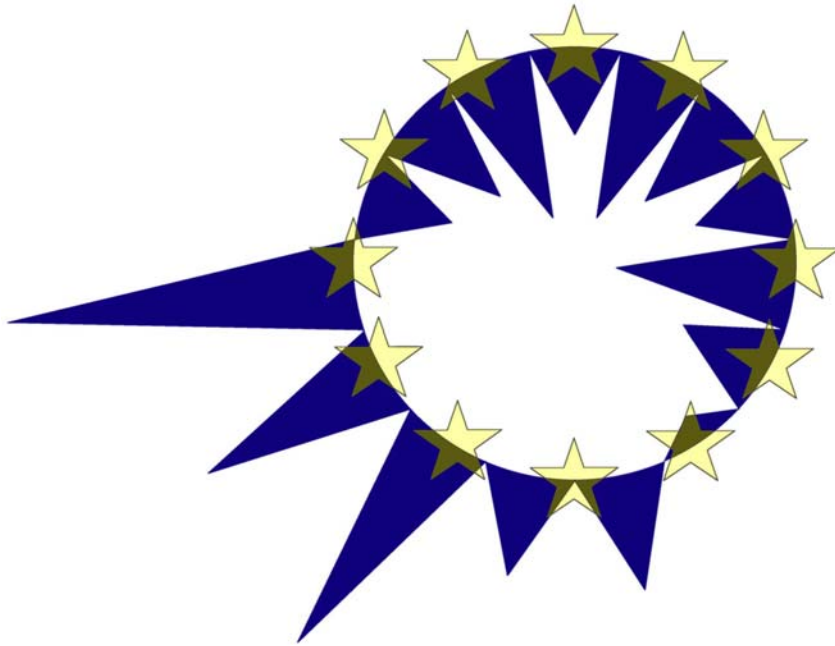


EUROMOD

COUNTRY REPORT



UNITED KINGDOM (UK)

2006-2011

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and Francesca Zantomio**

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EUROMOD version F6.0



EUROMOD is a tax-benefit microsimulation model for the European Union (EU) that enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country and for the EU as a whole.

EUROMOD has been enlarged to cover 27 Member States and is updated to recent policy systems using data from the European Union Statistics on Income and Living Conditions (EU-SILC) as the input database, supported by DG-EMPL of the European Commission.

This report documents the work done in one annual update for the United Kingdom. This work was carried out by the EUROMOD core developer team, based mainly in ISER at the University of Essex, in collaboration with a national team.

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This report documents the work done on EUROMOD version F6.0. Results described in section 4 of this report were derived from version F5.17, which is very slightly different. EUROMOD is continually being improved and version F6.0 contains some minor corrections.

For more information, see: <http://www.iser.essex.ac.uk/research/euromod>

This document is supported by the European Union Programme for Employment and Social Solidarity – PROGRESS (2007-2013).

This programme is managed by the Directorate-General for Employment, social affairs and equal opportunities of the European Commission. It was established to finally support the implementation of the objectives of the European Union in the employment and social affairs area, as set out in the Social Agenda, and thereby contribute to the achievement of the Lisbon Strategy goals in these fields.

The seven-year Programme targets all stakeholders who can help shape the development of appropriate and effective employment and social legislation and policies, across the EU-27, EFTA-EEA and EU candidate and pre-candidate countries.

PROGRESS mission is to strengthen the EU contribution in support of Member States' commitment. PROGRESS is instrumental in providing analysis and policy advice on PROGRESS policy areas; monitoring and reporting on the implementation of EU legislation and policies in PROGRESS policy areas; promoting policy transfer, learning and support among Member States on EU objectives and priorities; and relaying the views of the stakeholders and society at large

For more information see: <http://ec.europa.eu/progress>

The information contained in this publication does not necessarily reflect the position or opinion of the European Commission.

CONTENTS

1.	BASIC INFORMATION	5
1.1	Basic figures	5
1.2	Basic information about the tax-benefit system	7
1.3	Social Benefits	8
1.3.1	Contributory benefits	8
1.3.2	Non-contributory, non-means-tested benefits	9
1.3.3	Means-tested benefits	10
1.3.4	Not strictly benefits	14
1.4	Social contributions	15
1.4.1	Brief description	15
1.5	Taxes	15
1.5.1	Brief description	15
1.5.2	Scope and scale	18
2.	SIMULATION OF TAXES AND BENEFITS IN EUROMOD	20
2.1	Scope of simulation	20
2.2	Simulated policies and order of simulation	20
2.2.1	Structural changes from 2006 to 2011	20
2.2.2	Order of simulation	20
2.3	National Minimum Wage	24
2.4	Social Benefits	25
2.4.1	Winter Fuel Allowance (boaht_s)	25
2.4.2	Contributory Jobseeker's Allowance (bunct_s)	26
2.4.3	Working Tax Credit and Child Tax Credit	27
2.4.4	Child Benefit (bch_s)	32
2.4.5	Income Support (including income-based Jobseeker's Allowance) (bsa_s)	33
2.4.6	Pension credit	38
2.4.7	Housing Benefit (bho_s)	41
2.4.8	Council Tax Benefit (bmu_s)	43
2.5	Social Contributions	44
2.5.1	Employee social insurance contributions (tscee_s)	44
2.5.2	Self-employed social insurance contributions, Class 2 and Class 4 (tscse_s)	45
2.5.3	Employers' social insurance contributions (tscer_s)	47
2.6	Personal Income Tax (tins_s)	48
3.	DATA	51
3.1	General description	51



3.2	Sample quality and weights	52
3.2.1	Non-response	52
3.2.2	Weights	53
3.3	Imputations and assumptions	54
3.3.1	Time period	55
3.3.2	Gross incomes	56
3.3.3	Updating	56
3.3.4	Correcting for non take-up	59
4.	VALIDATION	60
4.1	Aggregate Validation	61
4.1.1	Non simulated taxes and benefits	61
4.1.2	Simulated taxes and benefits	65
4.1.3	Simulated Income tax	65
4.1.4	Social insurance contributions	65
4.1.5	Child benefit	66
4.1.6	Winter fuel allowance	66
4.1.7	Means-tested benefits and tax credits	66
4.2	Income distribution	74
4.2.1	Poverty	74
4.2.2	Income inequality	77
4.3	Summary of “health warnings”	78
5.	REFERENCES	79
6.	SOURCES FOR TAX-BENEFIT DESCRIPTIONS/RULES	79
6.1	General sources for tax-benefit descriptions/rules	79
6.2	Useful websites	80



1. BASIC INFORMATION

1.1 Basic figures

Table 1. Basic figures

	Population (m.) ^[a]	Population < 14 (%) ^[b]	Population ≥ 65 (%) ^[b]	Life Expectancy (in years) ^[c]	Fertility Rate ^[d]	Unemployment Rate ^[e]	GDP per head (EU27=100) (PPS) ^[f]	Currency Name	Exchange Rate ^[g]
2006	60.410	17.8	16.0	80.20	1.84	5.4	120	Pound Sterling	0.69109
2007	60.781	17.7	16.0	80.35	1.9	5.3	116	Pound Sterling	0.67388
2008	61.192	17.5	16.1	80.55	1.96	5.6	115	Pound Sterling	0.79112
2009	61.595	17.5	16.3	80.90	1.94	7.6	113	Pound Sterling	0.85210
2010	62.027	17.5	16.4	n/a	n/a	7.8	114	Pound Sterling	0.81745
2011	62.436	17.4	16.6	n/a	n/a	8.1	n/a	Pound Sterling	0.88095

Sources: [a] Eurostat (2012) Total population [tsp00001].

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tps00001&plugin=1>, last accessed on 20.03.2012.

[b] Eurostat (2012) People by age classes [tsp00010].

<http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00010&language=en>, last accessed on 20.03.2012.

[c] Eurostat (2010) Life expectancy at birth by gender [tps00025]. The figures are the unweighted mean of life expectancy of men and women.

<http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00025&language=en>, last accessed on 20.03.2012 [d] Eurostat (2012)

Total fertility rate [tsdde220] Number of children per woman.

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsdde220&plugin=1>, last accessed on 20.03.2012.

[e] Eurostat (2010) Unemployment rate by gender – total – [tsiem110]

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsiem110&plugin=1>, last accessed on 20.03.2012.

[f] Eurostat (2009) GDP per capita in PPS - [tsieb010 - last updated 29.10.2009].

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsieb010> last accessed 20.01.2010.

[g] Euro exchange rate on 30th of June: <http://www.x-rates.com>, last accessed on: 13.07.2011.



Table 2. Tax-benefit system and government budget

	Total general government revenue ^[a] % of GDP	Total tax and social insurance receipts ^[b] % of GDP	Total general government expenditure ^[c] % of GDP	Social protection ^[d] % of GDP
2006	41.5	38.3	44.2	26.0
2007	41.2	37.9	44.0	23.3
2008	42.6	39.1	47.4	23.7
2009	40.3	36.7	51.4	n/a
2010	40.7	n/a	50.9	n/a
2011	41.4	n/a	n/a	n/a

Sources:

[a] OECD (2011): EO Annex Tables: Fiscal balances and public indebtedness, Annex table 26: General government total tax and non-tax receipt:

http://www.oecd.org/document/3/0,3746,en_2649_34573_2483901_1_1_1_1,00.html, last accessed on 13.07.2011

[b] Eurostat (2011) Main national accounts tax aggregates,

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov_a_tax_ag&lang=en, last accessed on 13.07.2011).

[c] Eurostat (2011) Total general government expenditure [tec00023],

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00023&plugin=1>, last accessed on 13.07.2011.

[d] Eurostat (2011) Total expenditure on social protection [tps00098]

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=TPS00098, last accessed on 13.07.2011. The figure for 2007 is provisional.

Table 3. Social protection expenditure by function (as % of total social protection expenditure)

	Sickness/ health care	Disability	Old age	Survivors	Family/ children	Unemployment	Housing	Social exclusion
2006	31.4	9.5	41.2	3.2	5.9	2.5	5.7	0.7
2007	34.3	11.0	38.2	0.9	7.2	2.3	5.2	1.0
2008	31.2	10.9	42.8	0.5	6.7	2.3	4.9	0.8
2009	30.8	10.6	42.6	0.6	6.5	3.0	5.2	0.8
2010	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2011	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Eurostat (2012) Social benefits by function [tps00106],

<http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00106&language=en>,

Notes: The figures for 2007 to 2009 are provisional. Later figures are not yet available (20.03.2012)



Table 4. Taxation (as % of total tax receipts)

	Personal income tax	Corporate income tax	Social security contributions		Taxes on goods and services	Other taxes
			Employees*	Employers		
2005/06 ^[a]	29.1	9.3	7.9	10.3	30.3	13.1
2006/07 ^[b]	28.6	10.8	7.6	10.2	29.0	n/a
2007/08 ^[a]	30.1	9.4	7.5	10.2	29.2	13.6
2008/09 ^[c]	33.8	9.8		22.1	29.8	4.5
2009/10 ^[c]	34.1	8.8		23.4	30.4	3.3
2010/11 ^[c]	33.1	9.4		21.6	32.3	3.6
2011/12	n/a	n/a	n/a	n/a	n/a	n/a

* Includes self-employed

Sources:

[a] OECD (2009) Revenue Statistics 1965 – 2008, OECD, Paris, Tables 11, 13, 17, 19 and 25, pp. 82 ff.

[b] OECD (2008) Revenue Statistics 1965 – 2007 – 2008, OECD, Paris Tables 7, 13, 17, and 19, pp. 98ff.

[c] See Table 7; Basis of these estimates is not consistent with earlier OECD estimates.

1.2 Basic information about the tax-benefit system

- The tax-benefit system is largely a unified, national system.¹ The main exceptions are *council tax* and *council tax benefit* which do not apply in Northern Ireland and the *social fund*, a discretionary element of which is managed under fixed local budgets each year.
- The tax system generally changes in April each year. The main benefit changes take place at the same time, but can also be implemented at other times, usually in June or October.
- State pension age in 2006/07 was 60 for women and 65 for men; the state pension age for women started increasing gradually in 2010 and will reach 65 years old in 2020. Policy for the phased increasing of the pension age for both men and women to 66 is planned and a further increase to 67 is currently under discussion.
- Minimum school leaving age is 16; dependent children are usually defined as being under 16 or under 19 years old and in full-time non-advanced education and not married.
- The income tax system is an individual system, with spouses being assessed independently.
- Income tax liability is based on annual income and allowances and thresholds are referred to in annual terms. Income tax withholdings are collected on a cumulative

¹ The way it operates in practice may vary across regions and by other characteristics.



basis, i.e., the system tries to ensure withholding the exact amount due in the financial year. Only individuals paying tax on trading income (e.g. self-employed people), income from more than one job or who pay tax at the higher rate must file a tax return for income tax. Typically, end-year adjustments to tax liability are factored into the next year's tax code.

- The means-tested benefit system assesses entitlement according to benefit unit income. The benefit unit is the nuclear family - the couple (cohabiting or married) or single adult plus any dependent children. Social contributions, state benefits and pensions are usually assessed and paid on a weekly basis. Amounts are referred to in weekly terms.
- For benefit and tax credit purposes lone parents are defined as parents of resident dependent children, not cohabiting with a partner of the opposite sex (whether or not any partner is the parent of the child is irrelevant).
- There are statutory requirements to uprate some elements of the tax-benefit system annually, while for others uprating is discretionary. Until 2011 most components were uprated annually by prices (RPI) with means-tested benefits following the “Rossi” price index excluding housing costs and local taxes. In 2011 the CPI will be used instead for price uprating of benefits and tax credits and from 2012 also for income tax allowances and thresholds. On average the CPI rises more slowly than either the RPI or the Rossi index. Only a few elements are adjusted by earnings and some are not adjusted at all.

1.3 Social Benefits

In the UK, social security benefits can be divided into three different types: The first category consists of *contributory* benefits, which are earnings-replacement benefits and pensions. Entitlement to these benefits depends on having met certain conditions regarding National Insurance contributions. Some contributory benefits are subject to specific tests on current income. The second type of benefits is *non-contributory, non-means-tested* benefits. These benefits depend on certain contingencies such as disability or (lone) parenthood but do not require contributions to have been made and are not subject to an income test. The third type of benefits is *means-tested benefits*. These benefits depend on a range of personal and family circumstances but also on family incomes - benefit entitlement is reduced if family incomes increase. Tax credits have changed their name, format and administering authority over the past ten years (see below). In practice, despite being administered by the tax authorities', tax credits are like cash benefits and are treated as such here. The three types of benefits are reviewed separately below.

1.3.1 Contributory benefits

Also known as “National Insurance benefits”, the main contributory benefits are:

Jobseeker's Allowance: contributory (JSA) is a benefit for the unemployed, conditional on active job search; no additions for dependants; duration is up to six months only; small earnings disregard; only for those under state pension age; private pension income over £50 per week results in reductions to JSA payments; taxable.

Incapacity Benefit (IB): benefit for the sick and long-term incapacitated, conditional on claimants' inability to do own job (first 28 weeks) or any job (after that). A lower short term rate is set for those not eligible for Statutory Sick Pay and a higher short-term rate for weeks 29-52 of sickness. After that, a higher long-term rate applies until state pension age; increases are



paid for dependent children and spouses caring for children or aged over 60 (and not in receipt of own pension); additions for age in long term rate. Incapacity Benefit is taxable. With effect from the policy year 2009/10 onwards Incapacity Benefit has been changed to Employment and Support Allowance. Employment and Support Allowance (ESA) – from October 2008 Incapacity Benefit and the disability element of Income Support (IS) - have been superseded by the Employment and Support Allowance (ESA). The main differences are that IB and IS for disabled people have been brought together, the introduction of stricter activity requirements and a work-related activity payment. IB is now contributory ESA with similar qualifying conditions to contributory Jobseeker's Allowance and Income Support with disability element is now income-based ESA. Since October 2008 onwards all new claimants are assessed for ESA while existing claimants are transferred onto the new benefit in time. Both forms of ESA contain an initial assessment phase of 13 weeks during which the basic allowance is paid. The assessment focuses on capability to work. If claimants are assessed as having a limited capability for work-related activity, they will be moved on to the support component which means receiving a higher rate with no additional conditions. If claimants are assessed to have a capability for work-related activity, they will receive the work-related activity supplement and have to participate in regular work-focused interviews in return.

Retirement pension: if individuals meet the contribution conditions when they are over state pension age, they get a flat rate basic pension ("Category A"). If conditions are only partly met, a reduced pension of at least 25% of the basic can be paid. Spouses who do not meet the conditions may receive a lower pension based on their partner's contributions ("Category B"). At age 80 contribution conditions are removed. Extra pension increments can be earned if retirement is delayed and additions are paid for dependent spouses under pension age and dependent children. The basic pension is taxable. For pensioners who contributed to the State Earnings Related Pension Scheme (SERPS) an additional earnings-related pension is payable. This is taxable and there are no additions for dependants.

Widow's benefit: this is based on the late husband's contributions; younger widows (under 45) do not qualify unless they have dependent children. Widow's benefit is taxable. Part of the husband's SERPS entitlement and private pension can also be inherited.

Maternity Allowance (MA) is a flat-rate benefit payable for up to 26 weeks if the claimant has herself met contribution, employment and earnings conditions and does not qualify for Statutory Maternity Payment (SMP, see below). A standard rate is paid to women whose average earnings at least equal the National Insurance Lower Earnings Limit and to self-employed women who have paid a Class 2 contribution (see 1.4 below). There are no additions for dependants. Maternity Allowance is not taxable.

1.3.2 Non-contributory, non-means-tested benefits

Child benefit is a universal flat-rate benefit paid to the carer of each dependent child. A dependent child is a child that is either under 17 or under 19 and in full-time education or training. There is a higher rate for the eldest or only dependant child, otherwise the rate does not vary. Child benefit is not taxable.

Attendance Allowance (AA) is a flat-rate benefit and can be claimed by individuals who need care during the day, at night or both (higher rate) due to their illness or disability. It is taxable.

Disability Living Allowance (DLA) can be claimed by individuals if they become disabled before the age of 65 and have personal care and/or mobility needs. The care component is paid at one of three rates and the mobility component at one of two rates, depending on severity of need. DLA is not taxable.



Severe Disablement Allowance (SDA) can be claimed by individuals who are at least 80% disabled but who do not qualify for Incapacity Benefit. It is paid at a lower rate and there are additional payments for dependants. DLA is not taxable. Since April 2002 existing SDA recipients aged under 20 were automatically transferred to long-term IB. Those aged 20 or over in 2002 continue to get SDA. In other words, the benefit is now only maintained for existing claimants.

Carer's Allowance (used to be called Invalid Care Allowance (ICA) before April 2003) is a benefit for carers of severely disabled people who are themselves not earning more than a specific threshold and are aged under 65 when first claiming. Severe disability is defined as someone getting either the DLA care component or AA. There are additions for dependants and the benefit is taxable.

Industrial Injuries Disablement Benefit is a benefit for people who are long-term incapacitated due to injury at work. It is not taxable.

Guardian's Allowance is paid to someone bringing up children whose parents have died. It is paid in addition to Child Benefit and is not taxable.

War Pension is an "umbrella" term for a series of payments that may be made to people who have been injured or disabled as a result of service in HM Forces (not necessarily in a war). War Pensions are not taxable.

Winter fuel allowance is an annual payment made to households containing at least one person aged over 60, with a supplement paid for the presence of anyone aged over 80. The payment is not taxable and not means-tested.

1.3.3 Means-tested benefits

Jobseeker's Allowance (income-based) is the social assistance benefit for the unemployed which may be claimed after entitlement to contributory JSA is exhausted or on top of it, to meet the income needs of the unemployed person and their family. The structure is the same as for *Income Support* (see below).

Income Support (IS) is the main social assistance benefit for people whose family incomes are lower than a specified level and who are exempt from the obligation to find work (or in work for less than 16 hours per week). It is intended to apply to lone parents, sick and disabled people and others who are not expected to seek work. If their family income is less than the applicable amount, IS makes up the shortfall. The applicable amount is made up of personal allowances and premiums for certain groups with special needs. Some housing costs (mortgage interest and ground rent) are included in the applicable amount. Families who share their household with other non-dependent adults have deductions made from the amount allowed for housing costs, whether or not actual contributions to the cost are made. Rent and Council Tax are not included but are covered separately by Housing Benefit and Council Tax Benefit. Income is assessed after tax and contributions; instead of actual income from capital, a "tariff" income is calculated from capital above a lower limit. Families with more than a certain amount of capital are disqualified from IS altogether. Income Support is assessed weekly. It is not taxable. Certain benefits-in-kind, so called passported benefits, are available to recipients of IS. These include free lunches for school children; free prescription medicines (these are already free to all children and pensioners); free milk for babies and pregnant women. Income Support for people aged 60 or over, known as Minimum Income Guarantee (MIG), was replaced by Pension Credit in October 2003.



Pension Credit (PC) is made up of a Guarantee Credit, replicating the previous MIG structure and a Saving Credit, rewarding with an additional amount older (65+) pensioners who have savings, pension or earned income above the state basic pension. It is not taxable.

Housing Benefit (HB) covers rent. It is paid in full for IS and income-based JSA recipients, subject to locally specified maxima. For those with higher incomes it is tapered away with additional income, using the same system of applicable amounts as IS and income-based JSA. Income is assessed after income tax and contributions. Families who share their household with other non-dependent adults have deductions made from rent, whether or not actual contributions to the cost are made. Capital rules apply in a similar way as with IS and income-based JSA. HB is assessed on weekly income and rent. It is not taxable.

Council Tax Benefit (CTB) provides rebates on Council Tax for low income households; it has a structure similar to HB and is not taxable.

Working Tax Credit (WTC) tops up the wage of low paid workers. It is paid to

- people aged 25 or over in employment or self-employment for at least 30 hours per week,
- people with disabilities working at least 16 hours per week and
- to families with dependent children where at least one parent is in employment or self-employment for at least 16 hours per week.²

It is not taxable. Working Tax Credit is payable and assessed on a yearly basis but is responsive to changes in household circumstances and income. Recipients are required to report changes in income which can lead to a re-assessment of their tax credit award. WTC contains an element to cover a proportion of qualifying child care costs.

