withdrawal.

Table 5.4:   *Summary of Replacement Rates in the UK*

	Employees			Unwaged (median wages)			Unwaged (low wages)		
	All	Men	Women	All	Men	Women	All	Men	Women
Negative	1	1	1	1	2	1	1	2	1
0>=20	7	11	4	8	15	4	1	1	1
20>=40	23	32	13	19	27	15	7	14	4
40>=60	32	39	25	41	29	47	14	18	11
60>=80	23	13	34	27	21	29	41	24	50
80>=100	14	4	23	4	4	4	34	38	32
100>=120	0	0	0	0	0	0	1	1	1
>120	0	0	0	0	0	0	0	0	0

Replacement rates also show more consistent results when different wage assumptions are made, and replacement rates increase with lower wage assumptions. Using the median wage assumption, 31 per cent of

initially unwaged individuals had replacement rates greater than 60 per cent compared with 77 cent of the same unwaged individual using the low wage results.

Table 5.5 shows the replacement rate results for families of different types, income quintile and economic status. The proportion of individuals with high replacement rates increases with an increased proportion of individuals married to an employed spouse and with an increase in dependence on means-tested benefits. Therefore, there is little pattern of replacement rates by income quintile for employees. For the unwaged, replacement rates rise with income quintile as individuals are more likely to be a partner of an employed person. Replacement rates are again higher for families with children, especially in the low wage case. The economic status results are also consistent with the hypothesis that individuals with waged partners have higher replacement rates.

Table 5.5: *UK Replacement Rates, by Quintile, Family Type and Economic Status*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	%>40	%>60	%>40	%>60	%>40	%>60
Quintile						
1st	73	40	8	0	63	26
2nd	44	28	81	7	100	85
3rd	61	40	99	49	100	97
4th	75	40	100	30	100	100
5th	74	36	100	100	100	100
Family Type						
Single	33	12	14	2	64	30
Lone Parent	92	68	84	26	99	86
Married no Children	76	34	75	25	96	80
Married with children	84	54	98	50	100	98
Economic Status						
Unemployed	-	-	56	24	84	66
Other unwaged	-	-	82	35	94	84

5.4.3 UK / Ireland Comparisons

Using the default assumption on the treatment of housing costs and benefits for the UK (after housing benefit and before housing costs) Table 5.6 compares replacement rates in the UK and Ireland for employees and the unwaged. In the case of the unwaged, we present results for a low wage assumption and for an assumption of median earnings, as detailed in Section 5.2. It shows that for all groups, while the overall distribution of replacement rates for the UK and Ireland are similar, Irish replacement rates are slightly lower on average. One possible explanation of this finding is that out of work incomes are lower relative to in work incomes in Ireland than in the UK. This could arise if benefits were higher in the UK than in Ireland (although Callan and Sutherland (1997) - Chapter 4 of this volume - would reject this explanation) or, more plausibly, because other income in a family is higher in the UK, because partners might be more likely to be employed in the UK.

Table 5.6: *Replacement Rates: UK (After Housing Benefit, Before Housing Costs) and Ireland (Before Housing Costs and Benefits)*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	UK	Ireland	UK	Ireland	UK	Ireland
Negative	1	0	1	0	1	0
0>=20	7	19	8	4	1	3
20>=40	23	27	19	24	7	3
40>=60	32	28	41	31	14	13
60>=80	23	20	27	36	41	62
80>=100	14	5	4	5	34	20
100>=120	0	1	0	0	0	0
>120	0	0	0	0	0	0

Alternatively, the result could be driven by different techniques in the calculation of replacement rates, in particular the treatment of housing costs. Tables 5.7 and 5.8 show the same results for Ireland, but for the UK use two alternative treatments of housing costs. Table 5.7 nets housing costs from both in work and out of work incomes, whilst Table 5.8 shows

the replacement rate before housing costs and benefits, which effectively is the same as assuming housing costs are zero. Difficulties in generating accurate and contemporary housing cost information from the Irish data means that the third basis (in Table 5.8) gives the best comparison of financial returns in the two countries.

The alternative housing costs assumptions for the UK significantly change the picture as replacement rates fall relative to the gross housing cost assumption for both the net and zero housing costs assumption. In Table 5.8 it is clear that the UK has lower replacement rates for unwaged individuals which reflect lower out of work incomes and higher wages in employment. This is consistent with comparisons of the generosity of the two benefit systems shown in Callan and Sutherland (1996). But for employees, replacement rates in Ireland are lower on average than in the UK. This is a reflection of a greater proportion of two earner couples in the UK than in Ireland, which increases the out of work incomes of individuals in the UK and hence their replacement rate.

