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In-Work Transfers in Good Times and Bad: Simulations for Ireland

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ABSTRACT

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In-work transfers are often seen as a good trade-off between redistribution and efficiency, as they alleviate poverty among low-wage households while increasing financial incentives to work. The present study explores the consequences of extending these transfers in Ireland, where support for low-wage households has been of limited scope. The employment and poverty effects of alternative policies are analyzed thanks to counterfactual simulations built using a micro-simulation model, the Living in Ireland Survey 2001 and labour supply estimations. Firstly, we study the effect of recent extensions of the existing scheme, the Family Income Supplement (FIS), and of its replacement by the refundable tax credit in force in the UK. Secondly, little is known about the impact of macro-level changes on the distribution of resources at the household level, which is particularly relevant in a country deeply affected by the current economic downturn. We suggest a preliminary analysis of the capacity of alternative in-work transfer scenarios to cushion the negative impact of earnings losses and cuts in the minimum wage.

JEL Classification: C25, C52, H31, J22

Keywords: microsimulation, working poor, welfare, labour supply, take-up

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1 Introduction

In-work transfers, also known as 'Make work pay' (MWP) policies, have been used for many years in the US and the UK to alleviate poverty among low-wage families. These transfers often took the form of refundable tax credits like the Earned Income Tax Credit (EITC) in the US, and the various forms of the Family Tax Credit in the UK. Several other forms of "negative taxes" also exist, including low-wage subsidies (via reductions in social security contributions for low-wage workers) or in-work benefits such as the Family Income Supplement (FIS) in force in Ireland.[1] Their appeal stems mainly from an interesting compromise between equity and efficiency. They allow redistribution to the (working) poor, while increasing financial incentives to work for those living on welfare payments. They are therefore a useful redistributive tool in a low unemployment context such as that experienced by the US and UK before the crisis. In continental Europe, poorer labour market performances but also generous social welfare programmes have kept a substantial number of workers out of work. In this context, MWP policies have been promoted for efficiency reasons, i.e. to increase the financial gains to work and encourage labour market participation.[2]

Both redistributive (or equity) and efficiency arguments are relevant for the Irish case. Yet, while 'making work pay' for low-wage workers is often invoked for equity reasons, there is probably still some way to go for the tax-benefit system to treat the working poor in an equitable manner compared to other income groups. A recent article in The Irish

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[1] Many studies address the question of MWP policies in the UK and the US and the distributional and employment impacts of the developments of the EITC and the FC/WFTC/WTC over the past decades. Hence we simply refer to Brewer (2001) and Blundell and Hoynes (2001) for an overview and comparison of the US and UK systems as well as numerous additional references. For Europe, the employment effect of the earned tax credit implemented in France is studied by Stancanelli (2008). Orsini (2006) analyze the tax credit and wage subsidies implemented in Belgium. Some of the suggested in-work policies in Germany (reduction of social security contributions) are analyzed by Bonin et al (2002) and the Mini-job reform that took place is studied by Bargain et al (2009) using ex ante evaluation and by Caliendo and Wrohlich (2006) with an ex post assessment. See also the surveys and international comparisons by Gradus and Julsing (2001), Martin and Grubb (2001), Pearson (2001), Duncan (2002), Pearson and Scarpetta (2002), Blundell (2000), Duncan et al. (2003), Orsini (2007) and Leppik (2006). See the more recent discussion by Immervoll and Pearson (2009) on the role of MWP policies in times of economic crises.

[2] It is noticeable that in Ireland, as in the US and the UK, these policies have been targeted essentially at families with children. These Anglo-Saxon countries' goal of redistribution also includes an attempt to combat child poverty. In contrast, the motive of efficiency has probably been behind the individualization of European schemes like the wage subsidies in Germany and the earned income tax credit in France. For continental Europe, high implicit taxation on secondary earners would be amplified by the introduction of in-work transfers means-tested on household income (see Bargain and Orsini, 2005).

Times noted that:

> "In the run-up to the most swinging budget of the 21st century, rarely a day passes without someone warning that 'the financially vulnerable' must be protected.[...] The impoverished workers have become the invisible victims of the recession, as they receive scant media attention." (Suzanne Kelly, November 12, 2009: "Budget must not ignore plight of the working poor").

The efficiency of the system can also be improved. The Irish Times article reports that firms have "difficulty engaging employees despite the recession, as the social welfare package was, in some cases, more advantageous than wages". Extending MWP policies may be a way to improve on both accounts. Moreover, while MWP policies, and the double objective of increasing labour supply and income of low-wage workers, have been particularly justified in a context of excess demand, they may also take on a new role in times of macroeconomic shocks and constrained labour demand. This is particularly relevant for Ireland, one of the European countries suffering the most from the recent economic recession, with rapidly increasing unemployment and wage cuts. In this context, in-work transfers may have a cushioning effect when minimum wages are cut along with market wages to limit the extent of classic unemployment.

Against this background, we suggest an extensive analysis of in-work transfers in Ireland. We consider the extension in generosity of the FIS that occurred over the last number of years, some recently proposed reforms to the FIS stemming from the McCarthy report and the hypothetical replacement of the FIS by the British WTC. Firstly, we analyze the effect of each alternative policy measure on employment and poverty in Ireland, using a tax-benefit micro-simulation model (EUROMOD) linked to the Living in Ireland Survey 2001 and a discrete-choice labour supply model. We are thus able to assess the direct effects of these policies on poverty and inequality when holding market income constant and to predict behavioural responses to policy changes and their consequences for income distribution.[3] Secondly, we consider the relative performance of each policy in a macroeconomic environment affected by cuts in earnings and in the minimum wage. This way, we can examine how MWP policies can cushion income losses in a situation of economic downturn. Since lower gains to work may lead to a supply side effect, the proposed modelling is also useful in incorporating labour supply responses into this recessionary scenario.[4] Finally, FIS is known to suffer from a take-up problem so we

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[3]For Ireland, an early study by Callan et al. (2005) evaluates the FIS but there is currently no assessment of the labour supply effect of this policy (or its possible extensions) using econometric techniques nor any evaluation of the possible effects of alternative scenarios.

[4]According to Combat Poverty Agency (2008): "in the current climate, keeping people in employment is as, if not more, important than getting people out of unemployment".

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investigate the effect of low take-up on the effectiveness of each policy and the sensitivity of our results to the way take-up is introduced.

The remainder of this paper is structured as follows. Section 2 discusses in-work poverty in Ireland. Section 3 presents the policies and section 4 analyses their employment and poverty-alleviating effects. Section 5 investigates the issue of imperfect take-up. Section 6 concludes and the Appendices describe the econometric model and the data.

2   Out-of-work and In-Work Poverty in Ireland

We first describe the phenomenon of in-work poverty in Ireland (see also Rocks, 2008). For ease of exposition, we refer equivalently to the "poor" or those "at risk of poverty", defined as having an equivalized disposable income below 60% of the median. The working poor are households at risk of poverty with at least one adult member in work. Using the 2004 Household Budget Survey, simple calculations show that among all those at risk of poverty, 22% are pensioners, 51% are workless and 27% are in-work.[5] In Table 1, we focus on the group of working-age households (18-59) using two waves of the Household Budget Survey. We observe that the proportion at risk of poverty is around 18% for both years of data (1999 and 2004), with a substantial share of households in work (43% in 1999 and 31% in 2004).[6] The proportion of working poor is particularly large among couples (56% of poor couples in 1999 and 44% in 2004) and is mainly composed of one-earner households. The overall decreasing trend seems to be essentially driven by this sub-group. Many factors may explain this observation. In particular, the relative proportion of two-earner couples has increased overall, at the expense of one-earner couples (not represented).[7] This is due to the sharp increase in female participation in the labour market (see Callan et al., 2009). Another explanation pertains to the recent evolution of the FIS which will be discussed in the next sections.

In this context, transfers to the working poor seem to 'miss' roughly two-thirds of the overall poor among working-age households. Yet, the effect of such transfers is dynamic since it may induce increased activity. In other words, workless poor may become working

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[5]The most recent waves of the Irish *Household Budget Survey* (HBS) are for years 1994, 1999 and 2005. This data gathers information on household expenditures, incomes and socio-demographics for around 7,000 representative households in each wave.

[6]When using EU-SILC 2005, 45.7% of those at risk of poverty are in work (Rocks, 2008). This figure is 32.6% when considering those consistently poor (income below the 60% median and validating at least one of eight deprivation measures).