Child Tax Credit (CTC) is paid to families with children, whether or not the parents are in work. The transfer is made up two components: The first component is a “family element” (in some years doubled for the first year following a child’s birth), which is paid regardless of income for those not in the higher tax bracket (this aspect is in the process of reform). The second component is a per-child payment (higher if the child is disabled) for those families with a gross annual income up to a given threshold and is tapered off thereafter as income increases. It is payable and assessed on a yearly basis and is not taxable.

Social Fund payments include (a) regulated payments which contribute to maternity, funeral and cold-weather fuel costs for certain families on low income; and (b) discretionary payments which take the form of either non-repayable grants or interest-free loans.

² Specific hours limits may vary over time.



- *Scope and scale*

Table 5. Social benefits (including “tax credits”): recipients as percentage of the population

	2006	2007	2008	2009	2010	2011
Total population (thousands)	60.393	60.816	61.179	61.596	62.008	62.436
as % of population						
Contributory benefits						
Jobseeker’s Allowance (contr.)	0.23	0.2	0.32	0.48	0.36	0.36
Incapacity Benefit and contributory Employment and Support Allowance	2.42	2.32	2.2	2.18	2.03	1.86
Retirement Pension	19.41	19.54	19.83	19.95	19.82	19.89
Widow’s benefit	0.30	0.25	0.19	0.20	0.18	0.16
Maternity Allowance	0.04	0.06	0.08	0.09	0.09	0.09
Non-contributory, non-means-tested benefits						
Attendance Allowance	2.47	2.51	2.56	2.88	2.90	2.91
Disability Living Allowance	4.7	4.79	4.92	5.04	5.14	5.24
Severe Disablement Allowance	0.04	0.04	0.1	0.42	0.40	0.38
Carers Allowance	0.76	0.77	0.8	1.55	1.60	1.64
Industrial Injuries Disablement Benefit	0.24	0.22	0.22	0.43	0.43	0.42
Means-tested benefits and tax credits (a)						
Jobseeker’s Allowance (means-tested)	1.17	1.03	1.2	1.79	1.74	1.84
Income Support (including means-tested ESA)	3.49	3.47	3.38	3.14	2.83	2.33
Pension Credit	4.48	4.49	4.45	4.44	4.38	4.45
Housing Benefit	6.66	6.64	6.81	7.38	7.72	7.38
Council Tax Benefit	8.41	8.33	8.43	9.04	9.35	9.09
Working Tax Credit	3.18	3.30	3.62	3.85	n/a	n/a
Child Tax Credit	7.04	6.99	7.00	6.95	n/a	n/a

Sources:

DWP (2011) Medium term forecast: Benefits - Numbers in receipt
http://research.dwp.gov.uk/asd/asd4/medium_term.asp, last accessed 17.07.2011

HMRC (2010) Child and Working Tax Credits Statistics, April 2010, Table 1.1.
<http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-apr2010.pdf>

Notes: (a) The assessment unit for means-tested benefits and tax credits is the narrow family unit, rather than the individual. These figures show the proportion of the population that are recipients of benefit payments rather than the proportion within families that are receiving benefit.



Table 6. Social benefits and tax credits: expenditure as proportion of the total expenditure

	2006	2007	2008	2009	2010	2011
Annual expenditure on benefits and tax credits (£ million) (a)	163,040	166,695	173,138	183,625	184,690	184,945
as % of total expenditure (b)						
Contributory benefits	43.07	43.59	43.47	43.63	43.46	44.49
Jobseeker's Allowance (contributory)	0.33	0.28	0.45	0.63	0.44	0.48
Incapacity benefit and contributory ESA	4.58	4.42	4.09	3.86	3.62	3.30
Retirement Pension	37.47	38.24	38.30	38.57	38.87	40.21
Widow's benefit	0.56	0.49	0.42	0.37	0.34	0.32
Maternity Allowance	0.12	0.16	0.20	0.20	0.19	0.19
Non-contributory, non-means-tested benefits	12.70	12.85	13.08	13.00	12.97	12.83
Attendance Allowance	2.90	2.95	2.94	2.94	2.91	2.96
Disability Living Allowance	6.39	6.55	6.55	6.61	6.65	6.82
Severe Disablement Allowance	0.63	0.60	0.55	0.52	0.49	0.48
Carer Allowance	0.82	0.85	0.85	0.86	0.89	0.93
Industrial Injuries Disablement Benefit	0.55	0.53	0.51	0.49	0.49	0.48
Winter fuel payments	1.41	1.37	1.68	1.58	1.53	1.15
Means-tested benefits and tax credits	42.24	41.63	40.64	41.13	26.47	25.93
Jobseeker's Allowance (means-tested)	1.37	1.21	1.32	2.07	2.07	2.13
Income Support (including means-tested ESA)	6.17	5.99	5.44	5.22	5.04	4.54
Pension Credit	4.80	4.89	4.79	4.69	4.56	4.43
Housing Benefit	10.36	10.44	10.64	11.53	12.04	12.18
Council Tax Benefit	2.75	2.67	2.63	2.71	2.77	2.65
Tax Credits	16.79	16.42	15.81	14.91	n/a	n/a
Total (c)	100	100	100	100	82.91	83.25

Sources:

DWP (2011) Medium term forecast: Table 1a: Benefit expenditure, Great Britain, 1991/92 to 2011/12 (nominal terms), http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term

HMRC (2011) Tax credit statistics: final awards <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-final-awards-may10.pdf>

Notes: (a) figures exclude tax credits in 2010 and 2011 (estimates not yet available 20 July 2011); (b) percentages for 2010 and 2011 assume 2009 levels of tax credits in the base; (c) Figures for 2010 and 2011 exclude the assumed (2009) effect of tax credits.



1.3.4 Not strictly benefits

In addition there are components of income that are not strictly part of the benefit system. These include:

Statutory Sick Pay (SSP) and **Statutory Maternity Pay (SMP)** payable to employees by the employer for the first 28 weeks of sickness or 18 weeks of maternity leave. SSP is paid at a flat rate (most employers pay full wages for short-term sickness). For SMP there is a minimum flat rate payment and a higher rate (payable for only six weeks) equal to 90% of usual earnings. Both payments are (generally) treated as earnings by the rest of the tax-benefit system.

Occupational (employer-provided) and approved personal pensions are **private pensions** that for the majority of employees replace the State-Earnings-Related-Pension-Scheme (SERPS).

Child Support is child maintenance paid by absent parents. It depends on an assessment of income and needs of the families of both parents and is enforced where lone parents are on *Income Support*.

Student loans are partly non-means-tested and partly means-tested on parental income.

Foster allowances are paid to families looking after children who are in Local Authority care (or similar).

Training allowances and education maintenance allowance are paid under various schemes. 1998 saw the start of the first New Deal (for young people), which was intended to be a comprehensive scheme to get people into work or training. Since then there have also been New Deals for the long-term unemployed, for lone parents, for older workers, and for the partners of unemployed people. Most of the funding has gone to measures for the under-25s and, with the exception of that group, tends to involve assistance and advice rather than coercion. For instance, lone parents receiving Income Support (see below) are now required to attend annual interviews to discuss finding work and the help available to do so, but do not have to take up work while they have a child aged under 16 years old. The associated cash allowances are small and usually correspond to what would be received on Income Support (see below). The Income Support regulations have since been changed. From November 2008 lone parents whose older child is 12 or older were transferred from IS to income-based JSA; this was then extended to lone parents whose youngest child is aged ten or over in October 2009 and to lone parents whose youngest child is seven or over in October 2010.



1.4 Social contributions

1.4.1 Brief description

Social contributions, known as National Insurance Contributions (NICs), finance current National Insurance (NI) benefits and NI basic retirement pension. Conditions regarding contributions made in the past determine eligibility to contributory benefits. There are four classes of contributions, the most important in terms of revenue-raising being Class 1, which makes up 97% of the total.

Employees pay “primary” Class 1 contributions on their current weekly earnings between a lower and upper earnings limit and employers pay “secondary” Class 1 contributions on the same earnings base but with no upper limit. Some employer-provided goods in kind are included in the earnings base (such as company cars).

People with self-employment income are liable for Class 2 and Class 4 contributions. These contributions only bring entitlement to the basic retirement pension, not to short-term benefits. Class 2 contributions are a weekly payment at a flat-rate, which is the equivalent of employee Class 1 contributions. Low self-employment income is exempt. The equivalent of the employer contributions are the Class 4 contributions. These are payable on income between a lower and upper profits limit, and are determined annually. There is a maximum annual NIC payment for those with both employment and self-employment income which corresponds to the maximum that can be paid in a full year on earnings. The same maximum applies to people with earnings from several jobs.

Employees who are contracted out of SERPS pay a lower rate of contribution. Their employers also pay a lower rate, up to the upper earnings limit. Married women who elected in 1977 or earlier to pay reduced contributions can still do so, so long as their contribution records have been maintained. This means they do not have to pay Class 2 contributions (if self-employed) and only a lower rate of Class 1 contributions (if employed). A woman who does this can only claim a reduced Category B state pension on the basis of her husband’s contributions on retirement, and is not eligible for other contributory benefits.

Class 3 contributions are voluntary and are usually made by UK citizens living abroad, in order to maintain their contribution record.

Minimum contributions may be credited in certain circumstances, notably during registered unemployment and while caring for young children at home.

There are some special schemes for small groups such as share fishermen.

National Insurance contributions are not tax-deductible.

1.5 Taxes

1.5.1 Brief description

Table 8 shows the composition of UK taxes, including NICs, in 2005/06 (up to 2007/08) as a percentage of total HMRC revenues. The personal, direct taxes potentially within the remit of EUROMOD are, in addition to NICs, Income Tax, Council Tax, and the three capital taxes: stamp duties, capital gains tax and inheritance tax. Taken together these taxes make up about half of all UK tax revenues. They are considered in turn below.



Income tax³ The UK income tax system is an individual system, with the incomes of married people being taxed independently. In 2005/06 the individual personal allowance was £4,895 yearly, higher for people aged over 65 and still higher for those aged over 75 (“Age Allowances”). Married couples above the age of 65 get the “Married Couple Allowance”.⁴ Age additions are withdrawn as taxable income rises.

The UK income tax system has a relatively broad base and there is - for all practical purposes - a unified tax schedule. Some employer-provided goods in kind are included in the income base (such as company cars). In 2005/06 the tax schedule consisted of three rate bands: a narrow first band of 10% (up to £2,090 of taxable income) a wide “standard rate” band of 22% (£2,091-32,400 of taxable income) and a higher rate of 40% (above £32,401). The last rate affects less than a tenth of income taxpayers. Income from financial capital that is not tax-exempt is taxed at 20% if the taxpayer’s marginal rate on that income is within the standard rate band.

From 2008/09 onwards the first rate band of 10% has been abolished for income from earnings and the second rate has been reduced from 22% to 20%. The 10% rate is still applied to income from savings but only in particular circumstances which are explained more fully below.

Table 1 shows the total tax liability and the number of taxpayers with marginal rates in each band. Tax assessment is annual (April - March). Most income tax is collected at source, either through with-holding at 20% on income from capital or through the comprehensive and cumulative Pay As You Earn (PAYE) system on earnings. Most UK income tax payers do not complete tax returns: only those who may be liable for higher-rate tax usually do so. Otherwise, most adjustments are carried out within the tax year using the PAYE system or between years using the tax code.

Council tax is a local tax providing approximately 20% of local revenue. It replaced the notorious “poll tax” in 1993. Council tax does not apply in Northern Ireland where the system of domestic rates remains in place. Council tax is mainly based on the estimated market value of the property (as of April 1991). Properties are allocated to one of nine nationally-determined (i.e. different in England, Scotland and Wales but the same within them) bands according to property value. The tax in each band is some multiple of the tax in the 4th band (“Band D”), ranging from 2/3 in the lowest value band to 2 in the top value band. Local authorities set the level of Band D tax each April. The Council Tax is reduced by 25% if the property contains only one resident adult or by 50% if there is nobody resident. There are exemptions for students and members of the Armed Forces. The tax has its own rebate system for low income families (Council Tax Benefit - see above)

Capital gains tax⁵ is levied on gains arising from the disposal of assets by individuals, representatives and trustees. There is an allowance (£8,500 in 2005/06) on which an individual’s capital gain is exempt from tax (the allowance for trusts is lower). Since March 1998 there has been a taper system which reduces the proportion of the gain that is chargeable to tax, the longer the asset has been owned.

Inheritance tax⁶ is charged at a single rate of 40% on wealth transferred at (or within 7 years before) death. There is a minimum threshold and in 2005/06 no tax was charged on estates

³ See http://www.hmrc.gov.uk/stats/tax_structure/menu.htm

⁴ See http://www.hmrc.gov.uk/stats/tax_structure/table-a1a.xls for details on the tax parameters.

⁵ See http://www.hmrc.gov.uk/stats/capital_gains/menu.htm

⁶ See http://www.hmrc.gov.uk/stats/inheritance_tax/menu.htm



worth less than £275,000. Certain assets such as farms and small businesses are eligible for relief. Transfers to spouses and charities are exempt.

Property and Stamp Duties⁷ (Stamp Duty and Stamp Duty Land Tax) are levied on stock and share transactions and on conveyances and transfers of land and property. There is a threshold below which no duty is paid and a scale of proportional rates applies to property transactions, according to the value of the property. In 2005/06 the rates were zero on properties below of £120,000; 1% on the full value of property up to £250,000; 3% on property between £250,000 and £500,000 and 4% on properties selling for more than that. The first threshold was higher (£150,000) for commercial properties and residential land in disadvantages areas.

⁷ http://www.hmrc.gov.uk/stats/survey_of_prop/index.htm



1.5.2 Scope and scale

Table 7. Taxes and Social contributions: revenues as proportion of the total revenue

	2006/07		2007/8		2008/09		2009/10		2010/11 ^[d]	
	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue
Income tax	143,327	33.83	147,324	34.77	147,856	33.77	139,281	34.09	147,646	33.07
National Insurance Contributions	87,273	20.60	100,410	23.70	96,882	22.13	95,517	23.38	96,509	21.61
Capital gains tax	3,813	0.90	5,268	1.25	7,852	1.79	2,491	0.61	3,249	0.73
VAT	77,360	18.26	80,601	19.02	78,439	17.92	70,160	17.17	83,486	18.70
Corporation tax	44,308	10.46	46,383	10.95	43,077	9.84	35,805	8.76	42,016	9.41
Inheritance tax	3,558	0.84	3,834	0.90	2,851	0.65	2,396	0.59	2,724	0.61
Stamp duties	13,392	3.16	14,124	3.33	7,999	1.83	7,903	1.93	9,009	2.02
Fuel duties	23,585	5.57	24,905	5.88	24,615	5.62	26,197	6.41	27,256	6.10
Tobacco and alcohol duties	16,062	3.79	16,396	3.87	16,869	3.85	17,825	4.36	18,544	4.15
Other duties ^[a]	2,362	0.56	3,475	0.82	4,521	1.03	5,941	1.45	6,686	1.50
Other taxes ^[b]	5,273	1.24	4,863	1.15	5,802	1.33	4,024	0.99	8,409	1.88
Other levies ^[c]	1,033	0.24	1,027	0.24	1,050	0.24	970	0.24	964	0.22
Total HMRC	423,659	100.00	423,659	100.00	437,813	100.00	408,509	100.00	446,498	100.00

Source:

Figures for latest 2 years from HMRC (2011) HM Revenue and Customs annual receipts, http://www.hmrc.gov.uk/stats/tax_receipts last accessed on 14/07/2011.

Earlier figures from previous releases.

Notes:

[a] Air passenger Duty, Customs and Excise Duty and betting and Gaming duty

[b] Insurance Premium Tax, Petroleum Tax and Landfill Tax, plus bank payroll tax

[c] Climate Change Levy and Aggregates Levy.

[d] The figures for 2010/11 are provisional. Figures for 2011/12 are not yet available (15/07/2011).



Table 8. Number of individual Income Taxpayers and proportion of total tax by marginal rate

	2006/07		2007/08		2008/09		2009/10		2010/11	
	Thousands	% of total income tax	Thousands	% of total income tax	Thousands	% of total income tax	Thousands	% of total income tax	Thousands	% of total income tax
Lower (10%) ^[a]	4,380	13.77	4,580	14.18	4,380	13.77	4,580	14.18	n/a	
Standard (22% or 20%) ^[b]	23,700	74.53	23,800	73.68	23,700	74.53	23,800	73.68	n/a	
Higher (40%)	3,770	11.90	3,890	12.04	3,770	11.90	3,890	12.04	n/a	
Total	31,800	100.00	32,300	100.00	31,800	100.00	32,300	100.00	30,600	

Source:

HMRC (2010) Income and Tax statistics and distributions: http://www.hmrc.gov.uk/stats/income_tax/table2-1.pdf

Notes:

[a] For 2006/07 to 2007/08 this includes tax payers who pay tax on earnings and savings. From 2008/09 onwards, the 10% tax rate only applies to income from savings.

[b] The standard rate was reduced in 2008/09 from 22% to 20%.

From 2010/11 onwards the numbers by marginal rate are no longer available. 2011 HMRC estimates for the total number of taxpayers provided in 2011 show somewhat different totals than those given above (from earlier statistics). For consistency with the breakdowns the earlier estimates of the total are given here.



2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

2.1 Scope of simulation

Not all the taxes and benefits mentioned in the previous section are simulated by EUROMOD (see Table 9). Some are beyond its scope entirely and are neither included in the EUROMOD database nor in its output income variables. Others are not possible to simulate accurately with the available data. They are included in the database and may be chosen as components of output variables, but the rules governing them may not be changed by the model.

2.2 Simulated policies and order of simulation

2.2.1 Structural changes from 2006 to 2011

There have been a number of structural changes between 2006 and 2011, in the sense of changes that cannot be straightforwardly described by changes in parameters shown in the tables in this section.

- the abolition of the 10% income tax rate: from 2008/09 the 10% income tax band was abolished for income from earnings but retained for income from capital. (At the same time the rate applying in the second band was reduced from 22% to 20%.)
- the replacement of Incapacity Benefit and Income Support for disabled people with the Employment Support Allowance (ESA). This transition is being phased over several years and will therefore not be fully operational until 2010/11. It has not yet been implemented in EUROMOD.
- In 2010 the income tax personal allowance was limited to those with taxable income below a certain amount and abated for incomes above that amount.

2.2.2 Order of simulation

Table 10 shows the order in which the main elements of the UK system are simulated. The policies below are simulated for all policy years 2006-2011.



Table 9. Tax-benefit instruments and their treatment in EUROMOD

	Treatment in EUROMOD	Variable name(s)	Why not fully simulated?
BENEFITS			
Jobseeker’s Allowance (contributory)	Partly simulated OR simulated	bunct_s	Eligibility for unemployment benefit is based on actual receipt plus other relevant conditions being satisfied in the baseline. A full simulation of unemployment benefit receipt can be switched on and the duration of the receipt can be changed.
Incapacity Benefit	Included	bdict	Inadequate data on length of sickness spell and contribution history
Retirement Pension (basic)	Included	boact00	No data on contribution history or retirement date
Pension credit	Simulated	boamt_s	
Widow’s Benefit	Included	bsuwd	No data on deceased husband’s contributions or date of widowhood
Maternity Benefits	Included	bmana	No data on pregnancy dates, contribution conditions, previous earnings
Child Benefit	Simulated	bch_s	
Attendance Allowance	Included	bdioa	Insufficient information on disability
Disability Living Allowance	Included	bdisc and bdimb	Insufficient information on disability
Severe Disablement Allowance	Included	bdisv	Insufficient information on disability
Invalid Care Allowance	Included	bcrdi	Insufficient information on disability
Industrial Injuries Disablement Benefit	Included	bdiwi	Insufficient information on disability
War Pension	Included	boawr	Insufficient information on injury
Jobseeker’s Allowance (means-tested)	Simulated		Simulated as part of Income Support
Income Support (including Minimum Income Guarantee and Pension Credit)	Simulated	bsa_s	
Housing Benefit	Simulated	bho_s	
Council Tax Benefit	Simulated	bmu_s	
Working Tax Credit and Child Tax Credit	Simulated	bwkmt_s and bfamt_s	
Social Fund	Excluded	-	No data; cannot model local discretion
Winter Fuel Allowance	Simulated	boaht_s	
TAXES and deductions			
Income tax	Simulated	tin_s	Some exemptions and small allowances are ignored.
National Insurance contributions	Simulated	tscee_s, tscse_s and tscer_s	Special schemes for small groups are ignored.

Continued...



	Treatment in EUROMOD	Variable name(s)	Why not fully simulated?
Council Tax	Included	tmu	No data on property value; no location information below standard region.
Private pension contributions	Partly simulated	tpcee_s	Implicit rate calculated from recorded contribution and earnings
OTHER INCOME COMPONENTS			
Minimum wage	Simulated		
Earnings related state pension	Included	boactcm	Contribution history unknown
Student loans	Included	bedsl	Parental income is not known for most cases.
Statutory Sick Pay	Included	bhlwk	No data on qualifying conditions
Statutory Maternity Pay	Included	bmaer	No data on pregnancy dates or previous employment record or earnings.
Child Support	Included	yptmp	No data on absent parents.
Education maintenance allowance	Included	bedes	The actual amount depends not only on course attendance but also on achieving learning objectives, i.e. information that is not included in the data.