Table 5.7:   *Replacement Rates UK (After Housing Costs and Benefits) and Ireland (Before Housing Costs and Benefits)*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	UK	Ireland	UK	Ireland	UK	Ireland
Negative	3	0	2	0	2	0
0>=20	10	19	9	4	1	3
20>=40	30	27	28	24	8	3
40>=60	27	28	41	31	19	13
60>=80	18	20	17	36	44	62
80>=100	11	5	2	5	25	20
100>=120	0	1	0	0	1	0
>120	0	0	0	0	1	0

Table 5.8:   *Replacement Rates UK and Ireland (Before Housing Costs and Benefits)*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	UK	Ireland	UK	Ireland	UK	Ireland
Negative	1	0	1	0	1	0
0>=20	11	19	9	4	1	3
20>=40	28	27	32	24	9	3
40>=60	30	28	40	31	27	13
60>=80	20	20	16	36	48	62
80>=100	11	5	1	5	14	20
100>=120	0	1	0	0	0	0
>120	0	0	0	0	0	0

Finally, in Table 5.9 we show a comparison of average tax rates in the UK and Ireland using the zero housing costs assumptions. For all three groups, average tax rates are lower in the UK than in Ireland. This is consistent with the replacement rate results because the effect of a partner's earnings fail to increase average tax rates but do increase replacement rates. Again the main reasons for these results are higher wages in the UK and lower benefits relative to those wages. There are some interesting compositional breakdowns, however. Families with children (particularly lone parents) in the UK tend to have higher average tax rates than in Ireland, indicating a faster rate of withdrawal of benefit in the UK than in Ireland. This is despite the more generous Family Credit in work benefit in the UK.

Table 5.9:   *Average Tax Rates Comparison UK and Ireland (Before Housing Costs and Benefits)*

	Employees		Unwaged (median wages)		Unwaged (low wages)	
	UK	Ireland	UK	Ireland	UK	Ireland
Negative	9	0	0	0	0	0
0>=20	9	3	0	0	23	1
20>=40	41	20	38	7	20	24
40>=60	37	53	49	65	35	39
60>=80	6	21	13	26	19	31
80>=100	1	2	0	2	2	5
100>=120	0	1	0	0	0	0
>120	0	0	0	0	0	0

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Chapter 6

MICROSIMULATION ANALYSES OF REPLACEMENT RATES IN IRELAND

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6.1 Introduction

Making the tax and social welfare systems more "work-friendly", and thus improving the financial incentive to take up and stay in work, is now a major preoccupation of Irish policy-makers. In recent years income tax and PRSI relief have been targeted at the low paid, and the report of the Expert Working Group on the Integration of the Income Tax and Social Welfare Systems (1996) seeks to point towards ways of improving work incentives. But what is the current distribution of work incentives, how has it been changing, and how does it look in comparative perspective? In this paper we present a profile of the financial work incentives facing key groups actually or potentially in the Irish labour force, analyse how this pattern has evolved in recent years, and carry out an in-depth comparison of the Irish situation with corresponding results for the United Kingdom.

The most commonly-used measure of work incentives is the replacement rate, the ratio of income when unemployed to income when in work. The full distribution of replacement rates can only be seen from micro-data on individuals and their families. For Ireland, the 1987 ESRI large-scale household survey on income distribution, poverty, and use of state services has provided the basis for the construction of the tax/benefit simulation model SWITCH (Callan, 1991; Callan, O'Donoghue and O'Neill, 1996). Using this model Callan, O'Donoghue and O'Neill (1994) estimated replacement rates for the unemployed and employees in the 1987 sample, and using the more recent version based on that sample data uprated to 1994; Callan, Nolan and O'Donoghue (1996) looked at the way replacement rates changed since 1987. It is this uprated version of SWITCH which provides the basis for the results presented in this paper. It

will be possible in the future to repeat the analysis using the next phase in the development of SWITCH incorporating 1994 sample data from the Living in Ireland Survey: both experience elsewhere and preliminary indications here suggest that the model based on uprated 1987 data provides a reasonably reliable overall picture.

In Section 6.2, some general issues in the measurement of incentives via replacement rates are discussed. In Section 6.3 we summarise what microsimulation-based measures show about the evolution of replacement rates in Ireland between 1987 and 1994, and contrast this with alternative approaches. Section 6.4 presents the detailed comparisons of the distribution of replacement rates between Ireland and the UK and seeks to identify key features of the tax and welfare systems underlying these results. The concluding section sets out the main conclusions from a policy perspective at this stage and how we see the future development of research on work incentives in Ireland.

6.2 Some Issues in Measuring Work Incentives

The most commonly used measure of work incentives is the replacement rate, the ratio of income when unemployed to income when in work. Alternatives such as the average and marginal tax rate on an unemployed person taking up a job have also been used, and results for Ireland for those measures have in fact been produced for the OECD using the data-base employed in this paper (see Callan, 1995), but here we concentrate on the measure which dominates Irish policy debates. Replacement rates are intended to provide a measure of the balance between income in work and income out of work, to reflect the financial incentives which an unemployed person has to seek employment or which an employee has to continue in employment. Replacement rates can be defined in different ways and no one definition is best for all purposes. It is therefore necessary to discuss briefly the issues which arise and the route followed here.