[7]One-earner couples represented 45% of all couples in 1999 and 37% in 2004, while the proportion of no-earner couples remained stable around 11% of all couples.

poor or escape poverty by cumulating earnings and in-work benefits. It is not sure, however, that the potential for increased labour market participation exists, either for supply side reasons (financial incentives to work) or demand side aspects. Table 2 gives an indication of where the margin for increased labour supply was for years 1999 and 2004. Among those out-of-work, we represent the proportion of job seekers and the proportion of inactive persons, for instance 25 and 27% respectively among singles in 1999. The residual category (48% for this example) is composed of all those unavailable for work, which includes students, disabled workers or those receiving a pension. Part of the job seekers may be seen as involuntary unemployed (classic or frictional unemployment). The group of inactive persons, i.e., those who are not actively looking for a job, include spouses and single mothers engaged in home duties and childcare. These groups may be those from which increased labour supply can be expected. They are composed in part of people who choose not to work because their low market productivity, high fixed costs of work and possible tax-benefit disincentives make their financial gains to work small. Very clearly, Table 2 shows that women, either single or in couples, are often in the "inactive" category and potentially concerned by supply-side incentives. This is so despite the dramatic increase in female labour market participation observed in the past decades (see Callan et al., 2009). As far as child poverty is concerned, incentive effects may be particularly important for the group of lone parent households where children face a high risk of poverty (Cooke and Lawton, 2008).

Table 1: Working-wage Households at Risk of Poverty: In and Out of Work

		HBS1999		HBS2004	
	all	18.5%		17.6%	
All	in work	7.9%	43%	5.5%	31%
	out of work	10.5%	57%	12.1%	69%
Singles	in work	0.9%	21%	1.0%	16%
	out of work	3.3%	79%	5.0%	84%
Single parents	in work	0.8%	25%	0.8%	26%
	out of work	2.3%	75%	2.3%	74%
Couples	two-earner	0.5%	56%	0.6%	44%
	one-earner	5.8%		3.1%	0%
	no-earner	4.9%	44%	4.8%	56%

At risk of poverty (i.e, equivalized disposable income below 60% median) among working age households. Own calculation using Household Budget Survey (HBS). Ex: single parents at risk of poverty represented 3.1 points among the 18.5% of working-age households at risk of poverty in 1999, 75% of whom were out of work.

Table 2: Working-age Workless Poor: Breakdown

		HBS1999		HBS2004	
Singles	job seeker	0.8%	_25%_	0.8%	_17%_
	inactive	0.9%	_27%_	0.8%	_16%_
	not available	1.6%	_48%_	3.4%	_68%_
Single parents	job seeker	0.2%	_10%_	0.1%	_5%_
	inactive	1.7%	_74%_	1.9%	_82%_
	not available	0.4%	_17%_	0.3%	_13%_
Men in couple	job seeker	2.3%	_40%_	1.3%	_24%_
	inactive	0.2%	_3%_	0.3%	_6%_
	not available	3.4%	_57%_	3.7%	_69%_
Women in couple	job seeker	0.3%	_4%_	0.3%	_4%_
	inactive	8.4%	_86%_	5.9%	_81%_
	not available	1.0%	_10%_	1.1%	_15%_

Working-age households at risk of poverty and out of work, decomposed between "Inactive"
(voluntarily unemployed, incl. those engaged in domestic activities), "job seeker" and the persons
unavailable for work (students, disabled and pensioners).

3 Policy Descriptions and Simulations

3.1 The Family Income Supplement

The Family Income Supplement (FIS) was designed to provide cash support for employees with families on low earnings and thereby preserve the incentive to remain in employment in circumstances where the employee might only be marginally better off than if (s)he were claiming other social welfare payments (see Callan et al., 1995). As such, this is the main instrument to redistribute to working poor families.[8] It is a weekly payment for families with at least one dependent child (under age 18 or 22 if in full-time education). Claimants must be working at least 19 hours per week to qualify (though married or cohabiting couples can add their hours together) and in an employment that is expected to last at least three months; self-employed do not qualify. The weekly hours of spouses and partners can be combined to meet this condition, which is not the case for the British WTC. Denote B the income limit and Y the average weekly family income Y includes

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[8]Other policies include the Back-to-work allowance which was discontinued in May 2009 and the minimum wage. The Back-to-work allowance allowed people to keep a percentage of their social welfare payment along with "secondary benefits" for a period of up to three years. It was aimed at the long-term unemployed and those on illness benefit. The minimum wage, which was €8.65 an hour for an experienced adult employee from 1 July 2007 is at risk of being cut in the near future. We focus on the FIS, which has so far escaped recommendations for its removal/reduction, since this scheme is very similar to policies in other countries (WTC in the UK, EITC in the US), which makes it suitable for extension in these directions or for replacement by one of those schemes (e.g., WTC).

most transfers[9] and is net of taxes and social contributions. Then:

$$FIS = \max\{0, 60\%(B - Y)\}$$

The income limit B – and therefore the value of the benefit – varies according to the number of children (see Table 3 below). For instance, it is EUR 590 per week in 2009 for a family with 2 children. Hence the scheme imposes a 60% implicit marginal tax rate on net income. FIS payment is tax free and is not counted as income when individuals are considered for a medical card.[10] This helps to reduce disincentives to seek employment. Generally the payment continues for one year and is not affected by, for example, an increase in earnings or other income in the family. The means test is performed at the end of each year to determine the new payment amount for the subsequent year.

The budget curves depicted in Figure 1 and 2 illustrate the theoretical situation under the 2001 Irish tax-benefit system (our baseline). For two representative households, a single parent household (with a 9 year-old child) and a couple with two children (7 and 9 year-old children), we simulate the disposable income (i.e. original income net of all taxes and transfers for that family) obtained at different worked hours using the tax-benefit calculator EUROMOD. For both family types, we assume wage rates equal to EUR 11.42 per hour in Figure 1 (the gross hourly earnings of an Average Production Worker, APW, in Ireland in 2001) and EUR 5.96 per hour in Figure 2 (the minimum wage in Ireland in 2001). We also assume there is no other source of market income than earnings. The solid grey line represents a counterfactual scenario where the FIS is completely taken out of the system ("no MWP"). We can observe the usual features of the Irish tax-benefit system here. In particular, there is a kink point around 40 hours for the single parent (and below 60 for the couple) when paid at the AWP, corresponding to the change of tax bracket. Also, zero hours generally corresponds to payment of benefits.[11] These social welfare payments consist of several benefits for special circumstances (including carers allowance, disabled persons maintenance allowance, deserted wives benefit, lone

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[9]Exceptions are child benefit, early childcare supplement, carer's allowance, guardian's payment (contributory and non-contributory), supplementary welfare allowance and foster child allowance.

[10]The medical card scheme allows the holder to receive certain health services free of charge. To qualify for a medical card your weekly income must be below a certain figure for your family size. Cash income (aside from the FIS), savings, investments and property are taken into account in the means test.

[11]Contributory unemployment benefit is calculated by EUROMOD only for people who actually state that they receive it in the data. It is not visible in the budget constraints which use hypothetical data and assume that zero hours corresponds to long-term unemployment. Unemployment benefit can be kept for work on a very temporary basis or in case of forced job-sharing. Where a person has not made enough contributions to become eligible for unemployment benefit, they are eligible for unemployment assistance (either short-term for the first 15 months of unemployment or long-term thereafter)

parent allowance, unemployment assistance, etc.). In the case of our hypothetical budget constraints, this is made up three components. The Supplementary Allowance acts as a minimum income, starting at EUR 106.65 per week for a single childless person (around EUR 464 per month) with a 100% taper rate if they have anything above zero income. The Rent Allowance Supplement ensures that an individual's income, after paying rent, does not fall below a minimum level. This level is the basic Supplementary Welfare for that person's circumstances minus a small amount (around EUR 10 in 2001) which is considered the minimum rent contribution the individual must make. The Lone Parent Allowance is a means-tested payment for men and women who are bringing children up without the support of a partner. In 2001, the first EUR 146.50 of the individual's weekly earnings was not taken into account in the means test and the withdrawal rate thereafter was 100%. For low work duration, the phasing-out of these benefits leads to very high implicit marginal tax rates, hence the flat portion of the budget constraint. In particular, in both of the single parent graphs, there are two distinct flat parts to the budget constraint. The first corresponds to the 100% phasing out of the Rent Allowance Supplement once income becomes positive. The second corresponds to the 100% phasing out of the Lone Parent Allowance once the family reaches the disregard amount (of around EUR 640 per month). This characteristic is not specific to Ireland but a common feature to all countries with some social transfers to the unemployed and workless poor (see Bargain and Orsini, 2005). Notice, however, that replacement rates in Ireland, defined as the ratio of income out of work to income in work, are low by European standards (Callan et al, 2008).

