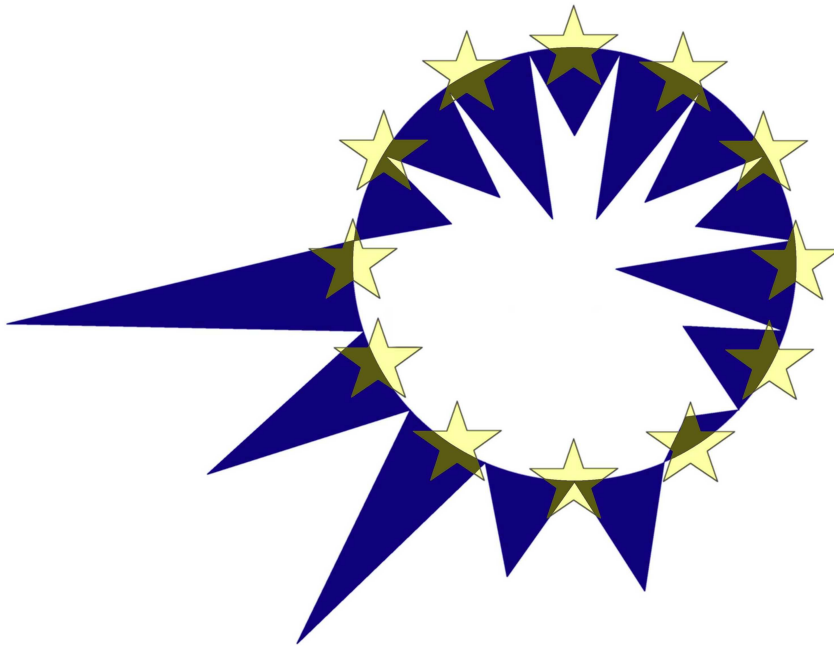


**EUROMOD  
COUNTRY REPORT**



**UNITED KINGDOM (UK)  
2005-2009**

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and Francesca Zantomio**

**14/12/2010**

**EUROMOD version F3.0**



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.

A major EUROMOD development project (*EUROMODupdate*), supported by DG-EMPL has the key objective to improve and extend EUROMOD's usefulness. This involves enlarging and updating EUROMOD from 19 countries to cover all 27 Member States and recent policy systems, using EU-SILC (European Union Statistics on Income and Living Conditions) data as the input database. *EUROMODupdate* began in February 2009 and lasts for 3 years.

The work is being carried out by the EUROMOD core developer team, based mainly in ISER University of Essex, in collaboration with a group of national teams.

A project Steering Group has been established, under the chairmanship of Sir Tony Atkinson.

Preparatory work in some of the New Member States is being conducted by the European Centre, Vienna, under the leadership of Orsolya Lelkes.

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The results presented in this report are derived using EUROMOD F3.0. EUROMOD is continually being improved and updated and the results presented here represent the best available at the time of writing.

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



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# 1. BASIC INFORMATION

## 1.1 Basic figures

Table 1. Basic figures

	Population (m.) <sup>[a]</sup>	Population < 18 (%) <sup>[b]</sup>	Population ≥ 65 (%) <sup>[c]</sup>	Life Expectancy (in years) <sup>[d]</sup>	Fertility Rate <sup>[e]</sup>	Unemployment Rate <sup>[f]</sup>	GDP per head (PPS) <sup>[g]</sup>	Currency	
								Name	Exchange Rate <sup>[h]</sup>
2005	60.060	21.8	16.0	79.17	1.78	4.8	122	Pound Sterling	0.6866326
2006	60.393	21.6	16.1	79.55	1.84	5.4	117	Pound Sterling	0.681956
2007	60.816	21.0	16.1	79.79	1.90	5.3	117	Pound Sterling	0.6779661
2008	61.179	21.4	16.1	n/a	n/a	5.6	116	Pound Sterling	0.70532
2009	61.596	22.2	n/a	n/a	n/a	7.6	116	Pound Sterling	0.85670

### Sources:

[a] Eurostat (2010) 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 15.07.2010. The figures for 2008 and 2009 are provisional.

[b] ONS (2009) Age structure of the United Kingdom, 1971 – 2083, [http://www.statistics.gov.uk/populationestimates/flash\\_pyramid/UK-pyramid/pyramid6\\_30.html](http://www.statistics.gov.uk/populationestimates/flash_pyramid/UK-pyramid/pyramid6_30.html), last accessed on 20.01.2010.

[c] Eurostat (2010) People by age classes [tsp00010]. Proportion of the population aged 65 and over. The proportions of those aged 65-79 and those 80 and over have been added up. <http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00010&language=en> and <http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00010&language=en>, last accessed on 17.07.2010.

[d] Eurostat (2010) Life expectancy at birth by gender [tps00025]. The figures are the average 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 15.07.2010

[e] Eurostat (2010) 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 15.07.2010.

[f] 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 17.07.2010.

[g] 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.

[h] Euro exchange rate on 30<sup>th</sup> of June: <http://www.hmrc.gov.uk/exrate/european-union.htm>, last accessed on: 30.03.2009.

Table 2. Tax-benefit system and government budget

	<b>Total general government revenue<sup>[a]</sup> % of GDP</b>	<b>Total tax and social insurance receipts<sup>[b]</sup> % of GDP</b>	<b>Total general government expenditure<sup>[c]</sup> % of GDP</b>	<b>Social protection<sup>[d]</sup> % of GDP</b>
2005	40.8	37.6	44.0	26.3
2006	41.4	38.4	44.0	26.1
2007	41.4	38.1	44.1	25.3
2008	42.4	38.9	47.3	n/a
2009	39.5	n/a	51.7	n/a

Sources:

[a] OECD (2010): EO Annex Tables: Fiscal balances and public indebtedness, Annex table 26: General government total tax and non-tax receipt;  
[http://www.oecd.org/statisticsdata/0,3381,en\\_2649\\_34595\\_1\\_119656\\_1\\_1\\_37427,00.html](http://www.oecd.org/statisticsdata/0,3381,en_2649_34595_1_119656_1_1_37427,00.html), last accessed on 20.01.2010

[b] Eurostat (2010) Main national accounts tax aggregates,  
[http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov\\_a\\_tax\\_ag&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov_a_tax_ag&lang=en), last accessed on 17.07.2010).

[c] Eurostat (2010) 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 17.07.2010.

[d] Eurostat (2009) Total expenditure on social protection [tps00098]  
[http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/dataset?p\\_product\\_code=TPS00098](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=TPS00098), last accessed on 17.07.2010. The figure for 2007 is provisional.

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

	<b>Sickness/ health care</b>	<b>Disability</b>	<b>Old age</b>	<b>Survivors</b>	<b>Family/ children</b>	<b>Unemployment</b>	<b>Housing</b>	<b>Social exclusion</b>
2005	30.9	8.9	41.7	3.3	6.2	2.6	5.6	0.7
2006	31.4	9.5	41.2	3.2	5.9	2.5	5.7	0.7
2007	30.6	9.8	41.8	3.1	6.0	2.1	5.8	0.7
2008	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2009	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source:

Eurostat (2010) Social benefits by function [tps00106],  
<http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00106&language=en>, last accessed on 17.07.2010.

Notes:

The figures for 2007 are provisional.



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 <sup>[a]</sup>	29.1	9.3	7.9	10.3	30.3	13.1
2006/07 <sup>[b]</sup>	28.6	10.8	7.6	10.2	29.0	n/a
2007/08 <sup>[a]</sup>	30.1	9.4	7.5	10.2	29.2	13.6
2008/09	n/a	n/a	n/a	n/a	n/a	n/a
2009/10	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.

## 1.2 Basic information about the tax-benefit system

- The tax-benefit system is largely a unified, national system.<sup>1</sup> 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 2005/06 was 60 for women and 65 for men; the state pension age for women will start increasing gradually in 2010 until it reaches 65 years old in 2020. Policy for the phased increasing of the pension age for both men and women is currently under discussion.
- Minimum school leaving age is 16; dependent children are defined as being under 16 or under 19 years old and in full-time non-advanced education and not married.
- 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). 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 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.

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



- 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.
- There are statutory requirements to uprate some elements of the tax-benefit system annually, while for others uprating is discretionary. De facto most components are uprated annually by prices (RPI); means-tested benefits follow the “rossi” price index excluding housing costs and local taxes. 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-focussed 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.

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” (doubled for the first year following a child’s birth), which is paid regardless of income for those not in the higher tax bracket. 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.