Table 10. Order of policy simulation in EUROMOD

Section	Policy sheet	Description	Main output	2006	2007	2008	2009	2010	2011
2.3	MinWage_uk	Minimum wage	- - -	X	X	X	X	X	X
	takeup_uk	Take-up correction set-up	- - -	X	X	X	X	X	X
2.5.1	tscee_tscse_uk	Employee and	tscee_s and tscse_s	X	X	X	X	X	X
2.5.2		Self-employed Social Insurance Contributions							
2.5.3	tscer_uk	Employer Social Insurance Contributions	tscer_s	X	X	X	X	X	X
2.4.2	bunct_uk	Jobseeker’s Allowance (contributory unemployment benefit)	bunct_s	X	X	X	X	X	X
2.4.1	boaht_uk	Winter Fuel Allowance	boaht_s	X	X	X	X	X	X
2.4.4	bch_uk	Child Benefit	bch_s	X	X	X	X	X	X
2.6	tin_uk	Income Tax	tin_s	X	X	X	X	X	X
2.4.3	bwkm_t_bfamt_uk	Working Tax Credit and Child Tax Credit	bwkm_t_s and bfamt_s	X	X	X	X	X	X
2.4.5	bsa_uk	Job Seeker’s Allowance (means-tested) and	bsa_s	X	X	X	X	X	X
2.4.6		Income Support, Pension Credit							
2.4.7	bho_uk	Housing benefits	bho_s	X	X	X	X	X	X
2.4.8	bmu_uk	Council Tax Benefit	bmu_s	X	X	X	X	X	X



The operation of the Minimum Wage (adjusts *yem*) potentially affects all instruments which depend on original income so this is calculated first.

Next employee and self-employed National Insurance contributions (*tscee_s* and *tscse_s*) are simulated followed by National Insurance contributions for employers (*tscer_s*). After the simulation of SICs, unemployment benefit (contribution based JSA – *bunct_s*) is simulated. Contribution-based JSA is taxable, therefore it must be simulated before income tax. The simulation of winter fuel allowance (*boaht_s*) and income tax (*tin_s*) have been done next.

The means-tested tax credits: Working Tax Credit - WTC (*bwkmt_s*) and Child Tax Credit – CTC (*bfamt_s*) are based on gross income before income tax and National Insurance contributions. They have been simulated after SIC and tax in line with the order of simulation in the other countries.

The income tests for means-tested benefits also take account of income from Jobseeker's Allowance (JSA - contributory unemployment benefit) and Child Benefit (*bch_s*). Therefore, these non-means-tested benefits must be simulated first before Income Support, income-based JSA and Pension Credit (*bsa_s*). Housing Benefit (*bho_s*) and Council Tax Benefit (*bmu_s*) include CTC and WTC in their means-test and their calculation depends on whether or not Income Support (income-based JSA or Pension Credit) is received. Therefore, they are simulated last.

2.3 National Minimum Wage

- **Brief description**

A national minimum wage (NMW) was introduced in April 1999. It determines the minimum amount employees have a legal entitlement to earn per hour depending on their age. Minimum Wage is simulated as a temporary variable in order to validate earnings.

- **Eligibility conditions**

The Minimum wage covers most employees except for those exempted for various reasons. Our data do not allow EUROMOD to account for exemptions.

- **Amounts**

In June 2006 the National Minimum Wage was £5.05 per hour for employees aged 22 and over, £4.254 for those aged 18-21 and £3.00 for those under 18 and not of compulsory school-age. For the rates for the other policy years, refer to Table 11 below. There are no minimum wage regulations for children of compulsory school age. The implementation in EUROMOD checks that individuals are receiving at least the National Minimum Wage. Where this does not seem to be the case in the data, the EUROMOD calculation increases the income by calculating income based on the number of hours worked on the national minimum wage.



Table 11. Changes in the rate of the National Minimum Wage from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per hour	£ per hour	£ per hour	£ per hour	£ per hour	£ per hour
Aged 22+	5.05	5.35	5.52	5.73	5.80	5.93
Aged 18-21	4.25	4.45	4.60	4.77	4.83	4.92
Aged 16-17	3.00	3.30	3.40	3.53	3.57	3.64

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

2.4 Social Benefits

2.4.1 Winter Fuel Allowance (boah_t_s)

- *Brief description*

This is an annual allowance paid to any household containing a person aged 60 or over and is intended to cover extra heating costs for elderly people during winter months. The benefit is paid at household level (household_uk).

- *Definitions*

A fixed annual amount is paid per household, according to whether any household member is aged 60 years old or above and whether any are aged over 80.

- *Eligibility conditions*

The general eligibility criteria is age though the amount varies according to both age and household composition – see below.

- *Income Test*

Winter Fuel Allowance is a universal, non-means-tested benefit.

- *Benefit amount*

The benefit amounts for the Winter Fuel Allowance over the policy years are laid out in Table 12 below.

Table 12. Winter Fuel Allowance benefit amounts from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per year	£ per year	£ per year	£ per year	£ per year	£ per year
At least one member of the HH is aged 60-79	200	200	250	250	250	200
At least one member of the HH is aged 80 or over	300	300	400	400	400	300

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Notes on implementation*

The winter fuel allowance is assumed to be shared equally between all eligible household members.



- *Interaction with taxes and other benefits*

The allowance is non-taxable and it is not taken into account in any other instrument. In practice payments are shared between eligible household members. In EUROMOD the default sharing assumption is that the amount is shared equally by all those in the household aged 60 or over.

2.4.2 Contributory Jobseeker's Allowance (bunct_s)

- *Brief description*

Contributory Jobseeker's Allowance is a contributory benefit for the unemployed. The benefit amounts vary according to the age of the claimant. The basic amount paid depends on the individual's age alone, with lower payments going to younger workers. There are no dependants' additions. There is no relationship with past earnings, beyond the contribution condition. Contributory JSA is payable for six months only.

- *Definitions*

The unit of assessment is the individual

- *Eligibility conditions*

There are four main eligibility conditions for contributory JSA:

- **Age:** to be eligible for contributory JSA women need to be aged between 18-59 and men between 18 and 64.
- **Actively seeking employment:** the claimant must be available for (and show proof of actively seeking) full time employment. This criterion is not simulated in EUROMOD.
- **Contribution record:** the claimant must have paid or been credited sufficient NI contributions in the two tax years before the benefit year of claim.
- **Work hours:** A third condition is that hours of work should be less than the weekly maximum of 16 hours (lwh) in 2006.

- *Income Test*

Contributory Jobseeker's Allowance itself is not means-tested. However, there are two ways in which the basic benefit is reduced £ for £ (sin01_s):

- with any earnings⁸ (yem+yse) after the first disregarded amount of £5 per week or
- any occupational or private pension (ypp+ boactcm) over £50 per week.

See Table 13 for the different rates across the policy years.

- Contributory JSA is taxable and counts as income for means-tested benefits, so it needs to be simulated before income tax and means-tested benefits.

⁸ Unless an individual earns more than their entitlement to contributory JSA plus any disregards. If that is the case, he/she would no longer be eligible.



- *Notes on implementation*

The FRS data do not contain the required information to establish the contribution record of individuals. Instead two options have been implemented. Firstly, in the current baseline eligibility is taken from the data (bunct>0) providing the other eligibility conditions outlined above are satisfied. In order to simulate the monthly amount reported in the data, it is assumed that unemployment benefit is received for the whole year. The second option is to fully simulate eligibility. This option is switched off by default. The FRS data only allow us to establish whether an individual has worked for two years at some point while contributory JSA requires the individual to have worked in the last two years. Therefore, the eligibility for contributory JSA is overestimated, if simulated. An option (the last function in the policy) allows the maximum duration of the contributory JSA to be simulated as lasting six months, the maximum entitlement.

- *Benefit amount*

Table 13. Amount of contributory Jobseeker's Allowance by age for 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
18-24 years old	45.50	46.85	47.95	50.95	51.85	53.45
25 or over	57.45	59.15	60.50	64.30	66.45	67.50
Occupational and personal pension disregard	50.00	50.00	50.00	50.00	50.00	50.00
Earnings disregard	5.00	5.00	5.00	5.00	5.00	5.00

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

2.4.3 Working Tax Credit and Child Tax Credit

- *Brief description*

Working Tax Credit and Child Tax Credit are income-tested refundable tax credits. In practice they are calculated separately from income tax liabilities and their treatment in EUROMOD reflects this and they are treated as benefits. They are calculated on the basis of the previous tax year's annual income.

In principle they are responsive to changes in income or other circumstances if the claimants report it. In practice this is only likely to happen if the claimant's situation changes in a way likely to increase entitlement. However, there is an end-of-year settlement which takes account of changes during the year. Increases in income are disregarded up to a limit which has varied over the period 2006-2009. It was £2,500 (annual) in 2006, £25,000 (ten times as large) in 2007 to 2009 and is being reduced to £10,000 in 2011. EUROMOD uses current income to simulate entitlements and cannot take account of changes in income over the year. Essentially, it assumes that the end of year income disregard is very large. See section 4.1.7 for more information.

- *Eligibility conditions*

Working Tax Credit (bwkmt_s) is an income-based credit for working adults who are either (sin02_s = 1)



- working at least 30 hours per week and aged above 24 years old,
- working at least 16 hours per week and have a dependent child or
- working at least 16 hours per week and disabled, or from 2011 onwards, aged 60 or more.

Child tax credit (CTC) (bfamt_s) is an income based tax credit paid to families with dependent children, regardless of whether the adults are in employment or not (sin06_s). It has replaced all the children amounts previously paid under Income Support, income-based Jobseeker's Allowance and Pension Credit. It is composed of a Family element and a Child element.

- **Assessment unit**

The 'assessment unit' for tax credits is the so-called 'benefit unit' (see page 8).

- **Amounts**

The calculation of the amount of tax credit can be broken down into a number of steps by calculating:

- 1) The 'relevant period'
- 2) The 'maximum amount'
- 3) The 'relevant income'
- 4) Comparing the 'relevant income' to the 'threshold figure'
- 5) Calculating the final entitlement

The 'relevant period'

This refers to the number of days the benefit unit is eligible within the tax year. For the purposes of EUROMOD we assume that eligibility has lasted all year.

The 'maximum amount'

Working Tax Credit contains a number of elements depending on family composition (basic, couple and lone parent element), health (disability and severe disability element), number of hours worked (30 hour element) and age of the claimant (50+ element).

The maximum amount of the Working Tax Credit is calculated by adding up all the elements. In other words, if a benefit unit is entitled to Working Tax Credit according to the criteria outlined above, they qualify for the basic element. Then, according to the family circumstances they qualify for the other elements shown in the Table 13 (sin04_s).

The maximum of the Child Tax Credit is the sum of the family element (£545 per year (in 2005/06), doubled if one child is aged below 1 years old (sin07_s) and the child element of £1,690 yearly (in 2005/06), paid for each child in the family. Children with disability are entitled to additional payments (sin08_s).

For example, if they are a lone parent working 30+ hours per week with two children aged three and five years, for example, they would qualify for the WTC basic element, the WTC lone parent element and the WTC 30+ element.

In addition, they would qualify for the CTC family and two times the CTC child element, i.e. for each child. The elements for both tax credits are annual amounts and are shown in Table 14 and Table 15 below.



Table 14. Working tax credits amounts from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07 £ per year	Jun-07 2007/08 £ per year	Jun-08 2008/09 £ per year	Jun-09 2009/10 £ per year	Jun-10 2010/11 £ per year	Jun-11 2011/12 £ per year
WTC Basic element	1,665	1730	1800	1890	1,920	1,920
WTC Lone parent element	1,640	1700	1770	1860	1,890	1,950
WTC Couple element	1,640	1700	1770	1860	1,890	1,950
WTC 30 hours element	680	705	735	775	790	790
WTC Disability element	2,225	2310	2405	2530	2,570	2,650
WTC Severe disability element	945	980	1020	1075	1,095	1,130
WTC Max eligible childcare expenditure, 1 child (per week)	175	175	175	175	175	175
WTC Max eligible childcare expenditure, 2 + (per week)	300	300	300	300	300	300
WTC Proportion of eligible childcare costs covered	80%	80%	80%	80%	80%	70%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

The childcare element (sin03_s) is to meet the cost of ‘relevant childcare’ (xcc). Those eligible are lone parents in employment or couple with both in employment or one partner receiving disability benefits. ‘Relevant childcare’ essentially refers to registered childcare for which the childcare element can be claimed. The calculation of the childcare tax credit element is based on average weekly amounts, i.e. the cost of childcare over the whole year is added together and then divided by the number of weeks that childcare has been used. This average childcare amount is then multiplied by 52 and treated as the annual amount. The childcare element is designed to meet a proportion of those costs up to set limits. The proportion was 80% from 2006, but was decreased to 70% in 2011, up to £175 per week per child if only one child and £300 per week if two or more children.



Table 15. Child tax credits amounts from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07 £ per year	Jun-07 2007/08 £ per year	Jun-08 2008/09 £ per year	Jun-09 2009/10 £ per year	Jun-10 2010/11 £ per year	Jun-11 2011/12 £ per year
CTC Family element	545	545	545	545	545	545
CTC extra for child under 12 months	545	545	545	545	545	0
CTC Child element	1,765	1,845	2,085	2,235	2,300	2,555
CTC disability child additional Element	2,350	2,440	2,540	2,670	2,715	2,800
CTC Severe disability disabled child additional element	945	980	1,020	1,075	1,095	1,130

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

There is an additional element of the WTC for individuals who are 50 years or older which they can claim for the first 12 months after having moved into work. However, as these are temporary elements, these have not been simulated in EUROMOD.

The ‘relevant income’ or means-test

The means test is based on the annual gross income of the parent(s) including earnings, pensions (net of private pension contributions), invalid care allowance, incapacity benefit and property income (see income list `il_TC_means` for the detailed list of components). Some disregards are applied (`ydg04_s`): a weekly disregard of £100 applies to statutory sick pay (`bhlwk`) and statutory maternity (`bmana`) received by the parent(s) and an annual disregard of £300 applies to some adult income (state and occupational pension, investment and property income). Children’s income (`yhot_s`), where applicable, is disregarded. Capital itself is not included in the means-test, although the taxable part of income from capital (`yiytx`) is taken into account. In the simulation we use current short term income (as reported in the data) and we assume that this reflects the income for the whole year without any substantial change.

Comparing the ‘relevant income’ to the ‘threshold figure’

The sum of the relevant income is then compared to the ‘threshold figure’ which differs according to the tax credit that is being claimed. If a benefit unit is only eligible for Working Tax Credit, then the first threshold figure in 2006 was £5,220. The same threshold applies if a benefit unit claimed Working Tax Credit and Child Tax Credit. However, when a benefit unit is only entitled to Child Tax Credit, the first threshold was £14,155 per year in 2006. See Table 16 for the figures for subsequent years.



Table 16. Child tax credit thresholds from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per year	£ per year	£ per year	£ per year	£ per year	£ per year
First threshold	5,220	5,220	6,420	6,420	6,420	6,420
First threshold if not entitled to Working Tax Credit	14,155	14,495	15,575	16,040	16,190	15,860
First withdrawal rate	37%	37%	39%	39%	39%	41%
Second threshold	50,000	50,000	50,000	50,000	50,000	40,000
Second withdrawal rate	6.67%	6.67%	6.67%	6.67%	6.67%	41%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

Calculating the final entitlement

If the 'relevant income' worked out in step 3 is lower than the applicable threshold outlined in step 4, the benefit unit is entitled to the 'maximum' tax credit award that had been calculated in steps 1 and 2. If the 'relevant income' is higher than the applicable threshold, then the threshold is to be subtracted from the 'relevant income'. The difference between the two amounts is then tapered away at 37% in 2006 (see Table 15). In this calculation the elements are tapered away in a particular sequence, namely:

- the WTC elements, except for the childcare tax credit element, come first,
- then the childcare tax credit element and
- then the child and any disability elements of the Child Tax Credit.

The family element of CTC is only tapered away if the 'relevant income' is in excess of the second threshold, i.e. £50,000 (reduced to £40,000 in 2011). Only if that is the case it will be tapered away at 6.67%. In 2011 the family element is tapered away at a much higher rate: 41%

If annual entitlement for either CTC or WTC or their sum turns out to be less than £26 per year, no award of tax credit is made.

- **Interaction with other benefits**

WTC counts in full as income for IS, PC, HB and CTB, so needs to be simulated before means-tested benefits. It is not taxable, so it can be simulated after income tax.

CTC counts in full as income for HB and CTB, so needs to be simulated before means-tested benefits. It is not taxable, so it can be simulated after income tax.

- **Notes on implementation:**

Disability for the purposes of tax credits is assessed on the basis of a disability test assigned by a doctor and receiving a so called 'qualifying benefit'. The medical test cannot be simulated in EUROMOD nor can all the rules around qualifying benefits as some refer to receipt in the past six months. Therefore, eligibility for the disability element has been implemented in EUROMOD as receiving one of the qualifying benefits ($il_disab > 0$), namely, Incapacity Benefit, Severe Disablement Allowance (from October 2008 the claimants of these two benefits are being increasingly transferred onto Employment and Support Allowance), Attendance Allowance or the care or mobility element of the Disability Living Allowance.



As mentioned above, the additional elements for individuals who are 50 years or older and who have recently moved into work are not simulated as the employment history is incomplete in the data to capture all those that are eligible for this temporary benefit.

In addition, once CTC/WTC is in payment, this continues unchanged for the remainder of the tax year even if circumstances change. This means that some people calculated to not be entitled on the basis of current circumstances may have been entitled at the time when they made the application.

2.4.4 Child Benefit (bch_s)

- *Brief description*

Child Benefit (CB) is a universal flat-rate benefit paid to the person responsible for each dependent child. The amount each benefit unit (see page 8) receives depends on the number of dependent children in the benefit unit. A child is defined as dependent if it is aged below 16 or below 19 if still in full-time education.

- *Eligibility*

Eligibility requires the presence of dependent children in the benefit unit. The claimant does not need to be the parent of the child, e.g. it is sufficient if the claimant is responsible for the upbringing of the child.

- *Income test*

None, as child benefit is a universal benefit paid for all dependent children.

- *Benefit amount*

Child Benefit consists of £17.45 per week for the first or only child in 2006/07. For each additional child £11.70 is paid per week (see Table 17 for the rates in the other policy years). Essentially therefore the weekly entitlement is $CB = £17.45 + (11.70 * (\text{number of children} - 1))$.

Table 17. Child benefit rates from 2006 to 2011

As of...	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11
Fiscal year:	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Only/Eldest child	17.45	18.10	18.80	20.00	20.30	20.30
Other child(ren)	11.70	12.10	12.55	13.20	13.40	13.40

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Interaction with other benefits*

Child Benefit is not taxable but counts as income for some means-tested benefits (HB, CTB for those aged below 60 years old). Therefore, it needs to be simulated prior to the simulation of these benefits.



2.4.5 Income Support (including income-based Jobseeker's Allowance) (bsa_s)

- *Brief description*

Income Support is a safety net payment for people of working age who are not expected to seek work, while income-based Job Seekers Allowance is the safety net benefit for people who are able to work but who are not (or are no longer) entitled to contribution based Jobseeker's Allowance.

In EUROMOD, income-based Jobseeker's Allowance and Income Support are implemented together as the rules are largely the same.

The unit of entitlement and income assessment for both benefits is the benefit unit (tu_bu_uk) i.e. single people or couples (including co-habitees) with their dependent children. The claimant groups are lone parents, disabled people and pensioners (groups not required to seek work) plus the unemployed.

- *Eligibility*

Eligibility to Income Support is based on being exempt from looking for work, e.g. because of being sick or disabled or registered blind, carers, or lone parents (from 2009/10 this only refers to lone parents whose youngest child is 12 or under rather than 16 as before), or people on unpaid parental leave. Additional conditions are that claimants are not full-time students, are under 60, do not have savings or capital above £16,000 and are not entitled to contribution- or income-based Jobseeker's Allowance.

Eligibility for income-based Jobseeker's Allowance is based on being able to work but not (or no longer) entitled to contribution based Jobseeker's Allowance. Recipients are expected to actively look for work.

The following additional rules apply to both benefits:

- Working less than 16 hours per week
- Having less than £8,000 in capital
- Applicable amount

The applicable amount is the figure representing weekly needs, e.g. the amount the claimant and partner are expected to live on each week. It results from the sum of:

$$\text{IS/ic-JSA Applicable amount} = \text{personal allowances} + \text{premiums} + \text{housing costs}$$

The personal allowances (sin05_s) for both benefits are outlined in Table 18 below.



Table 18. Income Support and income-based Jobseeker's Allowance rates from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Single or lone parent 16-17	34.60	35.65	47.95	50.95	51.85	53.45
Single 18-24	45.50	46.85	47.95	50.95	51.85	53.45
Single 25 or over	57.45	59.15	60.50	64.30	65.45	67.50
Lone parent 18 or over	57.45	59.15	60.50	64.30	65.45	67.50
Couple one under 18	68.65	70.70	72.35	76.90	78.30	80.75
Couple both over 18	90.10	92.80	94.95	100.95	102.75	105.95

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Premiums*

Premiums are amounts which are added to the personal allowance, if the relevant conditions are satisfied (sin01 to sin04_s and sin06_s). Rates of premiums are the same for all claimants, irrespective of their age. Relevant premium conditions and weekly rates are listed in Table 17 below. An individual/household can receive several premia.

Disability is defined according to receipt of certain disability benefits, called 'qualifying benefits'. Qualifying benefits have to be received within the last six months of claiming IS/ib-JSA) according to the 'linking rule' introduced to encourage people with disabilities to move into work without losing their disability premiums if they have to leave work.

The disability premium (sin01_s) is linked to the following qualifying benefits: Disability Living Allowance (either the mobility component bdimb and or the care component bdisc), Severe Disablement Allowance (bdisv) or long-term Incapacity Benefit (bdict) and the disability element of the Working Tax Credit. The latter benefit would not be received at the same time, therefore this condition has not been simulated. The severe disability premium (sin02_s) is given if the claimant is receiving one of the following qualifying benefits: Attendance Allowance, the middle or higher rate care component of Disability Living Allowance (bdisc), no one is getting the carers allowance (bcrdi) for looking after the claimant and there are no non-dependants living in the household. There are additional rules for those registered blind. However, as this condition cannot be identified in the data, this has not been simulated. The conditions for receiving the enhanced disability premium (sin04_s) are that the Disability Living Allowance Care Component is received at the highest rate (bdisc>£62.25 per week in 2006).

The carer premium (sin03_s) will be received if the claimant receives the Carer's Allowance (bcrdi).

The child elements for all the benefits mentioned above are included in the Child Tax Credit.