Microsimulation modelling provides a means of analysing the replacement rates facing individuals and families on the basis of detailed micro-level data gathered in a large-scale household sample. Essentially,

the tax-benefit model is first used to simulate the disposable income of the tax unit when unemployed. This involves simulation of the relevant social welfare unemployment compensation and of income tax liabilities, as well as the universal child benefit. The counterfactual situation, where the individual is employed is then modelled. Again, the tax-benefit model is used to estimate the disposable income the tax unit would have in that situation, taking into account changes in social welfare entitlements and tax liabilities, and, where relevant, entitlement to Family Income Supplement (FIS) – the social welfare benefit targeted at low income families depending on wage earnings. (In these calculations the gross earnings of the spouse are held constant, but their net earnings or benefit receipt may be affected by their partner's employment status.) The replacement rate is then calculated as the ratio of family income when out of work to family income when in work.

The first issue in measuring replacement rates via microsimulation modelling is what level of earnings one should employ for those currently not in paid work, what is the appropriate earnings counterfactual for this group? Atkinson and Micklewright (1985) suggest that from an incentive point of view the ratio of benefits to net earnings in the last job may be of interest, in that it may play a role as a "rule of thumb" which influences the reservation wage of the unemployed. (Some results based on this measure from the 1987 ESRI sample were presented in Callan and Nolan, 1994.) However, in empirical studies employing micro-data to examine incentive effects and search behaviour the most common definition is after-tax income when unemployed compared with after-tax income in a prospective job. This is the concept employed in estimating replacement rates from the 1987 ESRI sample in Callan, O'Donoghue and O'Neill (1994), using for the unemployed the predicted gross earnings from estimated earnings functions. A simpler alternative is to use a particular gross earnings level – such as mean, median or lowest decile of earnings in the sample – as the prospective earnings for all those not currently at work. Here we employ both predicted wages and several such alternatives to see how much difference this makes to the results.

The second key issue is what unemployment compensation to attribute to those in employment when sampled in estimating their counterfactual situation. Here the replacement rate is calculated on the basis that income support when unemployed would be provided by long-term Unemployment Assistance (UA). While some would in fact receive Unemployment Benefit for a time if they became unemployed, in a situation where long-term unemployment is so high it is the rate of long-term support which is arguably most relevant to the debate on incentives. We therefore continue to employ this simplification, adopted in previous analyses with SWITCH and in the UK results by Duncan and Giles (1996) on which we draw for comparative purposes. The amount which would be received from UA is simulated by the model by application of the means test and the amounts payable for families of differing composition.

Finally, the appropriate treatment of FIS is also an issue. Entitlement to FIS is modelled on the basis of the parameters of the scheme by SWITCH and these entitlements can be included in the calculations. However, as in the UK the take-up of this scheme appears to be particularly low, with perhaps only one-third of those entitled actually in receipt of the payment. For this reason, in this paper we also employ a variant where only a randomly-selected one in three of those entitled to FIS is attributed that benefit.

Non-cash benefits such as the value of medical card entitlement, fuel vouchers, and differential rent for local authority tenants are not taken into account in these calculations. Callan, Nolan and Whelan (1996) find that the value of secondary and non-cash benefits can be as much as 20 per cent of the basic payment rate, for an unemployed couple with 4 children. But there can be considerable variation across schemes and across individuals and families in the relative importance of such benefits. A comprehensive microsimulation study of incentives, building entitlement to these benefits into the modelling procedure, would be of great interest, particularly given the extension of secondary and non-cash benefits in the past decade. In the present context, the key issue is how the structure of secondary and non-cash benefits in Ireland compares with that in the UK. Broadly speaking, one would expect that the Irish medical card structure

has a more adverse impact on incentives than the UK's NHS system, whereby all citizens – both unemployed and employed, at whatever income level- have free access to hospital and GP care. Comparisons in the housing area are made more difficult by the very different structures involved: a combination of rent reductions (the differential rent scheme) and cash supports (rent and mortgage supplements in Ireland, which are conditional on not being at work full-time) as against a very extensive cash-based housing benefit system in the UK. Again, these issues would merit a full-scale investigation, but at present in making comparisons with the UK we necessarily restrict attention to cash replacement rates.

6.3 The Evolution of Replacement Rates in Ireland 1987-1994

Our analysis of replacement rates in Ireland via the SWITCH microsimulation model is based on data obtained in a large-scale household survey carried out by the ESRI in 1987, but uprated to 1994. In this section we describe the uprating procedure employed and bring out what comparison of microsimulation results for 1987 and 1994 shows about the evolution of replacement rates over the period. We also refer to how this compares with the pattern suggested by alternative approaches to measuring replacement rates over time, which was examined in some detail in Callan, Nolan and O'Donoghue (1996).

