ASSESSING WORK INCENTIVES IN TAX-BENEFIT SYSTEMS: INDICATORS OF UNEMPLOYMENT AND LOW-WAGE TRAPS

(*A JOINT EUROPEAN COMMISSION – OECD PROJECT*)

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PRELIMINARY VERSION

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I. INTRODUCTION

The aim of this paper[1] is to present recent indicators produced within the framework of a joint OECD-EU Commission project in order to have useful tools in order to assess reforms in tax-benefit systems. The project[2] is aimed at calculating indicators of unemployment traps, inactivity traps and low-wage- traps as measured by marginal effective tax rates (METRs) on earned income.

It has become an increasingly relevant policy issue whether the current welfare system and its interaction with the tax system provide sufficient employment incentives, particularly for unskilled and low wage workers. A central part of many recent tax and welfare reform strategies is to reduce benefit dependency by making work an economically attractive and rewarding option relative to welfare. In combination with measures to improve people's chances of finding employment and working the desired hours, maintaining and improving financial work incentives is an essential component of efforts to improve the functioning of labour markets.

Member States are committed, in the framework of the European Employment Strategy and the Lisbon process, to put in place a series of programmes to contribute to increasing labour force participation and employment and to reduce unemployment. One of the key areas of reforms aimed at supporting the general objectives of the Employment Strategy is to attract more people in the labour market and to make the underlying incentive structure in the tax and benefit systems supportive to employment. This policy objective is known as 'making work pay'. It means the modernisation of tax and benefit systems so that they provide effective incentives to participate in training, take up jobs and remain in work, thereby shifting the focus away from passive income support towards active measures designed to get people back to work

The processes of multilateral surveillance and economic and employment policy co-ordination in the EU monitor the progress towards the goals set in the Lisbon process and against the recommendations given to Member States to undertake reforms. In these processes, indicators are needed in order to identify labour market problems and to monitor reforms in the Member States. Indicators for financial incentives to work are one important area in this work.

Tax and benefit systems are, along the actual and potential wages, the main labour market institutions to determine financial conditions to work. Their provisions are said to define the incentive structure for work that affect the functioning of labour markets and the reliance on benefits. While the overall incentive structure covers a broad range of features such as financial gains from work, eligibility rules for benefits, their duration as well as the enforcement of the systems, this study focuses on the financial incentives provided by tax and benefit systems. It aims at constructing indicators that measure the financial gain when a jobless person living on benefits (either unemployment benefits or some kind of income support) takes up a job, or a worker decides to work longer.

These are policy indicators, not "performance" indicators, in that the final outcome in terms of impact on labour supply and labour market performance is conditional upon the

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[1] This paper draws heavily on a recent joint EC-OECD publication. See Carone et al. (2003).

[2] Within the European Commission services, the project is financed jointly by DGs ECFIN, EMPL and TAXUD and co-ordinated by EUROSTAT.

behavioural response of individuals to the incentives provided by the tax and benefit systems. . Given the numerous elements of tax-benefit systems and the often complex interactions between them, it is desirable to devise comprehensive summary indicators. They should take into account all relevant tax-and transfer instruments and allow comparisons across countries with very different tax-benefit typologies. So-called *effective* tax rates satisfy these requirements by showing relative tax burdens resulting from the combined operation of taxes, social security contributions (SSCs) and benefit payments.

Marginal effective tax rates (METR) show what part of a change in earnings is "taxed away" by the combined operation of taxes, SSCs and any withdrawal of earnings related social benefits. They are thus important policy indicators for determining how financially rewarding it is for an employee to increase working hours or for an unemployed person to take up employment in the first place. Their magnitude may affect structural unemployment, labour market attachment and labour supply, especially for those persons at the low end of the productivity scale whose labour market opportunities are not sufficient to induce work given the low wages they can attract.

The tax-benefit model used in the computation and the results reported in this paper take a first important step towards a more detailed look at the effects of taxes and benefits on labour market behaviour, especially of the poor. At the moment, the model comprises the rules of tax and benefit systems in 19 EU Member States for the years 2001-2003[3]. Six new EU Member States (Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia), that are not members of the OECD, will be included in the model in the near future.

The paper is divided into five sections. In section II the main definitions and indicators are presented. Section III then provides a detailed set of results. Section IV provides some qualification and caveats to be borne in mind when interpreting the results. Finally, section V draws together a summary of the main results of the analysis and some implications for further policy reform in this area. The main methodological features of the calculation are described in the Annex.

II.   DEFINITIONS AND INDICATORS

II.1.   Definitions of unemployment trap, inactivity trap and low-wage trap

The shape of the budget constraint facing low-income workers does not depend on taxation alone. Indeed, due to the presence of income-tested benefits such as in-work benefits and housing benefits, low-paid workers face non-linear budget constraints with one or more "kink" points. Both income taxes and means-tested benefits combine to generate highly non-linear budget constraints. As a result, marginal effective tax rates vary in a complex way that reflects the intricacies of both the tax rules and the provisions of the transfer system. For example, even though statutory tax rates are relatively low at low levels of income, reflecting the progressivity of tax rate schedules, the METRs that low-income individuals face can in some situations be very high, because of the interaction of various benefits as well as certain provisions built into social security systems. The phase-in and phase-out of personal exemption and the phase-out of social assistance, all affect the METRs people face and can seriously reduce work incentives.

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[3] A more detailed description in the methodological annex of this paper.

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Targeting a particular benefit or tax advantage (allowance, deduction or tax credit) toward low income is usually done by phasing–out the scheme at higher levels of income. This of course reduces its budgetary costs. Yet, at the same time, it increases METRs because in the phase-out range, any additional unit of earnings causes a reduction in the benefit/tax advantage, reducing the net gain resulting from earnings increase[4]. Thus this adverse impact of tax and benefit systems gives rise to three main problems related to labour supply: unemployment, inactivity and low-wage (or poverty) traps. [5]

The unemployment trap

The unemployment trap is defined as a situation where benefits paid to the unemployed and their families are high relative to earnings and, more precisely, where disposable income from benefits is so high relative to that from employment that work "does not pay". Unemployment benefit systems are a very important labour market institution providing income security during unemployment and help to produce a more equitable income distribution. By providing income support to liquidity constrained persons during their unemployment spells, they could also provide a better and more efficient match between workers and jobs as they allow the individual to spend more time for the job search. Yet, at the same time, out-of-work benefits can discourage or delay job-search because the benefit will be withdrawn when the unemployed person finds a job. Moreover, under certain conditions, they put upward pressures on wage levels because a job should be rewarding, in other words, it should lead to a disposable income higher than when unemployed.

In theoretical models of imperfect labour markets, unemployment insurance systems are deemed to increase the unemployment duration and therefore the equilibrium unemployment rate through two main mechanisms. The first one is by lowering search intensity. Indeed, a high relative benefit level reduces the economic incentives to job search and to move from unemployment to work and may encourage individuals to rely on social benefits or to withdraw entirely from the labour market[6]. Under certain conditions, standard search theory models predict that an increase in the amount and duration of unemployment benefits leads to longer unemployment spells. The second mechanism is by increasing union bargaining power (as shown, for instance, in the union wage bargaining models (Blanchard and Wolfers (1999), Layard, Nickell and Jackman (1991)).[7] Essentially, unions

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[4] A benefit payment is equivalent to a negative tax. As such, the income effect on work effort is negative. The substitution effect is positive if transfer payments rise with earnings, thereby contrasting the negative income effect on work effort. But, if transfers falls with earnings, then the negative substitution effect will add to the negative income effect, leading to a potential reduction in work effort.

[5] The interaction between tax and benefit systems has been analysed by us in greater detail in another paper (see Carone G, and A. Salomaki (2001), "Reforms in tax-benefit systems in order to increase employment incentives in the EU", EC Economic Papers, N. 160). That paper also presents an overview of the theoretical aspects of the impact of tax-benefit systems on labour supply and demand.

[6] When unemployment benefit is paid for a limited period (or benefits declines over time), the reservation wage will fall with the duration of the unemployment spell. After the expiration period, there will be a sharp fall in the reservation wage and the search intensity will rise, thereby significantly increasing the probability of leaving unemployment (the so called *exit rate* or *hazard rate*). (see Atkinson and Micklewright (1991), Bover et al.(1996), Layard et al.(1991)).

[7] For example, in a union wage bargaining model of the type "right-to-manage" the bargaining problem for the trade unions is usually described as the maximisation of a Nash function subject to the labour demand function. In these kind of models, the optimal real (take-home) wage can be represented as a mark-up on

face a trade-off between wage increases and employment levels. More generous unemployment benefits make unemployment "less painful" and can therefore change the balance of this trade-off by increasing a union's target wage.

The inactivity trap

The inactivity trap is also a situation where the interaction of a high level of income-tested benefits alone reduces economic incentives to look for and accept a job. It is distinguished from the unemployment trap by the fact that the jobless person is not (or no longer) eligible to receive unemployment benefits but only social assistance and other income-tested benefits. Such schemes provide income security to people who are not eligible for unemployment benefits, and can thus operate as a substitute for unemployment benefit systems. The level of social assistance may be close to or even exceed the level of unemployment benefits, especially for household with children or other dependant persons, and may often provide help over a long period. The level of minimum social assistance for those in non-employment affects the incentives to work because it effectively creates a wage floor. This wage floor (or "reservation wage") derived from benefit levels can be compared to statutory minimum wages as it has the same consequence: a job offer below this wage floor is not rewarding and thus potentially refused.

The low-wage trap

The low-wage trap (also called "poverty trap"), is the situation where the increase in earnings due to higher work effort (working longer or moving to better jobs) does not lead to any, or leads only to a very small, increase in disposable income, due to the combined effect of increasing taxes and the withdrawal of means-tested benefits. Thus, marginal effective tax rates at low earnings can be higher than at middle and high income levels. Indeed, while the budget constraint arising from the income tax schedule is usually non-linear but convex, the budget constraint arising from the interaction of tax and benefit can generate non-linear and non-convex budget constraints. This is typical in the case of a minimum-income guarantee scheme. The existence of high METRs hampers the performance (need to be more specific: it may cause lower working hours or work efforts) of the market through a substitution effect: the relative price of leisure (its opportunity costs in terms of foregone in-work earnings) decreases with decreasing net wage rates for additional hours worked. As a result, the consumption of leisure becomes more attractive (e.g., OECD (1997)).

To what extent these theoretical effects translate into labour supply reactions is an empirical question. The critical issue here is how sensitive the labour supply is to such incentives. Empirical research tend to show that changes in financial work incentives have a larger effect on participation (also termed the extensive margin of labour supply) than on working hours (the "intensive margin" of labour supply). Several results point towards a relatively small behavioural effect on aggregate labour supply. However, incentives can be particularly relevant for certain groups who are frequently primary targets for employment

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workers' alternative income, which corresponds to the fall-back position of workers. Thus, the unemployment benefit, being the main workers' alternative income, is the main determinant of the solution to the Nash bargaining problem.

oriented social policies. These include women, lone-parent families as well as low-skilled (and, thus, low-wage) workers.

II. 2. Indicators for unemployment, inactivity and low-wage traps

Indicators for unemployment, inactivity and low-wage traps should measure the change in disposable income when a person moves from one labour market status to another or increases his or her work effort. The 'trap' indicates that the change in disposable income is small and, vice versa, the effect of tax and benefit systems is large. In order to measure the extent of the tax and benefit system in such situations, the indicators of marginal effective tax rates are useful as they reveal the magnitude of the combined effect of the changes in taxes and benefits. These express what part of the increase in earnings is taxed away in various situations.

In the following, we introduce three different types of marginal effective tax rates to measure the effect of tax and benefit systems in the cases of unemployment, inactivity and low wages.

The marginal effective tax rate to measure unemployment trap

One of the most relevant policy questions is what would be the change in the disposable income if a person moves from unemployment to work. Indeed, the main goal of many new policies directed at low-income households, usually dubbed "make work pay" policies, is to render work more attractive than welfare, in order to avoid the risk of benefit dependency. Hence, in order to assess the effectiveness of such policies we also need to examine the changes in taxes and benefits that would result if one household member takes up a full-time or part-time job. This implies the calculation of an appropriate indicator of the potential impact of the interaction of taxes and benefits on the extensive side of labour supply decision, i.e. a movement from unemployment to work.

Thus, to assess the effectiveness of "make work pay" policies, a useful way of dealing with discrete labour market behaviour is to use the concept of the effective tax rate measured as a change in net and gross income when in and out of work.

Definition: The marginal effective tax rate for an unemployed person ($METR_{ut}$) is an indicator of the so-called unemployment trap. It is aimed to measure the incentives to move from unemployment to work, and it is defined as the rate at which taxes are increased and benefits (mainly unemployment benefits) withdrawn as a person takes up a job (whether full- or part-time).

This indicator is conceptually similar to the standard marginal tax rate which measures change in net income due to an increase in gross income. This is written as following:

$$METR = 1 - \frac{\textit{Change in net income}}{\textit{Change in gross earnings}}$$

The indicator for unemployment trap measuring the change when moving from unemployment to employment differs from the standard marginal tax rate formula in that

the change in net income derives from the difference between two types of net income, namely that when out of work and that when in-work. In other words, there is a change in the labour market status (due to the transition from unemployment to employment) while in the standard case there is a ("marginal") change in gross earnings without a change in the labour market status. In algebraic terms, this is a marginal rate because it is referred to a change in the components of the calculation (whatever the size and the nature- whether "intensive" or "extensive"- of the "margin" used in the calculation).

Thus, the formula can be reformulated as follows:

$$METR_{ut} = 1 - \frac{(Net\ in\text{-}work\ income - Net\ out\text{-}of\text{-}work\ income)}{Change\ in\ gross\ earnings^{8}}$$

Thus, this $METR_{ut}$ is calculated as the change in net-of-tax income over the change in gross earnings that results from taking up a job at some wage level. A high $METR_{ut}$ indicates a risk of the **unemployment trap** – a situation whereby working (or taking up a job) does not pay. This results from the facts that benefits paid to the unemployed and their families are high relative to earnings and a great part of the earned income is 'taxed away' when a person takes up a job. This 'taxing away' occurs through the withdrawal of unemployment benefit and through a higher tax levied on the earnings than on the unemployment benefit. Further, means-tested benefits such as housing benefit might be reduced when gross income increases. This increases additionally the amount of 'taxed away', resulting to a higher $METR_{ut}$.

To calculate the $METR_{ut}$, we consider the unemployment benefit as a component of the net-out-of-work income. To get an overall assessment of the risk of unemployment traps, we have not only considered the usual assumption made in typical rate calculations, that is that the re-entry wages of unemployed individuals are equal to those they earned before unemployment. Indeed, there is empirical evidence that many unemployed persons, for various reasons, have difficulty in finding a job that pays wages comparable to the one in their old job. For example, as the length of an unemployment spell increases, past skills depreciate and this could affect the chance of getting a job paying a wage similar to the previous job[9].

To see how much higher the risk of unemployment trap could be in the case of a deterioration of the wage prospective, we have also measured the $METR_{ut}$ when a person moves from unemployment to employment at a wage level below the wage he/she was earning before unemployment. We also present METRs when a person moves from unemployment to employment at a wage level above the wage he/she was earning before unemployment. These METRs may be relevant when wage prospective have improved due for example to training during the unemployment period.

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[8] For the computation of the $METR_{ut}$ for a single person and a household with one earner , the change in gross earnings is equivalent to the level of gross wage when employed. Indeed, the gross earnings for unemployed persons is zero (unemployment benefits, even if taxable income, are considered in this formula in net terms and , thus, they appear only in the numerator as a net benefit component of the gross income).

[9] The literature on the "cost" of job loss shows that the interaction of several mechanisms, such as the erosion of human capital skills or considerations of social stigma, leads to wages after a period of unemployment that are considerably lower than wages before job loss.

In interpreting the figures on the risk of unemployment trap one should also consider that for those entitled, the duration of the unemployment insurance is limited and is also conditional upon work test and other eligibility criteria. These important elements are not reflected in the calculation, which is referred to the situation in the first month of unemployment. Furthermore, consideration should also be given to the fact that, in some countries, unemployment benefits are reduced through the period of unemployment[10]. Thus, in these cases the METRs faced by the unemployed persons decline over time. But, to the extent that in most Member States, unemployment assistance and social assistance replace the unemployment insurance scheme after its expiry (see Table 2) one should just look at our next indicator (the inactivity trap indicator) to see how high potential disincentives to work in the longer term are.

Net replacement rates

The more common way to measure the unemployment trap is by the calculation of the Net Replacement Rate (NRR). This is the ratio between the net income when unemployed (where the unemployment benefit is the main component of disposable income) and the net income when employed and it can be written as follows:

$$NRR = \frac{\textit{Net out-of-work income}}{\textit{Net in-work income}}$$

It can also be shown that there is a relationship between the indicators of net replacement rates and marginal effective tax rates. The net replacement rate NRR can be written as :

$$NRR = B_g(1 - t_B)/w_{eg}(1 - t_w - t_{ssc})$$

where: (Bg) is the level of gross unemployment benefit, (t) are the tax rates (assuming that social security contributions are not paid out of unemployment benefits) and thus are only included in t_w, (w_{eg}) is the gross wage previously earned when employed. The marginal effective tax rate (METR), assuming that the withdrawal of benefits (α) could also be partial ($0 \le \alpha \le 1$) is:

$$METR = 1 - \left\{ \left[w_{eg}(1 - t_w) - \alpha B_g(1 - t_B) \right]/w_{eg} \right\}$$

Where the components :

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[10] The benefit level is generally related to previous earnings but may also be influenced by other factors such as employment record, age and family situation, and is usually subject to minimum and maximum limits. In Belgium, the payment rate decreases over time from 60% to 43% for a single person. For couples with children, when need is proven, the payment rate can continue at 60% for a prolonged duration. In the Czech Republic, France, the Slovak Republic and Spain payment rates decrease over time for all family situations. In France the decrease of UI benefits is graduated and depends on the duration of contribution and the age of the claimants. The maximum duration of benefit payments is either fixed or depend on the employment record (Belgium, France, Greece, Hungary, Japan, the Netherlands, Poland, Spain) and age (Austria, Finland, France, Germany, the Netherlands, Portugal, Sweden). Cfr. OECD(2002)

$$\left[w_{eg}(1 - t_w - t_{ssc}) - \alpha B_g(1 - t_B) \right] / w_{eg}$$

show the return on moving from unemployment condition (earning B_g) to employment (earning w_{eg}).