- *Scope and scale*

Table 5. Social benefits: recipients as percentage of the population

	2005	2006	2007	2008	2009
<b>Total population (thousands)</b>	<b>60.060</b>	<b>60.393</b>	<b>60.816</b>	<b>61.179</b>	<b>61.596</b>
as % of population					
<b>Contributory benefits</b>					
Jobseeker's Allowance (contr.)	0.25	0.23	0.20	0.32	n/a
Incapacity Benefit	2.59	2.42	2.32	2.20	n/a
Retirement Pension	19.99	19.41	19.54	19.83	n/a
Widow's benefit	0.32	0.30	0.25	0.19	n/a
Maternity Allowance	0.05	0.04	0.06	0.08	n/a
<b>Non-contributory, non-means-tested benefits</b>					
Attendance Allowance	2.50	2.47	2.51	2.56	n/a
Disability Living Allowance	4.76	4.70	4.79	4.92	n/a
Severe Disablement Allowance	0.04	0.04	0.04	0.10	n/a
Carer Allowance	0.77	0.76	0.77	0.80	n/a
Industrial Injuries Disablement Benefit	0.26	0.24	0.22	0.22	n/a
<b>Means-tested benefits</b>					
Jobseeker's Allowance (means-tested)	1.12	1.17	1.03	1.20	n/a
Income Support	3.72	3.49	3.47	3.38	n/a
Pension Credit	4.50	4.48	4.49	4.45	4.45
Housing Benefit	6.64	6.66	6.64	6.81	7.38
Council Tax Benefit	8.37	8.41	8.33	8.43	9.09
Working Tax Credit only	4.70	5.28	5.64	6.15	7.39
Child Tax Credit	9.52	9.41	9.32	9.26	9.21

## Sources:

DWP (2009) Medium term forecast: Benefits - Numbers in receipt by DWP strategic objective (except for Incapacity Benefit- credits only cases) 1991/92 to 2010/11,

[http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp), last accessed 17.07.2010.

HMRC(2010) Child and Working Tax Credits Statistics, April 2010, Table 1.1. Families receiving CTC and WTC, or with children and receiving out of work benefits, July 2003 to April 2010, <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-apr2010.pdf>



Table 6. Social benefit: expenditure as proportion of the total expenditure

	2005	2006	2007	2008	2009
<b>Annual expenditure (£ - million)</b>	<b>127,304</b>	<b>131,346</b>	<b>140,695</b>	<b>142,065</b>	<b>152,053</b>
as % of total expenditure					
<b>Contributory benefits</b>	<b>40.38</b>	<b>40.08</b>	<b>39.04</b>	<b>43.02</b>	<b>41.82</b>
Jobseeker's Allowance (contributory)	0.38	0.36	0.30	0.54	0.74
Incapacity Benefit <sup>[a]</sup>	5.22	5.00	4.73	4.79	4.12
Retirement Pension	33.96	33.98	33.67	36.92	36.3
Widow's benefit	0.69	0.61	0.52	0.53	0.43
Maternity Allowance	0.13	0.13	0.18	0.24	0.23
<b>Non-contributory, non-means-tested benefits</b>	<b>12.04</b>	<b>12.29</b>	<b>12.21</b>	<b>12.86</b>	<b>11.7</b>
Attendance Allowance	3.08	3.16	3.12	3.49	3.46
Disability Living Allowance	6.77	6.97	7.01	6.95	6.96
Severe Disablement Allowance	0.70	0.69	0.64	0.65	0.61
Carer Allowance	0.90	0.90	0.90	0.99	0.10
Industrial Injuries Disablement Benefit	0.59	0.57	0.54	0.60	0.57
<b>Means-tested benefits</b>	<b>47.58</b>	<b>46.91</b>	<b>48.75</b>	<b>n/a</b>	<b>n/a</b>
Jobseeker's Allowance (means-tested)	1.43	1.49	1.53	n/a	n/a
Income Support	7.19	6.73	6.17	6.34	6.63
Pension Credit	4.26	4.38	4.64	5.75	5.57
Housing Benefit	10.94	11.30	12.21	12.18	12.78
Council Tax Benefit	2.96	3.00	3.01	3.00	2.99
Working Tax Credit	3.59	4.11	4.20	*	*
Child Tax Credit	11.01	11.36	11.14	13.03*	14.38*
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Sources:

ONS (2010) Central Government: Net social expenditure, table 1.1C (GZSJ), in Financial Statistics, no. 573, London, ONS, p. 18, [http://www.statistics.gov.uk/downloads/theme\\_economy/FinStats\\_Jan10.pdf](http://www.statistics.gov.uk/downloads/theme_economy/FinStats_Jan10.pdf)

DWP (2009) Medium term forecast: Table 3: Benefit expenditure, Great Britain, 1991/92 to 2010/11 (nominal terms), [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp), last accessed on 17.07.2010.

\*These figures show the combined public expenditure equivalent for both Working and Child Tax Credit, taken from HMRC (2010) Table 1.5: Estimate costs of the principal tax expenditure and structural reliefs, [http://www.hmrc.gov.uk/stats/tax\\_expenditures/table1-5.pdf](http://www.hmrc.gov.uk/stats/tax_expenditures/table1-5.pdf), last accessed on 17.07.2010

Notes:

[a] Employment and Support Allowance from 2009 onwards.



### 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 tax**<sup>2</sup> 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”.<sup>3</sup> 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 tax**<sup>4</sup> 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 tax**<sup>5</sup> 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

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<sup>2</sup> See [http://www.hmrc.gov.uk/stats/tax\\_structure/menu.htm](http://www.hmrc.gov.uk/stats/tax_structure/menu.htm)

<sup>3</sup> See [http://www.hmrc.gov.uk/stats/tax\\_structure/table-a1a.xls](http://www.hmrc.gov.uk/stats/tax_structure/table-a1a.xls) for details on the tax parameters.

<sup>4</sup> See [http://www.hmrc.gov.uk/stats/capital\\_gains/menu.htm](http://www.hmrc.gov.uk/stats/capital_gains/menu.htm)

<sup>5</sup> See [http://www.hmrc.gov.uk/stats/inheritance\\_tax/menu.htm](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 Duties***<sup>6</sup> (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.

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<sup>6</sup> [http://www.hmrc.gov.uk/stats/survey\\_of\\_prop/index.htm](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

	2005/06		2006/07		2007/8		2008/09		2009/10 <sup>[d]</sup>	
	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue	£ million	% of total revenue
Income tax	130,481	32.79	143,327	33.83	147,324	34.77	147,856	33.77	134,093	33.87
National Insurance Contributions	85,522	21.49	87,273	20.60	100,410	23.70	96,882	22.13	94,873	23.96
Capital gains tax	3,042	0.76	3,813	0.90	5,268	1.25	7,852	1.79	2,458	0.62
VAT	72,856	18.31	77,360	18.26	80,601	19.02	78,439	17.92	67,207	16.97
Corporation tax	41,829	10.11	44,308	10.46	46,383	10.95	43,077	9.84	33,393	8.43
Inheritance tax	3,259	0.81	3,558	0.84	3,834	0.90	2,851	0.65	2,218	0.56
Stamp duties	10,918	2.74	13,392	3.16	14,124	3.33	7,999	1.83	7,425	1.88
Fuel duties	23,438	5.89	23,585	5.57	24,905	5.88	24,615	5.62	26,730	6.75
Tobacco and alcohol duties	15,820	3.98	16,062	3.79	16,396	3.87	16,869	3.85	17,776	4.49
Other duties <sup>[a]</sup>	2,326	0.58	2,362	0.56	3,475	0.82	4,521	1.03	4,464	1.13
Other taxes <sup>[b]</sup>	5,092	1.30	5,273	1.24	4,863	1.15	5,802	1.33	4,345	1.10
Other levies <sup>[c]</sup>	1,070	0.27	1,033	0.24	1,027	0.24	1,050	0.24	976	0.25
Total HMRC	397,912	100.00	423,659	100.00	423,659	100.00	437,813	100.00	395,958	100.00

Source:

HMRC (2009) HM Revenue and Customs annual receipts, [http://www.hmrc.gov.uk/stats/tax\\_receipts/table1-2.xls](http://www.hmrc.gov.uk/stats/tax_receipts/table1-2.xls), last accessed on 25.01.2010

Notes:

[a] Air passenger Duty and Customs and Excise Duty,

[b] Insurance Premium Tax, Petroleum Tax and Landfill Tax

[c] Climate Change Levy and Aggregates Levy.

[d] The figures for 2009/10 are provisional.

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

	2005/06		2006/07		2007/08		2008/09		2009/10	
	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%) <sup>[a]</sup>	3,190	10.26	4,380	13.77	4,580	14.18	1,576	5.10	1,015	3.46
Standard (22%) <sup>[b]</sup>	23,100	74.28	23,700	74.53	23,800	73.68	25,800	83.50	25,400	86.69
Higher (40%)	3,590	11.54	3,770	11.90	3,890	12.04	3,560	11.52	2,910	9.93
Total	31,100	100.00	31,800*	100.00	32,300*	100.00	30,900*	100.00	29,300*	100.00

\*These are preliminary figures at this stage.

Source:

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

Notes:

[a] For 2005/06 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%.

## **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 2005 to 2009**

There have been two structural changes between 2005 and 2009/10, namely the abolition of the 10% income tax rate and the replacement of Incapacity Benefit and Income Support for disabled people with the Employment Support Allowance. From 2008/09 the first band of income tax of 10% was abolished for income from earnings. At the same time the second band was reduced from 22% to 20%.

The introduction of the Employment and Support Allowance (ESA) has not been implemented in EUROMOD. This is because ESA is being phased in over several years and will therefore not be fully operational until 2010/11.