In uprating the model from 1987 to 1994, the tax and social welfare policy changes between the two years are captured by changes in the relevant parameters (tax rates and bands, social welfare rates, etc.) in the microsimulation model. The 1987 data can also be uprated to approximate 1994 composition in terms of key characteristics by a combination of static ageing techniques: for a full description of the uprating procedures, see Callan, O'Donoghue and O'Neill (1996). In the present context, however, we are particularly interested in investigating the evolution of replacement rates for a fixed population of the unemployed, so we abstract from that part of the usual uprating procedure which involves reweighting of cases to reflect changes in the demographic and socio-economic composition of the

population.[1] Increased incomes are taken into account by separate uprating factors for wage and salary income, self-employment income, and farm income.

We now compare the mean replacement rate for the unemployed produced by the microsimulation model in 1987 with the uprated 1994 mean, using predicted wages from four human capital type wage equations for single and married men and women. These equations (described in Callan and Wren, 1994) include information on past labour market experience and educational qualifications, with the depreciation effect of years spent unemployed or out of the labour force taken into account, so that wages facing the long-term unemployed are affected by the length of their unemployment.[2] The "realistic" one-third take-up assumption for FIS is also employed.[3] Table 6.1 shows (row A) the mean replacement ratio for the unemployed produced by the microsimulation approach for 1987 was 62.3 per cent. The uprated 1994 mean is slightly lower, at 61 per cent. The microsimulation approach using predicted wages thus suggests that replacement rates facing the Irish unemployed fell marginally between 1987 and 1994. A separate analysis of Unemployment Benefit and Unemployment Assistance recipients reveals that the mean for those on UB fell while that for UA recipients rose by about 1.5 percentage points, reflecting the more rapid increase in UA rates over the period.

It is of interest to compare the trend shown by this approach with some alternatives. First, the microsimulation approach is again adopted but with two simplifications. Instead of predicted individual wages, unemployed men/women are all assumed to obtain a job at average weekly male/female industrial earnings respectively, and full take-up of FIS is

[1] The full uprating procedures are used in Section 4, for comparisons with the UK.

[2] If the unmeasured labour market characteristics of the unemployed are less favourable than those of the employed, wages predicted on this basis could overstate the wage which the unemployed could expect; but the fact that the duration of total unemployment is included in the equation may capture some or all of this effect.

[3] The allocation of individuals to take-up or non-take-up is random. Given the small number of cases found to be taking up FIS, it is not possible at present to use the more complex modelling procedures adopted in the UK.

assumed. Table 6.1 also shows the mean replacement rates for 1987 and 1994 produced on this basis (row B). Unsurprisingly, the mean replacement rate is much lower than with predicted wages, since the wages predicted for the unemployed by the earnings equations are well below the average – their mean predicted wage is about two-thirds of the average industrial wage. Over the 1987-94 period the mean replacement rate is now shown to have risen rather than fallen by 1 percentage point. This reflects in part the fact that tax/social insurance policy changes were targeted on those below average earnings, which will be missed by calculations based on average earnings. However, it also arises because average industrial earnings rose less rapidly over the period than the National Accounts-based figure used in uprating earnings in the microsimulation model and applied in predicting earnings for the unemployed via earnings functions.

It is also necessary to assess the reliability of alternative methodologies for assessing how replacement rates are changing over time. Relying on hypothetical replacement rates based on illustrative cases – what Walker (1996) calls the first generation approach to analysing tax and welfare reform – has been seen to be inadequate in analysing replacement rates at a point in time, but might none the less adequately capture changes over time. We have updated the hypothetical replacement rate series produced by Hughes and Walsh (1983), which compares UB and UA for different family types with the after-tax wage corresponding to average industrial earnings.[4] Row C of Table 6.1 shows that the mean replacement rate for 1987 and 1994 under this approach. The results are in fact very similar to those produced by the "simple" microsimulation approach, with replacement rates rising over the period, in contrast to the fall suggested by the more sophisticated microsimulation approach: the hypothetical series cannot therefore be taken as a reliable short cut.

Perhaps the simplest approach to measuring trends in income for those in and out of work is to rely on aggregate statistics on income from employment and expenditure on income support for the unemployed. Such a series relating mean unemployment compensation per recipient to mean

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[4] See Callan, Nolan and O'Donoghue (1996) for details.

net earnings has been used in econometric analysis of Irish unemployment by McGettigan and Browne (1993) and in some similar studies elsewhere. Using this approach to produce a "mean replacement rate" series,[5] the results for 1987 and 1994 are once again shown in Table 6.1. (A full description of the construction of the series is in Callan, Nolan and O'Donoghue, 1996.) This expenditure-based series (row D) shows a large fall in the average replacement rate between 1987 and 1994, of almost 6 percentage points, much larger than the microsimulation approach with predicted wages (row A). Both this difference and the crude nature of the series itself suggest that it cannot be relied on to accurately reflect changes in replacement rates.

Table 6.1: *Alternative Measures of Replacement Rates, 1987 and 1994*

Measure		1987	1994	Change
(A)	Microsimulation @ predicted wage, low take-up	62.3	61.0	-1.3
(B)	Microsimulation @ average wage, full take-up	45.6	46.8	1.2
(C)	Hypothetical	45.6	47.1	1.5
(D)	Expenditure	35.7	30.0	-5.7

[5] This is in fact something of a misnomer, since the series represents {mean unemployment compensation/mean earnings}, and not the mean of [unemployment compensation/earnings].