Rearranging the METR as follows:

$$METR = \frac{w_{eg} - w_{eg}(1 - t_w) + \alpha B_g(1 - t_B)}{w_{eg}} = \frac{w_{eg}(t_w) + \alpha B_g(1 - t_B)}{w_{eg}} = t_w + \frac{\alpha B_g(1 - t_B)}{w_{eg}} \qquad \text{OR}$$

$$\frac{METR}{1 - t_w} = \frac{t_w}{1 - t_w} + \frac{\alpha B_g(1 - t_B)}{w_{eg}(1 - t_w)} = \frac{METR}{1 - t_w} = \frac{t_w}{1 - t_w} + NRR \qquad \text{and thus,}$$

$$METR = t_w + NRR(1 - t_w)$$

Implicitly, this formulation implies the assumption that the re-entry wages of unemployed individuals are equal to the wages that they received before unemployment. In other words, there is no 'cost' for job loss, other than the loss of earnings in the period of unemployment. There are no subsequent effects on potential earnings. This is one of the major limitations of this kind of indicator.

Indicator for inactivity traps

Inactivity trap is similar to the unemployment trap. The essential difference is that a person in inactivity is not on the labour market and, thus, is not entitled to take up an unemployment benefit. Instead, he or she can be entitled to receive social assistance, the receipt of which is not dependant on the job search or availability to the labour market in most countries. However, the availability of such a benefit can create the same kind of trap as the unemployment benefit if it provides a relatively high level of income relative to the income that the person concerned could earn when in work.

The formula of the $METR_{it}$ is similar to that of the $METR_{ut}$, with the only difference that (where it exists) social assistance (or other last-resort benefit) is the main component of net out-of-work income (thus replacing the unemployment benefit in the calculation).

The marginal effective tax rate to measure low-wage trap

Definition: The marginal effective tax rate for employed persons ($METR_{lw}$) is defined as the rate at which taxes are increased and benefits withdrawn as earnings rise due to an increase in work effort.

This indicator measures the so-called low-wage trap (or "poverty trap"), describing the fact that, in presence of high marginal effective tax rates a person is not able to improve much

his economic situation by increasing his work effort, either through additional working hours or by improving his or her skills.

This kind of trap is most likely to occur at relatively low wage levels due to the fact that the withdrawal of means-tested benefits, which are usually available only to persons with low income, adds to the marginal tax rate and social security contributions.

The METR $_{lw}$ is calculated as follows:

$$METR_{lw} = 1 - \frac{Change\ in\ net\ income}{Change\ in\ gross\ earned\ income}$$

The change in net income can be described as a function of the change in gross earnings, the statutory marginal tax rate (t), including SSCs paid by employees, and the benefit reduction rates (BRRi) or taper rate, i.e., the rates at which the various income tested or means-tested (that is, related to both income and assets benefits) are withdrawn when income increases. The benefit reduction rate or taper (BRR) equals 100 percent if the transfer is reduced by the same amounts of the recipient's earnings[11].

Decomposing the marginal effective tax rate in its main components

Taking into account the main tax and benefit schemes considered in the computation, the three different METRs presented in this paper can be easily decomposed in their main components, that is as the sum of different marginal rates: *t* and *BRRi*[12].

For the METR $_{lw}$ the decomposition is as follows:

$$METR(lw) = \frac{Change\ in\ IT + Change\ in\ SSC - Change\ in\ HB - Change\ in\ FB - Change\ SA}{Change\ in\ gross\ earned\ income}$$

or

$$METR(lw) = \Sigma\ (Marginal\ tax\ rates\ \&\ BRRi)$$

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[11] This is typical for income-support schemes where the subsidy equals the difference between earnings and a set minimum (guaranteed) level of income. As a result, transfer recipients have no financial incentive to work until they can earn more than the "guaranteed" level of income.

[12] Indeed, the benefit reduction rate or taper rate (*BRR*) acts as a tax rate on earnings. In theory, taking into account the rate of income tax (t) and the rate of withdrawal of means-tested benefits (*BRRi*), the METR (= *t* + *BRRi*) could well be higher than 100%. To avoid this, the rate of withdrawal is sometimes applied to net, rather than gross income, and benefits earlier in the chain are taken into account. In this way the METR becomes: *t* + *BRRi (1-t)* or [*(1-t)*(1-BRRi)*)] and , to the extent that t and BRR are less than 100%, the METR cannot exceed 100 per cent.

where: *IT= Personal Income Tax; SSC= Social Security Contribution; HB= Housing Benefit; FB = Family benefits; SA= Social Assistance.*

Furthermore, it is worth noting that the impact of each component on the METR can be expressed as follows (taking social assistance (SA) as an example):

$$\frac{Change\ in\ SA}{Change\ in\ gross\ income}^{13} = \frac{Change\ in\ SA}{SA} \quad X \quad \frac{SA}{Gross\ income} \quad X \quad \frac{Gross\ income}{Change\ in\ gross\ income}$$

This means that the contribution to the METR is the result not only of the (percentage) change of any specific benefit (tax) component but also of its relevance, as measured in relation to gross income, that is, the ratio (*SA/Gross income*). In the case of income tax, it is also worthwhile noting that while the ratio (*Change in IT/Change in Gross income)* is the marginal income tax rate and the ratio (*IT/Gross income)* is the average tax rate, the remaining component *(Change in IT/IT * Gross income /Change in Gross income)* is the elasticity of the tax liability with respect to income. This is one of the measures of the degree of progressivity commonly used in literature. Thus, the marginal tax rate can be expressed as the product of the average tax rate times the elasticity of the tax liability to income.

III . EMPIRICAL RESULTS

III.1. Some characteristics of the benefit schemes affecting marginal effective tax rates

Income thresholds for social assistance and housing benefit

Means-tested benefits such as housing benefit and social assistance add to the marginal effective tax rates in addition to income taxes because the reduction of a benefit can be considered as a tax on the rising earnings. Therefore, it is useful to investigate the income threshold of the main social transfers that is the maximum level of earnings (i.e. the total and partial earning disregard) at which these social transfers are still available to the different types of families. This tells us directly the income range where the marginal effective tax rates can be increased due to the withdrawal of these benefits. Table 1 shows at which (gross) income level (as % of the APW wage level) the social assistance and housing benefit are completely phased out. The general impression is that in almost all Member States this happens at earning levels not higher than 67% of the APW. Thus, the METRs on (individual and household) incomes higher than 67% of the APW wage level reflect only the provisions of the tax system (i.e. personal income tax and social security contribution rates). There are few exceptions to this general pattern. As regards social assistance (see the upper panel in Table 1), relevant exceptions are Denmark, Luxembourg

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[13] The ratio (*Change in SA/Change in Gross income)* is the benefit reduction rate *(BRR)or taper of social assistance* .

and Portugal, where transfers are still in place for couple with children up to 80-90% of the APW wage level (and even higher for Portugal).

Table 1- Income thresholds for the entitlement of some means-tested benefits

Level of household's earnings (as % of APW) at which transfers are completely phased out

Year: 2003

Social Assistance transfers																		
	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	27	45	52		22	51	43		52	38	43	46	39	49	16	25	16	19	27
Single2C	33	51	59		31	51	19		61	41	52	91	24	25	17	47	16	37	43
1earnerC	35	79	56		28	51	61		76	49	54	91	56	65	26	45	16	34	55
1earnerC2C	33	79	57		34	51	50		85	46	67	137	76	71	22	63	16	54	70
2earnerC67		74							76										
2earnerC2C67		81							85			96	71	69					69

Housing Benefits transfers																		
	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single		64	52			43	43		52	55	43		52	49	56	51	45	40	56
Single2C		100	60			79	19		61	74	52		84	101	78	100	34	81	66
1earnerC		79	56			54	61		76	74	54		72	65	69	86	34	54	70
1earnerC2C		109	78			79	50		85	74	67		88	77	87	128	34	108	80
2earnerC67		74							76	74			72			84			69
2earnerC2C67		109	80			79			85	74			88	101	77	121		108	79

Legenda: Single2c= Lone parents with two children
1earnerc= one-earner couple
1earnerc2c= one-earner couple, with two children
2earnerc67= two-earner couple, first earner wage at 67% of APW,
2earnerc67c2= two-earner couple, two children, first earner wage at 67% of APW.

As far as housing benefit is concerned, the entitlement is extended up to earnings levels close to 80% of APW earnings for family with children in Denmark, Germany, France, Luxembourg, the Netherlands, Finland and the United Kingdom. The income threshold is higher than the average wage in Sweden, Czech Rep. and Poland. In Belgium, Greece, Spain, Ireland, Italy, Austria, Portugal there is no housing benefit system at all, at least at national level.

As regards benefits for dependent family members, (mainly child benefits), in many Member States universal (not means-tested) child benefits are paid for each dependent child, so this component does not create particular problems for incentives to work but it may affect the level of earnings up to which social assistance is available to families with children. This is particularly illustrated by the case of a lone parent in Finland where universal child allowances for lone-parents raise the disposable income close to the level that is guaranteed by social assistance. Consequently, the earnings level at which lone parents are still entitled to social assistance is low in comparison with other family types.

In most countries, the amounts of the child benefit (either in the form of tax credit or tax allowance or a cash benefit) are related to the number and/or the age of children. In Italy child allowances are related to the level of taxpayer's income. A particular relevance on the determination of the METRs is apparent in the system existing in the UK and Ireland where the payment to families (where at least one is in employment) is withdrawn gradually as

income rises. In the UK, the means-tested child care credit (Working Families' Tax Credit (WFTC)) is decreasing up to the average wage level and then it remains constant[14]. In Ireland the in-work family credit (called Family Income Support (FIS)) is decreasing up to 75% of APW earnings (90% for single parents with 2 children) and remains constant thereafter[15]. In both cases the withdrawal of the child benefits is one of the main driving forces of high METRs.

To sum up, these findings lead us to conclude that any analysis of the interaction of tax and benefit systems is meaningful only if focussed on low-wage levels (close to the statutory minimum wage level, where it exist), and in any case on earnings not higher than the APW wage levels. This is why in the following analysis (for all the three METRs considered in this paper) we will focus on households at the lower end of the income scale. Incidentally, it is worthwhile noting that the two-earner couple, which is one of the family types for which the computation has been carried out and figures are shown in this note, is a typical case where, with specific reference to the interaction of tax and benefit schemes, tax provisions are the relevant component regarding the decision of the second earner about the amount of hours worked, while income from means-tested transfers is a less relevant factor[16]. Indeed, even if we assume in the calculation of the METR that the first earner works full-time at 67% of the APW wage and the second earner part-time at 33% of APW earnings (i.e. half-time of a job at 67% of APW earnings), the overall household gross earnings would be equivalent to 100% of APW earnings, a level at which means-tested transfers have already been completely phased-out in all member states.

Main features of unemployment benefit systems

The detailed conditions and rules of unemployment benefit schemes vary quite a lot across countries. Table 2 provides an overview of the most important features of the unemployment insurance scheme and the possible complementary schemes of unemployment assistance and social assistance, which can come into play when the eligibility to the unemployment insurance expires. These features do have an effect on the economic condition of an unemployment person over the unemployment period.

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[14] The WFTC is an in-work benefit for parents working at least 16 hours per week. The WFTC is aimed at improving work incentives. This is done by increasing the differentials between in-work incomes and net income available to recipients of unemployment benefits. Furthermore, compared to the former Family Credit Programme, it also reduces the marginal deduction rate and therefore the METR. Indeed, the Family Credit had a taper (BRR) under which families above a particular threshold lost £0.70 of benefit for every extra £1 they earned, while under the WFTC the threshold has been increased and the taper reduced (to 0.55 per £1 extra income). Yet, this still implies a rather high impact on the METR in the phase-out range.

[15] The FIS pays 60% of the difference between the net family income and an earning limit, which varies with family size. A claimant must be working at least 19 hours per week. Married or cohabiting couples can add their hours together.

[16] Given that unemployment benefits are usually not means-tested, they remain a relevant component of the METR$_{ut}$ for a two-earner family when the analysis is focused on the unemployment trap.

Table 2 - Unemployment Benefit Systems in the EU, 2004

Country	Benefit duration, months			Waiting period, days	Entitlement conditions (UI), months [2]	Job availability requirement, index [3]
	Unemployment insurance [1]	Unemployment assistance	Social assistance			
Belgium	Unlimited	None	Unlimited	0	14 / 18	2.7
Cyprus	6	None	Unlimited	3	6 / any	n.a.
Czech Republic	6	None	Unlimited	0	12 / 36	4
Denmark	48	None	Unlimited	0	12 / 36	3.2
Germany	6 - 32	12, renewable	Unlimited	0	12 / 36	2.8
Greece	5 - 15	None	None	0	6 / 14	n.a.
Spain	4 - 24	6, max 18	Limited	0	12 / 72	3
Estonia	6 - 12	9	Unlimited	7	12 / 24	3.6
France	7 - 42	Unlimited	Limited	7	6 / 22	3.1
Hungary	9	None	None	0	8 / 48	n.a.
Ireland	15	Unlimited	Limited	3	9 / 12	2.6
Italy	6 - 9	None	Limited	0	12 / 24	2.8
Latvia	9	None	9 in one year, ren.	0	9 / 12	2.7
Lithuania	6	None	Unlimited	7	24 / 36	2.8
Luxembourg	12 - 24	None	Unlimited	0	6 / 12	n.a.
Malta	6	None	Unlimited	0	50, of wh. 5 / 24	2.6
Netherlands	6 - 60	24	Unlimited	0	6 / 9	4.4
Austria	5 - 18	12, renewable	Unlimited	0	12 / 24	3.5
Poland	6 - 18	None	Unlimited	6	12 / 18	n.a.
Portugal	12 - 30	6 - 15	12, renewable	0	18 / 24	3.5
Slovakia	6	None	24	0	36 / 48	3.4
Slovenia	3 - 24	15 - 36	Unlimited	0	12 / 18	3.8
Finland	23	Unlimited	Unlimited	7	10 / 28	3
Sweden	12 - 24	12 - 24	Unlimited	5	6 / 12	2.9
United Kingdom [4]	6	Unlimited	Unlimited	3	none	2.4

Sources: EU Commission(2004), MISSOC 2004; Ministry of Finance, Denmark (2004), Availability criteria in 25 countries

1) The duration of unemployment insurance may vary according to the duration of the employment record (contribution period), the age and the family situation of the beneficiary.

2) Expressed in terms of months that the unemployed person must have been employed and contributing to the insurance scheme (the first figure) within the investigated period of time (the latter figure)

3) The index is constructed by dedicating 1 to 5 points according to the strictness of the rules (5 points for the maximum strictness) for a number of categories of features affecting job availability; categories include, e.g. demands on job search activity, participation in ALMP, availability during ALMP, occupational and geographical mobility, and sanctions.

4) The UK schemes are the contribution-based jobseeker's allowance and the income-based jobseeker's allowance

III.2. Indicators for unemployment traps

III.2.1. Marginal effective tax rates for unemployment traps

The indicators presented below cannot reflect the detailed differences in unemployment benefit rules and conditions across countries but they aim at providing comparable calculations for 'standardized' cases. To this end, it is assumed that the person in the calculations is 40 years old and that he has an uninterrupted employment career of 22 years and that he receives the unemployment insurance benefit. The benefit calculations are made for the first month of the unemployment.

We have calculated $METR_{ut}$s referred to a wide range of different potential re-entry wage levels (from 1 to 200% of the APW). In Tables 3 and 4 we have figures related to the return to work of unemployed people (eligible for unemployment benefits). For a few representative earnings levels (50%, 67%, 100%, 150% of the APW wage level).

Simulation have been carried out assuming that previous earnings will generally determine the level of unemployment benefit entitlement (indeed, in many member states

unemployment benefits depend upon previous income), except where flat-rate benefits are paid. In Table 3 people are receiving unemployment benefits correlated to a previous job position where gross wages were equivalent to 67% of APW earnings. In Table 4 the previous job was at a wage equivalent to the average earnings (100% of APW earnings. Looking at the second row in Table 3 we can see that for an unemployed person (a single without children), previously employed at a wage level equivalent to 67% of APW earnings[17], taking up a new job at the same wage as before unemployment (that is 67% of APW earnings), the $METR_{ut}$ is over 70% in almost all countries and close to 90% in Belgium, Denmark, Germany, Luxembourg, the Netherlands, Portugal, Sweden. This means that the net financial rewarding for taking up a job is only 10% of the earnings in the latter group of countries[18]. Obviously, taking up a job at a wage lower than the wage before unemployment implies even higher $METRs_{ut}$ in most Member States. Take the case of a return to work with a re-entry wage equivalent to 50% of APW earnings[19] (Table 3, the first row for each family type). In this case, a single with a pre-unemployment wage of 67% of APW earnings, will see his/her disposable income to be the same or even lower than in the case where he/she remains unemployed. This unemployment trap is revealed by a $METR_{ut}$ close to or even higher than 100% in Belgium, Denmark, Germany, Luxembourg, Portugal and Sweden. Table 3 presents also a comparison with $METR_{ut}$ in 2001. We can see that, with reference to single and one-earner families, over the last three years the most relevant reduction in the unemployment trap have been achieved by France, Finland, Czech Republic, Hungary, Poland, Slovak Rep and Ireland (for lone parents and one-earner couple with children), while substantial increase has been recorded in Greece, Portugal (for the one-earner couple with children).