#### **2.2.2 Order of simulation**

Figure 2.3 shows the order in which the main elements of the UK system are simulated. The policies below have been simulated for all policy years 2005-2009.

At the beginning of the spine, in the sheet containing the definition of constants used in the system (i.e. DefConst\_UK), the user finds the switch related to the take-up correction. In the baseline, the correction is switched on. See section 3.3.4 Correcting for non take-up, for more details.

Figure 2.1 Tax-benefit instruments and their treatment in EUROMOD

	Treatment in EUROMOD	Variable name(s)	Why not fully simulated?
<b>BENEFITS</b>			
Jobseeker's Allowance (contributory)	Partly 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 receipt can be switched and the duration or 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	bmaer and bmana	No data on pregnancy dates, contribution conditions, previous earnings
Child Benefit	Simulated	bch	
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 and bfamt	
Social Fund	Excluded	-	No data; cannot model local discretion
Winter Fuel Allowance	Simulated	boaht_s	
<b>TAXES</b>			
Income tax	Simulated	tin_s	Some exemptions and small allowances are ignored.
National Insurance contributions	Simulated	tscee_s, tscese_s and tscer_s	Special schemes for small groups are ignored.
Council Tax	Included	tmu	No data on property value; no location information below standard region.
<b>OTHER INCOME COMPONENTS</b>			
Earnings related state pension	Included	boactcm	Contribution history unknown
Student grants and loans	Included	bedes	Loans replaced grants since data year; grant information is used.
Statutory Sick Pay	Included	bhlwk	No data on qualifying conditions
Child Support	Included	yptmp	No data on absent parents.
Education maintenance allowance	Included	buntr	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.



Figure 2.2 Order of policy simulation in EUROMOD

Section	Policy sheet	Description	Main output	2005	2006	2007	2008	2009
2.3	MinWage_uk	<i>Minimum wage</i>	---	X	X	X	X	X
	ConstDef	<i>Definition of constant and take-up correction</i>	---	X	X	X	X	X
2.4	tscee_tscse_uk	<i>Employee and Self-employed Social Insurance Contributions</i>	tscee_s and tscse_s	X	X	X	X	X
2.5	tscer_uk	<i>Employer Social Insurance Contributions</i>	tscer_s	X	X	X	X	X
2.6	bunct_uk	<i>Jobseeker's Allowance (contributory unemployment benefit)</i>	bunct_s	X	X	X	X	X
2.7	boaht_uk	<i>Winter Fuel Allowance</i>	boaht_s	X	X	X	X	X
2.8	tin_uk	<i>Income Tax</i>	tin_s	X	X	X	X	X
2.9	bwkmt_bfamt_uk	<i>Working Tax Credit and Child Tax Credit</i>	bwkmt_s and bfamt_s	X	X	X	X	X
2.10	bch_uk	<i>Child Benefit</i>	bch_s	X	X	X	X	X
2.12	bsa_uk	<i>Job Seeker' Allowance (means-tested) and Income Support, Pension Credit</i>	bsa_s	X	X	X	X	X
			boamt_s	X	X	X	X	X
2.13	bho_uk	<i>Housing benefits</i>	bho_s	X	X	X	X	X
2.14	bmu_uk	<i>Council Tax Benefit</i>	bmu_s	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 2005 the National Minimum Wage was £4.85 per hour for employees aged 22 and over, £4.10 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 9 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 9. Changes in the rate of the National Minimum Wage from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per hour	£ per hour	£ per hour	£ per hour	£ per hour
Aged 22+	4.85	5.05	5.35	5.52	5.73
Aged 18-21	4.10	4.25	4.45	4.60	4.77
Aged 16-17	3.00	3.00	3.30	3.40	3.53

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

## 2.4 Social Benefits

### 2.4.1 Winter Fuel Allowance (boaht\_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 10 below.

Table 10. Winter Fuel Allowance benefit amounts from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per year	£ per year	£ per year	£ per year	£ per year
At least one member of the HH is aged 60-79	200	200	200	200	250
At least one member of the HH is aged 80 or over	300	300	300	300	400

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *Notes on implementation*

The winter fuel allowance is 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 Working Tax Credit and Child Tax Credit

- *Brief description*

Working Tax Credit and Child Tax Credit are income-based refundable tax credits. They are calculated on an annual basis but they are responsive to changes in income if the claimants report it.

- *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.

**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 11 (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 the Tables 11 and 12 below.



Table 11. Working tax credits amounts from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per 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
WTC Basic element	1,620	1,665	1730	1800	1890
WTC Lone parent element	1,595	1,640	1700	1770	1860
WTC Couple element	1,595	1,640	1700	1770	1860
WTC 30 hours element	660	680	705	735	775
WTC Disability element	2,165	2,225	2310	2405	2530
WTC Severe disability element	920	945	980	1020	1075
WTC Max eligible childcare expenditure, 1 child	175	175	175	175	175
WTC Max eligible childcare expenditure, 2 +	300	300	300	300	300
WTC Proportion of eligible childcare costs covered	70%	80%	80%	80%	80%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

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 70% in 2005, but was increased to 80% in 2006, up to £175 per week per child if only one child and £300 per week if two or more children.

Table 12. Child tax credits amounts from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per 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
CTC Family element	545	545	545	545	545
CTC extra for child under 12 months	1,090	1,090	1,090	1,090	1,090
CTC Child element	1,690	1,765	1,845	2,085	2,235
CTC disability child additional Element	2,285	2,350	2,440	2,540	2,670
CTC Severe disability disabled child additional element	920	945	980	1,020	1,075

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

There is an additional element for individuals who are 50 years or older which they can claim for the first 12 months after having moved into work. These elements were £1,110 if they worked fewer than 30 hours per week and £1,660 if they worked 30 hours or more per week in 2005. 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 (ychot\_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 2005 was £5,220. The same threshold applies if a benefit unit claimed Working Tax Credit and Child Tax Credit. However, when a benefit unit only claims Child Tax Credit, the first threshold increased to £13,190 per year. See Table 13 for the figures for subsequent years.

Table 13. Child tax credits thresholds from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per 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
First threshold	5,220	5,220	5,220	6,420	6,420
First threshold if not entitled to Working Tax Credit	13,910	14,155	14,495	15,575	16,040
First withdrawal rate	37%	37%	37%	39%	39%
Second threshold	50,000	50,000	50,000	50,000	50,000
Second withdrawal rate	6.67%	6.67%	6.67%	6.67%	6.67%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

### 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 2005 (see Table 13). 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. Only if that is the case it will be tapered away at 6.67%.



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 will increasingly be transferred onto Employment 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.

### **2.4.3 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 £17.00 per week for the first or only child in 2005/06. For each additional child £11.40 is paid per week (see Table 14 for the rates in the other policy years). Essentially therefore the weekly entitlement is  $CB = £17.00 + (11.40 * (\text{number of children} - 1))$ .



Table 14. Child benefit rates from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Only/Eldest child	17.00	17.45	18.10	18.80	20.00
Other child(ren)	11.40	11.70	12.10	12.55	13.20

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *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.

#### 2.4.4 Income Support (including income-based Jobseeker's Allowance) (boamt\_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 (IS – over £12,000 if 60 or over))
- 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:



IS/ic-JSA Applicable amount = personal allowances + premiums + housing costs

The personal allowances (sin05\_s) for both benefits are outlined in Table 15 below.

Table 15. Income Support and income-based Jobseeker's Allowance rates from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per week	Jun-06 2006/07 £ per week	Jun-07 2007/08 £ per week	Jun-08 2008/09 £ per week	Jun-09 2009/10 £ per week
Single or lone parent 16-17	33.85	34.60	35.65	47.95	50.95
Single 18-24	44.50	45.50	46.85	47.95	50.95
Single 25 or over	56.20	57.45	59.15	60.50	64.30
Lone parent 18 or over	56.20	57.45	59.15	60.50	64.30
Couple one under 18	67.15	68.65	70.70	72.35	76.90
Couple both over 18	88.15	90.10	92.80	94.95	100.95

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- **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 16 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>£60.60 per week in 2005).

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 and therefore not discussed here. IS recipients who had been claiming IS before April 2004 and who have claimed continuously and still have dependent children would still receive family premiums as part of there IS claim. However, this is likely to affect a few families only and as the eligibility for this would have to be taken from the data, it has not been included in the simulation.



Table 16. Income Support and income-based Jobseeker's Allowance rates for families and carers from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per week	Jun-06 2006/07 £ per week	Jun-07 2007/08 £ per week	Jun-08 2008/09 £ per week	Jun-09 2009/10 £ per week
Carer premium - one qualifies	25.8	26.35	27.15	27.75	29.5
Carer premium - both qualify	51.6	52.7	54.3	54.3	55.5
Severe Disability – one qualifies	45.5	46.75	48.45	50.35	52.85
Severe Disability- two qualify	91.0	93.5	96.9	100.7	105.7
Disability premium - single	23.95	24.5	25.25	25.85	27.5
Enhanced disability premium - single	11.7	11.95	12.3	12.6	13.4
Enhanced disability premium - couple	16.9	17.25	17.75	18.15	19.3
Enhanced disability premium - single	11.7	11.95	12.3	12.6	13.4

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *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 £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 2005) 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 every £250 capital) is calculated on financial capital between £3,000 and the upper threshold £8,000. The limits for tariff income for family units containing a person aged 60+ are £6,000-£12,000. In EUROMOD the default sharing assumption is that the amount is shared equally by both adults in the family.