Table 19. Income Support and income-based Jobseeker's Allowance premia for families and carers from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Carer premium - one qualifies	26.35	27.15	27.75	29.5	30.05	31.00
Carer premium - both qualify	52.7	54.3	54.3	55.5	60.10	62.00
Disability premium - single	24.5	25.25	25.85	27.5	28.00	28.85
Disability premium - couple	39.85	41.1	39.85	41.1	39.85	41.10
Enhanced disability premium - single	11.95	12.3	12.6	13.4	13.65	14.05
Enhanced disability premium - couple	17.25	17.75	18.15	19.3	19.65	20.25
Severe Disability – one qualifies	46.75	48.45	50.35	52.85	53.65	55.30
Severe Disability- two qualify	93.50	96.90	100.70	105.70	107.30	110.60

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Means-test*

One claim for IS/ic-JSA is made per benefit unit and the entitlement depends on the income of all the members in the benefits unit as well as the composition of the household, i.e. whether there are adult-non-dependants present in the household. The income of other people in the household is not taken into account except via the non-dependent deduction (see below). Income is defined by `il_IS_means`. It includes gross income from employment and self-employment and all other main current income sources **except** investment income and certain benefits (Housing Benefit and Council Tax Benefit, Attendance Allowance and Disability Living Allowance). In addition, half the value of private pension contributions and all of employee and self employed contributions and income tax are deducted.

Some earnings and other income are disregarded (`ydg01_s`). These are (2006 figures) £20 per week for a lone parent; £20 for a disabled person where disability is signalled by receipt of certain benefits (see above on entitlement to disability premium) within the family unit; £10 for couples not qualifying on disability grounds and £5 for others. In addition, small amounts (£10 in 2006) of war pension and maintenance payments are disregarded. Income from investment income is not included directly in the IS family income assessment. Instead, a tariff income (£1 per week for every £250 capital) is calculated on financial capital between £6,000 and the upper threshold £16,000.



Table 20. Income Support and income-based Jobseeker's Allowance earnings' disregards and capital limits from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	5	5	5	5	5	5
Couple	10	10	10	10	10	10
Disability	20	20	20	20	20	20
Lone parent	25	25	25	25	25	25
	£	£	£	£	£	£
Standard (working age) capital lower limit	6,000	6,000	6,000	6,000	6,000	6,000
Standard (working age) capital upper limit	16,000	16,000	16,000	16,000	16,000	16,000

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Housing costs*

Housing costs not covered by Housing Benefit can potentially be included in Income Support (and also Pension Credit – see below). Providing that the claimant is responsible for the housing costs (sin24_s), mortgage interest payments (xhcmomi) are included in the calculation of the applicable amount. The upper limit up of mortgage loans for which interest payments are covered is £100,000 (or, since 2009, £200,000 in some circumstances). There are variable waiting times (between 16 and 39 weeks) after qualifying for benefit before mortgage interest is included in the calculation of the applicable amount. The EUROMOD implementation does not take into account the limit up to which interest is paid nor the waiting time. Some other housing costs (such as ground rent or service charges for the upkeep of communal areas in shared buildings) are in principle also covered by Income Support but because our data do not allow us to distinguish these from other charges that are not covered, EUROMOD does not take account of these extra costs in the Income Support calculation.

- *Multiple 'assessment units' in household and non-dependants*

In the case of multiple-benefit-units households, simulation of means-tested benefits needs to be coordinated across the multiple benefit units. IS and ib-JSA can be received by each benefit unit living in the same household, but entitlement for each benefit unit might be affected by the presence of other benefit units (through so called 'non dependent deductions'). HB and CTB are typically received by one benefit unit only, but entitlement is again affected by the presence of other benefit units (through so called 'non dependent deductions').

Deductions are made from the housing cost element of the Income Support Applicable Amount if there are non-dependent adults in the household in addition to the householder's family unit (sin25_s). The "householder" in the UK is the person responsible for the rent or mortgage interest (sin24_s). In the UK data they are the first person in the household, not necessarily the oldest or highest income person (in the case of couples the householder is generally assumed to be the man). The size of the deduction depends on the type of non-dependent. These types are defined in uk_sben_nondep_ded. No deduction is made where the person is aged under 18 or where they are aged under 25 (hb_ndd_isag) and themselves in receipt of Income Support (IS) (sin25_s). To establish this latter condition, IS must be simulated for each non-dependent. Other



exemptions from deductions apply when the person is a full-time student, where they are blind, or where they are in receipt of Attendance Allowance (bdioa), or the middle or higher rate of the care component of Disability Allowance (bdimb). None of these cases are modelled.

Generally, a single deduction applies to each single person or couple according to the following (for couples, the higher deduction applies and income is aggregated): “Work” in this case refers to whether in full-time work for at least 16 hours or not (lwh) and gross income (il_ISPC_nondep_means), which is similar to the income definition used for IS assessment but is before the deduction of income tax and contributions. Table 21 below sets out the rates for the different income brackets.

Table 21. Non-dependent deductions on Income Support and income-based Jobseeker’s Allowance from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Deduction applying if income is above	47.75 338	47.75 353	47.75 369	47.75 382	47.75 382	60.6 387
Deduction applying if income is above	43.5 271	43.5 283	43.5 296	43.5 306	43.5 306	55.2 310
Deduction applying if income is above	38.2 204	38.2 213	38.2 223	38.2 231	38.2 231	48.45 234
Deduction applying if income is above	23.35 157	23.35 164	23.35 172	23.35 178	23.35 178	29.6 180
Deduction applying if income is above	17.00 106	17.00 111	17.00 116	17.00 120	17.00 120	21.55 122
Deduction otherwise ^[a]	7.4	7.4	7.4	7.4	7.4	9.4

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

Notes: [a] An additional condition is that the non-dependant is working fewer than 16 hours per week.

- *Preliminary IS used for the nondependent deduction*

This policy module calculates IS entitlement for all benefit units in the household except the householder-unit. It does so in exactly the same way as in the actual IS calculation except that the addition of housing needs to the applicable amount is ignored (by definition, non-dependants do not have these needs). Note that the parameters for IS in this calculation are specified separately to those used in the main IS calculation. When making policy changes, the user should consider whether the calculations should remain so closely aligned (generally they should).

- *Calculation*

The award is calculated by adding together the personal allowances, premiums and disregards (plus the housing costs if responsible for them) and then to subtract from that any income and non-dependent deductions. Up to this point IS and ib-JSA have been treated together in the simulation. However, at this final stage they are separated again according to the relevant eligibility criteria for IS (bsa_s) and ib-JSA (bunmt_s).



- *Interaction with other benefits*

Working Tax Credit and Contributory JSA count as income for IS/ib-JSA purposes so they need to be simulated before IS/ib-JSA. Because of non-dependent deductions and the fact that IS/ib-JSA acts as a passport to maximum HB and CTB, IS/ib-JSA is simulated before HH and CTB. IS/ib-JSA is not taxable.

2.4.6 Pension credit

- *Brief description*

This is an income maintenance benefit paid to those aged 60 years or older. It is composed of two elements, the Guarantee Credit (boamt_s) meant to ensure a guaranteed level of income, and the Saving Credit (boamtm_s), meant to reward those who made provisions for retirement above the Basic State Pension level. You can receive either or both components. Once both the GC entitlement and SC entitlement have been calculated, Pension Credit entitlement is the sum of these two components. The housing costs provisions mirror those described for IS, except that the exception to non-dependant deduction is not made (so deduction occurs) in cases where a deduction had already been made under HB.

Pension Credit is implemented in the same policy sheet as Income Support and income-based Jobseeker's Allowance as a number of the rules are very similar such as deductions for non-dependents.

2.4.6.1 Guarantee Credit (boamt_s)

- *Brief description*

The aim of the Guaranteed Credit (GC) is to ensure that the income of older people does not fall below an 'appropriate minimum guarantee'.

- *Eligibility*

In order to be eligible, individuals must be 60 years or older (sin16_s) and have income (il_GC_means) below the 'standard minimum income guarantee' (see Table 22). These are set out in Table 22 below.

Table 22. Pension Credit Minimum Guarantee 2006-2011

As of...	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11
Fiscal year:	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	114.05	119.05	124.05	130.00	132.60	137.35
Couple	174.05	181.7	189.35	198.45	202.40	209.70

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

Unlike for working-aged claimants of IS there is no maximum capital limit for Pension Credit.

- *Means-test*

Means in this instance include income of any adult in the benefit unit (the claimant and the partner if any), while income of dependent children is not included (il_GC_means). Income from capital is included in the means-test. Specifically, for every £500 of capital over £6,000



(£10,000 from 2010), £1 of income is added to income for the purpose of the means-test (yiviy01_s).

- **Applicable amount**

The applicable amount is the figure representing weekly needs for GC purposes, e.g. the amount the claimant and partner are expected to live on each week. It results from the sum of: PC Applicable amount = personal allowances + premiums + housing costs. The personal allowances are shown in Table 21 above (i.e. they are the equivalent to the level of the guarantee) and the premiums are set out in the Table 23 below.

- **Calculation**

The income calculated above is then subtracted from the applicable amount and the difference is the Guarantee Credit award.

Table 23. Pension Credit allowances, premium and rates 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Severe Disability Premium- single or one qualifies	46.75	48.45	50.35	52.85	53.65	55.3
Severe Disability Premium- couple (both qualify)	93.50	96.90	100.70	105.70	107.3	110.6
Carer Premium- single or one partner qualifies	26.35	27.15	27.75	29.50	30.05	31.00
Carer Premium- couple (both qualify)	52.70	54.30	55.50	59.00	60.1	62.00
Capital lower limit for those 60 and over	6,000	6,000	6,000	6,000	10,000	10,000

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

2.4.6.2 The Savings Credit (SC) (boamtm_s)

- **Brief description**

The calculation of the saving credit element follows a procedure that is slightly different from the typical UK means-tested benefit. It is designed to top up the GC for those with income from savings or work.

- **Eligibility and means-test**

Either the individual claimant has to be 65 or older and have income **above** the savings threshold il_SC_qualy. The income taken into account is the same as for the Guarantee Credit except so called 'non-qualifying income', i.e. income linked to work, i.e. Working Tax Credit, Incapacity Benefit, contribution based-Jobseeker's Allowance, Severe Disablement Allowance, Maternity Allowance and maintenance payments.



Table 24. Saving Credit threshold 2006-2011

As of...	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11
Fiscal year:	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	84.25	87.3	91.2	96.0	98.4	103.15
Couple	134.75	139.6	145.8	153.4	157.25	164.55

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Amounts*

The savings credit is calculated using the following steps.

Step 1: calculate the income that counts for GC purposes and includes qualifying income.

Step 2: calculate the minimum guarantee plus any additional amounts.

Step 3: calculate 60% of all income except non-qualifying income above the savings credit threshold (see Table 23 above). This amount is compared with the maximum savings credit which was £17.88 per week for a single person and £23.58 for a couple in 2006.

Step 4: if the income calculated in step 1 is smaller than the income in step 2, step 3 will be the savings credit amount.

Step 5: If the income from step 1 is higher than that in step 2, calculate 40% of the total income (including non-qualifying income) above the appropriate minimum guarantee.

Step 6: Deduct the amount from step 5 from step 3 and this is the appropriate savings credit. If the amount is negative, then the person is not entitled to any savings credit.

Table 25. Savings Credit maxima and withdrawal rate 2006 to 2011

As of...	Jun-06	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11
Fiscal year:	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Maximum Savings Credit- single	17.88	19.05	19.71	20.40	20.52	20.52
Maximum Savings Credit- couple	23.58	25.26	26.13	27.03	27.09	27.09
Savings Credit withdrawal rate	40%	40%	40%	40%	40%	40%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

- *Interaction with other benefits*

Because PC has no 16 hours a week rule, it may be possible to get both PC and WTC if income is low enough. Any WTC counts as income for PC (GC means). Pension Credit is not taxable.



2.4.7 Housing Benefit (bho_s)

- *Brief description*

Housing benefit (HB) covers or contributes to the cost of rent for low income families. There are no conditions regarding working hours: the benefit covers those in work, pensioners, the unemployed, the disabled and the inactive. It is assumed that the person in the household identified in the FRS data as responsible for housing costs (dhr) pays the rent and claims the benefit. A number of elements are similar to IS/ ib-ISA such as the personal allowances, premiums and the inclusion of non-dependants in the calculations.

- *Eligibility*

The main eligibility rules for housing benefit are having low income, being responsible for paying the rent (and other housing costs of tenants). Housing benefit is not payable if owned by the partner of the claimant or is Crown property. In this case, housing costs may form part of an IS or ib-JSA claim if the claimant is eligible for either of those (see above).

- *Calculation*

The calculation of the Housing Benefit amount is based on the ‘applicable amount’, the ‘maximum Housing Benefit’ and the income of the claimant and their family unit.

‘Applicable amount’ (sin09_s)

The ‘applicable amount’ is calculated in a similar fashion to Income Support, Jobseeker’s Allowance and Pension Credit, i.e. it consists of the personal allowances and premiums. The rates for personal allowances (sin07_s) and premia are mainly the same as for IS/ib_JSA for claimants under 60 (see Table 20). Exceptions, and the rates and premia for those 60 and 65+ are shown in Table 26.

Table 26. Housing Benefit Allowances from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Family premium	16.25	16.43	16.75	17.3	17.4	17.4
Family premium (baby under 1 addition)	10.5	10.5	10.5	10.5	10.5	10.5
Disability premium – child	45.08	46.69	48.72	51.24	52.08	53.62
Enhanced disability premium - child	18.13	18.76	19.6	20.65	21	21.63
Single pensioner between 60 and 64	114.05	119.05	124.5	130	132.6	137.35
Single pensioner 65 or over	131.95	138.1	143.8	150.4	153.15	157.9
Pensioner couple both between 60 and 64	107.05	181.7	189.35	198.45	202.4	209.7
Pensioner couple one or both 65 or over	197.65	207	215.5	225.5	229.5	236.8

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

Note: These allowances also apply to Council tax Benefit (see section 2.4.7 below).



‘Maximum Housing Benefit’

The ‘maximum housing benefit’ consists of ‘eligible rent’ less deductions for non-dependents. ‘Eligible rent’ is the amount of rent paid as long as it is within the limits specified by the respective local authorities. In the implementation of EUROMOD we do not currently model the local specifications. Therefore, the amount of rent paid that is reported in the data is taken as ‘eligible rent’ for the housing benefit calculations.

These non-dependent deductions are the same as those operating in Income Support (IS) for housing needs (see above).

Income of the claimant

The income assessment that is used is very similar to that for Income Support and income-based JSA (see section 2.4.5). It also includes WTC (except the 30 hours element which is disregarded) and CTC. The earnings disregard (ydg03_s) for HB is the same as that for IS/ib-JSA except if the following conditions are met:

- the claimant or partner receive the 30 hour element in WTC,
- the claimant or partner are aged 25 or over and work 30+ hours,
- the claimant or partner work 16 hours or more and the claim includes the family premium,
- the claimant or the partner are working 16 hours or more and the HB claim includes the disability or higher pensioner premium.

In these instances, referred to as ‘full-time’ the earnings disregards (sin11_s) are topped up by £14.90 in 2006 (£15.45 in 2007, £16.05 in 2008, £16.85 in 2009 and £17.10 in 2010 and 2011).

The earnings disregard for lone parents for the purposes of HB is £25. There is an additional condition which would result in an earnings disregard, namely getting the 50+ element in Working Tax Credit. However, as that has not been simulated, it is not included in the simulation here. Finally, there is an additional disregard for childcare costs. An allowance for childcare costs (sin13_s) up to £175 per week for one child and up to £300 for two or more children can be deducted from earnings if the claimant is a lone parent and working 16 hours or more per week or if a couple are claiming who are either both working 16 hours or more or one is working 16 hours or more and the other is ‘incapacitated’, i.e. unable to work and in receipt of income replacement disability benefits (such as Incapacity Benefit or the disability element of IS). This childcare addition is designed so that those receiving the childcare element of WTC do not lose any of the payment through the HB means-test.

Finally, tariff income for working aged people is treated as in Income Support, i.e. for every £250 over £6,000, £1 is counted towards the income of a claimant. For those of Pension Credit age £1 is deducted for every £500 capital over £6000 (£10,000 from 2010).

For families in receipt of Income Support (see section 2.4.5) or Pension Credit Guarantee Credit, HB covers 100% of “eligible rent” (see above), less non-dependent deductions. Non-dependent deductions work in the same way as for IS and ib_JSA and Pension Credit (see above).

For those with higher incomes (or not in receipt of IS for some reason), the amount of eligible rent (less non-dependent deductions) that is covered by the benefit will be 100% if the ‘applicable amount’ is larger than the income. Where the ‘applicable amount’ is bigger than the income, the ‘maximum Housing Benefit’ is tapered away at the rate of 65%.



- *Notes on implementation*

While many of the parameters related to HB are the same as those for IS or Pension Credit (and also Council Tax Benefit – see below) in EUROMOD they are specified separately so that they can be varied if this is desired. When making policy changes, the user should consider whether the IS/PC and HB calculations should remain based on (largely) identical income and needs assessments.

- *Interactions with other simulated components of the tax benefit system*

Housing Benefit is simulated after tax credits and PC and IS as the non dependent deductions and means calculations require these other benefits to be simulated first. Housing Benefit is not taxable.

2.4.8 Council Tax Benefit (bmu_s)

- *Brief description*

Council Tax is a local tax covering the costs of schools, social housing and environmental costs at a local level. The amount of council tax depends on the size and value of the house and the number of occupiers. Council tax is set by local authorities and the amounts thus vary considerably between areas. The structure of Council Tax Benefit (CTB) is very similar to that of Housing Benefit. Instead of rent, Council Tax is the element that is rebated. In addition to CTB, there are a number of other reductions to Council Tax that are not modelled and are already incorporated in the Council Tax data in the database. These are: exemptions for particular groups of people, e.g. specified type of impairment or disability as well as a reduction of 25% if the dwelling is occupied by a single adult

There are really two alternative forms of CTB. One is based on the council tax liability, needs and resources of a benefit unit. The other is the “Second Adult Rebate (SAR)”. Only the higher of the two benefits is paid. The SAR is allowable even when the capital limit is exceeded and is payable when there is more than one adult but only one non-exempt adult. In most cases the main CTB is worth more, so EUROMOD ignores SAR cases and does not model them.

- *Simulation*

In the “main” CTB, benefit is calculated in the same way as HB except: the taper is 20% and the non-dependent deductions are different (shown in Table 27 below). The parameter sheets for IS, HB and CTB are independently specified. When making policy changes, the user should consider whether the three sets of calculations should remain based on (largely) identical income and needs assessments.



Table 27. Non-dependent deductions for Council Tax benefit from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Deduction applying if income is above	6.95 338	6.95 353	6.95 369	6.95 382	6.95 382	8.6 387
Deduction applying if income is above	5.8 271	5.8 283	5.8 296	5.8 306	5.8 306	7.2 310
Deduction applying if income is above	4.6 157	4.6 164	4.6 172	4.6 178	4.6 178	5.7 180
Deduction otherwise ^[a]	2.3	2.3	2.3	2.3	2.3	2.85

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2006/07 to 2011/12

2.5 Social Contributions

2.5.1 Employee social insurance contributions (tscee_s)

- *Brief description and definitions*

Individuals between the ages 16 and 64 (men) and 59 (women) are subject to Class 1 contributions on their gross earnings (il_empNIearn). The amount of so-called National Insurance contributions depend on weekly earnings from employment (yem) as well as earnings replacement benefits paid by the employer, namely, Statutory Sick Pay (bhlwk) and Maternity Pay (bmana).

- *Rates and amounts*

Contributions are paid on earnings between a weekly lower limit, called the Primary Threshold (PT) and Upper Earnings Limit (UEL). If earnings are less than the PT, a 0% rate applies. Earnings above the UEL are subject to a 1% rate in 2006 (sin02_s). The rate applying to earnings between PT and UEL varies according to whether or not the employee is contracted-out⁹ of the State-Earnings-Related-Pension-Scheme (lim=0). If the employee is not contracted out an 11% rate applies in 2006 while if the employee is contracted out a 9.4% rate applies in 2006 (sin01_s).¹⁰

Table 28 sets out the different rates.

⁹ Whether the employee is contracted out or not is not observed as such in the data; this variable has been imputed according to reported earnings and amount of contribution.

¹⁰ Women who are married or divorced and opted out before 1977 pay a lower rate of 4.85% (in 2006) applying to earnings between PT and UEL. However, since this can only apply to married/divorced women aged 47 or more in 2008, and only to those continuously in the labour force since 1977 the numbers affected are now small and we do not identify these cases or simulate this lower rate of contribution..



Table 28. Gross earnings limits and rate for Class 1 (employee) social insurance contributions 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per week	£ per week	£ per week	£ per week	£ per week	£ per week
Gross earnings limits:						
Primary Threshold (PT)	97	100	105	110	110	139
Upper Earnings Limit (UEL)	645	670	770	844	844	817
Rates:						
Below PT	0%	0%	0%	0%	0%	0%
Between PT and UEL:						
<i>Non contracted out</i>	11%	11%	11%	11%	11%	12%
<i>Contracted out</i>	9.4%	9.4%	9.4%	9.4%	9.4%	10.4%
Above UEL	1%	1%	1%	1%	1%	2%

Source: HMRC: Rates and Allowances – National Insurance Contributions,
<http://www.hmrc.gov.uk/rates/nic.htm>

- ***Compulsory private pension contribution***

For those who are contracted out of the state pension scheme, the rate of their occupational private pension contribution is imputed as a flat rate in the input data (tpceepx=yem/contributions). The rate is then applied to uprated (or otherwise adjusted) earnings in EUROMOD and the resulting private contribution (tpcee_s) is, by default, included in standard output income list (ils_sicee).

2.5.2 Self-employed social insurance contributions, Class 2 and Class 4 (tscse_s)

- ***Brief description***

People with income from self-employment (yse) may be subject to Class 2 and Class 4 contributions.