The financial disincentive faced by an unemployed (a single person) with pre-unemployment wage at the average level (100% of APW earnings) is broadly similar when re-entry wage is lower (Table 4). Yet, in this case taking up a new job at the same average wage level as before unemployment will give rise to METRs that are generally lower than those faced by low-wage workers (compare row 2 in Table 3 and row 3 in Table 4 for each family type), though often in the range of 70% and 80%.

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[17] The wage level before unemployment is a relevant point in the calculation because, except in countries where flat-rate benefits are paid, previous earnings will determine the level of unemployment benefit entitlement.

[18] The financial rewarding for taking up a job is:

*Change in Net Income =(Change in) Gross Earnings * (1-METR)*

[19] 50% of the APW earnings can be considered as equivalent either to a level close to the minimum wage in many MSs or to a half-time job paying the average wage level.

Table 3

Unemployment trap (67%)   (2003)

Marginal effective tax rate for an unemployed person

(previous work= 67% of the APW wage level) returning to work at a wage equivalent to:

Family Type	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	50%	100	106	100	97	97	78	88	65	104	92	87	110	90	105	79	80	74	87	88
	67%	90	93	89	77	78	83	73	58	87	86	75	87	81	87	71	66	64	74	73
	100%	79	78	78	57	63	68	59	53	69	73	64	66	69	70	58	53	56	61	56
	150%	72	73	71	49	52	58	55	49	61	60	57	55	62	61	50	46	57	52	48
1 earner couple	50%	90	75	100	100	96	60	100	66	102	96	100	73	92	100	84	91	72	76	105
	67%	81	85	89	79	74	84	90	55	104	92	87	69	89	98	82	78	63	74	95
	100%	71	78	75	58	59	65	69	53	84	79	72	64	76	77	67	64	55	61	72
	150%	65	72	66	50	49	54	57	50	65	64	63	51	67	66	55	53	57	52	57
2 earners couple*	50%	96	106	99	70	97	101	53	75	104	88	79	112	83	105	44	76	72	75	85
	67%	88	90	87	56	78	84	47	65	84	77	69	90	72	87	41	63	63	65	69
	100%	77	77	76	43	63	69	41	57	65	67	60	68	62	70	38	51	55	55	53
	150%	71	72	68	39	52	57	38	52	55	56	55	53	58	61	37	44	57	48	46
(with 2 hildren)	**% of APW**	**BE**	**DK**	**DE**	**GR**	**ES**	**FR**	**IE**	**IT**	**LU**	**NL**	**AT**	**PT**	**FI**	**SE**	**UK**	**CZ**	**HU**	**PL**	**SK**
Lone parent, 2 ch.	50%	91	106	100	110	96	67	48	73	101	90	100	73	94	103	57	93	86	79	92
	67%	81	90	93	86	78	90	24	51	94	86	84	69	87	91	65	79	68	67	79
	100%	73	82	80	63	60	74	37	52	68	77	71	71	78	79	68	67	54	66	64
	150%	68	76	70	50	49	58	38	52	58	63	62	58	68	68	59	56	56	56	54
1 earner couple with 2 children	50%	85	76	100	110	96	53	96	77	101	93	100	74	92	100	63	100	86	100	106
	67%	77	82	85	86	78	90	88	52	104	89	99	69	94	100	70	95	68	87	111
	100%	68	80	75	63	58	74	73	53	90	80	80	65	87	83	73	76	54	73	86
	150%	64	74	66	50	48	58	59	52	67	64	68	62	74	70	63	62	56	64	68
2 earners couple with 2 children*	50%	96	106	116	72	99	101	69	83	115	86	85	110	91	105	68	77	72	95	92
	67%	88	90	100	58	79	83	59	73	89	76	73	85	78	87	59	64	63	79	74
	100%	77	77	84	44	63	66	49	64	66	67	63	64	66	70	50	55	55	64	57
	150%	71	72	73	37	52	54	43	57	55	56	57	51	61	61	45	46	57	54	51
Change 2001 - 2003																				
Family Type	**% of APW**	**BE**	**DK**	**DE**	**GR**	**ES**	**FR**	**IE**	**IT**	**LU**	**NL**	**AT**	**PT**	**FI**	**SE**	**UK**	**CZ**	**HU**	**PL**	**SK**
Single	50%	0	-1	0	10	0	-16	1	-4	-3	-1	0	-2	0	0	0	1	-10	-5	-5
	67%	1	-1	1	8	-1	-4	1	-1	-1	0	0	-1	1	0	0	-1	-11	-4	-8
	100%	1	-1	1	3	0	-2	0	-1	-2	1	0	-1	0	0	1	0	-7	-2	-6
	150%	1	-1	1	3	0	-2	1	1	-2	0	1	0	0	-1	1	0	-4	-2	-3
1 earner couple	50%	-2	-1	0	10	0	-17	0	-1	0	1	0	-4	-6	0	0	-8	-12	-3	0
	67%	1	-1	1	7	0	-5	3	-1	0	0	2	-3	-2	-1	0	-4	-12	-4	-14
	100%	1	-1	1	3	0	-2	2	-1	6	2	1	-1	-2	-1	1	-4	-8	-3	-18
	150%	0	-1	1	3	0	-2	3	1	2	1	1	0	-2	-1	1	-3	-4	-2	-11
2 earners couple*	50%	-11	-1	1	-1	0	-3	-1	0	2	-1	-1	-2	1	0	0	0	-12	-2	0
	67%	-7	-1	1	-1	-1	-4	-1	1	0	-1	0	-1	0	0	0	0	-10	-1	-1
	100%	-5	-1	1	-2	0	-2	0	1	-1	0	0	-1	0	0	1	0	-7	-1	-1
	150%	-2	-1	1	-1	0	0	1	2	-2	0	0	0	0	-1	1	0	-4	-1	0
(with 2 hildren)	**% of APW**	**BE**	**DK**	**DE**	**GR**	**ES**	**FR**	**IE**	**IT**	**LU**	**NL**	**AT**	**PT**	**FI**	**SE**	**UK**	**CZ**	**HU**	**PL**	**SK**
Lone parent, 2 ch.	50%	0	1	0	14	0	-11	-3	-1	-3	-1	1	-4	0	0	6	-7	-2	-4	-14
	67%	-2	-2	0	10	0	-1	-30	-2	5	-1	1	-3	0	0	5	-4	-3	-3	-27
	100%	-1	-1	1	7	0	-1	-23	-2	3	2	1	8	-1	0	2	-3	-7	0	-18
	150%	0	-1	0	3	0	-1	-15	0	1	1	1	6	-1	-2	3	-3	-3	0	-12
1 earner couple with 2 children	50%	-2	0	0	14	0	-13	1	-1	0	0	0	18	-8	0	-2	0	-2	0	0
	67%	1	0	1	10	0	-1	1	-2	0	0	3	13	-5	0	-2	-5	-3	-4	0
	100%	1	-2	0	7	-1	-1	1	0	7	3	2	8	-2	-1	-1	-4	-7	1	-24
	150%	0	-1	0	3	0	-1	3	-1	3	1	2	6	-2	-2	1	-4	-3	-1	-13
2 earners couple with 2 children*	50%	-11	-1	1	-2	-1	-3	-3	3	0	-2	-1	-2	0	0	8	0	-12	3	7
	67%	-7	-1	1	-1	-1	-4	-2	3	0	-1	0	-1	0	0	6	-2	-10	2	5
	100%	-5	-1	1	-1	-1	-2	-1	3	-2	0	0	-1	-1	0	4	-2	-7	1	-2
	150%	-2	-1	1	-3	0	-1	0	3	-2	-1	0	0	-1	-1	3	-1	-4	-2	3

* The wage level of the first earner is fixed at 67% of the APW, while the wage level of the second earner is indicated in each column

Source: Joint European Commission-OECD project, using OECD Tax -Benefit models.

Table 4

Unemployment trap   (2003)

Marginal effective tax rate for an unemployed person
(previous work= 100% of the APW wage level) returning to work at a wage equivalent to:

Family Type	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	50%	100	106	100	100	122	95	88	92	143	108	95	141	100	134	79	97	74	87	114
	67%	90	93	89	79	97	96	73	78	116	97	81	110	89	109	71	79	64	74	92
	100%	79	78	78	58	75	77	59	66	88	81	68	82	74	85	58	62	56	61	69
	150%	72	73	71	50	61	63	55	58	74	65	60	66	66	71	50	51	57	52	56
1 earner couple	50%	90	75	100	100	126	74	100	92	106	102	100	105	96	115	84	95	72	76	103
	67%	81	85	89	79	94	90	75	88	107	96	87	92	109	84	82	81	63	74	94
	100%	71	78	75	58	74	72	69	66	86	82	72	80	78	85	67	66	55	61	70
	150%	65	72	66	50	59	58	57	58	67	66	63	61	69	71	55	54	57	52	57
2 earners couple*	50%	96	106	118	72	122	117	53	97	143	113	100	144	100	134	44	100	72	75	118
	67%	88	90	101	58	97	96	47	82	113	96	85	113	84	109	41	81	63	65	93
	100%	77	77	85	44	75	76	41	69	85	80	70	83	71	85	38	63	55	55	70
	150%	71	72	74	40	61	62	38	60	68	64	62	64	64	71	37	52	57	48	57
(with 2 hildren)	**% of APW**	**BE**	**DK**	**DE**	**GR**	**ES**	**FR**	**IE**	**IT**	**LU**	**NL**	**AT**	**PT**	**FI**	**SE**	**UK**	**CZ**	**HU**	**PL**	**SK**
Lone parent, 2 ch.	50%	91	106	114	110	133	75	48	99	144	103	108	105	104	124	57	93	86	79	109
	67%	81	90	104	86	106	96	24	71	126	95	90	92	94	106	65	79	68	67	92
	100%	73	82	87	63	78	78	37	65	89	83	74	87	83	90	68	67	54	66	72
	150%	68	76	75	50	62	61	38	60	72	67	64	69	72	75	59	56	56	56	60
1 earner couple with 2 children	50%	85	76	115	110	133	61	96	103	99	101	100	82	92	104	63	100	86	100	96
	67%	77	82	96	86	106	96	88	72	102	95	99	76	94	103	70	95	68	87	104
	100%	68	80	82	63	77	78	73	66	89	84	80	69	87	85	73	76	54	73	81
	150%	64	74	71	50	61	60	59	61	66	67	68	65	74	71	63	62	56	64	64
2 earners couple with 2 children*	50%	96	106	139	72	136	119	69	101	160	111	106	141	107	134	68	97	72	95	118
	67%	88	90	117	58	107	96	59	86	123	95	89	108	90	109	59	80	63	79	93
	100%	77	77	96	44	81	75	49	73	89	79	73	80	75	85	50	65	55	64	70
	150%	71	72	81	37	64	59	43	63	70	64	64	62	66	71	45	53	57	54	59

Change 2001 - 2003

Family Type	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	50%	0	-1	-1	10	-3	-16	1	0	-1	-2	-1	0	1	1	0	0	-10	-5	2
	67%	1	-1	0	7	-3	-4	1	1	1	-1	0	0	1	0	0	-2	-11	-4	-2
	100%	1	-1	1	3	-2	-2	0	1	-1	0	0	0	0	0	1	-1	-7	-2	-2
	150%	1	-1	1	3	-1	-1	1	2	-1	0	0	0	0	-1	1	-1	-4	-2	-1
1 earner couple	50%	-2	-1	0	10	-4	-16	0	-1	-13	0	0	-2	-3	1	0	-3	-12	-3	7
	67%	1	-1	1	7	-3	-4	3	-1	-10	0	2	-2	0	0	0	-1	-12	-4	-9
	100%	1	-1	1	3	-2	-2	2	-1	-1	2	1	0	-1	0	1	-2	-8	-3	-15
	150%	0	-1	1	3	-1	-1	3	-1	-2	0	1	0	-1	-1	1	-1	-4	-2	-9
2 earners couple*	50%	-11	-1	0	-2	-3	-3	-1	6	4	-2	-1	0	1	1	0	0	-12	-2	0
	67%	-7	-1	0	-1	-3	-4	-1	6	2	-1	0	0	1	0	0	0	-10	-1	-1
	100%	-5	-1	1	-3	-2	-2	0	4	0	0	0	0	0	0	1	0	-7	-1	-1
	150%	-2	-1	1	-1	-1	-1	1	4	-1	-1	0	0	0	-1	1	0	-4	-1	0
(with 2 hildren)	**% of APW**	**BE**	**DK**	**DE**	**GR**	**ES**	**FR**	**IE**	**IT**	**LU**	**NL**	**AT**	**PT**	**FI**	**SE**	**UK**	**CZ**	**HU**	**PL**	**SK**
Lone parent, 2 ch.	50%	0	1	-1	14	0	-14	-3	-1	-10	0	-1	-2	0	0	6	-7	-2	-4	13
	67%	-2	-2	0	10	0	-3	-30	-2	0	-1	-1	-2	0	0	5	-4	-3	-3	-7
	100%	-1	-1	0	7	0	-3	-23	-2	0	2	0	9	-1	0	2	-3	-7	0	-5
	150%	0	-1	0	3	0	-2	-15	0	-1	1	0	7	-1	-1	3	-3	-3	0	-3
1 earner couple with 2 children	50%	-2	0	0	14	1	-17	1	-1	-14	-1	0	15	-8	0	-2	0	-2	0	0
	67%	1	0	1	10	0	-3	1	-2	-11	-1	3	11	-5	0	-2	-5	-3	-4	0
	100%	1	-2	0	7	0	-3	1	0	0	2	2	6	-2	-1	-1	-4	-7	1	-24
	150%	0	-1	0	3	0	-2	3	-1	-2	1	2	5	-2	-1	1	-4	-3	-1	-13
2 earners couple with 2 children*	50%	-11	-1	1	-2	0	-3	-3	5	5	-3	-1	0	1	1	8	0	-12	3	0
	67%	-7	-1	1	-1	0	-4	-2	5	3	-2	0	0	1	0	6	-2	-10	2	-1
	100%	-5	-1	1	-1	0	-2	-1	4	0	-1	0	0	0	0	4	-2	-7	1	-5
	150%	-2	-1	1	-3	0	-1	0	3	-1	-1	0	0	0	-1	3	-1	-4	-2	0

* The wage level of the first earner is fixed at 67% of the APW, while the wage level of the second earner is indicated in each column

Source: Joint European Commission-OECD project, using OECD Tax -Benefit models.

In Table 5, we have decomposed the METR$_{ut}$ in its main components. This makes it possible to assess the relative role of different tax and benefit schemes in generating some of the highest risk of unemployment traps in some member states. In most of these countries, such a high METR$_{ut}$ is due to the loss of unemployment benefits. In Belgium, Denmark, Germany Austria, Poland, part of the high METR$_{ut}$ for low-wage workers (67% of APW) is also due to a rather high marginal tax rate (IT plus SSC in Table 5) on personal income (higher than 20%). It is also interesting to note (see panel 1 in Table 5) that for low-income (67% of APW earnings) one-earner households with children (and lone parents), the income support provided by social assistance programmes when in work at a low wage makes METRs lower than they would have been otherwise in some member states (Denmark, and Portugal)[20]. Indeed, transfers from social assistance schemes contribute to reducing the negative impact on the net disposable income due to the complete withdrawal of the unemployment benefits transfers. This is also the role played by employment-conditional benefits and in-work tax credits. However, the difference is that their receipt is also conditional to work while the receipt of social assistance is related only to a low disposable income. Such in-work benefit schemes have been recently introduced or planned by an increasing number of member states in order to raise in-work income for low-wage families significantly above out-of-work incomes. From Table 5 (line IWB) we can see that they contribute to reduce substantially the unemployment trap in Ireland for a jobless household with children in the UK (at low-wage-levels). A much lower impact can be observed in Belgium, France, Finland, and the Netherlands.

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[20] For lowest re-entry wage levels, up to 50% of the APW, this happens also in Germany, France, Luxembourg, Sweden.