Table 17. Income Support and income-based Jobseeker's Allowance earnings' disregards and capital limits from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	5	5	5	5	5
Couple	10	10	10	10	10
Disability	20	20	20	20	20
Lone parent	25	25	25	25	25
	£ per year	£ per year	£ per year	£ per year	£ per year
Standard capital lower limit	3,000	6,000	6,000	6,000	6,000
Standard capital upper limit	16,000	16,000	16,000	16,000	16,000

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *Housing costs*

Housing costs (xhcmomi) not covered by Housing Benefit, i.e. rent, can potentially be included in Income Support. Providing that the claimant is responsible for the housing costs (sin24\_s), mortgage interest payments and other housing costs (such as ground rent or service charges for the upkeep of communal areas in shared buildings) are included in the calculation of the applicable amount. The upper limit up of mortgage loans to which interest rates are covered is £100,000. Housing costs in the EUROMOD implementation only refer to mortgage interest and also do not take into account the limit up to which interest is paid. If there are other non-dependant adults in the household who are not receiving IS of ib-JSA themselves, deductions from housing costs might be made as explained below.

- *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 18 below sets out the rates for the different income brackets.



Table 18. Non-dependent deductions on Income Support and income-based Jobseeker's Allowance from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per week	Jun-06 2006/07 £ per week	Jun-07 2007/08 £ per week	Jun-08 2008/09 £ per week	Jun-09 2009/10 £ per week
Rate applying to income above	47.75 322	47.75 338	47.75 353	47.75 369	47.75 382
Rate applying to income between	43.5 258-321.99	43.5 271-337.99	43.5 283-352.99	43.5 296-368.99	43.5 306-381.99
Rate applying to income between	38.2 194-257.99	38.2 204-270.99	38.2 213-282.99	38.2 223-295.99	38.2 231-305.99
Rate applying to income between	23.35 150-193.99	23.35 157-203.99	23.35 164-212.99	23.35 172-222.99	23.35 178-230.99
Rate applying to income between	17 101-149.99	17 106-156.99	17 111-163.99	17 116-171.99	17 120-177.99
Rate applying to <sup>[a]</sup> ...income below	7.4 101	7.4 106	7.4 111	7.4 116	7.4 120

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

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 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, it makes sense that it is simulated before HH and CTB. IS/ib-JSA is not taxable.



## 2.4.5 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 (boamtmm\_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.

### 2.4.5.1 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 20). In addition, their capital must be below £16,000. These are set out in Table 19 below.

Table 19. Pension Credit Minimum Guarantee 2005-2009

As of...	Jun-05	Jun-06	Jun-07	Jun-08	Jun-09
Fiscal year:	2005/06	2006/07	2007/08	2008/09	2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	109.45	114.05	119.05	124.05	130.00
Couple	167.05	174.05	181.7	189.35	198.45

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *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 couples for every £500 of capital over £6,000, £1 of income is added to income for the purpose of the means-test. For single people, for every £250 of capital over £3,000, £1 of income is added to the total income (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 and premiums are set out in the Table 20 below.



- *Calculation*

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

Table 20. Pension Credit allowances, premium and rates 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Severe Disability Premium- single or one qualifies	45.50	46.75	48.45	50.35	52.85
Severe Disability Premium- couple (both qualify)	91.00	93.50	96.90	100.70	105.70
Carer Premium- single or one partner qualifies	25.80	26.35	27.15	27.75	29.50
Carer Premium- couple (both qualify)	51.60	52.70	54.30	55.50	59.00
Capital lower limit for those 60 and over	6,000	6,000	6,000	6,000	6,000
Capital upper limit for those 60 and over	16,000	16,000	16,000	16,000	16,000

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

#### 2.4.5.2 The Saving Credit (SC) (boamtmm\_s)

- *Brief description*

The calculation of the saving credit element follows a procedure that is slightly different from the typical means-tested benefit.

- *Eligibility and means-test*

Individual and/or partners have to be 65 years and have means 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 21. Saving Credit threshold 2005-2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Single person	82.05	84.25	87.3	91.2	96.0
Couple	131.20	134.75	139.6	145.8	153.4

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10



- *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 above). This amount cannot be more than the maximum savings credit which was £16.44 per week for a single person and £21.51 for a couple in 2005.

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 22. Saving Credit rates and withdrawal rate 2005 to 2009

As of...	Jun-05	Jun-06	Jun-07	Jun-08	Jun-09
Fiscal year:	2005/06	2006/07	2007/08	2008/09	2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
Maximum Savings Credit- single	16.44	17.88	19.05	19.71	20.40
Maximum Savings Credit- couple	21.51	23.58	25.26	26.13	27.03
Savings Credit withdrawal rate	40%	40%	40%	40%	40%

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

- *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.

#### 2.4.6 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 head of household as defined by EUROMOD 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. These will be signposted accordingly.

- *Eligibility*

The main eligibility rules for housing benefit are having low income, being responsible for paying the rent/housing costs and that the payments can be met by housing benefit. The latter



refers to housing benefit not being paid if the home concerned is owned by the partner of the claimant or is Crown property, for example. In this case, housing costs 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.

**‘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) are the same as for IS/ob\_JSA for claimants under 60 (see Table 18) but there are additional rates for those 60 and 65+ (see Table 23).

The disability and carer premiums are also the same as for IS/ib-JSA (sin03\_s – sin06\_s). However, claimants of HB and CTB are also eligible for family premium (sin02\_s - see Table 23 below).

Table 23. Housing Benefit and Council Tax Benefit Allowances from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06 £ per week	Jun-06 2006/07 £ per week	Jun-07 2007/08 £ per week	Jun-08 2008/09 £ per week	Jun-09 2009/10 £ per week
Family premium (ordinary rate)	16.1	16.25	16.43	16.75	17.3
Family premium (some lone parents)	6.1	5.95	5.77	22.2	22.2
Family premium (baby under 1 addition )	10.5	10.5	10.5	10.5	10.5
Disability premium – child	43.89	45.08	46.69	48.72	51.24
Enhanced disability premium - child	17.71	18.13	18.76	19.6	20.65
Single pensioner between 60 and 64	109.45	114.05	119.05	124.5	130
Single pensioner 65 or over	125.9	131.95	138.1	143.8	150.4
Pensioner couple both between 60 and 64	167.05	107.05	181.7	189.35	198.45
Pensioner couple one or both 65 or over	188.6	197.65	207	215.5	225.5

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

**‘Maximum Housing Benefit’**

The ‘maximum housing benefit’ consists of ‘eligible rent’ and 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 are not able to model the local specifications. Therefore, the amount of rent paid 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 2.11). It also includes WTC (except the 30 hours element which is disregarded) and CTC. The earnings disregard (ydg03\_s) for IS/ib-JSA are the same 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/CTB claim includes the disability or higher pensioner premium.

In these instances, referred to as ‘full-time’ earnings disregards the earnings disregards (sin11\_s) are topped up £14.50 in 2005 (£14.90 in 2006, £15.45 in 2007, £16.05 in 2008 and £16.85 in 2010).

The earnings disregard for lone parents for the purposes of HB and CTB 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).

Finally, tariff income is treated as in Pension Credit, i.e. for every £250 over £3,000 if single and for every £500 over £6,000 if in a couple, £1 is counted towards the income of a claimant.

For families in receipt of Income Support (see section 2.11) housing benefit covers 100% of rent (if the rent is within the locally specified maxima), less non-dependent deductions. Non-dependent deductions work in the same way as for IS and ib\_JSA (see above).

For those with higher incomes (or not in receipt of IS for some reason), the amount of 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***

However, the parameter sheets are independently specified. When making policy changes, the user should consider whether the IS and HB calculations should remain based on (largely) identical income and needs assessments. In EUROMOD the default sharing assumption is that the amount is shared equally by both partners in the family.





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

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

#### **2.4.7 Council Tax Benefit (CTB)**

- *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. In EUROMOD the default sharing assumption is that the amount is shared equally by both adults in the family.

- *Simulation*

In the “main” CTB, benefit is calculated in the same way as HB except: the taper is 20% and the personal allowances are the same as IS. 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.

## **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\_empNlearns). The amount of national insurance due is based on the total of annual earnings. Earnings from employment for the purpose of social insurance contributions include 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 (sin02\_s). The rate applying to earnings between PT and UEL varies according to whether the employee is non-contracted-out<sup>7</sup> of the State-Earnings-Related-Pension-Scheme (lim=1). If the employee is not contracted out an 11% rate applies while if the employee is contracted out a 9.4% rate applies (sin01\_s). Besides, women who are married or divorced and have opted out before 1977 (so this can only apply to married/divorced women aged 44 or more in 2005), pay a lower rate of 4.85% applying to earnings between PT and UEL<sup>8</sup>.

Table 24 sets out the different rates. The tax unit for employee national insurance contributions is the individual and the assessment base earnings from employment.