Table 6.2: *Distribution of Replacement Rates Estimated using Predicted Wages, 1987 and 1994*

	Full Take-up of FIS		33 per cent Take-up of FIS	
	1987	1994	1987	1994
0<10	1.0	1.7	1.0	1.7
10<20	1.7	2.4	1.7	2.4
20<30	4.3	3.3	4.3	3.3
30<40	9.3	8.5	9.3	8.5
40<50	11.6	11.7	11.7	11.8
50<60	16.5	15.3	16.4	15.3
60<70	18.9	21.6	19.1	19.6
70<80	16.6	28.4	13.9	22.0
80<90	14.4	4.5	13.1	9.1
90<100	4.0	2.4	5.4	4.6
Over 100	1.7	0.1	4.0	1.6
Total	100	100	100	100

Clearly, developments in *mean* replacement rates tell us only a part of what is going on. A relatively constant mean is consistent with little change throughout the distribution, or with a fall in the replacement rates at the highest levels, offset by a rise in replacement rates by those initially facing rather lower levels. Table 6.2 shows the distribution of estimated replacement rates for the unemployed, for 1987 and 1994, from the microsimulation approach using predicted wages and low FIS take-up. About 37 per cent of the unemployed face a replacement rate of over 70 per cent in 1994, little different to the figure for 1987. Despite this stability, Figures 6.1 and 6.2 illustrate that there have been some significant changes at the top of the distribution.

Figure 6.1: *Distribution of Replacement Rates 1987 and 1994; Microsimulation Estimates at Predicted Wage, 1/3 Take-up of FIS.*
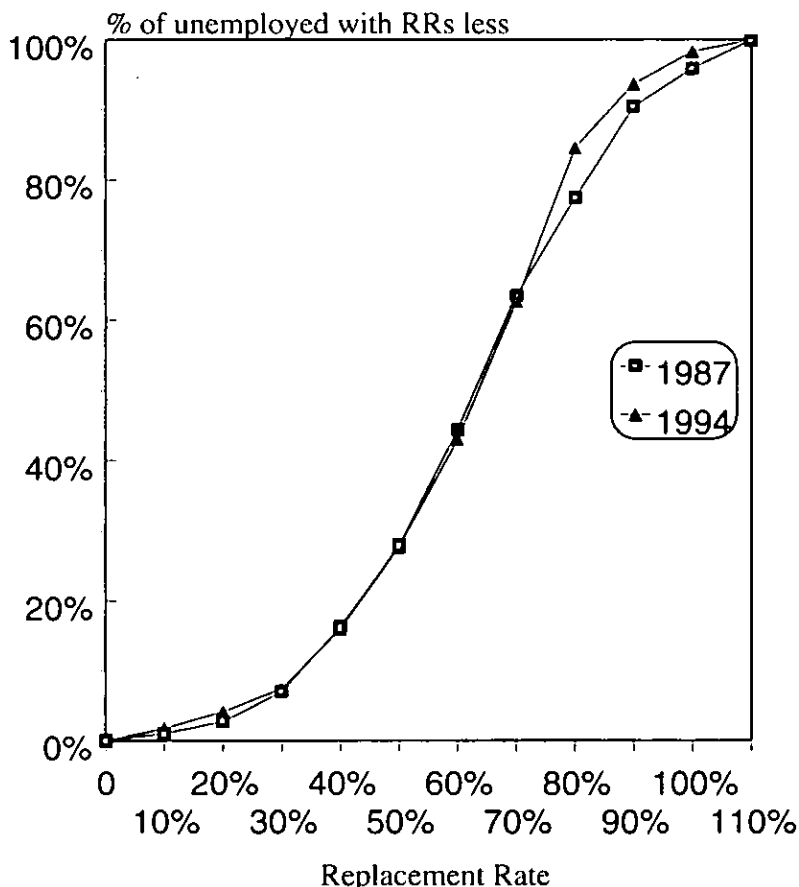

Figure 6.1 shows the proportion of the unemployed facing replacement rates below the interval cut offs (equal 10 percentage point intervals). A scenario in which some replacement rates fell, while none rose, would give rise to a curve for 1994 which lay entirely above the 1987 one, and vice versa; more complex changes could give rise to crossing curves, somewhat analogous to crossing Lorenz curves. Figure 6.1 makes it clear that the actual changes have been concentrated towards the top of the replacement rate distribution, where the 1994 curve lies above the 1987 one. Figure 6.2 thus focuses on this change at the top of the distribution,

and shows sharp falls in the numbers facing replacement rates of over 80 per cent, accompanied by a roughly equal rise in the numbers facing replacement rates of 70 to 80 per cent. Thus the microsimulation analysis with predicted wages suggests that the major change in the distribution of Irish replacement rates in recent years has been a reduction in the incidence of very high replacement rates (over 80 per cent), to levels of 70 to 80 per cent. Higher real wages and reduced taxes on low incomes (which are particularly relevant for those with the highest replacement rates) have contributed to this phenomenon.