Table 5

Unemployment trap indicator:main components

METR for an unemployed person (previous work= 67% of APW wage level), returning to work at a wage equivalent to:

returning to work at a wage equivalent to:

Single person   2003

Components	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
50% APW																			
UB +	77%	102%	52%	54%	94%	87%	48%	54%	107%	94%	57%	99%	78%	107%	28%	53%	81%	53%	67%
SA +	0%	0%	6%	0%	0%	-23%	21%	0%	-3%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%
HB +	0%	0%	11%	28%	0%	0%	16%	0%	0%	3%	5%	0%	7%	0%	35%	7%	2%	12%	5%
FB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IWB +	-2%	0%	0%	0%	0%	-4%	0%	0%	0%	0%	0%	0%	-3%	0%	0%	0%	0%	0%	0%
IT +	16%	-4%	9%	0%	1%	8%	3%	3%	-1%	0%	-1%	0%	4%	-2%	10%	7%	-14%	-3%	4%
SSC	9%	7%	21%	16%	2%	10%	0%	9%	2%	-4%	18%	11%	5%	0%	6%	13%	6%	25%	13%
METR =	100	106	100	97	97	78	88	65	104	92	87	110	90	105	79	80	74	87	88
67% APW																			
UB +	58%	76%	39%	40%	70%	65%	36%	40%	80%	70%	42%	74%	58%	80%	21%	39%	60%	39%	50%
SA +	0%	0%	5%	0%	0%	0%	16%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
HB +	0%	3%	9%	21%	0%	0%	12%	0%	0%	7%	4%	0%	10%	0%	30%	6%	2%	9%	6%
FB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IWB +	0%	0%	0%	0%	0%	-2%	0%	0%	0%	0%	0%	0%	-2%	0%	0%	0%	0%	0%	0%
IT +	20%	6%	14%	0%	5%	9%	7%	9%	2%	2%	5%	2%	11%	6%	13%	9%	-5%	0%	5%
SSC	13%	7%	21%	16%	3%	11%	3%	9%	5%	7%	18%	11%	5%	1%	7%	12%	7%	25%	13%
METR =	90	93	89	77	78	83	73	58	87	86	75	87	81	87	71	66	64	74	73
100% APW																			
UB +	39%	51%	26%	27%	47%	44%	24%	27%	54%	47%	28%	49%	39%	54%	14%	26%	40%	26%	34%
SA +	0%	0%	3%	0%	0%	0%	10%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
HB +	0%	2%	6%	14%	0%	0%	8%	0%	0%	5%	3%	0%	7%	0%	20%	4%	1%	6%	4%
FB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IWB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%
IT +	27%	18%	21%	0%	12%	13%	11%	17%	8%	8%	11%	6%	19%	13%	16%	11%	6%	3%	6%
SSC	14%	8%	21%	16%	4%	12%	5%	9%	8%	13%	18%	11%	6%	3%	8%	13%	9%	25%	13%
METR =	79	78	78	57	63	68	59	53	69	73	64	66	69	70	58	53	56	61	56
150% APW																			
UB +	26%	34%	17%	18%	31%	29%	16%	18%	36%	31%	19%	33%	26%	36%	9%	18%	27%	18%	22%
SA +	0%	0%	2%	0%	0%	0%	7%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
HB +	0%	1%	4%	9%	0%	0%	5%	0%	0%	3%	2%	0%	4%	0%	13%	3%	1%	4%	2%
FB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
IWB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%
IT +	32%	30%	28%	6%	16%	17%	21%	22%	15%	17%	16%	11%	27%	22%	18%	13%	20%	5%	10%
SSC	14%	8%	20%	16%	5%	12%	5%	9%	10%	8%	18%	11%	6%	4%	9%	12%	10%	25%	13%
METR =	72	73	71	49	52	58	55	49	61	60	57	55	62	61	50	46	57	52	48

Unemployment trap indicator:main components

METR for an unemployed person (previous work= 67% of APW wage level), returning to work at a wage equivalent to:

returning to work at a wage equivalent to:

Jobless Household (One -earner couple with 2 children)   2003

Components	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
50% APW																			
UB +	77%	102%	70%	56%	94%	87%	93%	54%	114%	100%	73%	99%	89%	107%	28%	58%	81%	53%	67%
SA +	0%	-52%	5%	0%	0%	-46%	27%	0%	-13%	1%	8%	-54%	-2%	-2%	11%	29%	0%	24%	20%
HB +	0%	0%	3%	38%	0%	0%	11%	0%	-1%	0%	3%	0%	3%	-2%	21%	0%	0%	0%	6%
FB +	0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%
IWB +	-2%	0%	0%	0%	0%	-5%	-34%	0%	0%	-1%	0%	0%	-3%	0%	-12%	0%	0%	0%	0%
IT +	1%	17%	0%	0%	0%	8%	0%	0%	0%	0%	-1%	0%	1%	-2%	10%	0%	0%	-2%	0%
SSC	9%	9%	21%	16%	2%	10%	0%	9%	1%	-7%	18%	11%	5%	0%	6%	13%	6%	25%	13%
METR =	85	76	100	110	96	53	96	77	101	93	100	74	92	100	63	100	86	100	106
67% APW																			
UB +	58%	76%	52%	42%	70%	65%	69%	40%	85%	75%	54%	74%	67%	80%	21%	43%	60%	39%	50%
SA +	0%	-15%	8%	0%	0%	0%	20%	0%	14%	1%	17%	-29%	7%	6%	8%	38%	0%	22%	37%
HB +	0%	0%	1%	28%	0%	10%	8%	0%	1%	8%	6%	0%	9%	7%	21%	0%	0%	0%	11%
FB +	0%	0%	0%	0%	5%	0%	0%	2%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%
IWB +	0%	0%	0%	0%	0%	-3%	-12%	0%	0%	-1%	0%	0%	-2%	0%	0%	0%	0%	0%	0%
IT +	7%	12%	2%	0%	0%	8%	0%	0%	2%	2%	5%	0%	8%	6%	13%	1%	0%	0%	0%
SSC	13%	9%	21%	16%	3%	11%	3%	9%	4%	5%	18%	11%	5%	1%	7%	12%	7%	25%	13%
METR =	77	82	85	86	78	90	88	52	104	89	99	69	94	100	70	95	68	87	111
100% APW	68.3	80.3	74.8	63.0	58.0	74.1	73.0	53.3	90.4	80.4	80.1	64.9	86.8	82.7	72.9	76.2	54.3	73.0	85.8
UB +	39%	51%	35%	28%	47%	44%	47%	27%	57%	50%	36%	49%	45%	54%	14%	29%	40%	26%	34%
SA +	0%	0%	6%	0%	0%	0%	13%	0%	25%	1%	11%	-5%	7%	5%	5%	26%	0%	15%	26%
HB +	0%	5%	4%	19%	0%	12%	5%	0%	2%	9%	4%	0%	13%	8%	20%	3%	0%	0%	10%
FB +	0%	0%	0%	0%	3%	0%	0%	8%	0%	0%	0%	9%	0%	0%	9%	1%	0%	4%	0%
IWB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	-1%	0%	0%	0%	0%	0%	0%
IT +	16%	16%	9%	0%	3%	8%	3%	10%	0%	8%	11%	0%	18%	13%	16%	5%	5%	3%	3%
SSC	14%	8%	21%	16%	4%	12%	5%	9%	6%	14%	18%	11%	6%	3%	8%	13%	9%	25%	13%
METR =	68	80	75	63	58	74	73	53	90	80	80	65	87	83	73	76	54	73	86
150% APW																			
UB +	26%	34%	23%	19%	31%	29%	31%	18%	38%	33%	24%	33%	30%	36%	9%	19%	27%	18%	22%
SA +	0%	0%	4%	0%	0%	0%	9%	0%	17%	0%	7%	8%	5%	3%	4%	17%	0%	10%	18%
HB +	0%	5%	2%	13%	0%	8%	4%	0%	1%	6%	2%	0%	9%	5%	13%	4%	0%	4%	7%
FB +	0%	0%	0%	0%	2%	0%	0%	8%	0%	0%	0%	6%	0%	0%	9%	1%	0%	3%	2%
IWB +	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%
IT +	24%	27%	17%	3%	10%	9%	10%	18%	2%	17%	16%	4%	26%	22%	18%	8%	19%	5%	6%
SSC	14%	8%	20%	16%	5%	12%	5%	9%	9%	8%	18%	11%	6%	4%	9%	12%	10%	25%	13%
METR =	64	74	66	50	48	58	59	52	67	64	68	62	74	70	63	62	56	64	68

III.2.2. Net replacement rates for unemployment traps

The unemployment trap can also be measured by the net replacement rate (NRR), that is the ratio between the net income when unemployed (where the unemployment benefit is the income main component) and the net income when employed at a given wage level. The NRR calculates the transition from employment to unemployment and can be considered as a proxy for benefit generosity[21]

To complement the information provided by the METR$_{ut}$, in Table 6 we have reproduced a set of NRRs for some hypothetical family types at low and average wage levels in 2003. These NRRs are referred to the 1st month of the unemployment benefits (included the topping-up of social assistance in the countries where this is possible).

Net replacement rates at low-wage levels, 67% of the APW wage, are generally in the range of 70 and 80% for single persons, and a bit higher for families with children. Countries such as Denmark, Germany, Luxembourg, Portugal, Finland and Sweden are clearly above the average, while Italy and the United Kingdom of the old Member States as well as the new Member States of this study (the Czech Republic, Hungary, Poland and the Slovak Republic) are somewhat below the average in the generosity of their income replacement.

The picture given by the net replacement rates on the generosity of benefit systems, as well as the main changes in the indicators over the last three years (2001-2003) are quite similar to that one given by the marginal effective tax rates on the disincentives to move to employment, although the indicators emphasise different aspects. The net replacement rate emphasises the level of benefits relative to the income from work, while the marginal effective tax rate emphasises the net gain when one moves from unemployment to employment.

Profiles of the NRRs over time and the duration of unemployment benefits provide relevant information on the adequacy and the overall generosity of the unemployment systems and their potential impact on the incentives to work. Figures 1 and 2 describe the evolution of the net replacement rates of unemployment benefits over time. Figure 1 does not allow for a possible take-up of social assistance, which may be available after the expiry of the unemployment benefit. Figure 2 describes the evolution of net replacement rates when social assistance is taken into account in the case it is available if the unemployment benefit has expired (or as a top-up of the unemployment benefit where it is possible). As the duration of unemployment benefit (for a prime-age worker) is limited or its level reduced after some time (in the range of 6 to 36 months) in most countries, this would imply a significant reduction in the level of out-of-work income. However, the availability of social assistance largely changes the picture. In a number of countries, low-wage families would not face a considerable reduction, if at all, in their net out-of-work income.

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[21] See footnote 27 for details on the relationship between NRR and METR$_{ut}$, which is as follows:
$$METR = t_w + NRR\,(1 - t_w) \cdot$$

Table 6

Net Replacement Rates for unemployed persons

(2003)

No Children

Earnings level as % of APW	Single				1 earner couple				2 earner couple				% of APW
	50%	67%	100%	150%	50%	67%	100%	150%	50%	67%	100%	150%	
BE	77	86	65	48	76	76	57	43	92	91	78	64	BE
DK	91	88	62	47	70	90	69	53	96	92	76	64	DK
DE	100	83	61	62	100	86	64	51	93	90	85	80	DE
GR	97	72	50	36	97	75	50	36	85	74	60	49	GR
ES	73	75	70	48	71	72	69	48	88	88	82	65	ES
FR	87	78	69	67	95	80	65	67	95	90	81	78	FR
IE	88	70	51	39	117	90	66	47	78	71	59	48	IE
IT	45	49	54	47	47	49	55	50	80	78	75	66	IT
LU	104	84	85	87	103	104	84	84	92	90	89	88	LU
NL	91	80	71	60	96	90	75	61	84	84	82	73	NL
AT	85	68	55	55	100	84	61	56	82	80	76	72	AT
PT	111	85	78	84	100	83	76	79	106	94	88	88	PT
FI	80	75	62	48	92	86	69	53	84	81	76	66	FI
SE	97	82	78	56	100	97	78	56	92	91	87	70	SE
UK	75	63	45	31	79	75	56	39	71	63	52	42	UK
CZ	63	57	51	50	91	75	57	52	80	77	72	67	CZ
HU	57	56	41	33	57	54	40	31	80	77	65	57	HU
PL	82	63	43	29	72	64	44	30	85	75	61	47	PL
SK	72	67	62	44	110	95	64	45	83	81	78	62	SK
NO	87	65	66	53	88	75	67	53	86	83	80	69	NO
US	65	62	62	46	72	63	62	45	83	80	77	66	US
JP	75	70	60	50	83	70	58	49	92	87	78	67	JP

2 Children

Earnings level as % of APW	Single parent, 2 children				1 earners couple				2 earner couple				% of APW
	50%	67%	100%	150%	50%	67%	100%	150%	50%	67%	100%	150%	
BE	81	82	65	51	76	76	60	46	93	92	80	67	BE
DK	94	89	76	60	69	81	75	60	96	92	78	66	DK
DE	100	92	82	79	100	85	78	70	99	100	97	91	DE
GR	108	84	57	40	108	84	57	40	85	76	61	48	GR
ES	78	77	75	61	78	77	74	61	91	88	87	74	ES
FR	95	90	74	67	95	90	74	67	95	90	81	78	FR
IE	70	69	60	46	98	91	74	55	87	79	67	55	IE
IT	54	53	59	56	57	56	61	58	85	84	80	69	IT
LU	103	95	89	93	102	103	89	90	95	94	93	92	LU
NL	87	86	79	64	94	89	79	63	85	85	82	73	NL
AT	100	85	71	65	100	99	78	66	87	85	81	76	AT
PT	100	96	86	82	89	86	85	78	104	92	87	87	PT
FI	91	89	81	66	94	94	83	64	90	86	80	71	FI
SE	91	92	88	68	100	100	81	59	93	92	88	72	SE
UK	72	70	64	49	77	75	70	53	85	76	64	52	UK
CZ	94	79	62	58	100	95	74	58	84	80	75	70	CZ
HU	77	70	52	43	77	69	51	42	83	80	69	61	HU
PL	78	63	52	36	100	85	65	48	97	85	69	54	PL
SK	98	80	70	52	107	110	80	59	88	86	79	66	SK
NO	92	89	83	65	100	86	73	58	89	86	83	71	NO
US	61	59	61	44	65	62	62	44	86	83	80	66	US
JP	88	82	68	58	89	87	70	50	91	87	79	68	JP

Change 2001 - 2003

No Children

Earnings level as % of APW	Single				1 earner couple				2 earner couple				% of APW
	50%	67%	100%	150%	50%	67%	100%	150%	50%	67%	100%	150%	
BE	-4.5	2.5	2.1	2.3	-5.4	2.4	1.8	1.3	-10.2	-5.0	-4.0	-2.4	BE
DK	0.0	-1.6	-1.3	-0.7	1.2	-0.4	-1.3	-0.9	0.0	-0.9	-0.8	-0.5	DK
DE	0.0	1.2	0.4	0.1	0.0	0.7	1.0	-0.3	0.3	0.3	0.3	0.1	DE
GR	12.2	9.1	4.9	4.1	12.2	8.7	4.9	4.1	-0.7	-0.6	-1.5	-0.7	GR
ES	-0.4	-0.3	-1.9	-1.3	0.0	0.2	-2.6	-1.8	-0.2	-0.2	-1.1	-0.8	ES
FR	-6.9	-4.9	-2.2	-2.3	0.4	-6.2	-2.4	-2.1	-0.8	-2.1	-1.2	-0.7	FR
IE	0.9	1.0	0.9	0.9	3.8	3.1	2.0	2.5	-0.3	-0.1	0.0	0.4	IE
IT	-2.0	-0.8	1.9	1.2	-0.6	-0.8	-0.5	1.0	1.1	1.2	3.6	2.7	IT
LU	4.5	-0.7	-0.4	-0.3	-0.5	-0.6	-0.9	-0.5	0.5	0.4	0.3	0.2	LU
NL	0.5	0.4	-0.4	-1.2	0.7	0.4	1.8	-1.5	-0.9	-0.7	-0.6	-1.2	NL
AT	-0.5	0.1	0.0	0.0	0.0	1.8	1.4	0.1	-0.2	-0.4	-0.1	-0.1	AT
PT	-1.5	-1.4	0.2	0.4	-3.6	-1.5	0.1	0.2	-0.6	-0.6	0.1	0.2	PT
FI	-3.4	1.6	1.3	0.6	-5.7	-2.3	-0.4	-0.6	0.1	0.5	0.6	0.4	FI
SE	-0.6	-0.1	0.2	-0.4	0.0	-0.8	0.2	-0.4	0.4	-0.1	0.1	-0.3	SE
UK	-1.1	0.0	0.0	0.0	-5.0	-3.2	0.3	0.2	-0.3	-0.3	-0.3	-0.2	UK
CZ	-4.7	-1.4	-1.5	0.0	-8.0	-5.7	-3.2	-1.3	-0.4	-0.2	-0.1	-0.1	CZ
HU	-6.6	-9.3	-5.3	-2.8	-6.6	-11.2	-6.7	-3.9	-3.5	-4.3	-2.4	-0.5	HU
PL	-6.8	-5.3	-3.7	-2.5	-4.0	-5.6	-4.0	-2.7	-1.1	-1.0	-0.9	-0.7	PL
SK	-25.6	-9.5	-2.3	-3.1	2.4	-15.6	-18.1	-10.6	-0.1	-0.3	-0.5	-2.1	SK
NO	-7.1	-0.8	0.3	-0.4	-5.7	-3.5	0.3	0.4	-0.5	-0.4	0.2	-0.4	NO
US	-0.6	-0.2	3.4	4.3	-1.6	-2.1	2.3	4.1	-0.7	-0.7	2.3	3.7	US
JP	-2.5	-2.9	-3.6	-12.1	0.0	-1.1	-3.5	-11.8	-1.1	-1.5	-2.2	-8.2	JP

2 Children

Earnings level as % of APW	Single parent, 2 children				1 earners couple				2 earner couple				% of APW
	50%	67%	100%	150%	50%	67%	100%	150%	50%	67%	100%	150%	
BE	-3.1	2.3	2.0	2.1	-4.3	1.9	1.5	1.1	-9.0	-4.4	-3.6	-2.2	BE
DK	-0.1	-1.7	-1.8	-1.3	0.8	-0.5	-2.2	-1.4	0.0	-0.8	-0.8	-0.5	DK
DE	0.0	0.2	0.2	0.9	0.0	0.4	0.4	0.0	0.6	0.8	1.0	0.6	DE
GR	16.3	11.8	8.0	4.7	16.3	11.8	8.0	4.7	-0.8	-0.9	-0.7	-1.4	GR
ES	-2.9	-0.4	-0.3	-2.1	-2.9	-0.4	-0.2	-2.3	-1.5	-0.5	-0.1	-1.3	ES
FR	0.1	-0.9	-3.5	-2.3	0.1	-0.9	-3.5	-2.2	-0.8	-2.4	-1.2	-1.2	FR
IE	-0.2	3.2	1.0	1.4	0.8	1.1	1.8	2.8	-1.0	-0.6	-0.2	0.4	IE
IT	-0.5	-1.6	-1.5	-0.8	-0.6	-1.5	-0.3	-1.8	2.1	2.6	3.5	2.9	IT
LU	-0.3	4.8	0.2	0.8	-0.2	-0.3	0.2	1.0	0.1	0.1	0.4	1.3	LU
NL	-5.5	-0.7	2.8	-1.1	-0.6	-0.1	2.8	-1.5	-1.0	-0.8	-0.7	-1.2	NL
AT	0.0	1.7	-0.2	0.1	0.0	2.4	1.9	0.0	-0.4	-0.4	-0.1	0.0	AT
PT	-3.1	9.7	9.2	1.9	1.2	1.6	8.0	0.2	-0.6	-0.6	0.2	0.2	PT
FI	-0.5	-0.5	-1.0	-1.0	-6.1	-4.8	-2.6	-1.1	-0.1	-0.1	0.2	0.1	FI
SE	0.9	-0.4	-0.3	-1.6	0.0	0.0	-1.2	-1.6	0.3	-0.1	0.0	-0.5	SE
UK	3.5	3.5	2.5	2.5	-1.3	-1.2	-0.7	0.1	3.4	3.1	2.6	2.1	UK
CZ	-6.0	-5.0	-4.6	-1.8	0.0	-4.9	-4.9	-1.3	-1.1	-1.3	-1.4	-0.2	CZ
HU	0.9	-3.3	-5.1	-3.1	0.9	-3.4	-3.7	-3.2	-4.1	-4.9	-3.7	-2.3	HU
PL	-4.9	-4.0	-2.0	-2.0	0.0	-5.3	-1.4	-2.6	1.4	0.7	0.1	-1.7	PL
SK	-9.6	-25.7	-6.6	-4.2	1.7	2.4	-24.9	-15.7	2.4	1.8	-3.5	-3.0	SK
NO	-1.9	-1.3	-1.7	-1.1	0.0	-5.2	-1.4	-1.2	-1.1	-0.9	-0.6	-1.2	NO
US	-1.0	-1.2	4.6	4.1	-1.9	-0.6	3.4	2.0	1.1	-0.8	1.5	2.1	US
JP	0.0	-0.5	-6.1	-5.0	0.0	0.0	-1.1	-11.6	-0.9	-1.3	-2.1	-8.1	JP

Net replacement rates are calculated on the second month of unemployment.