- *Compulsory private pension contribution*

For those who are contracted out of the state pension scheme, the rate of their pension contribution is calculated based on the input data (tpceepx= yem/contributions) and included as a function (tpcee\_s).

Table 24. Gross earnings limits and rate for social insurance contributions

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
<b>Gross earnings limits:</b>	<b>£ per week</b>	<b>£ per week</b>	<b>£ per week</b>	<b>£ per week</b>	<b>£ per week</b>
Primary Threshold (PT)	94	97	100	105	110
Upper Earnings Limit (UEL)	630	645	670	770	844
<b>Rates:</b>					
Below PT	0%	0%	0%	0%	0%
Between PT and UEL:					
<i>Non contracted out</i>	11%	11%	11%	11%	11%
<i>Contracted out</i>	9.4%	9.4%	9.4%	9.4%	9.4%
Above UEL	1%	1%	1%	1%	1%

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

- *Notes on implementation*

Employment and self-employment social insurance contributions have been implemented together to reflect the structure of social insurance contributions in the UK where Class 4 contributions cover income from both employment and self-employment.

<sup>7</sup> Whether the employee is contracted out or not is not observed as such in the data; this variable has been imputed according to contributor reported earnings and amount of pension contribution.

<sup>8</sup> However, while this option is included in the policy sheet there are no cases in the data who have contracted out and it has therefore not been implemented in EUROMOD.



## 2.5.2 Self-employed social insurance contributions, Class 2 and Class 4 (tscse\_s)

- *Brief description*

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

- *Amounts and rates*

**Class 2** is a flat payment of £2.10 per week, paid by those whose yearly profit/self employment income (yse) exceeds the so-called ‘Small Earnings Exception’ (£4,345 per year in 2005 (sin02\_s) – see Table 25 for the rates in subsequent years.

Table 25. Rates for self-employment class 2 social insurance contributions from 2005- 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
Flat rate (per week)	£ 2.10	£ 2.10	£ 2.20	£ 2.30	£ 2.40
Small Earnings Exception (per year)	£4,345	£4,465	£4,635	£4,825	£5,075

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 of 8% between a Lower Profits Limit (LPL - £4,895 per year in 2005) and an Upper Profits Limit (ULP - £32,760 per year in 2005) (sin04\_s) and a 1% rate applies above the upper limit (sin05\_s). No contributions are paid below the lower limit (see Table 26 below). The limits apply to annual income but are modelled on a monthly basis in EUROMOD.



Table 26. Upper and Lower Profit Limits for self-employment class 4 social insurance contributions from 2005- 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
Lower Profits Limit(LPL) (per year)	£4,895	£5,035	£5,225	£5,435	£5,715
Upper Profits Limit(ULP) (per year)	£32,760	£33,540	£34,840	£40,040	£43,875
Rate between LPL and UPL	8%	8%	8%	8%	8%
Rate above UPL	1%	1%	1%	1%	1%

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

### 2.5.2.1 Income from self-employment and from employment (tscse\_s)

- *Brief description*

Class 4 contributions are subject to an annual maximum for people who have both employment (yem) and self employment earnings (yse).

“In essence, the Class 4 NICs annual maximum:

- first sets out a Class 2 and main rate Class 4 NICs maximum. It does this by calculating the maximum amount of Class 4 NICs payable on profits between the UPL and the LPL and adds to that figure 53 Class 2 NICs at the rate in force for the year in question (sin06\_s)
- it then deducts from that combined figure any Class 1 NICs that have been paid at the main Class 1 percentage and any Class 2 NICs paid (sin07\_s)
- the difference is the maximum amount of Class 4 NICs that the contributor is liable to pay at the main Class 4 NICs percentage, currently 8% (sin08\_s)
- it then calculates the amount of profits that would be needed to pay that amount of Class 4 NICs and it deducts that figure from the contributor's total profits
- if that figure is a positive figure 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)<sup>9</sup>

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 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 27) and if the employees are 16 years or older.

- *Amounts and rates*

No contributions are paid for earnings below the so called 'Secondary Threshold' corresponding to £94 per week in 2005. On all earnings above this level, employers pay a 12.8% rate 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 27 below.

Table 27. Amounts and rates of employers' social insurance contributions from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
Secondary Threshold	£94p/w	£97p/w	£100p/w	£105p/w	£110p/w
Non contracted out rate above ST	12.8%	12.8%	12.8%	12.8%	12.8%
Contracted out rate between ST and UEL	9.3%	9.3%	9.1%	9.1%	9.1%
Contracted out rate above UEL	12.8%	12.8%	12.8%	12.8%	12.8%

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

#### 2.5.3.1 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.

<sup>9</sup> 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).



- *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 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 (1wh) in 2005.

- *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 earnings<sup>10</sup> (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 28 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.

- *Notes on implementation*

The data does not contain the required information to establish the full 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. Secondly, eligibility is fully simulated. This option is currently switched off. However, the data only allows 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 this way. The last function allows the maximum duration of the contributory JSA to be simulated as lasting six months, the maximum entitlement.

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<sup>10</sup> 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.



- *Benefit amount*

Table 28. Amount of contributory Jobseeker’s Allowance by age for 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per week	£ per week	£ per week	£ per week	£ per week
18-24 years old	44.50	45.50	46.85	47.95	50.95
25 or over	56.20	57.45	59.15	60.50	64.30
Occupational and personal pension disregard	50.00	50.00	50.00	50.00	50.00
Earnings disregard	5.00	5.00	5.00	5.00	5.00

Source: CPAG Welfare Benefits and Tax Credits Handbooks, 2005/06 to 2009/10

## 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. The tax rate varies according to three ‘tax bands’.

- *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 benefit<sup>11</sup> (bdict)
- contributory JSA (bunct\_s)
- rental income from a second property<sup>12</sup> (ypr )
- interests and dividends (except from Individual Savings Accounts (ISAs) and Personal Equity Plans (PEPs)) (yiytx)
- other income (from odd jobs) (yot)

Contributions to 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 to 20% and the abolition of the 10% band for earned income, only income from investment income can be

<sup>11</sup> According to the legislation, IB is taxed only after the first 28 weeks of payment; we assume this is the case, as information of length of IB award is not available in the data at hand.

<sup>12</sup> Rental income from a lodger is taxed if more than £4,250 a year (£2,125 if split jointly). However, this is not taken into account in EUROMOD due to the small number of cases.



taxed at a rate of 10%. This happens in practice only if without the investment income, taxable income is less than a threshold (£2,320 in 2008 and £2,440 in 2009). In that 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 will be 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**<sup>13</sup> (sin01\_s). The amount of the Personal Allowance depends on age and, for those aged 65 years old or above, on total income. The basic tax free personal allowance was £4,895 in 2005. It applies to people of working age and younger.

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.

The **personal tax allowances for individuals 65 and over** are income-tested. Thus, if an older taxpayer has taxable income over £19,500 in 2005 the additional age-related allowances (the Personal Allowance above the basic ‘under 65’ level (£4,895 per year in 2005) and the MCA) are reduced using a 50% taper until the basic ‘under 65’ level of Personal Allowance is reached (sin02\_s).

Besides, a so-called **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 (e.g. aged 70 years old or over in 2005) (sin05\_s). The MCA can be claimed by the husband if the couple married before 2005 (otherwise by partner with highest income); 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, and 10% of such amount represents the MCA tax credit (sin08\_s). MCA rates for the relevant policy years are listed in the bottom rows of Table 29 below.

The personal allowance amounts are laid out in Table 29 below.

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



Table 29. Amounts of different tax allowance from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per year	£ per year	£ per year	£ per year	£ per year
Personal Allowance - under 65 years old	4,895	5,035	5,225	6,035	6,475
Personal Allowance - 65-74 years old	7,090	7,280	7,550	9,030	9,490
Personal Allowance - 75 years old or over	7,220	7,420	7,690	9,180	9,640
MCA - aged 65-74	5,905	6,065	6,285	6,535	[a]
MCA - 75 years old or over	5,975	6,135	6,365	6,625	6,965
Income limit for age-related allowances	19,500	20,100	20,900	21,800	22,900
Tax relief rate for the MCA	10%	10%	10%	10%	10%

Source: HMRC: Rates and Allowances – Income Tax, [http://www.hmrc.gov.uk/stats/tax\\_structure/table-a2a.pdf](http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf), last accessed 19.07.10.

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 19.07.10.

- **Tax schedule**

The limits of the three income tax bands for the relevant policy years are shown in Table 30 below.

Table 30. Income tax bands from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
	£ per year	£ per year	£ per year	£ per year	£ per year
Starting rate band	0-2,090	0-2,150	0-2,230	n/a	n/a
Basic rate band	2,090-32,400	2,150-33,300	2,230-34,600	0-34,800	0-37,400
Higher rate band	over 32,400	over 33,300	over 34,600	over 34,800	over 37,400

Source: HMRC: Rates and Allowances – Income Tax, [http://www.hmrc.gov.uk/stats/tax\\_structure/table-a2a.pdf](http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf), last accessed 19.07.10.

Income up to the starting rate band is taxed at 10% in 2005 to 2007. Income in the basic rate band is taxed at 22% in 2005 to 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 will be taxed at 20%. Income above the higher rate band is taxed at 40% and this has not been changed (sin03\_s).