In comparison, the actual situation ("FIS 2001") shows only a small effect of the FIS for workers paid at the AWP level, and the effect is focalised around part-time work. For minimum-wage workers, on the other hand, the FIS seems to significantly increase gains to work both part-time and full-time, especially for the one-earner couple. By increasing disposable income to a higher level than unemployment benefits, the supplement may create incentives to participate to the labour market (Ochel 2001). However, it may also reduce incentives to work longer hours for those in employment. The withdrawal of the benefit actually corresponds to an implicit marginal taxation of 60% on net incomes (and around 47% on gross incomes at this income level). For the couple with two children, the phase-out of FIS actually leads to a downward sloping part of the budget constraint, which corresponds to implicit marginal tax rates higher than 100%. These are created by the combined withdrawal of the FIS (with a 60% taper rate) and the withdrawal of social assistance benefits as explained above. Taxation also kicks in between 20 and 30 weekly worked hours for the one-earned couple paid at the AWP. Hence a potential risk exists of a decrease in labour supply at the intensive margin corresponding to a decrease in worked

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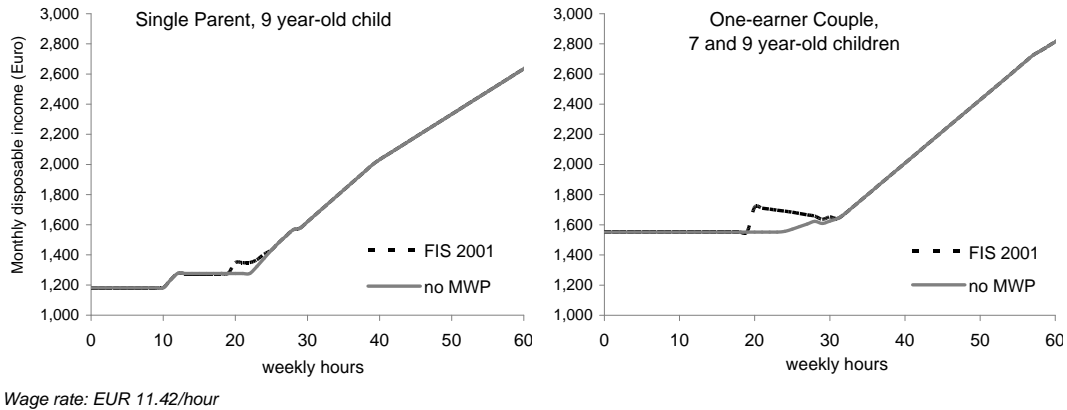
Figure 1: Budget Constraints for Representative Households (AWP): Baseline
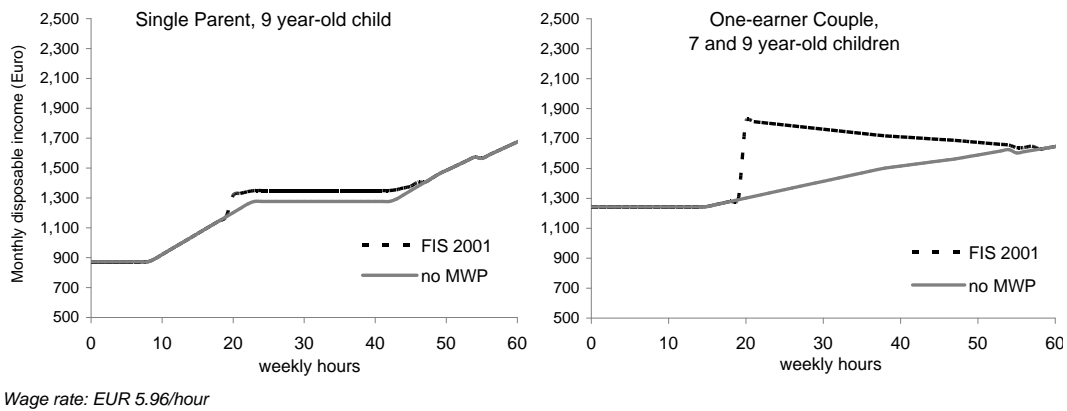
Figure 2: Budget Constraints for Representative Households (Minimum Wage): Baseline

hours or a move from full- to part-time work. For two-earner couples, this may also lead to the withdrawal of the secondary earner, defined as that person with the lowest wage rate, from the labour market.[12] Indeed, means-testing at the household level implies that secondary earners may be encouraged to decrease labour supply so that the main earner receives the maximum amount of in-work transfer. The subsequent financial loss may be more than outweighed by an increase in non market time.

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[12] The case of a two-earner couple where one works 40 hours and the other 20 hours, both at the same minimum wage, corresponds to the point at 60 hours on the "one-earner couple" graph. It is clear for this illustration that the disposable income of the household increases when the part-time secondary earner stops working.

3.2 Evolution and Recommendations

The evolution of the parameters of the FIS between 2001 (our baseline year) and 2008 are illustrated in Table 3. Clearly, both the base payment and the child increments have increased substantially. The former increases by roughly 50% while the latter doubles in this seven year interval, even after allowing for purchasing power differences over the period. We simulate this more generous FIS holding the 2001 population constant and adjusting the 2008 monetary parameters to 2001 using CPI.

Recently, in response to the current economic crisis, several recommendations have been made to adapt the FIS to new economic circumstances. In particular, a Commission on Taxation was set up to reshape the whole tax-benefit system. Its 2009 report argues for maintaining the level of the FIS and for keeping it tax-free, contrary to other social welfare payments that should be subject to taxation. Also, a Special Group on Public Service Numbers and Expenditure Programmes (or McCarthy Group) was charged with proposing drastic cuts to public expenditure in order to reduce public debt and restore confidence in the Irish economy. The latter recommended the maintenance of FIS levels but that claimants already in receipt of a primary weekly social welfare payment should no longer eligible for the FIS (see the report of McCarthy et al., 2009).[13] We simulate the McCarthy recommendation since a too large increase in public expenditure is not desirable given the financial difficulty that the Irish exchequer is currently facing.

Table 3: Parameters of the Family Income Supplement

Family size	2001		2008		
	Income limit	Child increment	Income limit*	Real increase	Child increment
1 child	328		474	45%	
2 children	353	7.8%	552	56%	16.3%
3 children	378	7.2%	634	68%	14.9%
4 children	404	6.7%	735	82%	16.0%
5 children	436	7.9%	842	93%	14.5%
Withdrawal rate	60%		60%		

Income limits are weekly and in Euro

* In 2001 prices. Source: Citizen's Information Board and Euromod 2001 policy file

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[13] These other benefits include the Carer's Allowance; Illness Benefit; Jobseekers Benefit and Community Employment schemes

3.3 Alternative System: the British Working Tax Credit

In Europe, the most prominent in-work transfer is certainly the British system of family tax credits. For this reason, several authors have simulated the welfare and labour supply consequences of the introduction of the British system in other countries.[14] The British Family Income Supplement, which was the model for the Irish FIS, was introduced in the UK in 1971 and replaced in 1988 by the Family Credit (FC) which was a top-up cash payment for low-earning couples with children. The Working Family Tax Credit (WFTC), introduced in its stead in October 1999, was a refundable tax credit administered by the Inland Revenue and was more generous than the previous FC. The average monthly amount of credit increased by around 20%. The WFTC reached 1.3 million households at a cost of £5 billion (0.6 per cent of GDP). This credit was a transfer to households with children where at least one of the adults was in paid work (employed or self-employed) for at least 16 hours per week. A 20% premium was given if one of the working adults worked above 30 hours per week. Maximum entitlement also increased by 49% per dependent child. Eligibility was based on the jointly assessed incomes of household members. Once income reached a threshold level, the maximum amount was tapered away at a rate of 55% on net income (versus 70% with the former FC). In 2003, a new reform split the WFTC in two instruments with different objectives. The first, a refundable Child Tax Credit (CTC) to families with children, targeted the UK-specific objective of reducing child poverty (Amzat, 2006). The second, the Working Tax Credit (WTC), was essentially a reform of the WFTC to childless households. Denote B the maximum theoretical amount, Y the net income and θ a disregard, then:

$$WTC = B(n) - \max(0; 55\%(Y - \theta)).$$

The WTC is for individuals who usually work 16 hours or more a week, are paid for that work and expect to work for at least 4 weeks. To qualify, adults must be 16 or over and responsible for at least one child; or aged 16 or over and disabled; or aged 25 or over and usually work at least 30 hours a week. As we pointed out in the introduction, there is a case to be made for extending MWP benefits to childless individuals. Therefore, we slightly adapt the eligibility condition for this group in our simulations so that adults aged 16 and over are eligible whether they have a child or not.[15]

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[14]See the simulation of the WFTC and an alternative individualised MWP policy in Finland, France and Germany (Bargain and Orsini, 2005), of the WTC and CTC in Germany (Haan and Myck, 2007) and of the implementation of family-based and individual-based MWP policies in Southern European countries (Figari, 2009). Immervoll et al (2007) study the introduction of a US EITC-style reform on the EU-15 countries.

[15]Couples with at least one child can claim the 30 hour element if they work at least 30 hours a week between them providing at least one of them works 16 hours or more a week. Whatever work hours,

The WTC is made up of different elements depending on particular circumstances of the claimant and his/her family (basic amount plus element for the presence of a second adult, lone parent element, disability element and other elements depending on the working hours). The taper rate of 55% on net income corresponds to around 37% on gross income in the UK. Furthermore, the WTC program includes a specific element designed to subsidize childcare costs. However, this element is not incorporated into the 2003 EUROMOD files so we disregard it. We simulate the replacement of the FIS by the variant of the 2003 WTC described above where we apply the same hour condition to households with and without children, that is at least 16 hours per week.[16] We adjust the monetary parameters of the 2003 reform to Ireland 2001 using Eurostat estimates of PPP differentials.[17]

3.4   Simulations

The simulated scenarios are based on the 2001 Living in Ireland Survey and the EURO-MOD simulator for that year, as described in the Appendix. The first scenario is the 2001 baseline with the 2001 version of the FIS, assuming full take-up ("FIS 2001" hereafter). Another counterfactual is the 2001 situation where FIS is removed from the tax-benefit system ("No MWP" hereafter). Reforms include the extension of the FIS to 2008 parameters ("FIS 2008"), the McCarthy recommendations ("MC" hereafter) and the joint simulation ("MC+FIS 2008"). All of our reforms are consistent with the initial choice of the Irish government to means-test in-work transfers on household income, rather than on individual income as in some continental European countries. As discussed above, this choice may allow better targeting of the population in need but may also have adverse effects on hours worked and on the participation of secondary earners in couples. Notwithstanding, while all other policy scenarios retain a MWP scheme for households with children only, the WTC extends to the childless households (singles and couples).