Figure 6.2: *Distribution of Replacement Rates over 70 Per Cent, 1987 and 1994 (Microsimulation estimates at predicted wage, 1/3 take-up of FIS).*
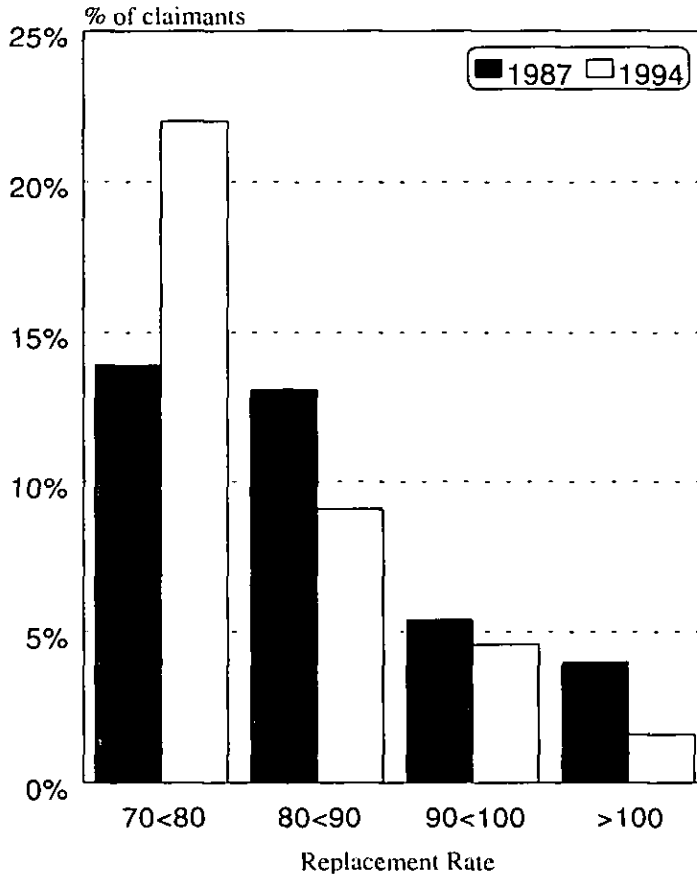
6.4 Replacement Rates in Ireland and the UK

We now turn to a detailed analysis of replacement rates in Ireland for different groups, embedded in a comparison with corresponding results for the UK. The UK figures are drawn from supplementary tables in the appendix to Duncan and Giles (1996), allowing us to extend their comparison between Ireland and the UK in a number of directions. Before presenting the results, it is important to set out clearly the basis on which they were constructed. We continue to concentrate on replacement rates rather than Average Tax Rates. For Ireland, the 1994 uprated version of SWITCH is employed, while the UK results refer to 1993. Because of the way in which state support for housing costs is provided there, Duncan and Giles present UK results (a) including housing-related benefits in income and not deducting housing costs, (b) including housing-related benefits in income but deducting housing costs, and (c) excluding housing-related benefits from income. In the Irish context, a significant element of state support for housing expenditure is provided via reduced rents on local authority housing rather than cash payments. For comparative purposes here we adopt variant (c), where state cash transfers for housing are not included in income. Also for comparative purposes, full take-up of means-tested benefits, including FIS and Family Credit in Ireland/UK respectively, is assumed.

Finally, the assumptions made about the wage facing those not currently employed in calculating replacement rates can be critical. While we have made use of predicted wages for the unemployed at individual level in the previous section, for comparative purposes a consistent and necessarily more straightforward approach has now to be adopted. We therefore follow Duncan and Giles in employing the two counterfactuals used by the OECD in recent work: the weekly gross earnings facing all individuals not in work were assumed to be the median or, alternatively, the tenth percentile of earnings of full-time males. (We will refer to the latter for convenience as the low wage assumption.) Like them, we continue to use means-tested income support for long-term unemployment as the counterfactual for employees.

We first look briefly at replacement rates for employees, before concentrating on the more directly policy-relevant results for those not currently at work. Table 6.3 shows the distribution of calculated replacement rates in Ireland and the UK for all employees. Overall, 6 percent of Irish employees face replacement rates of over 80 per cent while 11 per cent of UK employees are seen to be in that position, and the proportion facing rates above 60 per cent is also higher in the UK.