- ***Amounts and rates***

Class 2 is a flat payment of £2.10 per week in 2006, paid by those whose yearly profit/self employment income (yse) exceeds the so-called ‘Small Earnings Exception’ (£4,465 per year in 2006 (sin02_s) – see Table 29 for the rates in subsequent years.



Table 29. Rates for self-employment class 2 social insurance contributions from 2006-2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
Flat rate (£ per week)	2.10	2.20	2.30	2.40	2.4	2.5
Small Earnings Exception (£ per year)	4,465	4,635	4,825	5,075	5,075	5,315

Source: HMRC: Rates and Allowances – National Insurance Contributions,
<http://www.hmrc.gov.uk/rates/nic.htm>

Class 4 contributions are paid on self-employment income (yse) at a rate, in 2006 of 8% between a Lower Profits Limit (LPL - £5,035 per year in 2006) and an Upper Profits Limit (ULP - £33,540 per year in 2006) (sin04_s) and a 1% rate applies (in 2006) above the upper limit (sin05_s). No contributions are paid below the lower limit (see Table 30 below). The limits apply to annual income but are modelled on a monthly basis in EUROMOD.

Table 30. Upper and Lower Profit Limits for self-employment class 4 social insurance contributions from 2006- 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
Lower Profits Limit(LPL) (£ per year)	5,035	5,225	5,435	5,715	5,715	5,225
Upper Profits Limit(ULP) (£ per year)	33,540	34,840	40,040	43,875	43,875	42,475
Rate between LPL and UPL	8%	8%	8%	8%	8%	9%
Rate above UPL	1%	1%	1%	1%	1%	2%

Source: HMRC: Rates and Allowances – National Insurance Contributions,
<http://www.hmrc.gov.uk/rates/nic.htm>

2.5.2.1 Maximum contributions for those with income from self-employment and from employment

- **Brief description**

Class 4 contributions are subject to an annual maximum for people who have both employment (yem) and self employment earnings (yse). It is calculated as follows:

- First the Class 2 and Class 4 NICs maximum is calculated by taking the maximum amount of Class 4 NICs payable on profits between the UPL and the LPL and adding 53 times the weekly Class 2 NICs at the rate in force for the year in question (sin06_s)
- Then, from that combined figure any Class 1 and Class 2 NICs that have been paid are deducted (sin07_s)
- This gives the maximum amount of Class 4 NICs that the contributor is liable to pay at the main rate (sin08_s)
- Then the amount of profits that would be needed to pay that amount of Class 4 NICs is calculated and this is deducted from the contributor's total profits



- If that figure is positive it represents the amount of profits on which Class 4 NICs at 1% are payable (sin09_s).

The calculation then allocates every Class 4 NICs contributor who is subject to a Class 4 NICs annual maximum into one of three categories:

- those who are due to pay:
 - Class 4 NICs at a rate of 8 % only (sin12_s)
- those who are due to pay:
 - a mixture of Class 4 NICs at rate of 8% and 1% (sin11_s) and
- those who are due to pay:
 - Class 4 NICs at a rate of 1% only (above the UEL = sin13_s and below the UEL = sin14_s)¹¹

Source: HMRC (2010) National Insurance manual,
<http://www.hmrc.gov.uk/manuals/nimmanual/NIM24170.htm>, last accessed 19.07.2010.

The final calculation for National Insurance contributions on income from self-employment then adds Class 2 and Class 4 contributions together (tscse_s).

2.5.3 Employers' social insurance contributions (tscer_s)

- *Brief description*

Employers have to pay National Insurance contributions for each of their employees if their earnings are above the Secondary Threshold (see Table 31) and if the employees are aged 16 years or older.

- *Amounts and rates*

No contributions are paid for earnings below the so called 'Secondary Threshold' corresponding to £97 per week in 2006. On all earnings above this level, employers pay a 12.8% rate (in 2006) contribution for non-contracted-out employees (lim=1) and a reduced 9.3 % rate applies to contracted out employees' earnings (lim=2) between the 'Secondary Threshold' and the UEL. The 12.8% rate also applies to all earnings above the UEL even if contracted out. There is no upper ceiling on contributions from employers. The rates for the policy years covered in the report are laid out in Table 31 below.

¹¹ If an individual has already paid more Class 1 and Class 2 contributions than the combined maximum (sin08_s), then the overpayment will be deducted later on (sin14_s).



Table 31. Amounts and rates of employers' social insurance contributions from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
Secondary Threshold (ST) £/week	97	100	105	110	110	136
Non contracted out rate above ST	12.8%	12.8%	12.8%	12.8%	12.8%	13.8%
Contracted out rate between ST and UEL	9.3%	9.1%	9.1%	9.1%	9.1%	10.1%
Contracted out rate above UEL	12.8%	12.8%	12.8%	12.8%	12.8%	13.8%

Source: HMRC: Rates and Allowances – National Insurance Contributions,
<http://www.hmrc.gov.uk/rates/nic.htm>

2.6 Personal Income Tax (tins_s)

- *Tax Unit*

The UK income tax system is an individual system. The incomes of married couples are taxed independently.

- *Tax Base*

Taxable income (ils_tinty) includes:

- earnings from employment and benefits from employer (yem + bmana+ bhlwk)
- earnings from self-employment (yse)
- state, occupational, personal pensions and widow pension (boact00 + boactcm + ypp + bsuwd)
- Carer's allowance (bcrdi)
- Incapacity benefit¹² (bdict)
- contributory JSA (bunct_s)
- rental income from a second property or over certain limits (yprtx)
- interests and dividends (except from Individual Savings Accounts (ISAs) and Personal Equity Plans (PEPs)) (yiytx)
- other income (from odd jobs) (yot01)

Contributions to personal (xpp), private and occupational pensions (tpcpe) are deducted from the tax base.

- *Other points to note*

Investment income (yiytx) which falls within the standard rate band was taxed at the reduced rate of 20% until 2007. From 2008 onwards, with the reduction in the standard rate from 22% to 20% and the abolition of the 10% band for earned income, only income from investment income can be taxed at a rate of 10%. This happens in practice only if, without the investment income, taxable income is less than a threshold (e.g. £2,320 in 2008 and £2,440 in 2009). In that

¹² According to the legislation, IB is taxed only after the first 28 weeks of payment; we assume that receipt has lasted this long, as information of length of IB award is not available in the data at hand.



case, the tax system treats the savings income as the “top slice” and applies the lower rate of 10% to any excess of the threshold over non-savings taxable income (or to the savings income itself, if this is lower).

Losses from self-employment can be offset against other taxable income (or carried forward, or used against previous year income). For simulation purposes we assume they are only offset against other taxable income of the same year.

- ***Tax allowances (tinta_s)***

The only tax allowance for the purposes of income tax is the **Personal Allowance**¹³ (sin01_s). The amount of the Personal Allowance depends on age and, for those aged 65 years old or above, on total taxable income. The basic tax free personal allowance was £4,895 in 2006. It applies to people of working age and younger.

The additional **personal tax allowances for individuals 65 and over** are income-tested. Thus, if an older taxpayer has taxable income over £19,500 in 2006 the additional age-related allowances (the Personal Allowance above the basic ‘under 65’ level (£5,035 per year in 2006) and the MCA) are reduced using a 50% taper until the basic ‘under 65’ level of Personal Allowance is reached (sin02_s).

Although the Married Couples’ (and Additional Personal Allowances for lone parents) were abolished by 2001, for taxpayer couples where one or both is aged over 65 a residual allowance has been retained. It is treated like a non-refundable tax credit. This residual **Married Couples Allowance (MCA)** applies to couples (married or living together in a civil partnership; dms=2) where one partner was born before April 1935 (i.e. aged 71 years old or over in 2006) (sin05_s). The MCA can be claimed by the husband if the couple married before 2005 (otherwise by partner with highest income);¹⁴ any unused allowance can then be transferred to the spouse or civil partner (sin09_s). Fifty per cent of the difference between taxable income (before deducting Allowances) and the income limit is subtracted from the MCA, down to a minimum level. This minimum is the value of the MCA for couples aged under 65 as it was before it was abolished in 2001, indexed by prices. 10% of such amount represents the MCA tax credit (sin08_s). MCA levels for the relevant policy years are listed in the bottom rows of Table 32 below.

From 2010 an **income limit** for personal allowances was introduced. For each £2 of taxable income above £100,000 the personal allowance is reduced by £1 until the entire personal allowance (and MCA where appropriate) is abated to zero.

The personal allowance amounts are laid out in Table 32 below.

¹³ There is an allowance for blind people. However, this is not simulated here due to lack of information in the input data.

¹⁴ EUROMOD assumes that the MCA is claimed by the husband in all cases.



Table 32. Tax allowances from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per year	£ per year	£ per year	£ per year	£ per year	£ per year
Personal Allowance - under 65 years old	5,035	5,225	6,035	6,475	6,475	7,475
Personal Allowance - 65-74 years old	7,280	7,550	9,030	9,490	9,490	9,940
Personal Allowance - 75 years old or over	7,420	7,690	9,180	9,640	9,640	10,090
MCA - aged 65-74	6,065	6,285	6,535	^[a]	n/a	n/a
MCA - 75 years old or over	6,135	6,365	6,625	6,965	6,965	7,295
Minimum MCA	2,350	2,440	2,540	2,670	2,670	2,800
Income limit for age-related allowances	20,100	20,900	21,800	22,900	22,900	24,000
Tax relief rate for the MCA	10%	10%	10%	10%	10%	10%
Income limit for personal allowances	n/a	n/a	n/a	n/a	100,000	100,000

Source: HMRC: Rates and Allowances – Income Tax, http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf,

Notes:

[a] In the 2009-10 tax year all in this category will become 75 at some point and will therefore be entitled to the age 75 and over allowance. HMRC 2010, <http://www.hmrc.gov.uk/rates/it.htm>, last accessed 19.07.11.

- **Tax schedule**

The upper limits of the income tax bands for the relevant policy years are shown in Table 33 below.

Table 33. Income tax thresholds from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
	£ per year	£ per year	£ per year	£ per year	£ per year	£ per year
Starting rate band/savings rate threshold	2,150	2,230	2,320	2,440	2,440	2,560
Basic rate threshold	33,300	34,600	34,800	37,400	37,400	37,400
Higher rate threshold	n/a	n/a	n/a	n/a	150,000	150,000

Source: HMRC: Rates and Allowances – Income Tax, http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf

Income up to the starting rate band is taxed at 10% in 2006 and 2007. Income in the basic rate band is taxed at 22% in 2006 and 2007. As mentioned above, the 10% tax rate for income from earnings was abolished in 2008/09. At the same time, the standard rate of 22% was reduced to 20%. Thus, from 2008 onwards all taxable income up to the upper limit of the basic rate band is taxed at 20%. Income above the basic rate threshold is taxed at 40% and since 2010 an additional rate of 50% is charged above the higher rate threshold of £150,000 per year.



The income tax rates for the relevant policy years are shown in Table 34 below.

Table 34. Income tax rates from 2006 to 2011

As of... Fiscal year:	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10	Jun-10 2010/11	Jun-11 2011/12
Starting rate	10%	10%	<i>n/a</i> ^[a]	<i>n/a</i> ^[a]	<i>n/a</i> ^[a]	<i>n/a</i> ^[a]
Basic rate	22%	22%	20%	20%	20%	20%
Higher rate	40%	40%	40%	40%	40%	40%
Additional rate	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	50%	50%

Source: HMRC: Rates and Allowances – Income Tax,
http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf,

Notes: [a] From 2008-09 the 10 per cent starting rate for earnings has been abolished and only retained for income from savings.

3. DATA

3.1 General description

It is planned to build a version of EUROMOD for the UK based on the EU-SILC. While that is in process, the UK part of EUROMOD uses national data.

The UK database is drawn from the Family Resources Survey (FRS) 2008/09.¹⁵ This is a cross-sectional household survey based on a two-stage stratified clustered probability sample of private households and collected throughout the fiscal year (April-March). It was launched in 1992 to meet the information requirement of the Department for Work and Pensions. In Great Britain, the sampling frame for the FRS is the Royal Mail Small Users Postcode Address File (PAF), listing addresses receiving less than 50 items of mail a day (intended to exclude business or other non-private residential addresses). Postcode sectors are drawn with probability proportional to size and subsequently stratified according to Government Office Regions, proportion of heads of households in particular socio economic groups, economic activity rate and male unemployment rate as derived from the 1991 Census of Population. In a second stage a random sample of 25 addresses is drawn within each Primary Sampling Unit (PSU) and represents an interviewer's monthly assignment.

The Northern Ireland 2008/09 sample frame is the Valuation and Land Agency's list of domestic properties and follows an unclustered, regionally stratified design. The sample covers only households living at private residential addresses. The main exclusions consist of people living in student accommodation, the homeless, those in nursing homes, hospitals or other types of residential care, prisoners and people living in military or police institutions.¹⁶ This sample limitation means that taxes and benefits and other income components are under-represented to the extent that they are received (or paid) by people living in institutions.

¹⁵ See http://statistics.dwp.gov.uk/asd/frs/2008_09/frs_2008_09_report.pdf

¹⁶ For a quantitative assessment of the non-household population see 'Out for the count: the incomes of the non-household population and the effect of their exclusion from national income profiles', Martin Evans, LSE Welfare State Programme WSP/111, 1995.



Fieldwork is carried out by two organisations continuously from April to March of the following year in such a way that each quarter sub sample is nationally representative. Interviewers are instructed to choose up to three households at multi household addresses and are required to try a minimum of four calls per households. A few days before the beginning of the fieldwork, an advance letter is posted to selected addresses providing information about the purpose of the survey. Non-response questionnaires collecting information about non-responding households are completed by interviewers. The face-to-face interview lasts on average one hour and 20 minutes per household and involves all adult individuals (aged 16 years old or more, excluding unmarried people 16 to 18 years old who are full time students in non-advanced education). It is carried out using the Computer Assisted Personal Interviewing (CAPI) mode, and makes use of built-in consistency checks. Respondents are also encouraged to consult documentation when asked about reporting monetary amounts. Where possible, questions are harmonised to maximise comparability with other surveys.¹⁷ After the interview, additional survey leaflets are left with the household, informing about the prospective use of data collected, the relevance of survey response and confidentiality issues.

Several adjustment procedures take place after the data collection, including taking into account interviewers' notes, checking fixed-amounts benefits, disentangling multiple benefit receipts, investigating outliers and zero amounts. Item non-response mostly relates to self employment and investment income and is limited to 0.5% of all responses. The EUROMOD database makes use of the imputed data.

Table 35. EUROMOD database description

EUROMOD database	UK_2008_a3
Original name	Family Resources Survey
Provider	Department for Work and Pensions
Year of collection	2008/09
Period of collection	April 2008 – March 2009
Income reference period	Current year incomes
Sampling	Stratified clustered probability sample for Great Britain and unclustered, regionally stratified design for Northern Ireland
Coverage	Residents in private households
Achieved sample	57,276 individuals
Response rate	58%

3.2 Sample quality and weights

3.2.1 Non-response

In 2008/09, 58% of the 42,959 eligible households provided full cooperation¹⁸ with regional variation in response rates reflecting patterns found in other major surveys (see Table 36 below). In 2008-09, for those households classed as fully co-operating, proxy responses were obtained for 16 per cent of adults.

¹⁷ <http://www.statistics.gov.uk/about/data/harmonisation/default.asp>

¹⁸ Individual full cooperation requires less than 13 “don’t know” or “refusal” answers to monetary amount questions out of approx 50 questions.



Table 36. Household response rates in the FRS 2008/09 by government office regions

Government Office Region	Response rate of all households
North East	62
North West	62
Yorkshire and the Humber	60
East Midlands	62
West Midlands	57
East of England	57
London	47
South East	56
South West	56
England	57
Wales	64
Scotland	62
Northern Ireland	61
United Kingdom	58

Source: DWP, Family Resources Survey 2008/09 <http://campaigns.dwp.gov.uk/asd/frs/>

Lower response rates than the average were seen in households in London, single person households, households containing couples with non-dependent children or lone parents, households in purpose-built flats or maisonettes, households who owned their house outright and households whose household reference person was self-employed or unemployed.

3.2.2 Weights

The FRS data are provided with weights attempting to correct for differential non response while scaling up sample numbers to the overall population. They are calculated as the ratio of population to sample counts for subgroups defined according to variables reflecting differential response rates. Population control totals are derived from external data sources and are adjusted to exclude people non resident in private households.

Control totals for Great Britain 2008/09 are based on population totals by gender and age groups in each Government Office Region (ONS and General Register Office for Scotland); number of families with children in Scotland, England and Wales (DWP Child Benefit data); number of male and female lone parents in Great Britain (DWP estimates); households tenure type (ODPM¹⁹, Scottish Executive, National Assembly for Wales) and council tax band (Valuation Office; Scottish Executive; except for Northern Ireland). Control totals for Northern Ireland include population totals by gender and age group (NISRA²⁰), number of lone parents and households (Northern Ireland Department for Social Development estimates).²¹

¹⁹ Then, the Office of the Deputy Prime Minister.

²⁰ Northern Ireland Statistics and Research Agency.

²¹ For more detail about the extent of imputation and control totals variables used to generate grossing factors, see DWP, Family Resources Survey 2008/09 http://research.dwp.gov.uk/asd/frs/2008_09/chapter7.pdf.



Table 37. Descriptive Statistics of the Grossing-up weight

	UK_2008_a3
Number	57,276
Mean	1279.025
SD	552.082
Maximum	9087
Minimum	199
Max/Min	45.66

No households have been dropped from the sample. The original sample size includes 57,276 individuals and 25,088 households. Applying weights included in the dataset to gross the numbers up to population figures gives 60,199,226 individuals and 26,397,884 households.

3.3 Imputations and assumptions

The FRS data are obtained from the UK Data Archive at the University of Essex.²² Adjustments to variables are kept to a minimum.

It should be noted that in the 2008/09 FRS data:

- Age is top-coded at 80.
- Information on number of rooms in the house is not available.

Key variables that are imputed are:

- Mortgage interest is imputed for cases where a single repayment amount includes both interest and capital repayment.
- Rent is calculated to be gross (in some cases housing benefit has been deducted).
- The regime under which individuals pay National Insurance contributions (Not contracted out or Contracted out) is imputed from information on (imputed) gross earnings and the contribution payment.

FRS data include a single variable covering all state pension payments. As well as the basic state retirement pension, this includes payments under the State Earnings Related Pension Scheme (SERPS) and the graduated pension scheme that preceded it (under which some current pensioners receive relatively small payments) and the State Second pension which followed it. It also includes any increases due to deferred retirement. This single variable is split into two in the EUROMOD database. One part is the basic state pension. This is imputed by calculating what it would be for the person in question assuming they had made full contributions and, in the case of married women, also if they had made no contributions of their own. In the latter case a rough judgement is made about which situation applied in each case by comparing the

²² Data from the Family Resources Survey are Crown Copyright. They have been made available by the Office for National Statistics (ONS) through the Data Archive and are used by permission. Neither the ONS nor the Data Archive bear any responsibility for the analysis or interpretation of the data reported here.



two calculated values with the actual pension payment. Then, any excess is assumed to be SERPS/State Second Pension.

Council tax: variables “tmu01” and “tmu02”.

Because only about 20% of households (i.e. those paying it yearly) report the amount of council tax (after discounts, but gross of council tax benefit), it needs to be imputed. Households are assigned to mutually exclusive strata defined according to council tax band, government office region, and separately for single person households. The average council tax for each stratum is calculated based on non missing observations, and then such sample average is imputed to the missing ones (more precisely, the variable “tmu01” is derived when stratum average is imputed to all households; the variable “tmu02” is derived when on stratum average is imputed to missing households only). By default, tmu02 is used.

The input database contains also a variable for council tax band (“amriv00”).

Carer for means tested benefits premium purposes: “lcr01”

Benefit rules would require the care to receive ICA and provide care for more than 35 hours per week; or to provide care to somebody receiving AA or DLA. However, for those providing care to people outside household, in the FRS we do not observe whether care recipient receives AA or DLA. So the variable is imputed as equal to 1 for somebody who (a) receives ICA (in this case should implicitly be providing more than 35 hours per week); or provides care to somebody inside the household receiving AA/DLA(care) at the middle rate or above: or (b) provides care to somebody outside the household for more than 35 hours per week.

Benefits

Consistency checks are carried out for most benefit variables; for example, checking the coherence between recipients’ age and benefit rules (e.g. Pension Credit and Income Support); or reported receipt of mutually exclusive benefits (e.g. Attendance Allowance and Disability Living Allowance); also, where reported amounts were higher than the maximum benefit rates, amounts were reset to such maximum value (e.g. Incapacity benefit, Invalid Carer Allowance, etc.).

Earnings and hours or work variables

Earnings information refers to employment income (yem), based on current employment, self-employment income (yse) estimated from information from survey questions on accounts and income drawn from own business, and earnings from odd jobs (yot01). Moreover, last employment earnings not from the last pay period are recorded in the variable yot02, but these do not enter in the simulations or the definition of disposable income. Each earning variable, with the exception of yot01, has a corresponding hours of work variable: yem (lhw00), yse (lhw01) and yot02 (lhw02). The total number of hours, lhw, is equal to lhw00+lhw01.