The budget constraints in Figure 3 give a first glance at the reforms for the two

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working persons can also claim tax credits if they are in the first year of work, having returned to work aged at least 50 after a period of at least six months receiving out-of-work benefits.

[16]Note that we also simulated the joint WTC and CTC system in Ireland. We found however that the CTC component is too expensive and not very comparable to the other scenarios because the CTC is unconditional on work. The CTC makes the joint reform eight times more expensive than just the WTC, which is prohibitively expensive in the current economic climate.

[17]The entitlement of people without children is about two thirds of the potential entitlement of those with children. They are eligible for the basic amount $B = 127$ pounds per month in 2003 (or EUR 194,in 2001 in our simulations) at a taper rate of 0.37 after $\theta = 422$ pounds (EUR 643 in our simulations) and the 30 hour element (£52 in 2003 or EUR 79). Those with children are entitled to another £125 (EUR 191) per month.

illustrative households already described (single parent and couple with two children). The starting point is the initial situation with FIS 2001. In the case where workers are paid at the AWP, the graphs show a marked effect of the WTC around part time for single parents and a modest increase at part time for one-earner couples. The FIS 2008 shows a large increase in transfers compared to the 2001 situation and creates an interesting effect at part time and above (up to 45 hours/week for one-earner couples). For low-wage households, the effect of the reforms is more significant, as expected. WTC and FIS 2008 have comparable effects for the single parent even though the WTC starts earlier (at 16 hours) and phases out more rapidly. The gain from FIS 2008 for a couple with two children is substantial, but also accentuates the disincentive effects in terms of hours for the primary earner and in terms of participation for the secondary earners. This is also true, to a lesser extent, with the WTC. The McCarthy (MC) recommendation not to cumulate FIS and other benefits is not apparent for couples since social benefits are already fully exhausted in the income range where the FIS starts. However, for single parents, the FIS2008/MC combination affects the net transfer by cancelling the FIS in the income range where the parent still receives some benefits, i.e., around 20 hours per week. For low-wage single parents, this results in cancelling the in-work transfer except for high work duration (over 42 hours per week). In practice, this combination may maintain the disincentive effect mentioned above without generating participation effects among low-wage single mothers.

In Table 4, we show the cost and the scope of each policy. We first present the apparent cost of each MWP policy when labour supply is fixed at the "no MWP policy" counterfactual situation. It is calculated as the change in total disposable income due to the introduction of each MWP instrument, and hence accounts for possible interactions between the policy and the rest of the system (like in the case of the MC recommendation).[18] The increased generosity of FIS 2008 compared to the baseline year translates into larger distributed amount (the average payment is more than 2.3 time that of 2001) and a broader group of eligible households (136,000 compared to 57,000). The MC recommendation would allow a saving of around 20% of the budget allocated to in-work transfers for both years. The scope of the WTC is broader than for FIS 2001, since it is also available to childless households, and it is even broader than for FIS 2008. However, distributed amounts are similar to FIS 2001 on average.

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[18]The apparent cost of the FIS is in line with official figures (available on www.welfare.ie) once we account for the low take-up rate of around 33%. In effect, the cost of the FIS is estimated at EUR 37 million in 2001 and EUR 170 million in 2008, which is close to a third of the costs shown in Table 4 for FIS 2001 and FIS 2008. A third of the number of eligible households, just under 20,000, is overestimated compared to the actual number of receiving households, around 14,000 in year 2001.
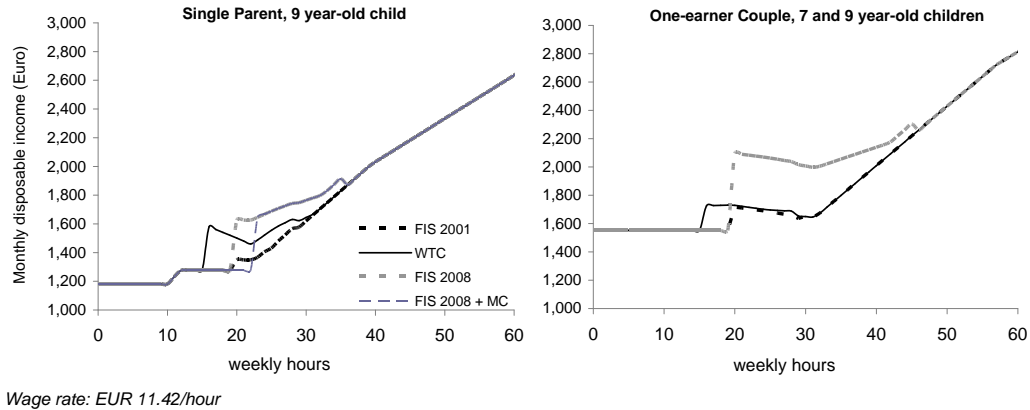
Figure 3: Budget Constraints with Reforms (AWP)

It is possible to compare the apparent cost of the reform, i.e., calculated when holding labour supply constant, to the real cost including potential labour supply adjustments. As shall be seen, the overall effect of the suggested reforms on labour supply is negative, and especially so in the case of the FIS 2008. This is in line with our expectations from inspecting the hypothetical budget constraints. Since the tax base decreases (efficiency loss) and in-work transfer payments increase in response to the reforms, the real cost is thus expected to be higher than the apparent cost. The difference is particularly large in the case of the FIS 2008, whose real cost increases by 35% due to labour supply responses.[19] Since these adjustments are aimed at making the household eligible for the in-work transfer, it is logical that the number of eligible households increases following the response, as well as the average amount of the transfer.

4   Effects of the Reforms

4.1   Labour Supply Effects

Table 5 presents the labour simulation based on the model described in the Appendix and on the assumption of 100% take-up of in-work transfers. Actual take-up rates of the FIS are in fact relatively modest so the present analysis, as well as the cost analysis in the previous section, are theoretical. The assumption of full take-up is made to compare the full potential of the reforms. In the next section, we shall investigate how the distributional

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[19]Note that we do not attempt to make the reforms of equal cost since FIS 2001 and 2008 are the actual policies and the WTC is adapted from the policy in force in the UK. However, we calculate the change in VAT that makes each policy revenue neutral, as reported in Table 4.
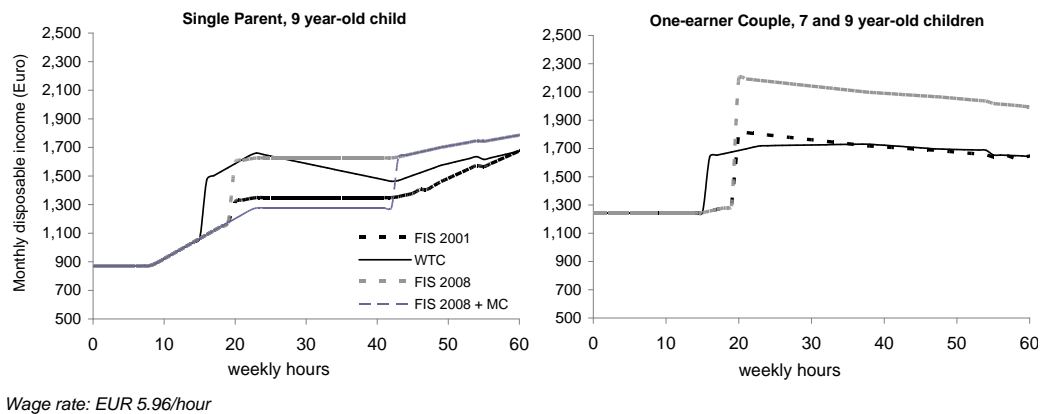
Figure 4: Budget Constraints with Reforms (Minimum Wage)

Table 4: Cost of the Reforms

	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Cost (million Euro per year) *	102	565	80	456	256
in % GDP	0.09%	0.48%	0.07%	0.39%	0.22%
Cost (million Euro per year) **	128	769	103	617	330
in % GDP	0.1%	0.7%	0.1%	0.5%	0.3%
Flat tax	0.3%	1.8%	0.2%	1.5%	0.8%
No. of eligible hh *	57,124	135,970	40,168	113,551	147,666
No. of eligible hh **	62,812	159,933	44,431	131,802	164,506
in proportion of total pop.	5%	12%	3%	10%	13%
Average amount (Euro, per month) *	148	346	166	334	144
Average amount (Euro, per month) **	169	401	193	390	167

* With labout supply as in no MWP situation

** After LS adjustment to the policy

We assume 100% take-up for all reforms. FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit. For reforms including the MC recommendations, we count as eligible those families who still receive an in-work transfers.

impact of the different policies changes under different take-up assumptions and how sensitive it is to the nature of the households who may take up the transfer among all eligible households. Since labour supply estimates may also change depending on the nature of take-up behaviour, we present a robustness analysis in the Appendix based on various assumptions (full take-up, no take-up, actual take-up in 2001 with a a joint estimation of labour supply and claiming decisions).