Source: Joint European Commission-OECD project, using OECD Tax -Benefit models.

*The wage level of the first earner is fixed at 67% of the APW, while the wage level of the second earner is indicated in each column.

Figure 1
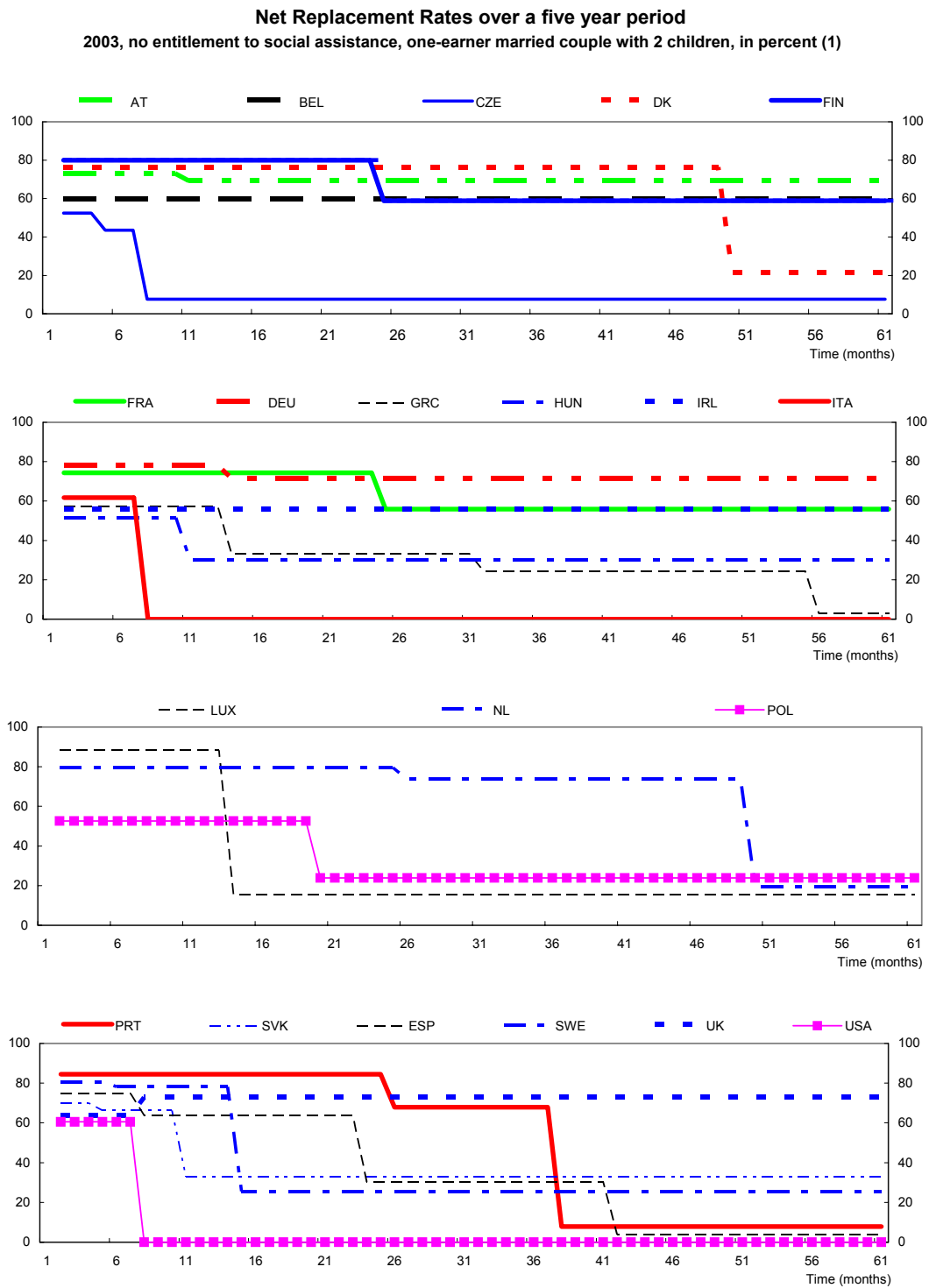
Net Replacement Rates over a five year period

2003, no entitlement to social assistance, one-earner married couple with 2 children, in percent (1)

1. Month one refers to the first month of benefit receipt, *i.e.* following any waiting period. In-work earnings are equal to APW. Children are aged 4 and 6 and neither childcare benefits nor childcare costs are considered.
Source: OECD, Tax-Benefit Models.

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Figure 2

Net Replacement Rates over a five year period

2003, with social assistance where applicable, one-earner married couple with 2 children, in percent (1)
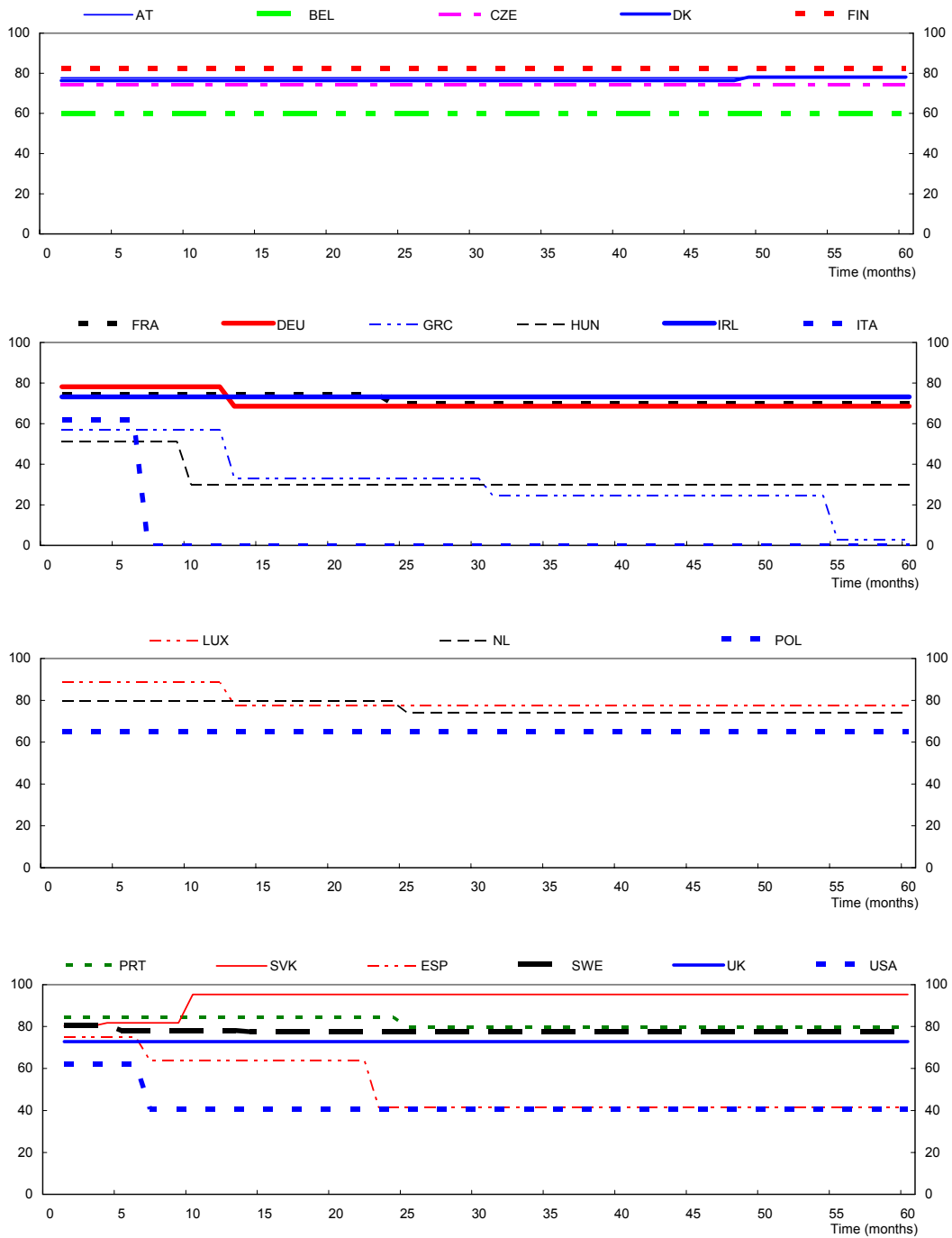
1. Month one refers to the first month of benefit receipt, *i.e.* following any waiting period. In-work earnings are equal to APW. Children are aged 4 and 6 and neither childcare benefits nor childcare costs are considered.
Source: OECD, Tax-Benefit Models.

III.2.3. Changes and reforms in 2001-2003

Table 7 summarises information on the average net replacement rates calculated over a period of 60 months (five years) of unemployment and presents changes occurred between 2002 and 2003. The indicator takes account of the benefit reduction if the unemployment spell is protracted up to 5 years. It has been calculated as an average of the net replacement rates for each month during the period of 60 months of unemployment. Reforms which have shortened the duration of unemployment benefit or scaled down its level after certain lengths of the unemployment spell are reflected in the changes in the value of this indicator.

Table 7

Average of Net Replacement Rates over 60 months of unemployment
Difference 2003-2002, for four family types and two earnings levels, in percent(1)

	Without social assistance						With social assistance					
	No children		2 children		Overall average		No children		2 children		Overall average	
	Single person	One-earner married couple	Lone parent	One-earner married couple	Change 2003-2002	in 2003	Single person	One-earner married couple	Lone parent	One-earner married couple	Change 2003-2002	in 2003
Australia	-3	-2	-3	-6	-3	49	-3	-2	-3	-6	-3	49
Austria	0	0	0	0	0	62	0	2	1	2	1	74
Belgium	7	2	2	2	3	68	7	2	2	2	3	68
Canada	2	2	2	3	2	22	0	-1	-8	-8	-4	49
Czech Republic	0	0	0	0	0	9	-1	-1	-1	-1	-1	65
Denmark	2	-1	-1	-2	0	68	4	-2	-2	3	1	79
Finland	1	-1	1	1	1	67	-1	-2	1	-4	-2	76
France	-5	-4	-3	-3	-4	65	-5	-3	-2	3	-2	71
Germany	0	-1	1	1	0	67	1	1	0	0	1	77
Greece	7	7	10	10	9	34	7	7	10	10	9	34
Hungary	-4	-5	-2	-2	-3	35	-4	-5	-2	-2	-3	35
Iceland	3	2	2	0	2	60	3	1	2	-1	1	71
Ireland	0	2	1	1	1	50	0	2	1	1	1	70
Italy	0	0	0	0	0	5	0	0	0	0	0	5
Japan	-1	-1	-2	-1	-2	11	-1	-1	-10	-1	-3	63
Korea	0	0	0	0	0	7	-2	-4	-6	-7	-5	43
Luxembourg	0	0	1	1	0	25	-1	-5	1	-8	-3	77
Netherlands	1	0	-3	1	0	66	1	1	0	1	1	78
New Zealand	-1	-2	0	0	-1	63	-1	-2	0	0	-1	63
Norway	0	0	0	-2	-1	54	-1	-2	0	-4	-2	71
Poland	11	11	8	9	9	36	-2	-3	-9	-7	-5	58
Portugal	0	-1	6	5	2	51	0	5	15	18	10	72
Slovak Republic	-4	-4	-4	-5	-4	35	0	4	-1	9	3	84
Spain	7	7	6	6	6	36	1	1	0	-1	0	52
Sweden	0	-8	-1	-1	-2	31	0	-1	0	-1	-1	76
Switzerland	-8	-8	-9	-8	-8	23	-3	-3	-4	-3	-3	76
United Kingdom	20	30	34	42	32	65	-1	-2	3	2	1	65
United States	0	0	0	0	0	6	0	0	-1	-1	-1	30
Average	**1**	**1**	**2**	**2**	**1**	**42**	**0**	**0**	**0**	**0**	**0**	**62**

1. Unweighted averages, for earnings levels of 67% and 100% of APW. Any income taxes payable on unemployment benefits are determined in
Source: OECD Tax-Benefit Models.

Looking at the figures in Table 7, the impression is that for the majority of countries, there is virtually no change in the overall generosity of unemployment benefits. Five EU member States (Denmark, France, Hungary, Sweden and the Slovak Republic) have undertaken reforms to reduce the overall generosity of unemployment benefits, often by limiting the maximum duration of the unemployment benefit. This is witnessed by some reductions in the net replacement rates. However, when the impact of social assistance is taken into account, it appears that the reduction in the overall generosity of benefits has been smaller in many cases, while in the Slovak Republic there has been even an increase. On the other hand, Finland, Luxembourg and Poland seem to have reduced the generosity of social assistance, as the overall generosity has slightly decreased but not that of unemployment benefits alone. It should also be noted that not all reforms have gone in the direction of increasing incentives to work. Countries such as Greece, Poland, Portugal and Spain have chosen to increase the overall generosity of unemployment benefits (by 5-10 percentage

points). Particularly strong is the increase in the UK, where the average NRR over 60months is doubled, to reach 65% in 2003.

MAJOR RECENT CHANGES IN BENEFIT SYSTEMS AFFECTING THE NEW NRRs

- France: Unemployment benefits duration has been reduced.

- Greece: NRRs are higher than in 2002, as housing benefits increased by 50% for low income households in 2003.

- Poland: NRRs are lower than in 2002, as net income out-of-work does not change between the two years, whereas net income in work has risen.

- Portugal: NRRs are higher than in 2002, as family benefits have been doubled for low-income households since 2003.

- Slovak republic: NRRs are lower than in 2002, as SA rates and family benefit supplement amounts were reduced in 2003.

- Spain: Unemployment assistance duration has been revised and extended from 6 to 18 months.

- United Kingdom: Income support has been revised. Family benefits do not reduce Income support any longer (consequence of the new tax credits introduced in 2003).

III.3.   Marginal effective tax rates for inactivity traps

In this section we examine the financial disincentives to move from inactivity or long-term unemployment to work. In most countries, jobless persons who are searching for a job but without eligibility to unemployment benefits and who have exhausted their unemployment benefits can live on income-tested social assistance benefits[22]. Thus, as a starting point of the calculation of the $METR_{it}$ we consider an hypothetical individual/household whose only source of net out-of-work income is a kind of last-resort transfer such as social assistance, where it exists. This is a relevant situation for low-income family types where one or both of the spouses have never worked or are not entitled to or their eligibility to unemployment insurance is expired, and thus they only qualify for social assistance.

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[22] After the exhaustion of unemployment insurance, jobless persons can get unemployment assistance in Austria, France, Germany, Greece, Portugal (for 24 months, after 2 years of unemployment insurance).