3.3.1 Time period

Information on earnings refers to the last pay period. Similarly, information about pensions and benefits refers to receipts in the most recent relevant period (e.g. week, 4-week, month, etc.) before the interview. Self-employment income is based on the most recent period (usually 12 months) for which annual business accounts are prepared for the Inland Revenue for tax purposes; in some cases this may be several years prior to the interview. Investment income is based on the last 12-month receipt. All monetary amounts in the FRS are expressed in weekly terms. These are converted into monthly terms for the EUROMOD database. In the EUROMOD



calculations it is implicitly assumed that income is received at the same rate throughout the year. However it should be remembered that this may not be the case and in particular that income tax (based on annual income) simulations do not take account of changes that may happen during the year. On the other hand, it is generally the case that personal and household characteristics are consistent with the current incomes that are observed, since they apply to the same or very similar reference periods. For more information about the adjustment of FRS variables into the EUROMOD database variables see the UK Data Requirements Document (DRD). For more information about the FRS variables as originally available see the FRS documentation available at

<http://www.esds.ac.uk/findingData/snDescription.asp?sn=6523>

3.3.2 Gross incomes

Gross incomes are imputed using the simple formula:

Gross income = net income + tax + employee social insurance contributions + other deductions

FRS data include variables on income tax, employee social insurance contributions and other deductions from gross earnings. In general, net income and taxes paid are recorded separately. For the great majority of people, the quality of data on direct taxes is very good. People in receipt of regular income are taxed through a pay-as-you-earn system and most taxable sources of investment income are paid net of standard rate tax. The difficulty comes for those whose earnings are irregular, particularly the self-employed and, to a lesser extent, those moving in and out of employment during the year and higher rate tax-payers with significant income from investments. In these cases, the individuals may make lump sum tax payments or receive tax refunds. This information is collected in the FRS. However, these lump sums may not be contemporaneous with the reported income. Basing net income on the reported direct tax, including lump sum payments, can lead to a few households having disposable income very much out of line with their expenditure. In future a more elaborate procedure for imputing gross income from net will be considered for these individuals.

3.3.3 Updating

The factors that are used to update monetary variables (parameter sheet Uprate_UK) from the mid-point of the data year (October 2008) to the mid point of the policy years applying on June 30th (i.e. October 2006 to October 2011) are shown in Table 38.

No other updating adjustments are employed. Thus the distribution of characteristics (such as employment status and demographic variables) as well as the distribution of each income source that is not simulated remain as they were in 2008/09.



Table 38. Updating factors

Variable	Income source/ expenditure	Index type	2008/9 to 2006/7	2008/9 to 2007/8	2008/9 to 2008/9	2008/9 to 2009/10	2008/9 to 2010/11	2008/9 to 2011/12	Source
	Default	Price index	0.94289	0.96370	1.00000	1.02234	1.05818	1.11938	[b]
yem	Earnings	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
yse	Self-employment income	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
bdicoa	Attendance allowance	Change in benefit amount	0.92910	0.96269	1.00000	1.05000	1.06567	1.09851	[e]
bdisc	Disability living allowance (self care)	Change in benefit amount	0.92910	0.96269	1.00000	1.05000	1.06567	1.09851	[e]
bdimb	Disability living allowance (mobility)	Change in benefit amount	0.92941	0.96257	1.00000	1.05027	1.06631	1.09947	[e]
bdict	Incapacity benefit	Change in benefit amount	0.92899	0.96272	1.00000	1.06272	1.08166	1.11538	[e]
bdiwi	Industrial injuries pension	Change in benefit amount	0.92909	0.96272	1.00000	1.04971	1.06579	1.09868	[e]
bcrdi	Invalid care allowance	Change in benefit amount	0.92878	0.96241	1.00000	1.05045	1.06627	1.09891	[e]
boact00	NI retirement pension	Change in benefit amount	0.92889	0.96251	1.00000	1.05017	1.07663	1.12624	[e]
bdisv	Severe disablement allowance	Change in benefit amount	0.92948	0.96278	1.00000	1.12537	1.16454	1.23310	[e]
bhlwk	Statutory sick pay	Change in benefit amount	0.92905	0.96220	1.00000	1.04973	1.04973	1.08223	[e]
bunct	Unemployment benefit	Change in benefit amount	0.94959	0.97769	1.00000	1.06281	1.08182	1.11570	[e]
boawr	War pension	Change in benefit amount	0.94116	0.96574	1.00000	1.10163	1.11826	1.15272	[e]
bsuwd	Widow`s pension	Change in benefit amount	0.92889	0.96251	1.00000	1.05017	1.07663	1.11025	[e]
bmana	Maternity Allowance	Change in benefit amount	0.92891	0.96219	1.00000	1.05018	1.06571	1.09857	[e]
bmaer	Statutory maternity pay	Change in benefit amount	0.92891	0.96219	1.00000	1.05018	1.06571	1.09857	[e]
xhcmomi	Mortgage interest payment	Specific price index (mort. int.)	0.96165	1.12103	1.00000	0.64550	0.65285	0.66777	[c]
xhcrt	Rent	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
yot01	Other income (odd jobs etc)	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
yot02	Previous earnings	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
yprnt	Rent received (not taxed)	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
yprtx	Taxable rent received	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
ypr	Total rent received	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
xcc	Childcare expenditure	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
xhcot	Other housing costs	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
xhcsc	Service charges	Specific price index (rent)	0.93669	0.96872	1.00000	1.01860	1.03579	1.05506	[d]
xmp	Maintenance payments	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
ytmp	Maintenance received	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
yptot	Private transfers	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]
xpp	Private+ personal pension contributions	Earnings index	0.93992	0.98303	1.00000	1.01721	1.03551	1.05960	[a]

/continued



Variable	Income source/ expenditure	Index type	2008/9 to 2006/7	2008/9 to 2007/8	2008/9 to 2008/9	2008/9 to 2009/10	2008/9 to 2010/11	2008/9 to 2011/12	Source
yls	Lump sum income	Price index	0.94289	0.96370	1.00000	1.02234	1.05818	1.11938	[b]
ypp	Personal pension income	Price index	0.94289	0.96370	1.00000	1.02234	1.05818	1.11938	[b]
tmu02 if drgn1=1*	Council Tax: North East	Change in average Council Tax	0.93002	0.96571	1.00000	1.03483	1.05738	1.05738	[f]
tmu02 if drgn1=4	Council Tax: Yorkshire & Humberside	Change in average Council Tax	0.92296	0.96185	1.00000	1.03150	1.05191	1.05191	[f]
tmu02 if drgn1=2	Council Tax: North West	Change in average Council Tax	0.92335	0.96347	1.00000	1.03274	1.05198	1.05198	[f]
tmu02 if drgn1=5	Council Tax: East Midlands	Change in average Council Tax	0.91261	0.94996	1.00000	1.02485	1.04712	1.04712	[f]
tmu02 if drgn1=6	Council Tax: West Midlands	Change in average Council Tax	0.92571	0.96360	1.00000	1.03033	1.05160	1.05160	[f]
tmu02 if drgn1=7	Council Tax: Eastern	Change in average Council Tax	0.91619	0.95810	1.00000	1.03068	1.05085	1.05085	[f]
tmu02 if drgn1=8	Council Tax: London	Change in average Council Tax	0.93963	0.97368	1.00000	1.01256	1.01286	1.01286	[f]
tmu02 if drgn1=9	Council Tax: South East	Change in average Council Tax	0.91727	0.95755	1.00000	1.03377	1.05598	1.05598	[f]
tmu02 if drgn1=10	Council Tax: South West	Change in average Council Tax	0.91578	0.95683	1.00000	1.03493	1.06113	1.06113	[f]
tmu02 if drgn1=11	Council Tax: Wales	Change in average Council Tax	1.01635	0.96264	1.00000	1.04023	1.07950	1.07950	[f]
tmu02 if drgn1=12	Council Tax: Scotland	Change in average Council Tax	1.06534	1.00000	1.00000	1.00000	1.00000	1.00000	[f]

Notes: * The variable drgn1 is following the coding in the original FRS variable where drgn1=3 is also missing.

Sources: [a] **Earnings:** Average weekly earnings index including bonuses using data from series K54U, <http://www.ons.gov.uk/ons/datasets-and-tables/data-selector.html?cdid=K54U&dataset=emp&table-id=AWE15>; updated for the last part of 2011 and Q1 of 2012 by extrapolating known 2011 changes. [b] **Prices:** Eurostat CPI; updated for the last part of 2011 and Q1 of 2012 by extrapolating known 2011 changes [c] **Mortgage Interest** element in RPI: (ONS series DOBQ) assumed no change in the last month of 2011 and Q1 of 2012. [d] **Rent** element in RPI (ONS series DOBP), assuming no change in last month of 2011 and Q1 of 2012; taken from ONS <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-223935>; [e] **Benefits:** *CPAG Welfare benefits and tax credits handbook* for the respective years. [f] **Regional factors** for growth in Council Tax: CIPFA website: http://www.cipfastats.net/uploads/ctax0708_commentary134200741934.pdf



Table 39. Take-up probabilities

Benefit and tax credit claimant type	Probability of take-up
Housing benefit for pensioners (>60/65) if not receiving PC(GC)	0.835
Housing benefit for people of working age in work if not receiving IS	0.445
Housing benefit for people of working age without work if not receiving IS	0.930
Council tax benefit for owners (with and without mortgage) if not receiving IS or PC	0.415
Council tax benefit for tenants if not receiving IS or PC(GC)	0.870
Pension credit (guarantee or guarantee+savings)	0.760
Pension credit (savings only)	0.490
Income support for people without children	0.800
Income support for people with children	0.895
Child tax credit* and working tax credit for lone parents (not London)	0.950
Child tax credit* and working tax credit for couples with children (not London)	0.730
Child tax credit* and working tax credit (all parents) in London	0.760
Child tax credit family element only	0.680
Working tax credit (no children)	0.230

Source: DWP 2010 and HMRC 2010

* If parents are taking up IS, CTC is assumed to be taken up.

3.3.4 Correcting for non take-up

As will be clear from the report on validation exercises in the next section, assuming that all means-tested benefits and tax credits are received by those calculated by EUROMOD to be entitled results in over-estimates of most of these instruments and an under-estimate of poverty and inequality. To adjust for this we employ a simple non take-up correction by applying the take-up proportions estimated on a caseload basis by the Department of Work and Pensions (DWP, 2010) and HM Revenue and Customs (HMRC, 2010).²³ For example we assume that some 5% of lone parents do not receive the combination of Child Tax Credit and Working Tax Credit to which they are entitled, and that this proportion is higher in London (24% of all families with children). Of those entitled to Pension Credit, 23.5% do not take up, with the proportion much higher (51%) if there is only entitlement to the Savings Credit component. Take-up probabilities are applied at the household level (so that people entitled to the same benefits within a household exhibit the same take-up behaviour), for each benefit separately. In general we assume that take-up behaviour is not affected by changes in the size of benefit or tax credit entitlements. However, by applying differential take-up probabilities according to type of claimant, as summarised in Table 39 above, some of this effect is captured.

The correction is switched on by default in the baseline. To switch the take-up correction off, a user needs to switch off the relevant function (i.e. func_ArithOp) in the sheet containing the definition of constants used in the system (i.e. sheet ConstDef_UK). Take-up probabilities

²³ Where ranges of take-up proportions are published, the mid point is used.



summarised in Table 39 are defined in each relevant policy sheet at the end of the simulation. A user can change these probabilities or switch off the take-up correction for each benefit separately by modifying the relevant parameters in each policy sheet.

4. VALIDATION

Validation of outputs from EUROMOD, as well as some key inputs such as income from employment, is documented here for the policy system corresponding to the input data (2008) and the three following policy years. For a report on validation of previous policy years (2006 and 2007) using the same 2008/09 FRS data, see the previous edition of this Country Report.²⁴

While many sources of original income are difficult to validate because of lack of independent sources of information, this does not apply to earnings from employment. Table 40 compares aggregate earnings in EUROMOD with estimates from the Annual Survey of Hours and Earnings (ASHE) in 2008. ASHE is based on a 1% sample of employees on the Inland Revenue PAYE register for February and April in the relevant year, supplemented by data from the Inter Departmental Business Register for businesses registered for VAT but not registered for PAYE, to cover businesses which do not have employees above the PAYE threshold.

Table 40 shows that average earnings across all employees in the EUROMOD 2008/09 FRS database is close (97%) to the corresponding average value from ASHE 2008, across all employees whose pay is not affected by absence. The male earnings are covered less well (95%) and female earnings are somewhat over-represented (101%).

Also shown are the EUROMOD averages for 2009 compared with ASHE 2009. The match is similar for the non-updated FRS data, with the EUROMOD estimate being 97% of that from ASHE and the ratios for men and women being 96% and 99% respectively. The comparison for 2010 is also similar.

Table 40. Average gross monthly earnings from employment in 2008, 2009 and 2010, comparing ASHE and the EUROMOD input database

	2008			2009			2010		
	EUROMOD	ASHE	Ratio	EUROMOD	ASHE	Ratio	EUROMOD	ASHE	Ratio
All	1,991.0	2,050.5	0.971	2,025.3	2,083.9	0.972	2,061.7	2,112.9	0.976
Male	2,399.9	2,529.8	0.949	2,441.2	2,554.1	0.956	2,485.1	2,580.5	0.963
Female	1,563.4	1,553.9	1.006	1,590.3	1,604.2	0.991	1,618.9	1,635.0	0.990

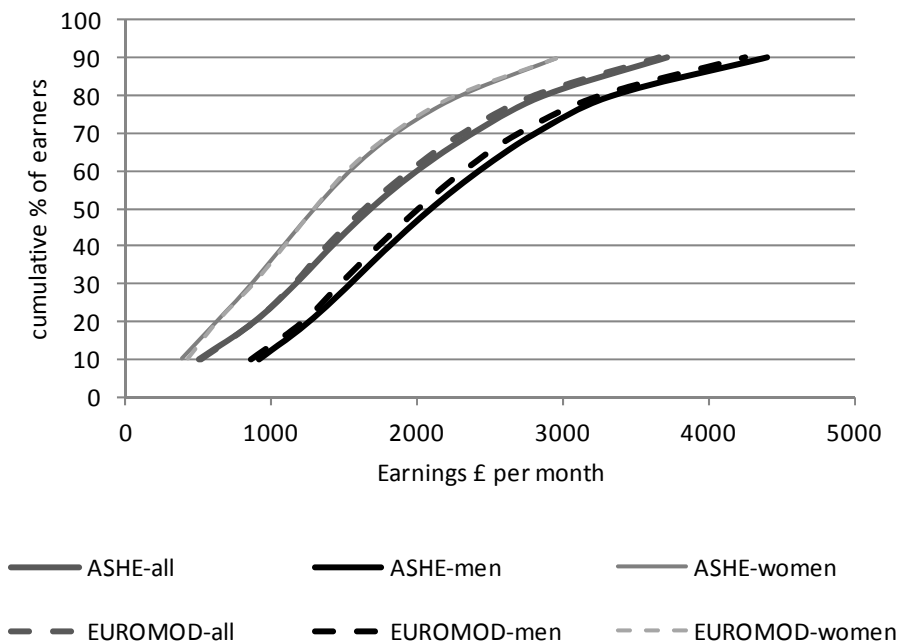
Sources: ASHE 2011: ASHE results 2008, 2009 and 2010, Table 1.1a, weekly gross pay including overtime for adults whose gross pay was not affected by absence, multiplied by 4.333 to produce the monthly figures. See http://www.statistics.gov.uk/downloads/theme_labour/ASHE_2011

Figure 1 compares the cumulative earnings distribution from ASHE and the EUROMOD input data for 2008 for all employees and for men and women (plotting decile points cumulatively). The distributions are close, although for men the distribution diverges around the middle of the distribution for men (earnings are somewhat higher in the ASHE data).

²⁴ http://www.iser.essex.ac.uk/files/euromod/country-reports/CR_UK2006-11_final_13-12-11.pdf



Figure 1. Cumulative earnings distributions in 2008: EUROMOD (FRS) and ASHE



Source: see Table 40.

4.1 Aggregate Validation

4.1.1 Non simulated taxes and benefits

Table 41 and Table 42 compare statistics on benefits and taxes that are not simulated by EUROMOD with external sources. This provides an assessment of the quality of the database and hence the estimates are referred to as “EUROMOD/FRS estimates” although in a few cases some imputation has taken place in order to provide EUROMOD with the necessary information for simulation (see previous section). The information also provides some useful background information for the validation of simulated components of income which may depend on or be associated with the non-simulated components.

Table 41 shows the ratio of the EUROMOD/FRS estimate of the number of recipients of benefits or payers of tax (Council Tax) to that given by administrative statistics. The EUROMOD/FRS estimate is the same for each policy year but the external estimate naturally varies with time. Our main comparison is for 2008 policies.

The numbers on Incapacity benefit (including Employment and Support Allowance) are underestimated by EUROMOD/FRS in 2008 by 11% but for the shortfall reduces for later tax-benefit systems as the caseload falls dues to more restrictions on entitlements related to the transition from IB to ESA. These are not currently accounted for in EUROMOD. Widows/Bereavement benefit recipient numbers were also falling over the period and are over-estimated by 36% EUROMOD in 2011 but by less in the earlier years. In 2008 the EUROMOD/FRS estimate is about right.



For some of the benefits with small numbers of recipients (especially Maternity allowances but also War pension and Industrial Injuries Disablement allowance), it is to be expected that there would be a wide variation around the actual number from a survey.

The numbers in receipt of Carer's Allowance have grown over the period and in 2008 it is underestimated in EUROMOD/FRS by 7% and in 2010 by 17%. (2011 external figures are not yet available.)

Basic State retirement pension recipients are under-estimated by between 11% (for 2008) and 15% (for 2011). Here, the external administrative figures exclude pensions paid abroad; otherwise the EUROMOD/FRS figure, which naturally excludes these cases, would appear to be even further from the external estimate. A second factor that might explain the remaining apparent shortfall is that some proportion of pensioners are living in care or residential institutions and, while counted in the administrative statistics, are not included in the FRS. Given this, recipients of retirement pension are probably quite well estimated in EUROMOD for 2008. With the ageing of the population and increasing likelihood of entitlement by married women, the numbers of recipients rose between 2006 and 2009 but this increase is not captured in EUROMOD. A similar set of issues apply to the recipients of the Second State pension which are underestimated by EUROMOD/FRS by 15% in 2008 and 21% in 2011.

The number of Jobseeker's Allowance (contributory) recipients increased by between 2008 and 2009, due to the increase in unemployment at the onset of the recession. The numbers fell off again in the period 2010-11. The estimates from EUROMOD/FRS are generally too low by 20-25% and in 2009 are underestimated by 45%.

Severe Disability Allowance (SDA) is under-reported in the FRS and this is thought to be explained by respondent confusion between SDA and the disability premia in the Pension Credit. Many claimants of one of these receive both and may not report the actual situation accurately when asked in the survey. Both Disability living allowance (DLA) and Attendance allowance (AA) are under-reported, in the former case by 14% but by much more (45%) in the latter.

Finally, on the basis of a 2007 comparison (later figures are not available) the number of Council tax payers appears to be well-represented in the FRS. However, the external figure includes second homes and empty properties which are not captured by the FRS data, suggesting that EUROMOD slightly over-estimates the number of payers.

Table 42 shows ratios of EUROMOD estimates of total expenditure on each benefit (or revenue from Council tax) and administrative totals. In this comparison the expenditures do vary across policy years, driven by the uprating factors described in the previous section. Generally, the closeness of expenditure/revenue estimates to external statistics follows the same pattern as for the number of recipients/payers shown in Table 41, suggesting that average amounts per recipient/payer are approximately right.

Council tax revenue is over-estimated by EUROMOD/FRS although the extent of this falls for later policy years.

Under-representation of non-simulated benefits has implications for the values of the benefits that are simulated that depend in some way upon receipt of the non-simulated benefits. Where receipt of the latter automatically "passports" eligibility for a simulated benefit this will lead to under-estimation of that benefit. On the other hand if income from the non-simulated benefit is included in a means-test for a simulated benefit, under-estimation of the former will lead to over-estimation of the latter. Similar mechanisms apply in reverse to the case of over-estimation of non-simulated benefits.



Table 41. Tax benefit instruments that are included in EUROMOD but not simulated: comparison of aggregates with external statistics: Recipients/payers (THOUSANDS)

	EUROMOD	External				Ratio EUROMOD/external				Sources
	2008-11	2008	2009	2010	2011	2008	2009	2010	2011	
Incapacity benefit (incl ESA from 2008)	1,260	1,411	1,342	1,293	1,217	0.89	0.94	0.97	1.04	A
Basic State retirement Pension	10,745	12,040	12,288	12,513	12,615	0.89	0.87	0.86	0.85	A
Second State Pension	7,332	8,642	9,012	9,097	9,337	0.85	0.81	0.81	0.79	A
Widows and Bereavement Benefits	135	131	119	112	99	1.03	1.13	1.21	1.36	A
Jobseeker's Allowance (contributory)	194	265	352	260	275	0.73	0.55	0.75	0.71	A
Attendance Allowance	959	1,737	1,776	1,800	1,817	0.55	0.54	0.53	0.53	A
Disability Living Allowance	2,584	3,009	3,106	3,177	3,279	0.86	0.83	0.81	0.79	A
Severe Disablement Allowance	184	251	240	230	239	0.73	0.77	0.80	0.77	A
Carer's Allowance	459	493	521	551	~	0.93	0.88	0.83	~	B
Industrial Injuries Disablement Allowance	178	261	266	265	261	0.68	0.67	0.67	0.68	A
Maternity allowances	51	54	56	54	56	0.95	0.90	0.94	0.91	A
War Pension and allowances	96	191	191	175	~	0.50	0.50	0.55	~	C
Council Tax (payers)	25,576	~	~	~	~	~	~	~	~	D

Sources:

A. DWP table C1 http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term

B. DWP tabulator http://83.244.183.180/100pc/ca/tabtool_ca.html

C. War Pensions Quarterly Statistics <http://www.dasa.mod.uk/applications/newWeb/www/index.php?page=67&pubType=1&thiscontent=500&date=2009-09-10>

D. CIPFA E&W + S Council Tax Demands and Precepts Statistics <http://www.cipfastats.net/uploads/commentary26820054172.pdf#page=4>. Not yet available for 2008-11. The ratio of EUROMOD:external in 2007 was 1.02.

Note: EUROMOD estimates for recipients are the same across policy years. Incapacity benefit includes Employment and Support allowance.

~ not yet available.