Table 5 reports labour supply responses compared to the "no MWP policy" counterfactual situation for which labour supply choices are also predicted. Against this reference point, we simulate the change in average worked hours and participation rates for single men, single women and men and women in couples separately. Since positive participation effects may correspond to the take-up of a part-time job, we also express the total change in hours in terms of "full-time equivalent" jobs (FTE). Even under a full-take assumption, Table 5 shows that the FIS 2001 has a very small effect on labour supply. The FIS 2008, however, has a strong negative effect on couples, as anticipated above. Withdrawals from the labour market concern secondary earners in particular with the participation rate of married women decreasing by 1.2 points. The hours reduction in FTE is larger than the participation effect in number of workers, which reflects the fact that there is, in addition to the response at the extensive margin, a significant decrease in work hours. This effect is strong for both women and men in couples. In contrast, the policy has a very strong positive effect on single mothers, a particularly vulnerable population subgroup, seen in the "single women" group. While the participation rate in this group increases by around 10 points, the FTE effect is more modest, which implies that most of the extensive response corresponds to part-time activity. Overall, the effect of the FIS 2008 on participation is positive but it is negative when considering total working time.

As suggested in the previous section, the MC recommendation does not change the effect on couples obtained with the FIS, but considerably reduces the positive participation effect on single mothers. That is, compared to the FIS2008 situation, the MC reform could create a disincentive effect for people entitled to both social welfare and the FIS before the reform. Once they lose their entitlement to the FIS because they are in receipt of social welfare, they might simply drop out of the labour market. Compared to FIS 2008, the MC reform reduces the hour effect in FTE for single mothers but not as much as the participation effect, suggesting that those who would take up a job under FIS2008+MC would opt for full-time (or overtime) activity. Nonetheless, we can expect that this concerns the better-off within the lone parent group, so that the anti-poverty effect of FIS 2008 could be seriously reduced when combined with the MC recommendations.

Finally, the WTC shows contrasting effects. For couples, the negative effect at the intensive margin seems to dominate, while a strong effect on the participation of single

mothers can be observed. Yet the latter corresponds to part-time activity – as anticipated by the budget graphs. Since the WTC is extended to childless households, we also notice a modest participation effect on single men, dominated by a reduction in work duration for those in the phase-out area of the scheme.

These results are in line with the findings of Blundell et al. (2000) for the UK, who find a mitigated effect of the extension of the Family Credit in 1999 (the WFTC reform) on employment. This was due to the combination of increased labour market participation of lone parents, and to a lesser extent of men, partially offset by a reduction in the hours supplied and a very significant drop in the participation of female secondary earners. A few *ex post* evaluations are available. Blundell et al. (2000) suggest a difference-in-difference analysis as a first check of the ex ante evaluation. More recently, Francesconi and Van der Klauuw (2007) studied the effect of the 1999 WFTC on single women using panel data. They find even larger positive responses by lone mothers, and a more diverse picture across responses, than in *ex ante* evaluations.[20] An interesting exercise, close to that suggested here, is proposed by Brewer et al. (2006). Using a structural model, the authors simulate the effect of completely removing the WFTC from the British system (year 2002). They find that without any form of in-work benefit in the UK, labour force participation by lone mothers would decrease by 11 percentage points – this is of the order of magnitude of what we find for the FIS 2008 and the WTC compared to the "no MWP policy" situation. They also find that withdrawing the tax credit would decrease the participation of men in couples by 1.1 points and increase that of women in couples by 0.73. We are not aware of any labour supply evaluation of the 2003 WTC in the UK, which would be more directly comparable with the reform simulated here. Brewer and Clark(2003) note however that the incentives created by the WTC are not universal. The incentive to enter work is high for the first earner in a family but lower for second earners. The benefit withdrawal rate also generates high implicit marginal taxation and hence hour reductions.

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[20] In the mid 80's, the US preceded other countries in reforming the welfare system by increasing the generosity of its EITC, which resulted in a substantial increase in the labour supply of single mothers with young children.

Table 5: Labour Supply Effects of the Reforms

	No MWP policy	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Women in couples						
Participation rate	0.609	0.607	0.597	0.607	0.597	0.607
Hours	19.6	19.4	18.7	19.4	18.7	19.4
	(0.46)	(0.47)	(0.44)	(0.47)	(0.44)	(0.47)
participation change		-383	-3,441	-383	-3,430	-383
hour change in FTE		-1,183	-6,775	-1,183	-6,752	-1,669
Men in couples						
Participation rate	0.928	0.928	0.925	0.928	0.925	0.926
Hours	38.7	38.6	37.8	38.6	37.8	38.5
	(0.50)	(0.54)	(0.49)	(0.54)	(0.49)	(0.54)
participation change		-62	-964	-62	-957	-737
hour change in FTE		-1,355	-6,827	-1,355	-6,789	-1,848
Single women (incl. lone mothers)						
Participation rate	0.732	0.748	0.829	0.735	0.756	0.803
Hours	23.7	23.9	25.7	23.6	24.9	24.2
	(1.29)	(1.15)	(1.00)	(1.29)	(1.19)	(1.03)
participation change		1,644	9,619	326	2,417	7,008
hour change in FTE		678	5,084	-34	3,032	1,386
Single men						
Participation rate	0.757	0.757	0.757	0.757	0.757	0.764
Hours	28.2	28.2	28.2	28.2	28.2	27.6
	(1.06)	(1.06)	(1.06)	(1.06)	(1.06)	(1.11)
participation change		0	0	0	0	696
hour change in FTE		0	0	0	0	-1,477
Total						
participation change		1,198	5,214	-119	-1,971	6,585
hour change in FTE		-1,859	-8,518	-2,571	-10,508	-3,608

We assume 100% take-up. FTE: full-time equivalent (change in number of FTE workers compared to no MWP scenario). FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit. Bootstrapped standard errors for work hours are in brackets (and available from the authors for other statistics).

4.2 Redistributive Effects on 2001 Baseline

Ireland has one of the highest "at risk of poverty" rates in the EU (Callan et al, 2008).[21] Table 5 reports simulation results regarding the anti-poverty effects of the policies being studied, evaluated against the "no MWP policy" counterfactual on the 2001 baseline. Here too, the effects are hypothetical in the sense that they correspond to a 100% take-up scenario. Nonetheless, this gives an interesting picture of the redistributive potential of each instrument. We first focus on the headcount ratio of poverty, FGT(0). All the reforms have a modest but significant effect on poverty when placing the poverty line at 50% of the median equivalized income. As expected, the FIS 2008 has the largest effect, almost twice the size of FIS 2001. With a poverty line at 60% of the median, however, the effect of the FIS 2008 is much larger than other reforms, which reflects the fact that the "new" FIS benefits households just below 60% of the median in an important way. It is therefore not surprising that the FIS 2008, just like the other policies, has a moderate effect on the intensity of poverty, measured by the poverty gap FGT(1). More interestingly, the labour supply responses generated by the FIS 2008 double the anti-poverty effect with a poverty line at 50% median. This could be due to a combination of negative responses (which increase disposable income when the budget curve is decreasing because of FIS 2008) and positive responses in the case of single mothers, a group particularly at risk of poverty. The poverty alleviation is also large when the MC reform is added to FIS 2008, but not of the same magnitude, illustrating that the positive effect on single mothers, strongly reduced in this case, is an important component of the redistributive effect of the FIS. The effect of the WTC is similar to that of FIS 2008 but with a magnitude of around two-thirds at the 50% poverty line and slightly smaller at the 60% poverty line.[22]

4.3 Redistributive Effects after Income Shock

In a period of economic downturn, MWP policies may also have a role and cushion income losses caused by reduced working hours or wage cuts for those in employment. On the one hand, they may play a part in increasing flexibility in the labour market. Indeed, in a context of constrained labour demand, recent public policies have suggested work sharing as a margin of adjustment for firms and the use of state transfers to secure incomes of

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[21]With a poverty rate of 24.5% in the FIS 2001 situation, we slightly overestimate poverty compared to official figures of around 22.1% (Nolan et al., 2002). For child poverty, our simulations are very close to the 25% found in official reports. Note that at-risk-of-poverty rates (using 60% median) are lower in Section 2 because we focus there on working-age households only.

[22]In the UK, anyone receiving the WTC who has a child is also entitled to the very generous CTC. Using the WTC on its own as a reform therefore limits the anti-poverty effect. Brewer and Clark (2003) show that the CTC is more effective in reducing poverty than the WTC.