The income tax rates for the relevant policy years are shown in Table 31 below.





Table 31. Income tax rates from 2005 to 2009

As of... Fiscal year:	Jun-05 2005/06	Jun-06 2006/07	Jun-07 2007/08	Jun-08 2008/09	Jun-09 2009/10
Starting rate	10%	10%	10%	<i>n/a</i> <sup>[a]</sup>	<i>n/a</i> <sup>[a]</sup>
Basic rate	22%	22%	22%	20%	20%
Higher rate	40%	40%	40%	40%	40%
De facto rate on dividends falling in higher rate band	25%	25%	25%	25%	25%
De facto rate on dividends falling below the higher rate band	0%	0%	0%	0%	0%

Source: HMRC: Rates and Allowances – Income Tax,

[http://www.hmrc.gov.uk/stats/tax\\_structure/table-a2a.pdf](http://www.hmrc.gov.uk/stats/tax_structure/table-a2a.pdf), last accessed 19<sup>th</sup> of July 2010.

Notes: [a] From 2008-09 there is a 10 per cent starting rate for earnings has been abolished and only retained for income from savings. See country report, par. 1.5.1 for more detail

- **Taxing savings**

The rate at which income from savings (yiytx) is taxed depends on the amount of income from savings and the amount of taxable income not from savings (il\_Taxable\_noinv).

The following rules apply from 2005 to 2007: if income not from savings is the same or lower than the lower limit of the basic rate band (amount#1), then an amount of saving income equal to (£2,320-non saving income) will be taxed with a 10% rate; the non saving income + saving income exceeding basic rate band (amount#1) will be taxed with a 20% rate if smaller than the upper limit of the basic rate band, 40% rate if bigger.

If income not from savings is above the lower limit of the starting rate band, then all the taxable income taxed according to the tax rate of 20% for a income base smaller or equal to the limit of the basic rate band, 40% if the income base is above the upper limit of the basic rate band.

From 2008 onwards, the following rules apply: if income from savings is smaller than the lower limit of the basic rate band minus income not from savings and income not from savings is smaller than the lower limit of the basic rate band, then the income from savings will be taxed at 10%. Otherwise savings will be taxed together with other income at either 20% or 40% depending on the amount of overall taxable income.

### 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) 2003/04. 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 2003/04 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.<sup>14</sup> 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.

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.<sup>15</sup> 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. Imputation procedures for such cases include hot-deck imputation (66% of imputations in 2003/04), algorithms (19%), case by case "mop-up" imputation or benefit assessments (14%). All imputations are recorded in transaction databases, in such a way that it is always possible to reproduce the original pre-imputation data. The EUROMOD database makes use of the imputed data.

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<sup>14</sup> 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.

<sup>15</sup> <http://www.statistics.gov.uk/about/data/harmonisation/default.asp>



Table 32. EUROMOD database description

EUROMOD database	UK_2003_a3
Original name	Family Resources Survey
Provider	Department for Work and Pensions
Year of collection	2003/04
Period of collection	April 2003 – March 2004
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	67,123 individuals
Response rate	64%

### 3.2 Sample quality and weights

#### 3.2.1 Non-response

In 2003/04, 64% of the 45,215 eligible households provided full cooperation<sup>16</sup> with regional variation in response rates reflecting patterns found in other major surveys (see Table 33 below). Proxy responses covered 15% of adults in fully cooperating households.

Table 33. Household response rates in the FRS 2003/04 by government office regions

Government Office Region	Response rate of all households
North East	69%
North West and Merseyside	63%
Yorkshire and the Humber	66%
East Midlands	68%
West Midlands	63%
Eastern	62%
London	59%
South East	63%
South West	64%
England	63%
Wales	66%
Scotland	68%
Northern Ireland	60%
United Kingdom	64%

Source: DWP, Family Resources Survey 2003/04 <http://campaigns.dwp.gov.uk/asd/frs/>

Non response was higher for households living in flats, containing one or two adults and no children, and containing at least one member working.

<sup>16</sup> Individual full cooperation requires less than 13 “don’t know” or “refusal” answers to monetary amount questions out of approx 50 questions.



### 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 2003/04 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 (ODPM<sup>17</sup>, 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 (NISRA<sup>18</sup>), number of lone parents and households (Northern Ireland Department for Social Development estimates).<sup>19</sup>

Table 34. Descriptive Statistics of the Grossing-up weight

	UK_2003_a3
Number	67,123
Mean	871.907
Median	866
Maximum	6,190
Minimum	198
Max/Min	31.26
Decile 1	407
Decile 9	1,299
Dec 9 / Dec1	3.19

No households have been dropped from the sample. The original sample size includes 67,123 individuals and 28,860 households. Applying weights included in the dataset to gross the numbers up to population figures gives 58,525,011 individuals and 25,188,950 households.

### 3.3 Imputations and assumptions

The FRS data are obtained from the UK Data Archive at the University of Essex.<sup>20</sup> Adjustments to variables are kept to a minimum.

<sup>17</sup> Then, the Office of the Deputy Prime Minister.

<sup>18</sup> Northern Ireland Statistics and Research Agency.

<sup>19</sup> For more detail about the extent of imputation and control totals variables used to generate grossing factors, see DWP, Family Resources Survey 2003/04, [www.dwp.gov.uk/asd/frs](http://www.dwp.gov.uk/asd/frs), table M5 and Section 8.

<sup>20</sup> 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.



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, Contracted out or “Married Woman’s rate”) is imputed from information on (imputed) gross earnings and the contribution payment, as well as other information about the individual (age, sex, marital status, whether contributing to a private scheme).

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). 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 two calculated values with the actual pension payment. Then, any excess is assumed to be SERPS.

### 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<sup>21</sup> available at <http://www.data-archive.ac.uk/findingData/snDescription.asp?sn=5139#doc>.

### 3.3.2 Gross incomes

Gross incomes are imputed using the simple formula:

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<sup>21</sup> See in particular “5139userguide3.pdf” and “5139userguide4.pdf” for the Questionnaire, “5139userguide14.pdf” for the FRS derived variables specification and “frs\_2003\_04\_hierarchical\_documentation.xls” for a complete list of FRS variables.



*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 (in 1995/6) investment income is 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 are likely to 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 2003) to the mid point of the policy years applying on June 30<sup>th</sup> (i.e. October 2005 to October 2009) are shown in Table 35.

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 2003/4.

### 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, 2007) and HM Revenue and Customs (HMRC, 2007).<sup>22</sup> For example we assume that some 7% 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 (37% of all families with children). Of those entitled to Pension Credit, 25% do not take up, with the proportion much higher (55%) 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 36 below, some of this effect is captured.

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<sup>22</sup> Where ranges of take-up proportions are published, the mid point is used.