Table 42. Tax benefit instruments that are included in EUROMOD but not simulated: comparison of aggregates with external statistics:
Expenditure (£ million/year)

	EUROMOD				External				Ratio EUROMOD/external				Source
	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	
Incapacity benefit and contributory ESA	5,436	5,777	5,879	6,063	6,580	6,689	6,500	6,248	0.83	0.86	0.90	0.97	A
Basic State retirement Pension	46,389	48,717	49,944	52,246	45,848	49,137	51,126	54,054	1.01	0.99	0.98	0.97	A
Second State Pension	11,756	12,019	12,440	13,160	11,172	12,696	13,074	14,221	1.05	0.95	0.95	0.93	A
Widows and Bereavement Benefits	685	719	737	760	675	650	612	588	1.02	1.11	1.20	1.29	A
Jobseeker's Allowance (contributory)	574	610	621	641	728	1,089	802	770	0.79	0.56	0.77	0.83	A
Attendance Allowance	2,721	2,857	2,900	2,989	4,735	5,106	5,228	5,355	0.57	0.56	0.55	0.56	A
Disability Living Allowance	8,497	8,923	9,057	9,337	10,525	11,459	11,917	12,605	0.81	0.78	0.76	0.74	A
Severe Disablement Allowance	608	684	707	749	887	907	888	874	0.69	0.75	0.80	0.86	A
Carer's Allowance	1,260	1,323	1,343	1,385	1,363	1,495	1,588	1,728	0.92	0.89	0.85	0.80	A
Industrial Injuries Disablement Allowance	371	390	396	408	816	844	883	899	0.45	0.46	0.45	0.45	A
Statutory Maternity Pay	1,227	1,289	1,308	1,348	1,953	2,023	2,093	2,144	0.63	0.64	0.63	0.63	A
Maternity allowances	301	316	321	331	321	345	343	356	0.94	0.92	0.94	0.93	A
War Pension and allowances	363	400	406	419	1,006	1,020	953	~	0.36	0.39	0.43	~	B
Council Tax	28,632	29,392	29,892	29,892	24,275	24,943	25,464	~	1.18	1.18	1.17	~	C

Sources:

A. DWP GB Expenditure from table 3 at http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term

B. UK Blue Book Table 5.2.4S http://www.statistics.gov.uk/downloads/theme_economy/bluebook2010.pdf

C. Blue Book Table 11.1 http://www.statistics.gov.uk/downloads/theme_economy/bluebook2010.pdf

~ not yet available.



4.1.2 Simulated taxes and benefits

Validation of simulated elements of income is carried out in relation to independent external sources. Table 43 shows comparisons of the number of benefit recipients and tax and contribution payers against official statistics based on administrative sources. These comparisons assume 100% take-up of means-tested benefits and tax-credits. Table 44 repeats the comparison for the means-tested instruments, applying non take-up probabilities as described in the previous section.

Table 45 shows the aggregate annual expenditure, or revenue from each instrument, compared with official sources, assuming full take-up. Table 46 makes the same comparison for means-tested benefits and tax credits, correcting for non-take-up. Finally, Table 47 compares EUROMOD and external estimates of expenditure for 2008 for selected simulated benefits and tax credits with aggregates from the FRS data (using the same weights as in the EUROMOD estimates).

4.1.3 Simulated Income tax

Compared with tax statistics, the number of income tax payers estimated by EUROMOD is very similar: over-estimated by 1 or 2 percentage points (Table 43). Revenue from income tax is under-estimated, however, by 11% (Table 45).

The most likely explanation is that there is some under-reporting of high incomes and under-representation in the FRS of high income earners.

It should be noted that the assumption that the incomes recorded in the FRS for the previous week or month are in fact received for the whole tax year is likely to have an effect on the EUROMOD estimates. If EUROMOD could account for part-year incomes there would be more taxpayers in any whole year, resulting in an over-estimate. But to the extent that a part-year income is subject to a lower average tax rate than the equivalent whole year income (because of the progressivity of the tax schedule), accounting for part-year incomes would reduce the estimated tax revenue on aggregate.

4.1.4 Social insurance contributions

The numbers of both employed and self employed contributors are underestimated by EUROMOD relative to the figures given by administrative sources (although external figures on contributors are only available up to 2008). However, the administrative figures refer to any payment of a contribution within the year while employee contributions are paid depending on weekly earnings. At any one point in time the number of contributors is less than that shown by the administrative statistics. This is likely to be the main explanation for the shortfall in the number of employees contributing (Table 43) of 19% in 2008. Consistent with this explanation, revenue from employee contributions are relatively well captured (a 1% shortfall in 2008) – see Table 45. Revenue is over-estimated in 2009 by 5%, probably due to the effect of the recession on earnings not being fully captured by our updating process. Information on the number of employees for whom employers make contributions is not available. There is a non-negligible shortfall of revenue from employer contributions of 14% in 2008.

EUROMOD estimates of revenue from contributions made by the self-employed are larger (by 20% in 2008) than those given in external statistics but estimates of number of contributors are smaller (by 17% in 2008). The explanations for this are a combination of those provided above for income tax and for employee contributions. Self-employed contributions are of two types.



Class 2 are weekly flat-rate payments and external estimates count those making any contribution within the year. Class 4 contributions depend on annual self-employment income in a previous year. The explanations for income tax are relevant for Class 4 and the explanations for employee contributions are relevant for Class 2.

4.1.5 Child benefit

EUROMOD produces estimates very close to the administrative figures for the number of families in receipt. Given the universal nature of the benefit and the fact that the FRS weights control for the number of families with children eligible for child benefit (in 2008/9), this is not surprising. However, the number of children for whom benefit is received is under-estimated by 5% and the expenditure on the benefit under-estimated by 2% in 2008. However, as shown by Table 47 the FRS data on Child Benefit (weighted) under-estimate expenditure by more: 7%.

4.1.6 Winter fuel allowance

EUROMOD over-estimates recipients by 5% and captures expenditure precisely in 2008. There is no clear reason for this pattern given that the payment depends only on the age of the oldest person in the household.

4.1.7 Means-tested benefits and tax credits

When complete take-up of means-tested benefits and tax credits is assumed (as in Table 43 for recipients and Table 45 for expenditure) the number of recipients in 2008 is over-estimated compared with administrative statistics. This applies particularly to Income Support (including income tested JSA and income tested ESA), Pension Credit, Child Tax Credit and Council Tax Benefit. Once the take-up correction described in section 3 is applied, as shown in Table 44, the ratios of the number of recipients generally improve and move closer to one. The numbers on Child Tax Credit, Income Support and Council Tax benefit are still too high relative to external statistics (by 13%, 18% and 21% respectively); for Pension Credit they are somewhat underestimated (by 6%) and are very well estimated for Housing Benefit; but Working Tax Credit recipients are under-estimated by 31%.

For Income Support and Council Tax Benefit, and to some extent Pension Credit and Housing Benefit the expenditure is over-estimated by EUROMOD before any take-up correction (Table 45) but is too low for Working Tax Credit (by 17%) and Child Tax Credit (by 7%). The take up correction reduces expenditure such that it is closer but still somewhat over the administrative total for Council Tax Benefit (by 2%) but under-estimated by 13% for Housing Benefit and by 23% for Pension Credit. It is very under-estimated for Child Tax Credit (by 31%) and especially Working Tax Credit (46%) (Table 46). Correcting for take-up in the way that we do does not allow for the fact that within client group, it is likely that those with small entitlements are the most likely to not claim. Our caseload based correction thus probably over-corrects on an expenditure basis. However, with the exception of the Working Tax Credit, Table 47 shows how the weighted aggregates from FRS are generally similar to those from EUROMOD or compare less favourably with external statistics.

We now consider each benefit/credit separately and discuss reasons for the apparent discrepancies.



- *Tax Credits*

After the take-up correction the numbers on Child Tax Credit are over-estimated relative to the administrative total by 13% (Table 44) whereas the estimated expenditure is under-estimated by 31% (Table 46). The over-estimation of numbers is to some extent explained by the administrative statistics not containing some long-term recipients of Income Support, whose child payments have still not been migrated to the tax credit system. The reasons for the under-estimation of expenditure include the fact that those taking up are likely to have higher entitlements. While our take-up adjustment allows for some of this effect (the average payment assuming full take up is a little lower than the average payment with partial take up) it does not capture it all.

Probably the main cause of the apparent under-estimation also applies to Working Tax Credit. The administrative statistics that we use are for finalised awards of Tax Credits. Adjustments are made after the end of the tax year to take account of changes in income during the year. It is likely that those with changes that lead to increased entitlement would re-claim during the year. Thus those with end of year adjustments are likely to see reductions in their awards. Our simulations, on the other hand, are based on current incomes and circumstances. If circumstances stay the same all year our simulation should match the final award. However, in 2008/9 there was a very large income disregard of £25,000 which meant that the final award would only require a repayment if the repayment exceeded this amount. So in any cases where incomes did change we expect EUROMOD to under-estimate the actual payment. According to the HMRC statistics²⁵ on final awards in 2008/9 of 4,765 in-work families receiving one or both tax credits 3,400 thousand had an income which increased over the year and up to £25,000 was disregarded (Table 3.7). It is therefore not surprising that the EUROMOD expenditure estimate is only 69% of expenditure assessed in this way.

The disregard has been reduced to £10,000 in 2011/12. It is still be the case that what EUROMOD simulates does not take account of increases in income later in the tax year or reductions in payment due to over-payment the previous year.²⁶ However, when administrative figures on final payments become available for 2011 and later they are likely to show a reduction in spending, and the discrepancy with EUROMOD will be correspondingly reduced.

However, as shown by Table 47 FRS reported income from Child Tax Credit is also low relative to the administrative total, and similar to the EUROMOD estimate. This may be due to respondents not knowing how much of their total tax credit payment is from WTC or from CTC.

Working Tax Credit expenditure is also underestimated (by almost half the administrative figure) for the same reasons: due to the “overhang” of entitlement, especially when there is a large year-to-year disregard. Entitlement is even more likely to vary over the year as this depends on being in low paid work which is likely to be unstable in various ways. Unlike Child Tax Credit, Working Tax Credit recipients are also under-estimated by EUROMOD (by 31%) and the “overhang” is again the explanation. Families are unlikely to shift on and off Child Tax Credit but are likely to meet the eligibility criteria for Working Tax Credit for short periods but still receive payments when they would not qualify if re-assessed.

²⁵ HMRC, 2011, Child and Working Tax Credits Statistics: finalized annual awards 2009-10

²⁶ Essentially, the model simulates entitlements based on current circumstances; it does not try and replicate actual income receipt.



Table 43. Tax benefit instruments that are simulated by EUROMOD: comparison of aggregates with external statistics: assuming 100% take-up of means-tested benefits and tax credits Recipients/payers (THOUSANDS)

	Unit	EUROMOD				External				Ratio EUROMOD/external				Source
		2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	
Income tax	Individual	31,062	30,796	30,992	30,530	30,900	30,300	30,600	~	1.01	1.02	1.01		A
SIC Employees (Class 1)	Individual	20,480	20,373	20,415	19,643	25,210	~	~	~	0.81				B
SIC Self employed (Class 2 + 4)	Individual	2,489	2,471	2,483	2,478	3,010	~	~	~	0.83				B
Child Benefit	Child	12,689	12,689	12,689	12,689	13,341	13,604	13,685	13,721	0.95	0.93	0.93	0.92	C
	Family	7,494	7,494	7,494	7,494	7,583	7,770	7,842	7,885	0.99	0.96	0.96	0.95	C
Working Tax Credit (WTC)	Family	2,589	2,639	2,626	2,420	2,215	2,374	~	~	1.17	1.11			D
Child Tax Credit (CTC)	Family	6,451	6,418	6,367	5,204	4,281	4,283	~	~	1.51	1.50			D
<i>Both CTC and WTC</i>	<i>Family</i>	<i>1,563</i>	<i>1,586</i>	<i>1,581</i>	<i>1,476</i>	<i>1,810</i>	<i>1,892</i>	~	~	<i>0.86</i>	<i>0.84</i>			<i>D</i>
<i>Either CTC or WTC</i>	<i>Family</i>	<i>7,476</i>	<i>7,470</i>	<i>7,411</i>	<i>6,148</i>	<i>6,120</i>	<i>6,249</i>	~	~	<i>1.22</i>	<i>1.20</i>			<i>D</i>
<i>Without children (WTC only)</i>	<i>Family</i>	<i>1,025</i>	<i>1,053</i>	<i>1,045</i>	<i>944</i>	<i>405</i>	<i>482</i>	~	~	<i>2.53</i>	<i>2.18</i>			<i>D</i>
Income Support (IS)+JSAinc+ESAinc	Family	3,991	4,125	4,117	4,100	2,822	3,173	3,132	3,144	1.41	1.30	1.31	1.30	E
<i>Income Support lone parents only</i>	<i>Family</i>	<i>838</i>	<i>844</i>	<i>843</i>	<i>843</i>	<i>739</i>	<i>721</i>	<i>679</i>	~	<i>1.13</i>	<i>1.17</i>	<i>1.24</i>		<i>F</i>
Pension Credit (PC)	Family	3,766	3,773	3,768	3,645	2,724	2,736	2,718	2,615	1.38	1.38	1.39	1.39	E
<i>Pension Credit GC only</i>	<i>Family</i>	<i>1,306</i>	<i>1,301</i>	<i>1,344</i>	<i>1,326</i>	<i>882</i>	<i>926</i>	<i>952</i>	<i>932</i>	<i>1.48</i>	<i>1.40</i>	<i>1.41</i>	<i>1.42</i>	<i>G</i>
<i>Pension Credit GC+SC</i>	<i>Family</i>	<i>1,123</i>	<i>1,129</i>	<i>1,070</i>	<i>1,015</i>	<i>1,246</i>	<i>1,205</i>	<i>1,192</i>	<i>1,144</i>	<i>0.90</i>	<i>0.94</i>	<i>0.90</i>	<i>0.89</i>	<i>G</i>
<i>Pension Credit SC only</i>	<i>Family</i>	<i>1,337</i>	<i>1,344</i>	<i>1,355</i>	<i>1,304</i>	<i>591</i>	<i>600</i>	<i>580</i>	<i>591</i>	<i>2.26</i>	<i>2.24</i>	<i>2.34</i>	<i>2.21</i>	<i>G</i>
Housing benefit	Household	5,137	5,150	5,151	5,118	4,166	4,547	4,798	4,963	1.23	1.13	1.07	1.03	E
Council tax benefit	Household	8,509	8,575	8,591	8,379	5,158	5,571	5,805	5,922	1.65	1.54	1.48	1.41	E
Winter fuel allowance	Household	13,079	13,079	13,079	13,079	12,421	12,681	12,783	12,669	1.05	1.03	1.02	1.03	E

Notes: ~ not yet available

Sources:

A. HMRC 2011 http://www.hmrc.gov.uk/stats/tax_receipts/table1-4.pdf

B. Blue Book 2010 Table 10.2. http://www.statistics.gov.uk/downloads/theme_economy/bluebook2010.pdf. Updated figures are unavailable.

C. HMRC http://www.hmrc.gov.uk/stats/child_benefit/chb-geog-aug09.pdf

D. HMRC finalised table 1.1 <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-final-awards-may11.pdf>

E. DWP table C1 http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term

F. Annual Abstract Table 10.16 http://www.statistics.gov.uk/downloads/thme_compendia/AA2010/aa2010final.pdf7.



G. DWP 2011 <http://83.244.183.180/100pc/tabtool>. (mean of 4 quarterly figures, starting in May)



Table 44. Means-tested tax benefit instruments that are simulated by EUROMOD: comparison of aggregates with external statistics: assuming incomplete take-up Recipients/payers (THOUSANDS)

	Unit	EUROMOD				External				Ratio EUROMOD/external				Source
		2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	
Working Tax Credit (WTC)	Family	1,522	1,547	1,536	1,440	2,215	2,374	~	~	0.69	0.65			D
Child Tax Credit (CTC)	Family	4,839	4,816	4,775	3,905	4,281	4,283	~	~	1.13	1.12			D
<i>Both CTC and WTC</i>	<i>Family</i>	<i>1,279</i>	<i>1,296</i>	<i>1,291</i>	<i>1,207</i>	<i>1,810</i>	<i>1,892</i>	<i>~</i>	<i>~</i>	<i>0.71</i>	<i>0.68</i>			<i>D</i>
<i>Either CTC or WTC</i>	<i>Family</i>	<i>5,081</i>	<i>5,067</i>	<i>5,020</i>	<i>4,138</i>	<i>6,120</i>	<i>6,249</i>	<i>~</i>	<i>~</i>	<i>0.83</i>	<i>0.81</i>			<i>D</i>
<i>Without children (WTC only)</i>	<i>Family</i>	<i>242</i>	<i>252</i>	<i>245</i>	<i>233</i>	<i>405</i>	<i>482</i>	<i>~</i>	<i>~</i>	<i>0.60</i>	<i>0.52</i>			<i>D</i>
Income Support +JSAinc+ESAinc	Family	3,334	3,446	3,440	3,423	2,822	3,173	3,132	3,144	1.18	1.09	1.10	1.09	E
<i>Income Support lone parents only</i>	<i>Family</i>	<i>758</i>	<i>763</i>	<i>762</i>	<i>763</i>	<i>739</i>	<i>721</i>	<i>679</i>	<i>~</i>	<i>1.03</i>	<i>1.06</i>	<i>1.12</i>		<i>F</i>
Pension Credit (PC)	Family	2,557	2,562	2,564	2,466	2,724	2,736	2,718	2,615	0.94	0.94	0.94	0.94	E
<i>Pension Credit GC only</i>	<i>Family</i>	<i>1,034</i>	<i>1,029</i>	<i>1,056</i>	<i>1,041</i>	<i>882</i>	<i>926</i>	<i>952</i>	<i>932</i>	<i>1.17</i>	<i>1.11</i>	<i>1.11</i>	<i>1.12</i>	<i>G</i>
<i>Pension Credit GC+SC</i>	<i>Family</i>	<i>835</i>	<i>843</i>	<i>806</i>	<i>761</i>	<i>1,246</i>	<i>1,205</i>	<i>1,192</i>	<i>1,144</i>	<i>0.67</i>	<i>0.70</i>	<i>0.68</i>	<i>0.67</i>	<i>G</i>
<i>Pension Credit SC only</i>	<i>Family</i>	<i>688</i>	<i>690</i>	<i>702</i>	<i>664</i>	<i>591</i>	<i>600</i>	<i>580</i>	<i>591</i>	<i>1.16</i>	<i>1.15</i>	<i>1.21</i>	<i>1.12</i>	<i>G</i>
Housing benefit	Household	4,156	4,162	4,164	4,137	4,166	4,547	4,798	4,963	1.00	0.92	0.87	0.83	E
Council tax benefit	Household	6,247	6,301	6,316	6,174	5,158	5,571	5,805	5,922	1.21	1.13	1.09	1.04	E

Source: See Table 43.



Table 45. Tax benefit instruments that are simulated by EUROMOD: comparison of aggregates with external statistics assuming 100% take-up of means-tested benefits and tax credits. Expenditure/revenue (£million/year)

	EUROMOD				External				Ratio EUROMOD/external				Source
	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	
Income tax	131,305	130,514	138,752	140,293	147,867	139,316	148,355	153,303	0.89	0.94	0.94	0.92	A
SIC Employees (Class 1)	37,867	38,919	39,665	41,223	38,186	37,179	38,500	~	0.99	1.05	1.03		B
SIC Employers	49,206	49,479	50,660	53,251	57,080	54,387	56,089	~	0.86	0.91	0.90		B
SIC Self employed (Class2 + Class4)	3,664	3,782	3,845	4,842	3,053	2,879	2,576	~	1.20	1.31	1.49		B
<i>SIC total (any SIC)</i>	<i>90,737</i>	<i>92,180</i>	<i>94,170</i>	<i>99,315</i>	<i>98,319</i>	<i>94,445</i>	<i>97,165</i>	<i>100,950</i>	<i>0.92</i>	<i>0.98</i>	<i>0.97</i>	<i>0.98</i>	C
Child Benefit	10,733	11,377	11,548	11,548	10,919	11,882	12,041	12,283	0.98	0.96	0.96	0.94	B
Working Tax Credit (WTC)	5,857	6,201	6,378	5,736	7,097	7,675	~	~	0.83	0.81			D
Child Tax Credit (CTC)	16,753	17,855	18,271	18,476	18,020	19,696	~	~	0.93	0.91			D
<i>CTC and WTC</i>	<i>22,611</i>	<i>24,057</i>	<i>24,649</i>	<i>24,212</i>	<i>25,117</i>	<i>27,371</i>	<i>28,726</i>	<i>29,615</i>	<i>0.90</i>	<i>0.88</i>	<i>0.86</i>	<i>0.82</i>	D
<i>WTC only</i>	<i>1,741</i>	<i>1,852</i>	<i>1,920</i>	<i>1,720</i>	<i>952</i>	<i>1,134</i>	~	~	<i>1.83</i>	<i>1.63</i>			D
Jobseeker's Allowance (contributory)	526	559	576	587	728	1,089	802	770	0.72	0.51	0.72	0.76	F
Income Support (IS) +JSAinc	13,488	14,112	14,328	14,675	10,877	12,656	12,803	13,248	1.24	1.12	1.12	1.11	F
<i>Income support lone parents only</i>	<i>2,619</i>	<i>2,723</i>	<i>2,769</i>	<i>2,853</i>	<i>3,060</i>	<i>2,842</i>	<i>2,615</i>	<i>2,375</i>	<i>0.86</i>	<i>0.96</i>	<i>1.06</i>	<i>1.20</i>	E
<i>Pension Credit Guarantee Credit</i>	<i>6,541</i>	<i>6,714</i>	<i>6,885</i>	<i>6,917</i>	<i>6,490</i>	<i>6,915</i>	<i>7,022</i>	<i>6,814</i>	<i>1.01</i>	<i>0.97</i>	<i>0.98</i>	<i>1.02</i>	E
<i>Pension Credit Savings Credit</i>	<i>1,540</i>	<i>1,591</i>	<i>1,585</i>	<i>1,509</i>	<i>1,213</i>	<i>1,214</i>	<i>1,232</i>	<i>1,235</i>	<i>1.27</i>	<i>1.31</i>	<i>1.29</i>	<i>1.22</i>	E
Pension Credit(PC) total	8,081	8,305	8,470	8,426	7,703	8,129	8,253	8,049	1.05	1.02	1.03	1.05	
<i>all IS+PC+JSAinc</i>	<i>21,569</i>	<i>22,417</i>	<i>22,798</i>	<i>23,101</i>	<i>18,580</i>	<i>20,784</i>	<i>21,057</i>	<i>21,297</i>	<i>1.16</i>	<i>1.08</i>	<i>1.08</i>	<i>1.08</i>	
Housing benefit	20,050	20,504	20,829	20,973	17,103	19,989	21,429	22,869	1.17	1.03	0.97	0.92	E
Council tax benefit	6,293	6,497	6,609	6,410	4,234	4,698	4,925	4,969	1.49	1.38	1.34	1.29	E
Winter fuel allowance	2,702	2,702	2,702	2,117	2,701	2,735	2,759	2,186	1.00	0.99	0.98	0.97	E