Table 8

Inactivity trap

Marginal effective tax rate when moving from social assistance to work

at a wage level equivalent to: **(2003)**

Family Type	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	33%	85	93	84	16	71	61	100	10	79	97	100	56	87	100	80	83	60	68	109
	50%	68	90	89	16	51	58	88	12	89	93	87	51	83	98	79	70	46	69	87
	67%	67	81	81	16	44	68	73	19	76	86	75	43	76	82	71	59	43	60	72
	100%	63	71	72	16	40	59	59	26	61	73	64	37	65	67	58	49	42	52	56
	150%	62	68	68	21	37	51	55	32	56	60	57	36	60	59	50	42	48	46	47
1 earner couple	33%	98	54	84	16	90	52	100	7	63	98	100	56	87	100	89	100	60	100	125
	50%	74	71	89	16	61	57	100	7	79	100	100	56	92	100	84	91	46	75	125
	67%	69	82	81	16	49	82	90	12	87	93	87	56	89	98	82	78	43	74	110
	100%	63	77	70	16	41	64	69	24	73	80	72	55	76	77	67	64	42	61	81
	150%	60	71	62	21	37	53	57	30	58	64	63	45	67	66	55	53	48	52	64
2 earners couple*	33%	41	76	44	16	16	21	8	27	38	40	21	11	23	25	16	31	13	31	18
	50%	40	66	47	16	15	22	12	28	33	36	20	14	25	26	22	29	12	32	19
	67%	46	60	48	16	17	25	17	30	30	38	25	16	28	28	24	28	18	33	20
	100%	49	57	50	16	22	29	21	34	30	41	30	18	33	31	27	28	26	33	20
	150%	52	59	51	21	25	31	24	37	31	39	35	21	38	35	29	29	37	33	24

(with 2 hildren)	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Lone parent, 2 ch.	33%	105	88	84	16	99	43	59	0	73	100	100	56	69	82	44	100	60	100	125
	50%	81	94	89	16	68	54	48	0	85	84	100	56	64	65	50	93	46	79	112
	67%	73	81	86	16	57	81	24	-4	82	81	84	56	65	63	60	79	37	67	94
	100%	67	76	75	16	46	68	37	16	60	73	71	62	63	60	65	67	34	66	73
	150%	64	71	67	18	40	54	38	27	53	60	62	52	58	55	57	56	43	56	60
1 earner couple with 2 children	33%	105	57	84	16	106	42	100	-4	57	98	100	56	87	100	65	100	60	100	125
	50%	74	72	89	16	74	54	96	-4	75	93	100	74	92	100	63	100	46	100	125
	67%	69	79	77	16	62	90	88	-8	84	89	99	69	94	100	70	95	37	87	125
	150%	60	73	62	18	41	58	59	26	58	64	68	62	74	70	63	62	43	64	74
2 earners couple with 2 children*	33%	41	108	52	16	14	35	32	28	63	46	21	77	45	35	56	32	13	42	30
	50%	40	89	51	16	11	29	28	36	47	40	20	55	40	34	58	30	12	52	34
	67%	46	78	51	16	14	29	28	38	38	41	25	44	39	34	52	30	18	47	31
	100%	49	69	52	16	19	30	29	41	32	43	30	37	41	35	45	31	26	43	28
	150%	52	67	51	18	23	30	29	42	33	40	35	33	43	38	41	31	37	40	32

Change 2001 - 2003

Family Type	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single	33%	-1	-1	0	0	2	-10	0	0	-10	0	0	0	-13	0	0	-4	-9	-1	-16
	50%	-3	-1	0	0	1	-15	1	-4	-2	1	0	1	-4	0	0	-3	-9	-3	-26
	67%	0	-1	1	0	0	-3	1	-1	0	2	0	1	-2	-1	0	-4	-10	-3	-23
	100%	0	-1	1	-2	0	-1	0	-1	-1	2	0	1	-2	-1	1	-2	-7	-2	-16
	150%	0	-1	1	0	0	-1	1	1	-2	1	1	1	-1	-1	1	-1	-3	-1	-10
1 earner couple	33%	0	0	0	0	2	-13	0	0	-16	2	0	0	-13	0	0	0	-9	0	0
	50%	-3	0	0	0	1	-15	0	-1	-11	2	0	0	-6	0	0	-8	-9	-3	0
	67%	0	0	1	0	1	-4	3	-1	-8	1	2	0	-2	-1	0	-4	-10	-4	-14
	100%	0	0	1	-2	1	-1	2	0	0	3	1	1	-2	-1	1	-4	-7	-3	-18
	150%	0	0	1	0	0	-1	3	1	-1	1	1	1	-2	-1	1	-3	-3	-2	-11
2 earners couple*	33%	-5	-3	2	0	-2	-1	-4	-2	19	5	0	-2	-3	-2	9	-4	-8	0	-25
	50%	-5	-2	1	0	-2	-1	-2	-5	12	3	0	0	-2	-1	6	-3	-10	0	-17
	67%	-3	-2	1	0	-2	-2	-2	-2	8	3	1	0	-2	-1	5	-2	-9	0	-13
	100%	-2	-1	1	-2	-1	-1	-1	-1	4	2	1	0	-2	-1	4	-1	-6	0	-9
	150%	-1	-1	1	0	-1	0	0	0	2	1	1	0	-1	-1	3	-1	-3	0	-5

(with 2 hildren)	% of APW	BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Lone parent, 2 ch.	33%	-1	4	0	0	-1	-16	9	1	-13	7	0	0	-1	0	-37	0	-1	0	0
	50%	-1	2	0	0	0	-11	-3	1	-9	1	1	0	-1	2	0	-7	1	-4	-14
	67%	-3	-1	0	0	-1	0	-30	-2	1	0	1	0	-1	1	0	-4	-1	-3	-27
	100%	-2	-1	1	0	-1	-1	-23	-1	1	3	1	10	-1	1	-1	-3	-5	0	-18
	150%	-1	0	0	-2	0	-1	-15	0	-1	2	1	8	-1	-1	1	-3	-2	0	-12
1 earner couple with 2 children	33%	-1	2	0	0	0	-15	0	1	-19	2	0	0	-13	0	-28	0	-1	0	0
	50%	-4	2	0	0	-2	-11	1	1	-12	-1	0	18	-8	0	-2	0	1	0	0
	67%	0	1	0	0	-2	1	1	-1	-9	-1	3	13	-5	0	-2	-5	-1	-4	0
	100%	0	-1	0	0	-2	0	1	1	1	2	2	8	-2	-1	-1	-4	-5	1	-24
	150%	0	0	0	-2	-1	0	3	0	-1	1	2	6	-2	0	1	-4	-2	0	-13
2 earners couple with 2 children*	33%	-5	-5	0	0	-1	-6	-2	-9	22	8	0	27	4	-2	-10	-3	-8	12	-71
	50%	-5	-3	0	0	-1	-4	-1	-8	14	5	0	18	2	-3	4	-2	-10	5	-40
	67%	-3	-2	0	0	-1	-5	-1	-5	11	4	1	14	1	-2	3	-3	-9	3	-30
	100%	-2	-2	0	0	-1	-3	0	-3	5	3	1	9	0	-2	2	-2	-6	2	-25
	150%	-1	-1	0	-2	-1	-2	1	-1	2	2	1	6	0	-2	2	-1	-3	-1	-13

* The wage level of the first earner is fixed at 67% of the APW, while the wage level of the second earner is indicated in each column

Source: Joint European Commission-OECD project, using OECD Tax-Benefit models.

Table 8 reports estimates of the METRs$_{it}$ faced by recipients of social assistance when they decide to take up a job. We have calculated METRs for a move from inactivity to work at

different gross wage levels and we use the outcome of the calculation as indicators of inactivity trap.

We start by looking at METRs$_{it}$ when earnings correspond to 50% of the APW wage level. This could correspond to a situation where the prospect is to switch from zero work to a part-time work in a low-wage job. Figures in Table 8 clearly show that all the types of individuals/households considered in our analysis (apart from a two-earner couple where the first earner is assumed to work at a low – wage: 67%) face a high risk of inactivity trap in at least eight member states. In fact, METRs$_{it}$ are close to or higher than 90-100% in the following countries: Denmark, Germany, Ireland (but not for single parents with children), Netherlands, Austria, Finland, Sweden, the Slovak Republic as well as the Czech Republic and Poland (except for a single person). This is mainly due to the withdrawal of social assistance when the person concerned receives a wage, but in some countries (Germany, France, Ireland, Austria, Sweden, United Kingdom and Slovak Republic) the withdrawal of housing benefit also contributes to the highest METRs (see Table 9 with the components of the METR$_{it}$).

Table 9

Inactivity trap indicator for jobless persons :main components

METR for a breadwinner moving from social assistance to work , at a wage level equivalent to:

Jobless Household (One-earner couple with 2 children)							**2003**						
% of APW			67							100			
Components	METR =	SA +	HB +	FB +	IWB+	IT +	SSC	METR =	SA +	HB +	FB +	IWB+	IT +	SSC
BE	69.4	46%	0%	4%	0%	7%	13%	63.0	30%	0%	3%	0%	16%	14%
DK	79.0	53%	0%	0%	0%	13%	13%	78.4	46%	5%	0%	0%	16%	11%
DE	77.2	35%	19%	0%	0%	2%	21%	69.6	23%	16%	0%	0%	9%	21%
GR	15.9	0%	0%	0%	0%	0%	16%	15.9	0%	0%	0%	0%	0%	16%
ES	62.1	51%	0%	5%	0%	0%	6%	47.0	34%	0%	3%	0%	3%	6%
FR	90.5	50%	22%	0%	-3%	8%	14%	74.4	34%	20%	0%	0%	8%	14%
IE	88.2	69%	28%	0%	-12%	0%	3%	73.0	47%	19%	0%	0%	3%	5%
IT	-7.9	0%	0%	-18%	0%	1%	9%	13.1	0%	0%	-6%	0%	10%	9%
LU	84.0	68%	5%	0%	0%	0%	11%	77.3	61%	5%	0%	0%	0%	12%
NL	89.1	64%	8%	0%	-1%	2%	16%	80.4	43%	9%	0%	-1%	8%	21%
AT	99.1	57%	19%	0%	0%	5%	18%	80.1	38%	13%	0%	0%	11%	18%
PT	69.0	44%	0%	13%	0%	0%	11%	64.9	45%	0%	9%	0%	0%	11%
FI	93.8	56%	13%	0%	-2%	21%	6%	86.8	40%	16%	0%	-1%	26%	6%
SE	100.0	39%	32%	0%	0%	21%	7%	82.7	27%	24%	0%	0%	24%	7%
UK	70.1	29%	21%	0%	0%	13%	7%	72.9	19%	20%	9%	0%	16%	8%
CZ	94.8	81%	0%	0%	0%	1%	12%	76.2	55%	3%	1%	0%	5%	13%
HU	37.5	23%	2%	0%	0%	0%	13%	34.0	16%	1%	0%	0%	5%	13%
PL	86.6	60%	0%	0%	0%	2%	25%	73.0	40%	0%	4%	0%	4%	25%
SK	125.2	87%	25%	0%	0%	0%	13%	95.5	60%	20%	0%	0%	3%	13%
US	45.2	21%	0%	30%	-12%	-2%	8%	47.5	16%	0%	20%	-1%	5%	8%
JP	86.1	74%	0%	0%	0%	0%	12%	73.3	60%	0%	0%	0%	2%	12%

Particularly relevant is the disincentive for the potential breadwinner of a jobless household with two young children. Even taking up a job with a wage up to 67% of APW earnings, net disposable income in and out of work would be roughly the same in nine member states: France, Ireland, the Netherlands, Austria, Finland, Sweden, the Czech Republic, Poland and the Slovak Republic. In these countries it appears to be a higher risk that social assistance recipients remain trapped in long-term benefit dependence. While this is mainly a result of the withdrawal of means-tested benefits, notably the social assistance, in some countries also a relatively high marginal tax rate (above 25%, covering both personal income tax and social security contributions), contributes by about one quarter to a METR

of 100 per cent (see Table 9). A move from inactivity to work at the average wage level (100% of the APW earnings) can still be problematic (or financially not rewarding, given that the METRs$_{it}$ can be about 80% or more) for jobless couple with children in Denmark, Netherlands, Austria, Finland, Sweden and Slovak Republic. To recoup a greater part of the lost subsidies and increased taxation[23], a job paying more than the average wage should be found. In the first three countries (DK, NL, FI) half or more of the high METRs is due to the withdrawal of social assistance while in Sweden we can see that the withdrawal of the social assistance benefit and the housing benefit has roughly the same influence as income taxes (Table 9).

It has long been recognised that one area where high METRs are likely to have a greater impact on the labour market is when they affect some of the most disadvantaged groups of persons, one being lone parents. In this case, social assistance recipients often face METRs that are high and higher than other household types. It is interesting to note how recent policy effort to overcome inactivity trap for these persons in some countries has succeeded in designing appropriate measures. For example, in the UK, the METRs for lone parents receiving social assistance are usually lower than for other family types. A lone parent taking up a minimum wage job (50% of APW earnings) will see 50% of his earnings "taxed away" while for a single or a one-earner couple without children the METR will be as high as around 85 per cent. This is due to the fact that the taper rate of social assistance for lone parents has been reduced with the aim of supporting their employment. While this measure helps to reduce the risk of unemployment and inactivity traps, it is at the expense of an increase in the risk of low-wage (poverty trap) over some range of earnings.

III.4. Marginal effective tax rates for low-wage traps

Table 10 presents some summary indicators for low-wage traps. The difficulty of presenting marginal effective tax rates for increased work effort only at some points of the wage distribution is due to the discontinuity in the policy parameters, such as a discrete change in the personal income tax rate (the kink point on the income tax schedule, when moving from one tax bracket to another) or in the reduction rate of a benefit at one point of the income range.

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[23] The loss on welfare benefits as earnings rise can be even higher than what results from our calculation. Indeed, we have not considered the eventual loss of in-kind transfers like free health care services for example, that can be substantial in some member states, where these services are means-tested.

Table 10 - Low-wage trap indicators in 2003 and changes 2001-2003 (four wage levels)

Low-wage trap indicator 2003

Average of marginal effective tax rate at different wage levels (= METR as wage increases by 33% of the APW wage level)

Household Earnings as % of APW		BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single																				
From :33%	TO: 67%	55	69	77	16	19	44	46	27	71	73	51	31	58	63	61	36	27	37	36
From :67%	TO: 100%	57	50	55	16	31	39	29	41	33	45	41	24	44	36	33	28	40	34	22
From :100%	TO: 133%	57	63	59	29	30	36	45	44	43	43	42	33	48	40	33	30	55	34	30
From :133%	TO: 167%	59	64	60	41	33	36	46	45	48	44	50	35	51	51	29	32	68	34	30
1 earner couple																				
From :33%	TO: 67%	49	108	77	16	9	53	78	20	110	88	74	55	91	94	77	57	27	33	92
From :67%	TO: 100%	50	65	47	16	26	27	27	46	44	52	41	53	50	36	35	34	40	34	23
From :100%	TO: 133%	54	57	49	29	29	31	26	44	26	43	42	23	48	40	33	30	55	34	28
From :133%	TO: 167%	57	63	45	41	31	30	44	45	31	44	50	25	51	51	29	31	68	34	30
2 earners couple*																				
From :67%+33%	TO: 67%+67%	56	45	52	16	19	30	24	34	23	37	29	21	33	32	33	26	24	34	22
From :67% +67	TO: 67%+100%	55	50	53	16	31	37	29	41	28	45	41	23	44	36	33	28	40	34	22
From :67+100%	TO: 67+133%	57	63	54	29	30	35	26	44	33	43	42	25	48	40	33	30	55	34	30
From :67+133%	TO: 67+167%	59	64	52	41	33	33	41	43	38	44	50	30	51	51	29	32	68	34	30
Lone parent, 2 children																				
From :33%	TO: 67%	52	73	86	16	15	71	60	14	90	62	69	55	61	44	84	58	15	35	60
From :67%	TO: 100%	57	65	53	16	22	41	45	48	14	52	43	49	60	56	73	42	27	39	24
From :100%	TO: 133%	57	63	52	21	29	27	36	48	34	43	42	33	48	42	47	31	55	34	27
From :133%	TO: 167%	59	64	52	34	30	27	46	48	48	44	50	35	51	51	29	30	68	34	30
1 earner couple with 2 children																				
From :33%	TO: 67%	45	100	86	16	34	70	82	11	110	84	97	57	100	100	71	90	15	78	120
From :67%	TO: 100%	50	77	54	16	17	41	37	44	62	56	41	57	72	47	79	38	27	37	35
From :100%	TO: 133%	54	62	49	21	29	25	26	48	14	43	42	68	48	40	47	36	55	37	25
From :133%	TO: 167%	57	63	45	34	29	24	44	50	31	44	50	29	51	51	29	33	68	34	30
2 earners couple with 2 children*																				
From :67%+33%	TO: 67%+67%	56	49	51	16	14	23	24	41	14	37	29	12	33	34	47	28	24	37	24
From :67% +67	TO: 67%+100%	55	50	53	16	29	32	29	45	19	45	41	23	44	36	33	28	40	34	22
From :67+100%	TO: 67+133%	57	63	51	23	30	29	27	43	33	43	44	25	49	42	33	29	58	34	32
From :67+133%	TO: 67+167%	59	64	49	35	33	33	46	46	39	45	50	35	51	51	27	30	68	34	30

CHANGE 2001-2003

		BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	CZ	HU	PL	SK
Single																				
From :33%	TO: 67%	1	-1	2	0	-2	-13	2	-3	8	4	1	2	2	-1	1	-3	-9	0	-28
From :67%	TO: 100%	0	-1	1	-5	0	3	1	2	-4	-1	1	0	-1	-1	1	1	0	0	-1
From :100%	TO: 133%	1	1	1	0	0	-1	2	4	-3	0	0	1	-1	-3	1	0	-3	0	4
From :133%	TO: 167%	4	0	3	4	0	-1	0	2	-4	0	1	0	-2	-1	-3	2	18	0	0
1 earner couple																				
From :33%	TO: 67%	7	0	1	0	0	-14	6	-1	-1	1	3	0	8	-1	1	-8	-9	-3	-28
From :67%	TO: 100%	-1	-2	2	-5	-1	3	0	2	17	3	1	4	-2	-1	2	-4	0	0	-26
From :100%	TO: 133%	-1	0	0	0	0	0	0	4	-4	0	0	0	-1	-3	1	1	-3	0	4
From :133%	TO: 167%	2	0	2	4	0	-1	11	2	-4	0	1	0	-2	-1	-3	1	18	0	0
2 earners couple*																				
From :67%+33%	TO: 67%+67%	0	-1	0	0	-2	-1	1	-2	-3	0	1	3	-1	0	1	0	-10	0	-1
From :67% +67	TO: 67%+100%	0	-1	1	-5	0	3	1	1	-4	-1	1	0	-1	-1	1	1	0	0	-1
From :67+100%	TO: 67+133%	1	1	1	0	0	1	0	4	-4	0	0	0	-1	-3	1	0	-3	0	4
From :67+133%	TO: 67+167%	4	0	2	4	0	0	4	1	-3	0	1	2	-2	-1	-3	2	18	0	0
Lone parent, 2 children																				
From :33%	TO: 67%	1	-5	0	0	-2	4	3	-4	14	-4	2	0	-1	2	4	-8	-1	-5	-50
From :67%	TO: 100%	0	-1	1	0	-1	-2	-6	4	0	4	2	8	-3	0	-3	-1	-13	3	-8
From :100%	TO: 133%	1	1	-1	-7	0	-1	3	4	-3	0	0	5	-1	-6	4	0	-3	0	1
From :133%	TO: 167%	4	0	2	-3	0	1	0	1	-4	0	1	0	-2	-1	-3	-3	18	-2	1
1 earner couple with 2 children																				
From :33%	TO: 67%	7	-1	-1	0	-5	1	0	-3	0	-2	4	2	2	0	-14	-10	-1	-7	0
From :67%	TO: 100%	-1	-5	0	0	-1	-2	3	-2	21	3	1	-1	4	-3	2	-3	-13	3	-69
From :100%	TO: 133%	-1	2	0	-7	0	0	0	1	-5	0	0	2	-1	-3	4	-4	-3	0	1
From :133%	TO: 167%	2	0	2	-3	0	0	11	2	-4	0	1	4	-2	-1	-3	0	18	0	1
2 earners couple with 2 children*																				
From :67%+33%	TO: 67%+67%	0	0	0	0	-1	-1	1	0	0	0	1	1	-1	-2	15	-3	-10	0	2
From :67% +67	TO: 67%+100%	0	-1	1	0	0	3	1	1	-6	-1	1	0	-1	-1	1	0	0	0	-4
From :67+100%	TO: 67+133%	2	0	0	-6	0	0	1	2	-3	0	1	0	-1	-3	1	1	1	-2	5
From :67+133%	TO: 67+167%	4	0	2	-4	0	1	5	1	-3	0	0	3	-2	-1	-5	0	17	0	0

* The wage level of the first earner is fixed at 67% of the APW, while the wage level of the second earner is indicated in each column

Source: Joint European Commission-OECD project, using OECD Tax -Benefit models.