Table 35. Updating factors

Variable	Income source	Index type	2003/04 to 2005	2003/04 to 2006	2003/04 to 2007	2003/04 to 2008	2003/04 to 2008/09	Source of information
	Default	Price index	1.0583	1.0853	1.1093	1.1510	1.1762	Eurostat and ONS <sup>[b]</sup>
yem	Earnings	Earnings index	1.0862	1.1318	1.1756	1.2188	1.2305	ONS <sup>[a]</sup>
yse	Self-employment income	Earnings index	1.0862	1.1318	1.1756	1.2188	1.2305	ONS <sup>[a]</sup>
bdicoa	Attendance allowance	Change in benefit amount	1.0594	1.0883	1.1276	1.1713	1.2299	CPAG <sup>[e]</sup>
bdisc	Disability living allowance (self care)	Change in benefit amount	1.0594	1.0883	1.1276	1.1713	1.2299	CPAG <sup>[e]</sup>
bdimb	Disability living allowance (mobility)	Change in benefit amount	1.0588	1.0876	1.1264	1.1702	1.2290	CPAG <sup>[e]</sup>
bdict	Incapacity benefit	Change in benefit amount	1.0596	1.0880	1.1275	1.1712	1.2446	CPAG <sup>[e]</sup>
bdiwi	Industrial injuries pension	Change in benefit amount	1.0599	1.0882	1.1276	1.1712	1.2295	CPAG <sup>[e]</sup>
bcrdi	Invalid care allowance	Change in benefit amount	1.0591	1.0881	1.1275	1.1712	1.2306	CPAG <sup>[e]</sup>
boact00	NI retirement pension	Change in benefit amount	1.0594	1.0878	1.1272	1.1711	1.2298	CPAG <sup>[e]</sup>
bdisv	Severe disablement allowance	Change in benefit amount	1.0596	1.0883	1.1273	1.1710	1.5539	CPAG <sup>[e]</sup>
bhlwk	Statutory sick pay	Change in benefit amount	1.0599	1.0886	1.1274	1.1717	1.2300	CPAG <sup>[e]</sup>
bunct	Unemployment benefit	Change in benefit amount	1.0284	1.0512	1.0823	1.1070	1.1766	CPAG <sup>[e]</sup>
boawr	War pension	Change in benefit amount	1.0459	1.0691	1.0970	1.1400	1.1452	CPAG <sup>[e]**</sup>
bsuwd	Widow`s pension	Change in benefit amount	1.0594	1.0878	1.1272	1.1711	1.2298	CPAG <sup>[e]</sup>
bmana	Maternity Allowance	Change in benefit amount	1.0600	1.0885	1.1275	1.1718	1.2306	CPAG <sup>[e]</sup>
bmaer	Statutory maternity pay	Change in benefit amount	1.0600	1.0885	1.1275	1.1718	1.2306	CPAG <sup>[e]</sup>
xhcmomi	Mortgage interest payment	Specific price index	1.3948	1.5623	1.8895	1.6479	1.0247	ONS <sup>[c]</sup>
xhert	Rent	Specific price index	1.0599	1.1153	1.1299	1.1690	1.1802	ONS <sup>[d]***</sup>
tmu if drgn1=1*	Council Tax: North East	Change in average Council Tax	1.1068	1.1456	1.1896	1.2318	1.2747	CIPFA <sup>[f]</sup>
tmu if drgn1=4	Council Tax: Yorkshire and Humber.	Change in average Council Tax	1.1080	1.1557	1.2044	1.2522	1.2916	CIPFA <sup>[f]</sup>
tmu if drgn1=2	Council Tax: North West	Change in average Council Tax	1.0844	1.1318	1.1810	1.2258	1.2659	CIPFA <sup>[f]</sup>
tmu if drgn1=5	Council Tax: East Midlands	Change in average Council Tax	1.1013	1.1474	1.1943	1.2572	1.2885	CIPFA <sup>[f]</sup>
tmu if drgn1=6	Council Tax: West Midlands	Change in average Council Tax	1.0988	1.1438	1.1906	1.2356	1.2731	CIPFA <sup>[f]</sup>
tmu if drgn1=7	Council Tax: Eastern	Change in average Council Tax	1.1036	1.1565	1.2094	1.2623	1.3010	CIPFA <sup>[f]</sup>
tmu if drgn1=8	Council Tax: London	Change in average Council Tax	1.0986	1.1497	1.1914	1.2236	1.2390	CIPFA <sup>[f]</sup>
tmu if drgn1=9	Council Tax: South East	Change in average Council Tax	1.1087	1.1596	1.2105	1.2642	1.3069	CIPFA <sup>[f]</sup>
tmu if drgn1=10	Council Tax: South West	Change in average Council Tax	1.1098	1.1628	1.2150	1.2698	1.3141	CIPFA <sup>[f]</sup>
tmu if drgn1=11	Council Tax: Wales	Change in average Council Tax	1.1030	1.2652	1.1984	1.2449	1.2949	CIPFA <sup>[f]</sup>
tmu if drgn1=12	Council Tax: Scotland	Change in average Council Tax	1.0842	1.2132	1.1388	1.1388	1.1388	CIPFA <sup>[f]</sup>

Notes:

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

\*\* uses RPI [2] to update from 2008 to 2009.

\*\*\* uses earnings index [1] to update from 2008 to 2009.





### Sources:

[a] **Earnings:** Average earnings index including bonuses: The figures indicate the average percentage change over each financial year, i.e. April to March the following year (matching the fieldwork period of the FRS). The actual figures are derived by adding the monthly figures for e.g. April 2003 to March 2004 from the table referenced below and dividing them by twelve. Source: April 2009 edition of Economic and Labour Market Review, vol. 3, no. 4, table 2.16: Average earnings including bonuses, using data from series LNMQ, [http://www.statistics.gov.uk/elmr/04\\_09/2.asp](http://www.statistics.gov.uk/elmr/04_09/2.asp)

[b] **Prices:** This index is made up of the RPI up to 2005 and then the CPI from 2005, which is standard for the EUROMOD default updating factor. RPI: The figures indicate the average percentage change of all items within the RPI over each financial year, i.e. April to March the following year (matching the fieldwork period of the FRS). The actual figures are derived by adding the monthly figures for e.g. April 2003 to March 2004 and dividing them by twelve. Source: ONS, taken from the April 2009 edition of Economic and Labour Market Review, vol. 3, no. 4, table 3.01, Producer and consumer prices, using data from series CZBH, [http://www.statistics.gov.uk/elmr/04\\_09/3.asp](http://www.statistics.gov.uk/elmr/04_09/3.asp).

[c] **Mortgage Interest** element in RPI: from table 8 in editions of <http://www.statistics.gov.uk/pdfdir/cpi0107.pdf>.

[d] **Rent:** taken from breakdown of RPI using DOBP, taken from time series data <http://www.statistics.gov.uk/statbase/tsdintro.asp>

[e] **Benefits:** CPAG Sources: *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](http://www.cipfastats.net/uploads/ctax0708_commentary134200741934.pdf)





Table 36. Take-up probabilities

Benefit and tax credit claimant type	Probability of take-up
Housing benefit for pensioners (>60/65) if not receiving PC(GC)	0.865
Housing benefit for people of working age in work if not receiving IS	0.51
Housing benefit for people of working age without work if not receiving IS	0.945
Council tax benefit for owners (with and without mortgage) if not receiving IS or PC	0.405
Council tax benefit for tenants if not receiving IS or PC(GC)	0.807
Pension credit (guarantee or guarantee+savings)	0.75
Pension credit (savings only)	0.45
Income support for people without children	0.775
Income support for people with children	0.91
Child tax credit* and working tax credit for lone parents (not London)	0.93
Child tax credit* and working tax credit for couples with children (not London)	0.75
Child tax credit* and working tax credit (all parents) in London	0.63
Working tax credit (no children)	0.19

Source: DWP 2007 and HMRC 2007

Note: the CTC family element is assumed to be fully taken up. If parents are receiving IS, CTC is assumed to be taken up.

**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 summarised in Table 36 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

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 37 compares aggregate earnings in EUROMOD with estimates from the Annual Survey of Hours and Earnings (ASHE) in 2005. 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 who do not have employees above the PAYE threshold.

Table 37 shows that average earnings across all employees in the EUROMOD 2003/04 FRS database updated to 2005 is remarkably close (99%) to the corresponding average value from ASHE 2005, across all employees whose pay is not affected by absence. The same applies to the averages for men and women respectively.

Also shown are the EUROMOD averages for 2006, 2007, 2008 and 2009. The evolution of these averages simply reflects the way earnings are updated (see previous section) and takes no account of any possible changes in the earnings distribution. One might expect EUROMOD estimates to diverge from the ASHE values as the data are pushed further from their date of



origin. However, in this instance, 2008 mean values for earnings from the updated EUROMOD database are as close to ASHE estimates for that year as in 2005. The ratio for all earnings is 0.9927. For men and women it is 0.9965 and 0.9821 respectively.

Table 37. Average gross monthly earnings from employment in 2005, comparing ASHE and the updated EUROMOD input database; and for EUROMOD 2006-9

	2005			EUROMOD			
	EUROMOD	ASHE	Ratio	2006	2007	2008	2009
All	1813.20	1834.95	<b>0.9881</b>	1889.31	1963.70	2035.55	2057.23
Male	2245.86	2278.07	<b>0.9859</b>	2340.15	2431.82	2520.92	2546.98
Female	1359.08	1386.63	<b>0.9801</b>	1416.10	1472.34	1526.08	1543.17

Sources: ASHE 2005: ASHE results 2005, Table 1.1, weekly gross pay including overtime is multiplied by 4.34 to produce the monthly figures. See

[http://www.statistics.gov.uk/downloads/theme\\_labour/ASHE\\_2005/2005\\_all\\_employees.pdf](http://www.statistics.gov.uk/downloads/theme_labour/ASHE_2005/2005_all_employees.pdf)

## 4.1 Aggregate Validation

### 4.1.1 Non simulated taxes and benefits

Tables 38 and 39 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 are referred to as “EUROMOD/FRS estimates”) and 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 38 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. The numbers on Incapacity benefit and Widows/bereavement benefits were falling over the period. In the case of Incapacity benefit EUROMOD/FRS underestimates the numbers for 2005 a little (9%), and over-estimates the 2009 caseload by a greater margin (22%). Widows benefit recipients are over-estimated by EUROMOD in each policy year, with the extent of this growing over time. Given the small number for this benefit and some others, especially Maternity benefit (and 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.

In contrast with Incapacity benefit, the numbers in receipt of Carer’s allowance have grown over the period and, while the EUROMOD/FRS estimate is close at the beginning in 2005, by 2009 it is underestimated in EUROMOD by 14%.

Retirement pension recipients are under-estimated by between 11% (for 2005) and 18% (for 2009). This is at least partly explained by two factors. Firstly 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. Secondly, around 800,000 (2002 estimate) pension recipients live outside the UK and are naturally not captured by the FRS data. Given this, recipients of retirement pension are probably quite well estimated in EUROMOD for 2005. With the ageing of the population and increasing likelihood of entitlement by married women, the numbers of recipients rose by around 8% between 2005 and 2009 but this increase is not captured in EUROMOD.



The number of Jobseeker's Allowance (contributory) recipients doubled between 2005 and 2009, mainly in the last year due to the increase in unemployment at the onset of the recession. This increase is not captured in the EUROMOD baseline.