Table 6: Poverty Impact of the Reforms

	No MWP	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Static Poverty Analysis						
FGT(0), pov. line = 50% median	.174	.170	.166	.170	.166	.169
change		-2.5%	-4.9%	-2.5%	-4.8%	-3.2%
FGT(0), pov. line = 60% median	.247	.245	.225	.245	.227	.241
change		-0.6%	-8.8%	-0.7%	-8.1%	-2.5%
FGT(1), pov. line = 50% median	.0341	.0334	.0340	.0333	.0339	.0337
change		-1.9%	-0.2%	-2.2%	-0.6%	-1.1%
FGT(1), pov. line = 60% median	.0630	.0620	.0607	.0619	.0608	.0616
change		-1.6%	-3.6%	-1.7%	-3.5%	-2.2%
Poverty: with Labour Supply Response						
FGT(0), pov. line = 50% median	.174	.169	.156	.170	.161	.163
change		-3.0%	-10.7%	-2.5%	-7.6%	-6.7%
FGT(0), pov. line = 60% median	.247	.245	.217	.245	.224	.235
change		-0.6%	-12.1%	-0.5%	-9.2%	-4.9%
FGT(1), pov. line = 50% median	.0341	.0328	.0308	.0327	.0323	.0315
change		-3.7%	-9.6%	-3.9%	-5.2%	-7.4%
FGT(1), pov. line = 60% median	.0630	.0614	.0564	.0614	.0588	.0587
change		-2.6%	-10.4%	-2.6%	-6.7%	-6.8%

We assume 100% take-up for all reforms. FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit. Poverty measures are based on equivalized disposable income (using the modified OECD scale).

workers forced to (or opting for) partial unemployment. Arguably, using MWP policies to cushion income losses is better than traditional unemployment benefits as it is not based on employment history and is available to anyone who passes the means-test (Immervoll and Pearson, 2009).[23] On the other hand, MWP policies may also have a cushioning effect when earnings drop and minimum wages are cut.[24] This is particularly relevant in the Irish context where cuts in public wages, accompanied by a cut in the national minimum wage, have been announced to match recent drops in private sectors earnings to avoid pushing up classic unemployment.[25] Analyses of the effect of macroeconomic shocks of that type at the microeconomic level and on the distribution of disposable income are rarely available or are often backward looking. Here, we suggest the analysis of a simple uniform cut in earnings and in the Irish national minimum wage of 10% in real terms. This magnitude is justified by official figures, suggesting a cut of $4 - 5\%$ in real terms for the 2007-2008 period, and the reasonable assumption of a similar drop for the 2008-09 period.

Table 7 first shows that in the baseline scenario the poverty rate with a relative poverty line at 60% of the median is not very different from that obtained when freezing the poverty line at 60% of the median of the "no MWP" scenario. Using this absolute poverty line, we confirm that the poverty alleviation by "FIS 2001" is modest. Thanks to "FIS 2008", around 12.6% of the poor cross the absolute poverty line. Only three-quarters of this is achieved when MC recommendations are in place and roughly half when using the WTC. When real earnings decrease by 10%, poverty increases by 7.6% in the "no MWP" scenario compared to the "pre-crisis" and "no MWP" absolute poverty line. In this crisis context, the poverty alleviation of the different MWP policies compared to the "no MWP" situation is similar to above. Yet, it is noticeable that the increase in poverty is cushioned only by the FIS 2008. Absolute poverty increases by "only" 5.1% in this case. Note that our simulation in this section accounts for labour supply responses. We find in particular that the drop in earnings reduces the labour supply of married women (men) by 4% (1%)

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[23]We do not follow this path as simulating unemployment shocks realistically requires more sophisticated models of both labour demand and supply, which are rarely made available together with tax-benefit simulations (an exception is Dolls et al., 2009). For work sharing policies, as recently implemented in Germany, see the discussion in Immervoll and Pearson (2009) and the simulation in Bargain et al. (2010).

[24]Note that the present study suggests one of the first simulations of how alternative tax-benefit systems perform in reducing poverty/inequality in a recessionary context (see also Feres et al., 2002, on the sensitivity of social inclusion indicators to an increase in unemployment and an increase in earnings inequality). MWP policies may also act as automatic stabilisers in a credit constrained environment (see Dolls et al., 2009, and Mabbett, 2004, on the automatic stabilisation effects of tax-benefit systems in the EU).

[25]More generally, and as discussed in the introduction, in-work transfers may be preferred to minimum wages to support low-wage workers without introducing market distortions.

and of single women (men) by 5% (4%). This is explained by the fact that work does not pay as much in our recessionary scenario, while welfare payments have not been changed. These effects are important as they could cumulate to increased unemployment due to the demand-side of the labour market.

Another important contribution is the effect of the suggested policies on specifically vulnerable groups. In particular, table 8 shows that the risk of poverty among single mothers is very high in Ireland. We observe that under the full take-up assumption, the FIS 2008 has an extremely large impact as it could reduce poverty among single parents by 36% in absolute terms i.e. when freezing the poverty line at 60% of the median of the "no MWP" scenario. These figures combine the direct effect of the transfer and the positive labour supply effect of the FIS that brings many of these single parent households above the (absolute) poverty line. As discussed before, the MC recommendations may seriously limit the incentive effect of the FIS 2008 and subsequently reduce the poverty alleviation in this group. Indeed absolute poverty is decreased by only 10% in this case. Note that these must affect the figures presented above for the total population only by a small amount since the group of single mothers is relatively small. In a recessionary situation, only the FIS 2001 and 2008 show interesting cushioning roles: under the FIS 2001 (2008), poverty increases by only 4.3% (2.8%) compared to the around 8% increase in a "no MWP" situation.

In-work benefits and tax credits in Anglo-Saxon countries (FIS, WTC, EITC) have been targeted at low-wage families with children since one of the policy objectives is to combat child poverty. In Ireland, the FIS is clearly viewed as an instrument for this purpose, as illustrated by recent claims of certain groups (the 'End Child Poverty' coalition and the OPEN 'representing lone parents groups in Ireland') to increase the FIS. Table 8 shows that around a quarter of Irish children live in families with equivalized incomes below 60% of the median. Again, the poverty alleviation of the FIS 2008 is extremely strong, decreasing child poverty in a "no MWP" world by 42%. This effect is reduced by the MC reform but nowhere as much as in the case of single parent households. This is because poor children found in two-parent families are not as penalized by the MC measure, as seen the budget constraints. The FIS 2008 also performs well in cushioning the income loss among households with children. The WTC, on the other hand, does not particularly reduce child poverty – even though it would lift a quarter of single mother households above the absolute poverty line in the baseline situation.[26]

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[26]In the UK, policy makers have acknowledged the fact that attaining three policy objectives – increased labour supply, improved financial circumstances of low-wage workers, and combating child poverty – with a single policy instrument is a difficult task, hence the splitting of the Working Family Tax Credit into a refundable Child Tax Credit and a Working Tax Credit extended to childless households. In Ireland,

Table 7: Redistributive Effects of MWP Policies: Income Shocks

	No MWP	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Baseline 2001						
FGT(0), pov. line = 60% median	.247	.245	.217	.245	.224	.235
FGT(0), pov. line = fixed*	.247	.245	.216	.246	.223	.235
No. of poor household (60% median)	317,224	315,223	277,224	316,181	286,851	301,550
change compared to "no MWP"		-2,000	-40,000	-1,042	-30,373	-15,674
change (%)		-0.6%	-12.6%	-0.3%	-9.6%	-4.9%
All market incomes and minimum wage cut by 10%						
FGT(0), pov. line = fixed*	.265	.262	.227	.263	.235	.252
change compared to "no MWP"		-1.4%	-14.6%	-0.9%	-11.4%	-5.2%
change compared to baseline 2001	+7.6%	+6.7%	+5.1%	+7.0%	+5.4%	+7.3%

* Poverty line frozen at 60% median income of 2001 "no MWP" scenario.

We assume 100% take-up for all reforms. FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit

Table 8: Redistributive Effects of MWP Policies: Specific Groups

	No MWP	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Single mothers						
FGT(0), pov. line = fixed*	.522	.507	.332	.523	.468	.389
change compared to "no MWP"		-3%	-36%	0%	-10%	-25%
FGT(0), pov. line = fixed*, income cut**	.562	.529	.342	.558	.506	.415
change compared to baseline 2001	+7.8%	+4.3%	+2.8%	+6.9%	+8.1%	+6.7%
Child poverty						
FGT(0), pov. line = fixed*	.247	.243	.144	.244	.162	.224
change compared to "no MWP"		-2%	-42%	-1%	-34%	-9%
FGT(0), pov. line = fixed*, income cut**	.284	.275	.157	.278	.179	.258
change compared to baseline 2001	+15.1%	+13.3%	+9.3%	+14.1%	+10.2%	+15.3%

* Poverty line frozen at 60% median income of 2001 "no MWP" scenario.