These parameter changes can cause very high values in the marginal effective tax rates, in particular if these are measured over a narrow change in hours worked or in income, such as a 1% increase in annual earnings. Such discontinuities in policy parameters causes very

high METR values only at the earnings level where the change occurs, while immediately after this point the marginal effective tax rate may return back to its previous level. Thus, a single-point estimates of $METR_{lw}$ presented in isolation are not very informative. In order to avoid reporting very exceptional values in marginal effective tax rates, which could be very misleading for policy purposes, in Table 10 we have calculated $METR_{lw}$ for larger (1/3 of the average wage[24]) changes in wages (or working hours). The first change is assumed to be from 33% to 67% of the APW wage. This change can be interpreted, for instance, as a change from a part-time to full-time work at a low wage level. The second change is assumed to be from 67% to 100% of the APW wage and the third and fourth changes, respectively, from 100% to 133% and from 133% to 167%. Again, these changes can represent an essential increase in working hours or an essential improvement in skills and, thus, a rise on the wage ladder.

For a more detailed analysis of the interaction of tax and benefit, and a comparison over the last three years, we have depicted in Figures 3-8 the entire plot of marginal effective tax rates over a long income range (0-200% of the APW), based on the assumption of an increase in gross income by 1% of the APW wage, for both 2001 and 2003. Thus, in these curves, one can see the discontinuity points in policy parameter (which is shown as a jump in the METR). Further, these curves help to make sure that, if and when point values are presented, they represent robust results and very exceptional values have not been picked up.

Of course, one can also get information on what would be the METR if the change in the earnings is higher than 1% of the APW wage level simply by looking at the plotted charts, by reminding that these METRs for income increase higher than 1% would be the average of the depicted METRs.

Each figure contains different charts showing the marginal effective tax rates in each country for each of the six hypothetical family types considered in the joint OECD-Commission project at various income levels. It can clearly be seen that there are numerous spikes and steps that reflect the kinks in the budget constraints due to the phase-in and phase-out of various deductions, credits, and other tax and benefit provisions. Most of them occur at low levels of income.

Comparing the figures across countries one can see the great divergence of effective tax rates even at the same points of the income spectrum relative to the APW wage level. Yet, it is very important to remind that single-point estimates of METRs, presented in isolation, are not very informative and may give a misleading picture of the overall situation. This is why we concentrate the analysis on a close inspection of the entire plot of the METRs. By doing this, we try to be sure that if any point estimates are presented as simple indicators

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[24] Of course, a METR computed for any discrete change (such as 1% of APW) is equivalent to the average of all the METRs resulting from changes of income equivalent to one-unit-of money within the "discrete" change (such as 1% of the APW).Indeed, marginal effective tax rate is equivalent to: $\Delta T/\Delta W$ or $(T_2-T_1) / (W_2 - W_1)$ where T_i is the amount of taxes paid (and benefit withdrawn) at any given APW wage level (i) and W is the gross wage. In our case the unit change in the denominator is not one unit of money but 1% of APW. Thus a change in gross earnings from 40% to 80% of APW is equivalent to $40*(W_2-W_1)$. This implies that $(T_{80}-T_{40}) / (W_{80}-W_{40})$, can be decomposed in

$(T_{80}-T_{79}) /40(W_{80}-W_{40})+ (T_{79}-T_{78}) / 40(W_{80}-W_{40})+ ....(T_{41}-T_{40}) / 40(W_{80}-W_{40})$ and can be rearranged

as a simple average = $\frac{1}{40}\sum_{40}^{80} METRi$

for METRs, these estimates do not represent any exceptional situation at a given earning level.

For single workers, it can easily be seen from the graphs that METRs$_{lw}$ are particularly high and close to 100% on all earned incomes up to about 45-50% of APW earnings in Germany, France, Ireland, Luxembourg, the Netherlands, Austria, Sweden and Slovak Republic. This is mainly due to a gradual phasing-out of social assistance transfers and, at least in some of these member states (Germany, France, Austria and Sweden), housing benefits as well. For lone parents with 2 children, the METRs$_{lw}$ appear similar or even higher for earnings below 50% of APW in Denmark (100%), Germany (100%), Austria (100%), Czech Republic (100%), and Luxembourg (higher than 100%). Similarly high METRs$_{lw}$ can be found in the same countries for a couple with one earner with or without children. But for these family types, the list of member states with METRs$_{lw}$ close to 100% is longer. Indeed, a high risk of low-wage trap for single-earner couples is also present in Finland. There the housing benefit is withdrawn at a high rate for each extra unit of income, and this adds up to the two effects of the phasing out of social assistance transfers and the increase in the marginal tax rate on personal income (at this level of income it is among the highest in the EU). More generally, while depending on the size and composition of the family, the withdrawal of housing benefits appears particularly relevant in Germany, France, Austria, Finland, Sweden and the United Kingdom.

It is interesting to note that, starting from about 2/3 (67%) of the APW wage level, METRs remain rather stable or are just slightly increasing in all member states, reflecting solely the increasing marginal income tax rate due to the progressivity of tax systems. This is because (as already mentioned and reported in Table 1) in most countries the various means-tested transfers considered in the calculation (mainly social assistance, in-work tax credits and housing benefits) have been completely phased-out before 67% of the APW level of earnings is reached. In any case, it is striking to see that even when means-tested benefits are completely phased out METRs (which are in these cases equivalent to the usual marginal tax rates) on personal income are rather high (higher than 50%) already at low-medium level of income in Belgium, Denmark, Germany, Finland and Sweden.

To sum up, in 2003 the risk of low-wage trap was particularly high for those workers with earnings not higher than 50% of the average wage level in seven EU member states (Germany, France, Ireland, Luxembourg, the Netherlands, Austria, Sweden and Slovak Republic). When the level of household gross earnings becomes higher than 2/3 of the average wage level, the METRs$_{lw}$ were still somewhat high in some countries (with rates close or higher than 50%), but this is only due to the heavy tax burden (both personal income tax and social security contributions).

As regards the reforms efforts from 2001 to 2003, the overall conclusion is that only a few countries have addressed the problem of low-wage traps. Some reductions in METRs$_{lw}$ at least for some family types at low to medium wage levels are seen in Denmark, France, Italy, Luxembourg, the Netherlands, Finland, Sweden, the UK, Hungary and the Slovak and Czech Republics.

Figure 3– Low-wage indicator: METR for single person (comparison 2003 and 2001)

Belgium — Low wage traps — Single person

Denmark — Low wage traps — Single person

Germany — Low wage traps — Single person

Greece — Low wage traps — Single person

Spain — Low wage traps — Single person

France — Low wage traps — Single person

Ireland — Low wage traps — Single person

Italy — Low wage traps — Single person

Luxembourg — Low wage traps — Single person

Netherlands — Low wage traps — Single person

Austria
Low wage traps
Single person

Portugal
Low wage traps
Single person

Finland
Low wage traps
Single person

Sweden
Low wage traps
Single person

United Kingdom
Low wage traps
Single person

Czech Republic
Low wage traps
Single person

Hungary
Low wage traps
Single person

Poland
Low wage traps
Single person

Slovak Republic
Low wage traps
Single person

United States
Low wage traps
Single person

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Figure 4- METR for Single parent with 2 children

Austria
Low wage traps
Single parent with two children

Portugal
Low wage traps
Single parent with two children

Finland
Low wage traps
Single parent with two children

Sweden
Low wage traps
Single parent with two children

United Kingdom
Low wage traps
Single parent with two children

Czech Republic
Low wage traps
Single parent with two children

Hungary
Low wage traps
Single parent with two children

Poland
Low wage traps
Single parent with two children

Slovak Republic
Low wage traps
Single parent with two children

United States
Low wage traps
Single parent with two children

Figure 5 – METR for one–earner couple without children

Austria
Low wage traps
One earner couple, without children

Portugal
Low wage traps
One earner couple, without children

Finland
Low wage traps
One earner couple, without children

Sweden
Low wage traps
One earner couple, without children

United Kingdom
Low wage traps
One earner couple, without children

Czech Republic
Low wage traps
One earner couple, without children

Hungary
Low wage traps
One earner couple, without children

Poland
Low wage traps
One earner couple, without children

Slovak Republic
Low wage traps
One earner couple, without children

United States
Low wage traps
One earner couple, without children

Figure 6 – METR for one–earner couple with 2 children

Belgium — Low wage traps — One earner couple, with 2 children

Denmark — Low wage traps — One earner couple, with 2 children

Germany — Low wage traps — One earner couple, with 2 children

Greece — Low wage traps — One earner couple, with 2 children

Spain — Low wage traps — One earner couple, with 2 children

France — Low wage traps — One earner couple, with 2 children

Ireland — Low wage traps — One earner couple, with 2 children

Italy — Low wage traps — One earner couple, with 2 children

Luxembourg — Low wage traps — One earner couple, with 2 children

Netherlands — Low wage traps — One earner couple, with 2 children

Austria
Low wage traps
One earner couple, with 2 children

Portugal
Low wage traps
One earner couple, with 2 children

Finland
Low wage traps
One earner couple, with 2 children

Sweden
Low wage traps
One earner couple, with 2 children

United Kingdom
Low wage traps
One earner couple, with 2 children

Czech Republic
Low wage traps
One earner couple, with 2 children

Hungary
Low wage traps
One earner couple, with 2 children

Poland
Low wage traps
One earner couple, with 2 children

Slovak Republic
Low wage traps
One earner couple, with 2 children

United States
Low wage traps
One earner couple, with 2 children

Figure 7 – METR for two earner couple without children

Austria
Low wage traps
Two earner couple, without children

Portugal
Low wage traps
Two earner couple, without children

Finland
Low wage traps
Two earner couple, without children

Sweden
Low wage traps
Two earner couple, without children

United Kingdom
Low wage traps
Two earner couple, without children

Czech Republic
Low wage traps
Two earner couple, without children

Hungary
Low wage traps
Two earner couple, without children

Poland
Low wage traps
Two earner couple, without children

Slovak Republic
Low wage traps
Two earner couple, without children

United States
Low wage traps
Two earner couple, without children

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Figure 8 - METR for two-earner couple with 2 children

Austria
Low wage traps
Two earner couple, with 2 children

Portugal
Low wage traps
Two earner couple, with 2 children

Finland
Low wage traps
Two earner couple, with 2 children

Sweden
Low wage traps
Two earner couple, with 2 children

United Kingdom
Low wage traps
Two earner couple, with 2 children

Czech Republic
Low wage traps
Two earner couple, with 2 children

Hungary
Low wage traps
Two earner couple, with 2 children

Poland
Low wage traps
Two earner couple, with 2 children

Slovak Republic
Low wage traps
Two earner couple, with 2 children

United States
Low wage traps
Two earner couple, with 2 children

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IV. LIMITATIONS OF THE INDICATORS FOR WORK INCENTIVES

To address the relevant issue of the so-called unemployment/inactivity traps, we have calculated the change in after-tax and after-transfer income resulting from the take-up of a job by one person/household member. The resulting marginal effective tax rate (on the extensive side of labour supply) is a useful indicator of unemployment/inactivity traps. Indeed, we have computed two different indicators, one for people that qualify for unemployment benefits (unemployment trap indicator) and one for people that are not in work but, given that they do not qualify for unemployment benefits, may receive transfers from social assistance programmes, in member states where they exist.

When interpreting the main results of the calculations, some caution appears warranted given the well-known limitations of indicators based on hypothetical family types. First of all, it should be borne in mind that the METR could only provide information on the size of the (dis)incentive to increasing labour supply. In order to better understand the overall potential impact of the interaction of tax and benefit systems on labour supply and the general functioning of the labour market, further information is needed to complement the METR. Three types of information are particularly relevant.

Firstly, how many individuals are actually affected by particularly high METRs. This is clearly a relevant piece of information for policy making. This means, for example, getting information on potential beneficiaries (coverage ratio[25]) and on the take up rates of different of transfer programmes, in addition to information on the income distribution.[26]

Secondly, there are some well-known problems of determining the incidence of taxes and transfers[27] and the behavioural consequences of tax-benefit systems, i.e., their actual impact on labour supply. Notwithstanding a considerable empirical literature accumulated on this subject, this remains the most relevant and still open issue, requiring further analytical efforts. Indeed, our knowledge of the degree to which people will respond to the change in incentives (the elasticity of labour supply) remains limited. For example, even if work does not pay, an unemployed person can still decide to undertake low-paid or part-time work in order to improve his long-run job prospects.

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[25] There are two possible interpretations of the term 'coverage rates'. The first is 'of those who are unemployed, how many are in receipt of each benefit'. The second is 'of those who are working, how many of them would be entitled to benefit were they to become unemployed'. Within the framework of the joint OECD-EC project, the OECD will carry out a pilot study using three sources of information -- labour force survey data, administrative data and household income surveys to look at coverage. The output will not be a single point estimate of coverage, but a range of plausible coverage indicators.

[26] Take-up rates are 'the proportion of those who are entitled to a benefit who actually receive it' or alternatively 'the proportion of the aggregate amount of benefit to which people are entitled which is actually claimed'. Take-up may be less than 100% for a variety of reasons, including: the stigma of being a benefit recipient; the administrative burden and costs of making a claim; ignorance of the existence of a benefit, etc. Means-tested benefits are more likely to have problems of low take-up than insurance benefits. In the framework of the joint OECD-EC project, the OECD has collected and summarise national studies of take-up rates. See Hernanz &al.(2004).

[27] In reality, the use of METRs in order to measure in any given moment the incentive to work (or to increase work effort) is not (or at least not directly) related to the issues of the incidence of taxation, its translation on firms or employees and so forth. Implicitly, we assume that our individual/family type is a price-taker. This implies that in its decision-making process, when deciding whether to accept a job, he just compares a given net wage with a given amount of net income when out-of-work.

Thirdly, the actual importance of high METRs for labour supply decisions will also depend on the freedom of choice individuals have over their work effort (mainly the number of hours supplied), which is often limited by institutional arrangements. Probably, high METRs are more relevant on the extensive side of the labour supply, in other words, when the choice involves a decision to move from unemployment or inactivity to work. In this case, benefit dependency and individual choice can be highly conditioned by eligibility requirements (such as job-search obligations and duration of benefits) and the stringency of their enforcement[28].

V.   SUMMARY AND CONCLUSIONS

This note has presented an assessment of most recent reforms of tax-benefit systems, based on the evolution of three indicators of unemployment, inactivity and low-wage traps, along with the more traditional indicator of net replacement rates for a set of hypothetical family types. Technically speaking, these indicators are marginal effective tax rates (METRs) and constitute the main empirical results of the joint OECD-Commission project. The project is devoted to provide calculations of the interaction and impact of tax and benefit systems on households' disposable income within a conceptually consistent and flexible framework. This allows us to compare tax and benefit policies across countries and assess them against the objectives of 'making work pay'.

These indicators provide a useful picture of the financial (dis)incentives to take up a job (unemployment/inactivity trap) or increasing working time or work efforts (low-wage trap) when potential earnings are low. By allowing a calculation of the impact of various components of each country's tax-benefit tools on METRs, the calculation has provided useful indication of the direction and magnitude of recent reforms to make work pay. Marginal tax rates usually show differences according to individual circumstances and family structures. Moreover, additional benefits (e.g. housing benefits and family benefits) are often available to some groups of unemployed or low-income households. Figures presented here show us also how some features of the tax system and the interaction with means-tested benefits lead to METRs that tend to be higher at the bottom end of the earnings distribution. This implies that low-skilled individuals are more likely to confront low-wage (poverty) and unemployment or inactivity traps than high-skilled persons.