Table 6.3: *Distribution of Replacement Rates for Employees, Ireland and UK, 1993/1994*

Replacement Rate	Ireland (%)	UK (%)
negative	0	1
0<=20	19	11
20<=40	27	28
40<=60	28	30
60<=80	20	20
80<=100	6	11
>100	0	0

Table 6.4 then distinguishes three household types among employees: single, married without children, and married with children. This disaggregation by family type shows that in both countries the probability of facing a replacement rate above 60 per cent is highest for those who are married with children, followed by married without children, with only a small proportion of single individuals in that position. Within family types, the proportion with replacement rates over 60 per cent is in fact almost identical in Ireland and the UK: about 45 per cent of those who are married with children, 30 per cent of the married without children, and 6 per cent of single individuals. Higher unemployment compensation where there are dependents is thus clearly playing a crucial role in the pattern of replacement rates across family types in both Ireland and the UK. However, the distribution of employees by family type is rather different in the two countries. A substantially higher proportion of Irish employees are single, while more UK employees are married without children. Associated with this is a different gender balance: 49 per cent of UK employees

compared with 41 per cent of Irish employees are women. Duncan and
Giles point out for the UK that women have higher replacement rates on
average than men, and this is also true for Ireland. Since single people have
relatively low replacement rates and married women relatively high ones,
this helps to explain why the overall percentage of employees with high
replacement rates is higher in the UK.

Table 6.4: *Distribution of Replacement Rates for Employees, Ireland and UK
1993/ 1994 by Family Type*

Replacement Rate	Single		Married, No Children		Married with Children	
	Ireland (%)	UK (%)	Ireland (%)	UK (%)	Ireland (%)	UK (%)
negative	0	2	0	1	0	0
0<=20	41	29	2	6	1	5
20<=40	39	51	19	22	18	19
40<=60	13	11	49	41	47	31
60<=80	4	4	24	23	35	28
80<=100	2	2	6	8	8	17
>100	1	0	0	0	1	0

We now turn to replacement rates for the currently unwaged, and
following Duncan and Giles exclude the retired, self-employed, sick and
those in full-time education. Unlike them, within this group we look
separately at the unemployed and those not participating in the labour force
– the latter comprising for the most part married women who in labour
force terms are categorised as in home duties. The counterfactual wage
assumption now comes into play, so Table 6.5 shows the distribution of
calculated replacement rates for the unemployed in Ireland and the UK with
the median and the low wage assumption. With the median wage, we see
that 29 per cent of the Irish unemployed compared with only 10 per cent of
the UK unemployed face a replacement rate above 60 per cent. With the
low wage assumption, the corresponding figures are 74 per cent and 49 per
cent. This gap between Ireland and the UK is not however present for very
high replacement rates with the low wage assumption: 12 per cent of the

Irish unemployed, as against 10 per cent of the UK unemployed, then have cash replacement rates over 80 per cent.

Table 6.5: *Distribution of Replacement Rates for Unemployed, Ireland and UK, 1993/1994, Median and Low Wage Assumption*

Replacement Rate	Median Wage		Low Wage	
	Ireland (%)	UK (%)	Ireland (%)	UK (%)
negative	0	2	0	2
0<=20	11	16	7	1
20<=40	42	39	6	15
40<=60	18	33	12	33
60<=80	25	10	62	39
80<=100	4	0	11	10
>100	0	0	1	0

Table 6.6 shows the corresponding results for those not currently in the labour force. With the median wage assumption, the percentage with replacement rates of over 60 per cent is much higher for Ireland, at 48 per cent compared with only 23 per cent for the UK. With the low wage assumption the gap between the two countries is much less: the percentage with replacement rates over 60 per cent is now 86 per cent for Ireland and 70 per cent for the UK.

Table 6.6: *Distribution of Replacement Rates for Unoccupied, Ireland and UK, 1993/1994, Median and Low Wage Assumption*

Replacement Rate	Median Wage		Low Wage	
	Ireland (%)	UK (%)	Ireland (%)	UK (%)
0<=20	0	5	0	1
20<=40	12	27	0	5
40<=60	40	45	13	24
60<=80	43	21	61	54
80<=100	5	2	25	16
>100	0	0	0	0

Taking Tables 6.4 and 6.5 together, then, we see first that in both countries, the proportion facing high replacement rates is higher for those not in the labour force than for the unemployed. Second, the proportion facing high replacement rates is somewhat higher in Ireland than the UK for both these groups.

Distinguishing different family types may again help in understanding the pattern of replacement rates. Table 6.7 shows replacement rates for the unwaged in Ireland and the UK by family type with the median wage assumption, while Table 6.8 has the corresponding results with the low wage assumption. With the median wage, very few single people in either country face replacement rates of over 60 per cent. For those who are married without children, the percentage with replacement rates over 60 per cent is about 28 per cent in Ireland and 21 per cent in the UK. Replacement rates are much higher again for those who are married with children, and here there is a striking gap between the two countries. Almost two-thirds of the Irish unwaged who are married with children face a replacement rate of over 60 per cent, even with this unrealistically benign assumption about the wage they could command, while the corresponding figure for the UK is below one-third.