** All market incomes and minimum wage cut by 10%

We assume 100% take-up for all reforms. FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit

5 Take-up Issues

Previous results show the theoretical effects of various policies under the assumption of full take-up. However, the take-up rate of the Irish FIS is relatively low. Reforms in the 90's extended the multiplier (taper rate) from 50% to 60%, increased the maximum earning ceiling and changed the basis for assessment of the supplement from gross earnings to earnings after taxes and social contributions. As a consequence the number of working families receiving a benefit has increased. Campaigns aiming at raising awareness of the employment incentive aspect of the scheme were carried out, most recently in 2005. Publicly available estimations indicate that around $30 - 40\%$ of potential beneficiaries in earlier years actually applied for FIS (Stephens 2005, Combat Poverty, 2008). A significant rise in the number of recipients has occurred since 2003, generally attributed to the inflow of foreign nationals, who were eligible for the benefit, but also to the increased generosity as simulated in our FIS 2008 scenarios (see Sweeney, 2007).

The Irish situation compares unfavourably to the UK system, where the take-up of the WTC during the 2006-07 financial year was estimated at $54 - 57\%$ of entitled households (HM Revenue and Customs Analysis Team, 2006). This higher, if imperfect, take-up rate may be partly due to the choice of a refundable tax credit instead of an in-work benefit. In the UK too, in-work benefits conditional on claims posed serious take-up problems in the past. In recent years, policy makers opted for tax credits administered by fiscal authorities and paid directly through the wage packet in Paid As Your Earn systems.[27] Hence, automatic payment and other administrative aspects may be crucial in the success of these policies to actually reduce poverty and encourage labour supply. [28]

Another difficulty is that it is very difficult to measure take-up at the micro level. In other words, while it is possible to compare the official number of recipients to the number of theoretically eligible households (as simulated in this paper), it is more of an issue to characterize the exact status of each households in available microdata. This is mainly

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reforms of the income-tested child income support ("Child dependent allowance") have been advocated (Combat Poverty, 2006), as well as a radical reform that would combine these allowances and the FIS into a "second tier" child benefit (see the analysis in Callan et al., 2006).

[27] The WFTC reform of 1999 immediately reduced the stigma associated with claiming the benefit as this change helped the WFTC to be associated with work and not social welfare. The latest version, the 2003 WTC, has a significantly higher take-up rate than any previous similar system of in-work support. Other problems have nonetheless occurred, particularly flaws in the administration of the WTC-CTC, problems of overpayments and underpayments, error and fraud, employer compliance costs, etc. (see Cooke and Lawton, 2008).

[28] Many administrative issues may affect the effectiveness of a policy, in particular the form of payment, its frequency, the degree of administrative hassle to claim the benefit, etc. (see Duncan et al., 2003, and Dilnot and McCrae, 1999).

due to the underreporting of benefit receipt in interview-based surveys such as the Living in Ireland data (see Appendix B). While previous sections give a clear picture of the redistributive and (dis)incentive potentials of the alternative policies under the full take-up assumption, we investigate here the sensitivity of the anti-poverty effect of each policy to the nature of the recipients. Acknowledging the non-representativeness of the recipients in our dataset, due to under-reporting of the FIS, we choose recipient households randomly among those deemed eligible for the policy according to our simulation, assuming a take-up rate of a third, and calculate the 95% confidence intervals for the poverty measures over a large number of draws. The simulation of FIS 2001 show that the 5% bound is close to the full take-up scenario but that the 95% bound is equivalent to the "no MWP policy" case, that is, we pick the richer among the FIS eligible families and the FIS has no effect. For all policies, applying the 33% take-up rate reduces poverty alleviation as expected, and the poverty alleviation effect becomes insignificant for the FIS 2001. It remains significant for FIS 2008 and the WTC but can be very small. Only the FIS 2008 shows a poverty reduction up to -4.1% in the best case and -1.6% at worst.

Table 9: Take-up: Sensitivity Analysis

		No IWB	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
full take-up		.241	.238	.218	.238	.221	.234
low take-up	5%	.241	.239	.231	.239	.232	.237
(conf. interval)	95%		.241	.237	.241	.237	.240
change	5%		-0.6%	-4.1%	-0.6%	-3.6%	-1.4%
(conf. interval)	95%		0.0%	-1.6%	0.0%	-1.6%	-0.4%

All measures are FGT(0), with poverty line frozen at 60% median income of 2001 "no IWB" scenario. Measures for low-take up are bootstrapped over 200 draws of the 33% recipients (official take-up rate) among all eligible.

6 Conclusion

Combating poverty while maintaining high work incentives is a reasonable mix of policy objectives that has been adopted in most industrialized countries. This paper suggests a series of simulation exercises to analyze the effectiveness of alternative "make work pay" policies in Ireland. We focus on the ability of these policies to reduce poverty in a baseline situation or when income shocks, reflecting the current economic downturn, occur. We find that the evolution of the existing scheme, the Family Income Supplement, over the 2001-2008 period could significantly reduce poverty. The effect is not only due to direct

poverty alleviation among the working population but also to the incentive effect among certain groups at risk of poverty, in particular single parent households. The effects are more modest when accounting for the fact that take-up is low in Ireland, particularly when compared to that of closest neighbours, the UK. However, the FIS 2008 still has a significant effect on poverty reduction, whatever the nature of the recipients within the eligible population.

Exporting the British Working Tax Credit to Ireland with minor modifications seems to allow for a broad coverage and could possibly increase take-up if the benefit becomes an automatic (refundable) tax credit paid through the pay package as in the UK.[29] The redistributive effect is smaller than with FIS 2008 because the incentive effect among single mothers is much lower and encourages mainly part-time activity This may not be enough to take them out of poverty.[30] The recent recommendation of the McCarthy group may prove more cost efficient but could cancel out most of the poverty reduction among single mothers.

Married women make up a significant potential margin of increased labour supply in Ireland, despite the already dramatic increase in female participation over the past decades. Yet the policies analyzed in this study have, for the most part, a disincentive effect on this group because of the means-test at the household level. This is a feature of the existing FIS that we have retained for the alternative policies under investigation but other paths to reform are possible. The trade-off, however, is that a more individualized scheme would be less targeted at low-income households. More simulations are required to assess what the most efficient policy would be in the Irish context, provided that we learn what the policy objectives or the true social preferences are. As often, the devil is in the details and the specific features of a reform matter.[31] Looking at the other elements

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[29]The risk of adverse effects, i.e., a decrease in market wage by firms, exists but may be partly covered by the relatively high minimum wage in force in Ireland.

[30]The choice of the correct instrument ultimately depends on social preferences and the relative weights put by the government on the efficiency objective (increasing work incentives and labour market participation), the equity objective (reducing inequality and poverty) and other specific objectives (reducing child poverty). While we focus on non-welfarist objectives in the present paper, Bargain and Keane (2009) also show that substantial in-work transfers can be justified by the maximization of a welfarist social welfare function under reasonable (estimated) elasticities and for consistent social preferences – in particular, this allows justifying the extension of MWP policies to childless households, as done in the UK since 2003, and suggest here for Ireland.

[31]Should the transfer be phased in and phased out and at what levels? Should it be conditional on the wage rate or on earnings? Should it be designed at the individual level or at the household level etc? This design process must naturally account for 'framework conditions', i.e. the specific setting in which the instrument will be introduced which may influence the effect of the reform and its chances of success. For instance, an important initial condition is the shape of the wage/earnings distribution, which influences

of the existing system is also necessary, in particular the interaction of FIS with the One Parent Family Payment

In terms of methodology, *ex ante* analyses rely on a certain number of assumptions concerning household behaviour and rationality. More systematic comparison with *ex post* analyses is required (see Blundell et al., 2000), although this is made difficult by the rarity of data that allows researchers to capture this effect and the problem of finding convincing control groups. Since take-up is an issue in the context of the Irish FIS, larger datasets identifying recipients and allowing an assessment of eligibility are necessary in order to measure and understand the nature of non-take-up. More qualitative studies may also reveal some of the reasons behind non-take-up and suggest further paths to reform in order to extend the scope of the FIS (see DSFA, 2008).

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the number of eligible households, and which should be accounted for when setting the lower and upper income bounds for eligibility (see Bargain and Orsini, 2005).

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Appendix A: Empirical Approach

Labour Supply Model and Simulation

We use a discrete choice model of labour supply to predict the behavioural response to actual and hypothetical reforms, as suggested by van Soest (2005). Consumption-leisure preferences are specified using a quadratic utility function, as in Blundell et al. (2000). Coefficients on consumption and leisure vary linearly with several taste-shifters (age, age and number of children, Dublin). Costs of work are also accounted for to increase the flexibility of the model. Consumption (equivalent to disposable income in a static framework) is calculated for each discrete hour choice on the basis of individual earnings (with observed wages for workers and predicted wages for non-workers), household unearned income and socio-demographic characteristics, using a tax-benefit microsimulation calculator, EUROMOD. The latter allows the computation of all social contributions, direct taxes and transfers to yield household disposable income (see Bargain, 2006 ed.). It is also used to simulate the actual and hypothetical reforms analyzed in this paper. EUROMOD is an integrated tax-benefit calculator covering the systems of EU-15 countries. We use the simulation of the 2001 Irish system combined to the Living in Ireland data for the same year. The Irish module within EUROMOD replicates exactly the simulation of the Irish national model SWITCH for that year. We have also programmed the 2008 version of FIS, the reform following the suggestion of the McCarthy report and used the EUROMOD module for the UK to adapt the British Working Tax Credit to the Irish system.