The analysis shows that the interaction of tax and benefit provisions results in a risk of low-wage trap for employed persons in some member states, especially in those where means-testing has traditionally played an important role in the benefit system. We have also

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[28] There is increasing empirical evidence that making the disbursement of unemployment benefits strictly conditional upon job search and related behaviour ("work test") can reverse or at least partly offset the disincentive effects linked to these schemes (OECD (2000c)). The impact of a strict and well enforced eligibility system on the behaviour of an unemployed person can be even higher than any decrease in the generosity (especially in the replacement rate) of the benefit systems. Sound administration of benefit schemes and procedures for implementing eligibility criteria, including sanctions in case of misuse, play an important role in determining how effective the rules are in practice. If the eligibility criteria are severe and, above all if their enforcement is effective, it might be possible to maintain a relatively high benefit level without generating excessive work disincentives. To this aim, a strict interaction with active labour market policies that influence the search behaviour of the unemployed is essential.

seen that the risk is the highest for households with children, whose overall gross earning is close to the minimum wage and not higher than 60-70% of APW earnings.

As regards the risk of unemployed trap for persons entitled to unemployment benefit, we have seen that this risk is particularly high when, as a result of depreciation of past skills of an unemployed person, potential re-entry wages are lower than those before unemployment. When re-entry wages are lower than earnings before unemployment, individuals in many member states may find there is little, if any, immediate financial incentive to return to work. Thus, the presence of work disincentives is more likely to be relevant for the low-skilled because they are more frequently unemployed and for longer periods of time than highly skilled workers. Although immediate financial rewarding may not be the only consideration when deciding to work or not, this has potentially important implications and needs to be taken into account when re-designing benefit systems and active labour market policies.

In most member states, people without work and not entitled to unemployment insurance receive a support from means-tested social assistance programmes. Figures show that in such cases the risk of inactivity trap and benefit dependency for long period of time, that is the disincentive of taking up a job for persons/households living on social assistance, can be particularly high when the expected wage level is low. The implicit tax rate on working caused by the loss of benefit can be so high that there would be little change in household income after entering employment. To some extent, the risk of inactivity trap may be even more worrying than the risk of unemployment trap. Unemployment insurance duration is usually limited and is also conditional upon work-test and other eligibility criteria, whereas means-tested social assistance is a last resort scheme. Usually it is without any final limit in its duration, although a request for a renewal of assistance is generally required, and its work-related (i.e. job-search or training) obligations are quite weak, if any, in practice. Again, the risk is stronger for unskilled persons, because for them the level of income support from social safety nets is likely to be close to their prospective net earnings from work. For this part of population a receipt of benefits paid out when a person is inactive can entail benefit dependency and further progressive marginalisation from the labour market.

Member States have undertaken some reforms of tax and benefit systems from 2001 to 2003. About one third of countries have taken some measures. However, often the measures have addressed only one part of the tax-benefit system. Moreover, not all the measures have gone in the direction of increasing work incentives but have addressed other objectives of benefit systems, such as providing an adequate income support and reducing poverty. Regarding this, some countries, notably Greece and Portugal, have increased levels in housing and family benefits and the UK has abolished the means-testing of family benefits for the receipt of income support.

Overall, the impact of reforms on the indicators for work incentives presented in this study is relatively minor. It should, however, be noted that not all reforms affect the indicators of financial incentives although they may improve the overall incentive structure of the benefit system. In particular reforms which aim at enhancing the enforcement of benefit systems or at tightening the eligibility to some benefits would not affect the indicator values.

The effort to address the unemployment and low-wage trap problems at the lower end of the wage scale appear to have been the most marked between 2001 and 2003 in Denmark, France, Italy, Ireland, Spain, Finland, Sweden, the UK, the Czech Republics, Hungary, and

the Slovak Republic as well as for two-earner families in Belgium. Additionally, some countries have taken measures to reduce the inactivity trap problem (mostly through the introduction of in-work tax credit), such as Belgium, Denmark, France, Finland, Luxembourg and the Czech Republic, Hungary.

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ANNEX: *METHODOLOGY*[29]

We use the OECD tax/benefit model to calculate gross and net incomes for a set of different "hypothetical" family types including singles, lone parents and married couples with and without children. For each of these family types, we vary gross in-work earnings of the main earner from 0-200% of Average Production Worker (APW) earnings. By computing taxes and benefits for each of these earnings levels, we can draw so-called "budget constraints" showing resulting net income at each point along the (gross) earnings scale. When producing these budget constraints, we assume that hourly wages are changing, while working hours remains constant. (I would introduce the "changing hours" version first as it seems more logical if we talk about gross earnings starting at zero) We have also calculated budget constraints under the assumptions that hourly wages are constant (assuming that hourly wages are equivalent to the APW hourly wage level) while working hours changes[30]4. This may be more appropriate for calculating METRs for part-time workers. For the countries where there is a statutory minimum wage, calculations based on the assumption of fixed hourly wages but changing hours have been included in the tables for all the income ranges that are below the statutory minimum wages, as reported in Table 1.

From these two elements of the budget constraint faced by hypothetical persons/households it is possible to compute all three types of METR we are interested in. These rates are marginal "effective" taxes rates (also called "composite" or "implicit") because they take into account the effects of earnings increases on taxes paid as well as:

- "means-tested" benefits or tax concessions. The calculation of the marginal tax rate takes into account their withdrawal in the countries where the family benefits are means–tested;

- employment conditional benefits or tax concessions (credits or allowances) to people with low household incomes such as the Family Income Supplement (FIS) in Ireland, the Working Families' Tax Credit in the UK, and others work-related tax credit schemes recently introduced in Belgium, France, Germany and the Netherlands with the aim of "making work pay"[31];

- The impact on disposable income of various social transfers. Important means-tested benefits such as housing benefits and social assistance benefits are taken into account in

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[29] A more detailed description of the methodology, the main assumptions and limitations of the tax-benefit model can be found in the OECD (2004). Detailed country information on tax-benefit systems is available on the Internet site: www.oecd.org/els/social/workincentives.

[30] For most countries the two calculations (fixed hours and fixed hourly wages) are the same. But for some countries, notably, Denmark, Ireland, Luxembourg, The Netherlands and the United Kingdom, results differ due, for example, to special treatment of part-time workers, the entitlement to partial unemployment benefits, or the provisions of a minimum number of working hours for being entitled to in-work tax credits.

[31] The income tax credit for low-paid workers in France (Prime pour l'emploi") was set up in 2001 and is fully effective in 2003. In Belgium, the non-wastable tax credit for low-paid workers is being phased in over 2002-05. This implies that the scheme is not yet considered in the computation of METRs, which is based on tax provisions in 2001.

the calculation. Their withdrawal when moving from inactivity/unemployment to work or when earned income rises can be very relevant.

It may be worthwhile reminding some major definitions used in the analysis. Marginal (effective) tax rates are not the same as average (effective) tax rates. Average rates are indicators of the proportion of earned income paid in tax and withdrawal of benefits (where the latter can be considered as negative taxes) and are calculated as taxpayers' total taxes divided by total pre-tax earned income[32]. While average (effective) tax rates are key to understanding the (net of benefit) tax burden on taxpayers and its distributional effects, marginal (effective) tax rates are more important when considering incentive issues, such as the effects of the interaction of tax and benefit systems on individuals' behaviour.

Annual earned income is defined as a percentage of the average gross earnings of an average production worker (henceforth APW will be used). The latter is defined as an adult full-time production worker in the manufacturing sector. The concept of APW earnings is a convenient reference point in the calculation of net and gross income, tax rates and in establishing cross-country comparisons. The APW wage levels differ quite substantially across countries and are shown in Table 11 for 2003 in both national currency and Euro.

Table 11

Average Production Worker (APW) Wage level and Minimum wage - 2003

	APW	APW	APW	MINIMUM WAGE	
	(national Currency)	in €	(PPP)	€	as % of APW
Belgium	31,238	31,238	31,272	13,956	45%
Denmark	316,772	42,508	32,030		
Germany	33,810	33,810	30,296		
Greece	11,908	11,908	15,241	7,260	61%
Spain	16,975	16,975	19,745	6,312	37%
France	22,533	22,533	22,473	13,848	61%
Ireland	26,939	26,939	23,328	12,876	48%
Italy	22,114	22,114	22,360		
Luxembourg	32,198	32,198	28,383	16,428	51%
Netherlands	31,790	31,790	30,201	14,988	47%
Austria	24,405	24,405	22,830		
Portugal	8,677	8,677	11,548	4,992	58%
Finland	28,888	28,888	25,519		
Sweden	247,908	26,786	22,415		
UK	20,276	32,605	27,878	13,272	41%
Czech Rep.	220,773	6,932	12,971	2,388	34%
Hungary	1,164,915	4,590	8,215	2,544	55%
Poland	27,193	6,181	12,526	2,412	39%
Slovak Rep	150,000	3,615	7,511	1,596	44%

Note: Purchasing power parities (PPP): final consumption expenditure (SNA approach)
Source: OECD: Taxing Wages, 2003. EUROSTAT:Minimum wages and purchasing power parities

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[32] The marginal (effective) tax rate is $M(E)TR = d\,(T-B)\,/\,d(Y+T-B)$, and the average (effective) tax rate is $A(E)TR = (T-B)\,/\,(Y+T-B)$, where Y= disposable income; T = Tax; B= Benefits. Benefits can be treated as negative taxes.

In order to facilitate cross-country comparisons we have also converted the APW wage levels using purchasing power adjusted exchange rates. The lowest level of purchasing power parity adjusted annual average production worker wage level is found in the Slovak Republic (7511 ppp Euro), while Denmark has the highest level (32030 ppp Euro).

In Table 11 we have also included the statutory minimum wage (and its relative size, as percent of APW earnings) for the Member States where it exists. This information is useful when interpreting METRs at different APW earnings. Indeed, for those countries where there is a compulsory (at national or sectoral level) minimum wage, effective tax rates computed for earnings below minimum wage will only be meaningful in the case of part-time jobs. From Table 11 we can see that, in many member states, the statutory minimum wage is in the range of 50-60% of the APW wage level. The maximum level is in France and in Greece (61% of APW).

The stylised **household types** considered throughout the analysis are:

1. *Single person without children.*
2. *Single parent aged 40, with two children (aged 4 and 6).*
3. *One-earner couple aged 40 (1st spouse employed/unemployed, 2nd spouse inactive).*
4. *As in 3. but with two children (aged 4 and 6).*
5. *Two-earner couple aged 40 (1st spouse earning 67% of APW earnings, 2nd spouse employed/unemployed).*
6. *As in 5. but with two children (aged 4 and 6).*

The tax/benefit models permit the analysis of the net income position of a number of combinations of family types, labour force status and earnings levels. The combination of these six household typologies with the wide range of income covered in the simulation (along with the three types of labour market status, i.e. unemployed, inactive or employed) implies that a considerable part of countries'actual populations are covered by the calculations. Table 12 provides a summary picture of the relevance of the chosen household types in EU Member States and Candidate Countries.

Table 12 -   Distribution of households (%) by type of households*

(1999)

	Total	Single person	Single parent with dependent children	Two adults	Two adults with dependent children	Three or more adults	Three or more adults with dependent children
BE	100	29.7	6.7	26.4	33.3	2.2	1.8
DK	100	37.3	5.2	31.3	21.3	2.9	2.2
DE	100	35.4	3.9	31.4	22.1	5.2	2.1
GR	100	16.0	2.1	28.8	28.1	16.7	8.5
ES	100	10.1	2.0	21.9	32.4	19.0	14.7
FR	:	:	:	:	:	:	:
IE	100	20.8	5.2	20.7	31.9	10.7	10.7
IT	100	22.0	2.4	27.1	29.8	12.3	6.3
LU	100	24.8	3.1	25.4	31.2	9.3	6.2
NL	100	33.7	4.8	31.2	26.1	2.8	1.4
AT	100	30.2	3.7	27.8	22.0	9.9	6.5
PT	:	:	:	:	:	:	:
FI	100	38.3	4.8	29.6	23.6	2.6	1.2
SE	100	38.2	5.7	28.1	24.4	2.0	1.5
UK	100	31.4	6.5	30.3	21.0	7.3	3.5
CY	100	12.1	1.6	24.1	41.4	10.4	10.5
CZ	100	24.5	4.2	30.2	35.6	2.8	2.7
HU	100	24.0	8.0	22.0	26.0	5.0	15.0
PL	100	14.0	6.0	22.0	36.0	9.0	13.0
SK	100	16.0	5.0	19.0	52.0	3.0	5.0

Source: Eurostat, Household budget surveys, 1999
*(Including retired persons)

While no set of hypothetical households can fully capture the heterogeneity of existing populations, the purpose here is to choose households that allow us to assess the main features of tax-benefit systems. Yet, given the numerous dimensions that characterise real households (and will influence tax-benefit calculations) it is important not to try to extrapolate results to household types not covered here (or to the population as a whole, which would only be possible using a tax-benefit model in conjunction with representative household micro-data)[33].

The following income components have been considered in the calculation of the budget constraints:

- *Earnings from work;*
- *Income Taxes (both national and local);*
- *Own Social Insurance Contributions (paid by employees or benefit recipients);*
- *Family Benefits (including employment-conditional benefits where they are family related);*
- *Social Assistance benefits (minimum income normally excluding any strictly housing related parts);*
- *Housing Benefits (normally including any strictly housing related parts of minimum income programs. All accommodation is assumed to be rented with rent constant at 20% of the average production worker wage level);*
- *Unemployment Benefits.*

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[33] For a microsimulation based method to assess effective tax rates in the EU , based on EUROMOD, an EU-wide tax benefit microsimulation model, see H. Immervoll(2002).

Disability benefits, voluntary and old-age pension payments as well as any income from capital are not considered.

All applicable benefits together add up to gross income for those without work. As benefit income is often taxed or is subject to social insurance contributions, it is necessary to calculate the taxes levied on households without in-work earnings in order to determine net incomes

Assumptions about taxation

In the main calculation, the tax components are limited to "personal" tax rates, which is the term used by the OECD (see OECD-*Taxing wages, 2004*) when personal income tax and employees' social security contributions are expressed as a percentage of gross wage earnings.

Taxes on earned income at work, taxes on social benefits, compulsory social security contributions paid by the worker will be included in the calculation. Voluntary social security contributions made to the private sector are excluded. Central, state and local government income taxes will be included. Only standard tax relieves are included when tax payments are calculated. These are relieves unrelated to the actual expenditures incurred by the taxpayer and are automatically available to taxpayers that satisfy the eligibility rules specified in legislation. Typical standard relieves include the basic relief available to all taxpayers, wage earners or benefit recipients, irrespective of family status; relieves available to taxpayers depending on their marital status; relieves granted to families with children (where applicable); and the relief relating to work status but not depending on expenses such as tax credits to workers. Non-standard relieves are not included. Greater detail can be found in the methodology section of "Taxing Wages" (OECD, 2004).

Although other important components of benefit systems could have been taken into account (such as child-care costs, work-related expenses), one should also consider that given the complicated nature of both the income tax schedule and the benefit rules for different transfer programs, it is very difficult to obtain accurate budget constraints. This is even more so when a model is dedicated to cross-country comparison, thereby a series of simplification in terms of common assumptions and definitions are to be made in order to render the computation feasible and consistent across countries. This is the usual trade-off between the richness of details of existing tax-benefits models at national level and the consistency provided by a common international model. The OECD tax-benefit model has been used to characterise the annual budget constraints (gross earning, gross income and net income). To get an indicator of the low-wage (poverty) trap, the marginal tax rate is simulated by computing the change in after-tax and after-transfer income that results from adding the equivalent of a given percentage of the APW earnings of the gross earned income (1% of APW earnings) to the income of each household member aged 40.[34]

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[34] The use of marginal income changes equivalent to 1% of APW earnings or more instead of one unit of money is chosen for pragmatic reasons since the wage levels have been defined as a % of the APW wage level. To avoid some spikes (very high negative or positive value) due to discontinuities in the tax-benefit systems one should choose a larger income increase. For reasons of calculation and presentation, the negative and positive extreme values of METRs in tables and charts are limited by thresholds of -20 and 120.

References:

Atkinson, A. B. and J. Micklewright (1991), *"Unemployment compensation and labour market transitions: a critical review"* in Journal of Economic literature, Vol.XXIX (December).Blanchard, O. and J. Wolfers (1999) "The role of shocks and institutions in the rise of European unemployment: the aggregate evidence", NBER WP. 7282.

Bover, O, M. Arellano and S. Bentolila (1996), *"Unemployment duration, benefit duration and the business cycle"*, Estudios Economicos, N° 57, Banco de España

Carone, G., A. Salomaki, H. Immervoll and Paturot, D. (2003), "*Indicators of Unemployment and Low-Wage Traps (Marginal Effective Tax Rates on Employment Incomes*)", OECD Social, Employment and Migration Working Paper No. 18, OECD, Paris (also published as European Economy Economic Papers No. 197, European Commission, Directorate-General for Economic and Financial Affairs, Brussels).

Carone G, and A. Salomaki (2001), *"Reforms in tax-benefit systems in order to increase employment incentives in the EU"*, EC Economic Papers, N. 160

EU Commission (2004), MISSOC 2004 – *Mutual Information Ssytem on Social Protection in the EU and the EEA,* Brussels

Hernanz, v., F. Malherbet, and M; Pellizzari (2004),"*Take-up of welfare benefits in OECD countries: a review of the evidence*", OECD Social, Employment and Migration Working Paper No. 17, OECD , Paris.

Layard, R., S. Nickell and R. Jackman (1991), *"Unemployment: Macroeconomic performance and the labour market"*, Oxford, Oxford University Press

Ministry of Finance, Denmark (2004), "*Availability criteria in 25 countries*"

OECD (2004), "*Benefits and wages*", Paris

OECD (1997), "*Making work pay: taxation, benefits, employment and unemployment*", Paris.

OECD (2005), "*Taxing Wages 2003-2004*", Paris