Sources: A. HMRC table 1.2 http://www.hmrc.gov.uk/stats/tax_receipts/table1-2.pdf

B. Blue Book 2010 Table 5.2.4s; http://www.statistics.gov.uk/downloads/theme_economy/bluebook2010.pdf

C. HMRC Table 1.2 http://www.hmrc.gov.uk/stats/tax_receipts/table1-2.pdf

D. HMRC finalised table 1.1 1 <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-final-awards-may11.pdf>

E. DWP GB Expenditure from table 3 http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term

F. DWP GB Expenditure from table 7 http://statistics.dwp.gov.uk/asd/asd4/index.php?page=medium_term



Table 46. Means-tested tax benefit instruments that are simulated by EUROMOD: comparison of aggregates with external statistics assuming incomplete take-up. Expenditure/revenue (£million/year)

	EUROMOD				External				Ratio EUROMOD/external				Source
	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011	
Working Tax Credit (WTC)	3,841	4,058	4,157	3,761	7,097	7,675	-	-	0.54	0.53			D
Child Tax Credit (CTC)	12,498	13,315	13,626	13,767	18,020	19,696	-	-	0.69	0.68			D
<i>CTC and WTC</i>	<i>16,339</i>	<i>17,373</i>	<i>17,783</i>	<i>17,528</i>	<i>25,117</i>	<i>27,371</i>	<i>28,726</i>	<i>29,615</i>	<i>0.65</i>	<i>0.63</i>	<i>0.62</i>	<i>0.59</i>	<i>D</i>
<i>WTC only</i>	<i>432</i>	<i>458</i>	<i>472</i>	<i>429</i>	<i>952</i>	<i>1,134</i>	<i>-</i>	<i>-</i>	<i>0.45</i>	<i>0.40</i>			<i>D</i>
Income Support (IS) +JSAinc	11,300	11,850	12,030	12,312	10,877	12,656	12,803	13,248	1.04	0.94	0.94	0.93	E
<i>Income support lone parents only</i>	<i>2,373</i>	<i>1,466</i>	<i>2,507</i>	<i>2,583</i>	<i>3,060</i>	<i>2,842</i>	<i>2,615</i>	<i>2,375</i>	<i>0.78</i>	<i>0.52</i>	<i>0.96</i>	<i>1.09</i>	<i>F</i>
<i>Pension Credit Guarantee Credit</i>	<i>4,988</i>	<i>5,131</i>	<i>5,267</i>	<i>5,310</i>	<i>6,490</i>	<i>6,915</i>	<i>7,022</i>	<i>6,814</i>	<i>0.77</i>	<i>0.74</i>	<i>0.75</i>	<i>0.78</i>	<i>E</i>
<i>Pension Credit Savings Credit</i>	<i>974</i>	<i>1,009</i>	<i>1,002</i>	<i>953</i>	<i>1,213</i>	<i>1,214</i>	<i>1,232</i>	<i>1,235</i>	<i>0.80</i>	<i>0.83</i>	<i>0.81</i>	<i>0.77</i>	<i>E</i>
Pension Credit(PC) total	5,962	6,140	6,268	6,263	7,703	8,129	8,253	8,049	0.77	0.76	0.76	0.78	E
<i>All IS + PC + JSAinc</i>	<i>17,262</i>	<i>17,990</i>	<i>18,298</i>	<i>18,575</i>	<i>18,580</i>	<i>20,784</i>	<i>21,057</i>	<i>21,297</i>	<i>0.93</i>	<i>0.87</i>	<i>0.87</i>	<i>0.87</i>	
Housing benefit	16,676	17,030	17,305	17,414	17,103	19,989	21,429	22,869	0.98	0.85	0.81	0.76	E
Council tax benefit	4,782	4,963	5,053	4,910	4,234	4,698	4,925	4,969	1.13	1.06	1.03	0.99	E

Source: See Table 45.



Table 47. Selected benefits that are simulated by EUROMOD: comparison of aggregates with external statistics and data from FRS (2008) assuming incomplete take-up in EUROMOD estimates. Expenditure/revenue (£million/year)

	FRS 2008	EUROMOD 2008	External 2008	Ratio FRS / External	Ratio EUROMOD / External
Child Benefit	10,523	11,548	10,919	0.96	1.06
Working Tax Credit (WTC)	4,408	4,157	7,097	0.62	0.59
Child Tax Credit (CTC)	11,618	13,626	18,020	0.64	0.76
<i>CTC and WTC</i>	<i>16,026</i>	<i>17,783</i>	<i>25,117</i>	<i>0.64</i>	<i>0.71</i>
<i>WTC only</i>	<i>951</i>	<i>472</i>	<i>952</i>	<i>1.00</i>	<i>0.50</i>
Income Support (IS) +JSAinc	8,206	12,030	10,877	0.75	1.11
<i>Income support lone parents only</i>	<i>2,813</i>	<i>2,507</i>	<i>3,060</i>	<i>0.92</i>	<i>0.82</i>
Pension Credit (PC) total	4,435	6,268	7,703	0.58	0.81
<i>All IS + PC + JSAinc</i>	<i>12,641</i>	<i>18,298</i>	<i>18,580</i>	<i>0.68</i>	<i>0.98</i>
Housing benefit	13,034	17,305	17,103	0.76	1.01

Source: See Table 45.

- ***Income Support***

Even after the take-up correction the number of recipients of Income Support (IS) is over-estimated by 18% (Table 44). (The external figures include those on income-tested JSA and ESA which are simulated along with Income Support in EUROMOD.) The total expenditure from EUROMOD is somewhat too low relative to the external total (by 4%). The average simulated amount is therefore too low compared with the average amount actually received. This can be explained by those with low entitlements not taking up; whereas we do not account for this directly in our take-up adjustment.

This is in spite of the fact the FRS report says that IS recipients are 28% under-reported in FRS, even after adjusting admin total for people in institutions. Thus EUROMOD simulations perform better in this respect.

- ***Pension Credit***

After accounting for non take up Pension Credit recipients as a whole are under-reported by 6% and expenditure by 23%. However the external administrative total includes payments to recipients living in institutions who are not captured by FRS/EUROMOD. Adjusting for this (making use of an adjustment factor of 150,000 or 5.5% derived from table M.6 of the FRS report) brings the recipient totals very close and reduces the expenditure shortfall in EUROMOD to around 18%. The remaining shortfall might be explained by EUROMOD not controlling for size of entitlement in the take-up adjustment (although it is worth noting that our adjustment does move the average payment in the right direction).

However, within PC there are many too few recipients of both Savings Credit (SC) and Guarantee Credit (GC), and too many receiving one or the other alone. One clue as to why there may be too many receiving SC alone may lie in the under-reporting of Pension Credit in the FRS (see Table 47). If FRS respondents confuse Pension Credit with their basic state pension payments and just report both as the basic state pension then this will be over-estimated in the



FRS, and EUROMOD will automatically calculate them to be not quite eligible for GC. But their excess of income over the basic pension amount will entitle them to some SC. This is plausible since, as explained above, whereas basic state pension recipients are under estimated in EUROMOD/FRS, spending on the pension roughly matches administrative statistics. Cases with GC but no SC may be over-estimated if the incomes which give rise to SC entitlement are under-reported.

- ***Housing Benefit***

After the take-up correction Housing Benefit recipients are well-estimated by EUROMOD. This is a significant improvement on the under-estimation in the FRS data (under-reported by 16%).²⁷ However, in later policy years there is some under-estimation (21% by 2011) probably due to not capturing increasing numbers of households becoming entitled due to the recession. Expenditure is under-estimated by 2% in 2008 (which is a great improvement on the 29% under-estimation in the FRS data, shown in Table 47) but is as much as 24% in 2011. This is in spite of not accounting for any ceilings on eligible rent in the EUROMOD modelling. It suggests that the FRS rent data may under-report actual rents to some extent and also that the updating of rents to 2011 may not capture differential growth in rent satisfactorily. However, since Housing Benefit is calculated at the end of the EUROMOD “spine” and entitlement depends on income including other simulated components, the main explanation for any under-estimation of expenditure probably lies in the over-simulation of some benefits/tax credits, perhaps for certain groups of people that cannot be identified in the sort of aggregate validation exercise reported here.

- ***Council Tax Benefit***

Council Tax Benefit (CTB) recipients are over-estimated even after the take-up correction, by 21%. Expenditure is over-estimated by less (13%). The reasons for this are difficult to establish exactly, except that entitlement to CTB depends not only on receipt of IS or PC (in which case it is virtually automatic) but also on whether the tax credits are received and whether other non means-tested benefits are received. As with Housing Benefit, to the extent that some non-simulated benefits are under-reported and tax credits are under-simulated, we might expect some over-estimation of CTB.

4.2 Income distribution

All income distribution results presented here are computed for individuals according to their household disposable income (HDI) equivalised by the “modified OECD” equivalence scale. HDI is calculated as the sum of all income sources of all household members net of income tax and social insurance contributions. The weights in the modified OECD equivalence scale are: first adult = 1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

4.2.1 Poverty

Table 48 shows a comparison with published UK official statistics (Households Below Average Income or HBAI) based on the same data as EUROMOD (FRS) (2008/9).

²⁷ http://statistics.dwp.gov.uk/asd/frs/2008_09/frs_2008_09_report.pdf. See Table M.6.



The unshaded, panel shows the comparison of 2008/9 HBAI (Before Housing Costs) poverty statistics with EUROMOD's 2008 policy year. Because of differences due to using simulated rather than recorded income components and any differences in the precise sample or income concept²⁸ there is no reason to expect the HBAI and EUROMOD results to be identical. Also shown for 2008 are our own calculations using FRS micro-data and the same sample and income concept as is employed in the EUROMOD statistics. The differences between the HBAI estimates (which are rounded to the nearest whole percentage) and our own calculations (here rounded to one decimal point) indicate the effects of the different income concepts and sample selections. The EUROMOD income concept and use of the full FRS sample results in a higher poverty threshold (median) and the difference mainly impacts on child poverty (at 60% and 70% of the median) and poverty among older people, at 70% of the median. The differences between the "FRS" measures and those from EUROMOD are due to the use of simulated values for taxes and benefits, including the imprecise take-up adjustments. As we have seen, simulated values may correspond more closely, in aggregate, to external statistics, than those from the FRS, which are subject to reporting and measurement errors of various kinds.

Before any take-up correction, EUROMOD estimates of poverty rates are too low relative to the HBAI estimates. Using the 60% of median poverty threshold the rate from EUROMOD is 13.1% compared with 17% in HBAI. Once the take-up correction is applied the EUROMOD estimate rises to 16.8%; after rounding identical to that from HBAI. Poverty rates are also close using the two methods for both the 50% and 70% thresholds.

At the 60% threshold the child poverty rate (after the take up adjustments) is 20.4% compared to 20% from HBAI; quite close. It is also worth noting that the "FRS" child poverty rate is in fact higher than that from EUROMOD: 21.9%. Using the 50% threshold shows similar estimates using the two methods (11.6% in EUROMOD and 11% in HBAI). At the higher level of threshold, 70% the estimates diverge a little more: 32.4% in EUROMOD and 31% in HBAI. However, the FRS statistics are closer to those from EUROMOD (32.5%).

The comparisons for older peoples show less similar results: EUROMOD underestimates at each threshold. At the 60% threshold the poverty rate for older people is 16.7% compared with 19% from HBAI.

The other panels of Table 48 compare HBAI poverty statistics using 2009 data with estimates from the EUROMOD baseline for the corresponding policy years. While there is no reason to expect the statistics from the two sources to move in the same way (since one fully captures economic and demographic changes as well as policy changes and the other does not), it is still interesting to compare the estimates. In fact, the comparisons are similarly close for all people and children, and the EUROMOD estimates are again too low for older. For example, using the 60% threshold the population poverty rate is 17% in HBAI and 16.4% from EUROMOD.

²⁸ HBAI excludes cases with spouses living away from home. EUROMOD includes them. HBAI includes for students, top-up loans and deducts loan repayments. EUROMOD ignores the loan repayments. HBAI adds the cash value of certain forms of income in kind (free school meals, Healthy Start vouchers and free school milk and free TV licence for those aged 75 and over); EUROMOD ignores these.



Table 48. Poverty risk indicators from the UK Households Below Average Income (HBAI) statistics (2006-9 incomes) and from EUROMOD (2006-9 policies)

	Take up assumption	Median £ per month	Poverty risk: all			Poverty risk: children			Poverty risk: older people			
			50%	60%	70%	50%	60%	70%	50%	60%	70%	
2008	HBAI		1,176	10.0	17.0	26.0	11.0	20.0	31.0	10.0	19.0	29.0
	FRS		1,266	9.6	17.3	25.6	11.0	21.9	32.5	9.5	19.2	30.9
	EUROMOD	100%	1,154	5.5	13.1	23.4	4.7	14.9	29.4	3.8	12.9	25.0
	EUROMOD	Incomplete	1,134	9.6	16.8	25.7	11.6	20.4	32.4	6.8	16.7	27.5
2009	HBAI		1,193	10.0	17.0	25.0	10.0	20.0	31.0	9.0	18.0	28.0
	EUROMOD	100%	1,187	5.1	12.7	22.8	4.3	14.0	28.3	2.9	12.3	24.2
	EUROMOD	Incomplete	1,169	9.1	16.4	25.4	11.3	19.7	31.9	5.5	16.0	26.9

Source: DWP, 2011: HBAI Tables 2009 and previous years http://research.dwp.gov.uk/asd/hbai/hbai2009/supp_tabs.asp

Notes: Poverty risk is defined as the percentage of people with household incomes below 50%, 60% or 70% of median equivalised household incomes. Incomes are shown as monthly £ sterling amounts equivalised by the modified OECD equivalence scale (single = 1). In these comparisons children are defined as aged under 16 or under 19 if in full-time non-advanced education and unmarried; older people are defined as 65+ if male and 60+ if female.

~ not yet available



4.2.2 Income inequality

Table 49 compares estimates of income inequality and descriptions of the income distribution from EUROMOD with those published in the official UK HBAI statistics for 2008/9. The comparison is shown using two sets of EUROMOD estimates: assuming 100% take-up of means-tested benefits and tax credits, and using the incomplete take-up assumption. Also shown are statistics calculated by us from the FRS, using the EUROMOD sample and income concept.

In a similar way to the poverty estimates, the correction for non take-up improves the comparison. The Gini coefficient is increased by one point although there is still quite a large discrepancy between the HBAI estimate (0.36) and the EUROMOD estimate (0.33). One contributory factor is the way in which the HBAI statistics are corrected for lack of enough households with sufficiently high income in the FRS data. The correction uses information from tax statistics to inflate the incomes of some of the higher income households in the data (DWP, 2010). This has no effect on the median or poverty estimates but does affect the HBAI estimates shown on Table 49 for the Gini and the income share of the top decile group.²⁹ It also, by implication, reduces the share of all other decile groups. Once this is taken into account, the EUROMOD and HBAI estimates are generally quite close.

²⁹ It does not seem to affect the median of the top decile group since the value of this taken from the FRS is higher rather than lower than the HBAI estimate. The definition of the “rich” in the 2008 HBAI data (who have their weights inflated and their income imputed from tax records) are working age individuals in GB with annual net income in excess of £150,000 or in N. Ireland in excess of £100,000. Those of pension age are treated similarly if they have annual gross income in excess of £60,000. It is not possible to translate these individual income levels into equivalised household disposable income as used in the HBAI statistics.



Table 49. Income distribution statistics from UK Households Below Average Income (HBAI) statistics and from, the FRS data and from EUROMOD 2008 incomes, for two take-up assumptions

	HBAI	FRS	EUROMOD		Ratio EUROMOD / HBAI	
			100%	Incomplete	100%	Incomplete
Gini coefficient	0.36	0.36	0.31	0.33	0.87	0.93
Mean	1,465	1,550	1,406	1,373	0.96	0.94
Median	1,176	1,266	1,154	1,134	0.98	0.96
Decile Group medians						
1	436	507	567	441	1.30	1.01
2	662	721	714	656	1.08	0.99
3	809	876	826	786	1.02	0.97
4	950	1,023	944	915	0.99	0.96
5	1,101	1,180	1,077	1,059	0.98	0.96
6	1,262	1,354	1,232	1,217	0.98	0.96
7	1,462	1,572	1,427	1,417	0.98	0.97
8	1,707	1,834	1,665	1,658	0.98	0.97
9	2,112	2,274	2,030	2,027	0.96	0.96
10	3,097	3,267	2,885	2,880	0.93	0.93
Decile Group Share %						
1	2.6	2.1	3.8	2.9	1.44	1.10
2	4.5	4.7	5.1	4.8	1.13	1.06
3	5.5	5.7	5.9	5.7	1.07	1.04
4	6.5	6.6	6.7	6.7	1.03	1.02
5	7.1	7.6	7.7	7.7	1.08	1.08
6	9.1	8.8	8.8	8.9	0.97	0.98
7	10.0	10.2	10.1	10.3	1.01	1.03
8	11.7	11.9	11.9	12.1	1.01	1.03
9	14.5	14.8	14.6	14.9	1.01	1.03
10	28.5	27.8	25.5	26.1	0.90	0.92

Sources: DWP HBAI Tables A2 and A3. http://research.dwp.gov.uk/asd/hbai/hbai2009/supp_tabs.asp

Notes: Mean and medians are in equivalised £ per month using the modified OECD equivalence scale (single=1). Two take-up assumptions for EUROMOD estimates: 100% and incomplete take-up.

4.3 Summary of “health warnings”

This final section summarises the main findings in terms of particular aspects of the UK part of EUROMOD or its database that should be borne in mind when planning appropriate uses of the model and in interpreting results.

- Although the sample size of the FRS survey data is large by international standards, care should be anyway taken in interpreting results for small sub-groups of the population.
- High income people, self employment earnings and investment income are generally underrepresented, possibly due to higher survey non-response by the types of people



concerned, and under reporting of such sources of income, particularly by high income respondents.

- Receipt of benefits or tax credits based on past circumstances is not modelled. It is effectively assumed that entitlement is based on current circumstances. This has particular bearing on simulations of Child Tax Credit and especially Working Tax Credit, which are in practice based on income in the previous year. Final awards are only adjusted if current year income exceeds a threshold which, in 2008 to 2010 especially was very high.
- Our baseline applies a correction for non take-up of means-tested benefits and tax credits to reduce the proportions of those entitled who are modelled to receive the benefit/credit. This correction is only approximate. It improves poverty and inequality estimates relative to those produced officially using the same underlying data. But some benefits remain over-simulated (Pension Credit Guarantee; Council Tax Benefit) and others under-simulated (Working Tax Credit and Child Tax Credit). For some applications of EUROMOD users are advised to explore the full-take up option as well.
- When comparing results for the UK with those for other countries it is important to remember that:
 - UK results are based on FRS data, not data from the EU-SILC. These data relate to 2008/09 not 2008 (2007 incomes).
 - The reference time period for UK data is (generally) the last month, rather than the previous year (as for EU-SILC).
- When using results from the 2009 to 2011 policy years it is important to remember that no adjustments have been made for demographic changes or changes in the composition or distribution of market incomes since 2008/09 (except those captured by updating by income source). In particular 2009 to 2011 baseline results do not capture the effects of recession on increased unemployment or reductions in hours worked.
- The validation exercises conducted so far point to some puzzles that require further work to fully understand. Users are advised to read the validation section of this report and be aware of the issues raised in interpreting the results of their simulations.

5. REFERENCES

Department for Work and Pensions (2010), *Households Below Average Income 1994/95 – 2008/09*, DWP: London.

Department for Work and Pensions (2010), *Income Related Benefits Estimates of Take-Up in 2008/2009*. DWP: London.

HMRC (2010), *Child Tax Credit and Working Tax Credit Take-up Rates 2008-09*. HMRC: London.

6. SOURCES FOR TAX-BENEFIT DESCRIPTIONS/RULES

6.1 General sources for tax-benefit descriptions/rules

Adam S. and J. Browne (2006) 'A survey of the UK tax system', IFS Briefing note n.9, Institute for Fiscal Studies, London, available from <http://www.ifs.org.uk/publications/1711>

Child Poverty Action Group (2005) "Welfare Benefits and Tax Credits Handbook 2005/2006", CPAG London

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DWP (2009) The Abstract of Statistics for Benefits, National Insurance Contributions, and Indices of Prices and Earnings 2008 Edition, Newcastle, Department for Work and Pensions., <http://research.dwp.gov.uk/asd/asd1/abstract/Abstract2008.pdf>

House of Commons Library (2005) Direct taxes: rates and allowances 2005-2006, Research paper 05/27, London. <http://www.parliament.uk/commons/lib/research/rp2005/rp05-027.pdf>

HMRC (2009) “Tax Benefit Reference Manual 2009-10 Edition”, HM Treasury London.

6.2 Useful websites

Her Majesty’s Revenue and Excise - www.hmrc.gov.uk

For particular topics:

<http://www.hmrc.gov.uk/taxcredits/index.htm>

<http://www.hmrc.gov.uk/incometax/index.htm>

<http://www.hmrc.gov.uk/individuals/tmanational-insurance.shtml>

Information website

<http://www.direct.gov.uk/en/MoneyTaxAndBenefits/index.htm>

Department for Work and Pensions

<http://www.dwp.gov.uk/>

Institute for Fiscal Studies

<http://www.ifs.org.uk/fiscalFacts/taxTables>