Data and Sample Selection

The data are drawn from the *Living in Ireland Survey* (LII) for the year 2001. This is a representative sample containing information on household demographics, employment and incomes, among other things. The original sample consists of just over $11,436$ individuals in $3,463$ households. The reforms are simulated on the complete representative sample. However, labour supply is estimated (and behavioural responses predicted) only on selected subgroups of couples, single men and single women (possibly with children). For that purpose we only keep households where adults are aged between 18 and 59 and available for the labour market, *i.e.* neither disabled nor retired nor in education. The self-employed and farmers are excluded as their labour supply decisions are probably very different from those of salary workers. To further increase data homogeneity, 'extreme' households are selected out, *i.e.* very large households, those where children also work, and those who receive important levels of capital income. Descriptive statistics of the

selected samples are presented in Table 10 while the distributions of actual worked hours for males and females in all three samples are depicted in Figure 5. The pattern of hours presents strong concentrations around full time activity and small concentrations around part-time (especially for women), which convey that the choice of a discrete-choice model is well adapted to the Irish case. We make use of a simple discretization with $J = 4$ for singles and $J = 16$ for couples, with choices being $0, 20, 40$ and 50 hours per week.

Table 10: Descriptive Statistics

	Single men	Single women	Men in couple	Women in couple
Age	38.6	37.1	40.8	38.9
Upper secondary education (%)	0.27	0.31	0.30	0.38
University education (%)	0.21	0.26	0.25	0.26
Wage rate*	10.5	10.0	14.9	11.3
Worked hours (incl. zeros)	28.6	24.2	37.7	19.1
Participation rate (%)	0.75	0.76	0.93	0.62
No. of children	0.10	0.79	1.87	
Presence of children 0-2 (%)	0.01	0.10	0.23	
Living in Dublin (%)	0.26	0.33	0.31	
No. of observations	183	168	775	

*Wages are in euro/hour, calculated using earnings and worked hours for workers and predicted for non-workers.
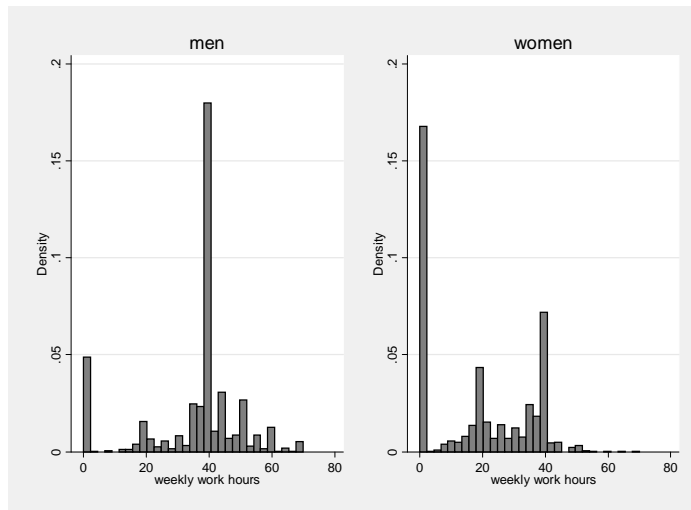Labour supply statistics are before discretization.

Figure 5: Distribution of Working Time

Labour Supply Estimations

Predicted elasticities are reported in table 11.[32] With the non-linear model used, they are obtained by simulating the impact of a marginal increase in gross hourly wages on hours of work and participation.[33] Results are in line with other findings for Ireland (Doris, 2001, Callan and van Soest, 1996, Callan et al., 2009) and with the broad range of empirical findings of labour supply elasticities for other countries (see Blundell and Macurdy, 1999). We find own-wage elasticities of around 0.40 for women in couples and 0.11 for men in couples (with standard 95 per cent confidence intervals of $0.31 - 0.46$ and $0.08 - 0.13$ respectively). Cross-wage elasticities for women and men in couples are -0.09 and -0.05 respectively. For single individuals, there seem to be no marked differences between men and women, with elasticities around 0.37 for men and 0.43 for women. The precision of the estimation for singles is not as good as for couples. For both single individuals and individuals in couples, we also find that most of the sensitivity of labour supply for wage rates is driven by changes in the decision to participate. Elasticities do not seem to have changed radically over time. Using data for 1987, Callan and van Soest (1996) find elasticities of about 0.67 and 0.15 for married women and men respectively. Income elasticity is also simulated by increasing unearned income by 1% (and bottom-coding for those with zero unearned income). We find that income elasticity is marginal, as usually reported in the literature.

Appendix B: Robustness Check

Our baseline estimate assumes full take-up and hence is consistent with the policy simulations in the paper. The implicit assumption made there is that reforms also guarantee full take-up of the MWP policy. However, we have performed some robustness checks by

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[32]Labour supply estimation are not reported here but are available from the authors. They show usual results, notably the fact that children significantly decrease the propensity to work for women (both women in couples and single mothers). Taste shifters related to age are significant only for single men and women in couples. Costs of work are significantly positive for men and single women. Pseudo-R2 are .26 (couples), .25 (single women) and .29 (single men).

[33]We follow a calibration method which is consistent with the probabilistic nature of the model at the individual level. It consists of drawing a set (here 200 draws) of $J + 1$ random terms from the $EV - I$ distribution for each household that generates a perfect match between predicted and observed choices. The same draws are kept when predicting labour supply responses to a shock on wages (or a policy reform). Averaging individual supply responses over a large number of draws provides robust transition matrices. Confidence intervals for elasticities (or labour supply responses to a reform) are obtained by repetitive random draws of the preference parameters from their estimated distributions and, for each draw, by applying the calibration procedure.

Table 11: Labour Supply Elasticities

	Couples		Single women	Single men
	female	male		
Change in hours				
own-wage elasticity	0.391	0.110	0.428	0.368
	(0.039)	(0.017)	(0.065)	(0.098)
cross-wage elasticity	-0.094	-0.046		
	(0.014)	(0.007)		
income elasticity	0.009	-0.004	-0.004	-0.025
	(0.003)	(0.001)	(0.002)	(0.004)
Change in participation				
own-wage elasticity	0.332	0.096	0.320	0.357
	(0.036)	(0.014)		
cross-wage elasticity	-0.065	-0.027		
	(0.036)	(0.008)		
income elasticity	0.010	-0.003	-0.003	-0.018
	(0.003)	(0.001)	(0.001)	(0.004)

Wage-elasticities (income elasticity) are calculated by predicting the change in average worked hours of incrementing wage rates (non-labour income) by 1%. Bootstrapped standard errors are in brackets.

re-estimating the labour supply model under different assumptions. The first sensitivity analysis simply uses the polar case where nobody takes up the FIS 2001. This boils down to estimating the labour supply model on the "no MWP policy" counterfactual data. In a second check, we have jointly estimated labour supply and take-up following Brewer et al. (2006). Possible underreporting of FIS receipt in the data makes the confidence in this model limited. We obtain a take-up rate of 17% compared to the official rate of around a third. This is, however, the best that could be done with existing data linked to a tax-benefit microsimulation model for Ireland. In all three cases, estimates are slightly different but do not lead to fundamentally different results about labour supply adjustment to the reforms (assuming full take-up of the MWP policies), as shown for couples in Table 12.

Table 12: Labour Supply Effects of the Reforms (Couples): Robustness Checks

	LS estimates	No MWP policy	FIS2001	FIS2008	FIS2001 + MC	FIS2008 + MC	WTC
Women							
Hours	full take-up	19.6	19.4	18.7	19.4	18.7	19.4
	no take-up	19.5	19.4	18.7	19.4	18.7	19.3
	LS+take-up	19.4	19.3	18.5	19.3	18.6	19.2
change in FTE	full take-up		-1183	-6775	-1183	-6752	-1669
	no take-up		-1035	-6572	-1035	-6527	-1620
	LS+take-up		-1134	-6635	-1134	-6597	-1695
Men							
Hours	full take-up	38.7	38.6	37.8	38.6	37.8	38.5
	no take-up	38.7	38.5	37.7	38.5	37.8	38.5
	LS+take-up	38.8	38.7	37.8	38.7	37.8	38.6
change in FTE	full take-up		-1355	-6827	-1355	-6789	-1848
	no take-up		-1291	-7278	-1291	-7204	-1844
	LS+take-up		-1160	-7658	-1160	-7603	-1858

Labour supply estimates are obtained for two polar cases, i.e., systematic take-up (our baseline estimates) and no take-up, and for the joint estimation of labour supply and take-up decision ("LS+take-up"). Predictions of the policy effects assume that reforms lead to full take-up. FTE: full-time equivalent (change in number of FTE workers compared to no MWP scenario). FIS: Family Income Supplement; MC: recommendation from the McCarthy's report; WTC: 2003 British Working Tax Credit.