Table 6.7: *Distribution of Replacement Rates for Unwaged, Ireland and UK 1993/ 1994 by Family Type, Median Wage Assumption*

Replacement Rate	Single		Married, No Children		Married with Children	
	Ireland (%)	*UK (%)*	*Ireland (%)*	*UK (%)*	*Ireland (%)*	*UK (%)*
negative	0	5	0	1	0	0
0<=20	17	36	0	4	0	0
20<=40	79	57	9	34	0	6
40<=60	4	2	63	40	35	64
60<=80	0	1	24	18	57	29
80<=100	0	0	4	3	8	2
>100	0	0	0	0	0	0

With the low wage assumption, Table 6.8 shows that the difference between the two countries in the percentage facing replacement rates of

over 60 per cent is not now among those who are married with children, simply because almost all this group are in that position in each country. There is none the less a higher proportion of this family type facing replacement rates of over 80 per cent in Ireland. None of the single individuals in either country face replacement rates this high, but almost half face rates of over 60 per cent in Ireland compared with only 5 per cent in the UK. For those who are married without children, there is a narrower differential between the two countries: 88 per cent in Ireland versus 77 per cent in the UK face replacement rates of over 60 per cent.

Table 6.8: *Distribution of Replacement Rates for Unwaged, Ireland and UK 1993/1994 by Family Type, Low Wage Assumption*

	Single		Married, No Children		Married with Children	
Replacement Rate	Ireland (%)	UK (%)	Ireland (%)	UK (%)	Ireland (%)	UK (%)
negative	0	5	0	1	0	0
0<=20	11	2	0	2	0	0
20<=40	10	36	1	2	0	0
40<=60	31	51	10	19	2	4
60<=80	48	5	57	56	71	73
80<=100	0	0	31	21	27	22
>100	0	0	0	0	1	0

The higher replacement rates facing the Irish unwaged clearly reflect the fact that, as documented in Callan and Sutherland (1996), support rates for the long-term unemployed are a good deal higher in Ireland than the UK. There, it was shown that the rates paid in means-tested support for the unemployed via Unemployment Assistance in Ireland and Income Support in the UK in 1994 were very similar in nominal (common currency) terms, despite the UK's higher income per head. As a result, UA paid to a single individual came to 35 per cent of average net earnings around that date, whereas the corresponding figure for Income Support in the UK was only 23 per cent. The impact of differences in social welfare structures rather than rates is more difficult to identify because the two countries in fact have rather similar structures. As far as income tax

structures are concerned, however, there is a significant difference in the treatment of married couples: the Irish income tax system in effect imposes particularly high marginal tax rates on married individuals whose spouses are in employment.

6.5 Conclusion

In this paper our aim has been to look in some depth at financial incentives to take up or stay in work in Ireland, with a comparative perspective provided by a comparison, on a consistent basis, with the UK. This analysis has relied on cash replacement ratios calculated from microsimulation models, in the Irish case the SWITCH tax-benefit model developed at the ESRI. This model-based approach allows changes over time and the first-round impact of actual or potential policy changes to be assessed much more robustly than reliance on a small number of hypothetical cases.

During the 1987 to 1994 period, the microsimulation results suggest that the average replacement rate facing the unemployed in Ireland was roughly constant, with a small rise in the mean for those on Unemployment Assistance. Microsimulation analysis reveals that the relevant wage for the unemployed is a good deal lower than the average industrial wage, with the mean predicted wage being about two-thirds of that average figure. The paper's results show this to be important both for tracking changes in replacement rates over time and assessing the impact of policy changes. The impact on replacement rates of recent policy changes such as improvements in FIS as well as alterations to income tax bands, allowances and exemption limits does not always show up in calculations which focus exclusively on the average industrial wage. Analyses based on two-thirds of that figure, as well as those based on predicted earnings for the unemployed taking account of their qualifications and labour market experience, suggest that such policy measures have served to reduce the incidence of replacement rates above 80 per cent, although the numbers in the 70 to 80 per cent replacement rate category have increased.

The comparison of microsimulation-based replacement rates for Ireland and the UK, using consistent definitions, showed a considerably

higher proportion of the unwaged – whether unemployed or unoccupied – in Ireland facing rates above 60 per cent. For employees there was a different pattern, with a higher proportion of UK employees facing very high replacement rates, of over 80 per cent. The replacement rate was seen to be strongly influenced by family composition in each country, with single individuals having much lower replacement rates than those who were married without children, and married individuals with children having the highest rates, primarily because of the impact of extra income support payments for dependents. In understanding the Ireland-UK comparative picture, the fact that income support for the long-term unemployed in Ireland is a good deal more generous relative to average earnings was the single most important difference identified between the two tax/benefit systems.

Microsimulation-based measures offer the best means of monitoring the evolution of replacement rates and other measures of work incentives, and of making consistent and meaningful comparisons across countries. They can also contribute greatly to assessment of the likely impact of policy changes on work incentives in advance of their implementation, though such an assessment cannot of course be based entirely on static microsimulation. The impact of the policy in question on behaviour must also be taken into account, where possible using econometric estimates of the relevant parameters. This does not necessarily mean that such behavioural responses have to be embedded in the microsimulation model, but it highlights the complementary role of microsimulation modelling and econometric analysis of key parameters in informing policy.

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