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. Disability living allowance is over-reported and Attendance allowance is under-reported and it is possible that there is respondent confusion between the two.



Table 38. 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
	2005-09	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Incapacity benefit	1,388	1,500	1,456	1,412	1,353	1,135	0.93	0.95	0.98	1.03	1.22	A
Retirement Pension	10,264	11,585	11,714	11,938	12,158	12,454	0.89	0.88	0.86	0.84	0.82	A
Widows/Bereavement Benefits	229	153	138	132	115	103	1.50	1.66	1.73	1.99	2.22	A
Job Seeker's Allowance (contributory)	119	146	139	122	167	304	0.82	0.86	0.98	0.71	0.39	A
Attendance Allowance	953	1,445	1,489	1,529	1,567	1,601	0.66	0.64	0.62	0.61	0.60	A
Disability Living Allowance	3,453	2,756	2,830	2,918	3,015	3,114	1.25	1.22	1.18	1.15	1.11	A
Severe Disablement Allowance	210	288	276	263	251	239	0.73	0.76	0.80	0.84	0.88	A
Carer's Allowance	434	448	458	471	482	505	0.97	0.95	0.92	0.90	0.86	A
Industrial Injuries Disablement Allowance	227	266	265	259	256	253	0.85	0.86	0.88	0.89	0.90	A
War Pension and allowances	155	224	213	201	191	191	0.69	0.73	0.77	0.81	0.81	B
Maternity benefit	85	29	27	41	49	51	2.93	3.15	2.07	1.73	1.67	A
Council Tax (payers)	23,828	24,692	24,854	25,052	~	~	0.97	0.96	0.95	~	~	C

Sources:

A. DWP table C1 [http://statistics.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://statistics.dwp.gov.uk/asd/asd4/medium_term.asp)

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

C. CIPFA E&W + S Council Tax Demands and Precepts Statistics <http://www.cipfastats.net/uploads/commentary26820054172.pdf#page=4>

Note: EUROMOD estimates for recipients are the same across policy years. Comparable data are not available for Statutory Sick Pay and Statutory Maternity Pay. Incapacity benefit includes Employment and Support allowance in 2008 and 2009.

~ not yet available



Table 39. 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
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Incapacity benefit	6,002	6,162	6,386	6,633	7,050	6,650	6,566	6,658	6,516	5,912	0.90	0.94	0.96	1.02	1.19	A
Retirement Pension	38,053	39,073	40,487	42,064	44,174	43,262	44,670	47,409	50,080	53,953	0.88	0.87	0.85	0.84	0.82	A
Widows/Bereavement Benefits	1,123	1,154	1,195	1,242	1,304	875	797	737	679	634	1.28	1.45	1.62	1.83	2.06	A
Job Seeker's Allowance (contributory)	321	328	337	345	367	486	478	427	733	1,115	0.66	0.69	0.79	0.47	0.33	A
Attendance Allowance	2,493	2,561	2,654	2,756	2,894	3,924	4,149	4,444	4,739	5,093	0.64	0.62	0.60	0.58	0.57	A
Disability Living Allowance	6,617	6,797	7,041	7,314	7,681	8,618	9,155	9,867	10,527	11,394	0.77	0.74	0.71	0.69	0.67	A
Severe Disablement Allowance	657	675	699	726	964	900	904	898	887	888	0.73	0.75	0.78	0.82	1.09	A
Carer's Allowance	1,093	1,123	1,164	1,209	1,270	1,149	1,181	1,280	1,367	1,499	0.95	0.95	0.91	0.88	0.85	A
Industrial Injuries Disablement Allowance	492	505	523	543	570	746	750	759	781	806	0.66	0.67	0.69	0.70	0.71	A
War Pension and allowances	481	492	505	525	527	1,034	995	966	1,006	1,020	0.47	0.49	0.52	0.52	0.52	B
Statutory Sick Pay	205	211	219	227	239	1,184	1,287	1,469	1,751	1,824	0.17	0.16	0.15	0.13	0.13	A
Maternity benefit	415	427	442	459	482	164	175	247	324	352	2.53	2.44	1.79	1.42	1.37	A
Statutory Maternity Pay	330	339	351	364	383	40	45	48	49	51	8.25	7.53	7.31	7.43	7.51	A
Council Tax	23,873	25,191	25,902	26,847	27,571	21,113	22,064	23,224	24,288	25,047	1.13	1.14	1.12	1.11	1.10	C

Sources:

A. DWP GB Expenditure from table 3 at [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp)

B. UK Blue Book Table 5.2.4S [http://www.statistics.gov.uk/downloads/theme\\_economy/bluebook2010.pdf](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](http://www.statistics.gov.uk/downloads/theme_economy/bluebook2010.pdf)

Note: Incapacity benefit includes Employment and Support allowance in 2008 and 2009.



Finally, the number of Council tax payers appears to be well-represented in the FRS, although the slight increase over the period shown is naturally not reflected in the EUROMOD/FRS estimates. 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 39 shows similar ratios of EUROMOD estimates of total expenditure on each benefit (or revenue from Council tax) and administrative totals. However, 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 38, suggesting that average amounts per recipient/payer are approximately right. Apart from the small benefits affecting few people, where a high degree of precision cannot be expected, the main exception is Disability Living Allowance. While recipients were over-reported, expenditure is under-reported in EUROMOD/FRS and this under-representation increases for later policy years.

Also, Council tax revenue is over-estimated by EUROMOD 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. Comparisons of external statistics upon receipt and expenditure of simulated benefits with EUROMOD estimates (Tables 40 to 43) are discussed below, after discussion of simulated taxes and contributions.

#### **4.1.2 Simulated taxes and benefits**

Validation of simulated elements of income is carried out in relation to independent external sources. Table 40 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 41 repeats the comparison for the means-tested instruments, applying non take-up probabilities as described in the previous section.

Table 42 shows the aggregate annual expenditure, or revenue from each instrument, compared with official sources, assuming full take-up. Table 43 makes the same comparison for means-tested benefits and tax credits, correcting for non-take-up.

#### **4.1.3 Simulated Income tax**

Compared with tax statistics, the number of income tax payers is under-estimated by 6% in 2005. This increases across the policy years (to 13% in 2008) but for 2009 the ratio rises again (the shortfall is 9%). The combination of the downturn and policy changes resulted in a reduction in income tax payers (by 5.5% according to the figures in Table 40). EUROMOD captures the direct effect of policy changes and, on average, of movements in taxable income. However, it does not capture the effect of unemployment reducing the numbers of taxpayers. The total revenue collected by income tax follows a similar pattern (Table 42) with the 2009 EUROMOD estimate showing the smallest shortfall. However, for reasons given above, this



does not mean that the distribution of taxable income is better captured by EUROMOD in 2009 than in 2005.

Possible explanations for the general under-estimation of income tax payers and revenue are that the data do not cover some taxpayers not living in UK households, that taxable income is under-reported or that the FRS under-represents those with very high taxable income.

Also, 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. 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. Thus it is possible that finding ways to adjust for some combination of part year incomes and under-reporting of high incomes (or under-representation of high income earners) would improve the EUROMOD estimates of annual tax revenue and tax payers relative to the administrative statistics.

#### **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. However, the administrative figures refer to any payment of a contribution within the year so a similar issue applies to social contributions in these comparisons, as to income tax. At any one point in time the number of contributors is less than that shown by the administrative statistics. Since employee National Insurance contributions are assessed on a weekly basis (rather than annual, as for income tax), the appropriate time period for counting contributors and for assessing revenue from contributions is this shorter period. Nevertheless there is a non-negligible shortfall of revenue from employee and employer contributions and an over-estimate of revenue from self employed contributions in EUROMOD. Contributions as a whole are under-estimated by about 10%.

#### **4.1.5 Child benefit**

EUROMOD produces estimates very close to the administrative figures. 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 2003/4), this is not surprising. Demographic changes between 2005 and 2009 mean that the number of eligible children increased by 3.8% and the number of families by 6.2% (Table 40). These increases are not reflected in the EUROMOD estimates of recipients after the 2005 policy year. The numbers are therefore underestimated slightly, although the total expenditure is very well-estimated (Table 42).

#### **4.1.6 Winter fuel allowance**

The official statistics and EUROMOD estimates are close in 2005 but diverge somewhat in later policy years due to the increase in numbers of people aged over 60 that are not captured in the updating of the EUROMOD database.

#### **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 40 for recipients and Table 43 for expenditure) the number of recipients is over-estimated compared with administrative statistics. This applies particularly to Income Support (including income tested JSA), Pension Credit and Child Tax Credit. Once the take-up correction described in



section 3 is applied, as shown in Table 41, the ratios of the number of recipients generally move closer to one. Except for Income Support and Pension Credit (Guarantee) the expenditure estimated by EUROMOD is around the right level before any take-up correction (Table 42) and is even too low for Working Tax Credit. The take up correction reduces expenditure such that it is somewhat under the administrative totals for most means-tested benefits and tax credits, but over-estimated for Council Tax benefit and very under-estimated for Working Tax Credit (Table 43). 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.

- *Tax Credits*

After the take-up correction the numbers on either tax credit are reasonably close (a 10% shortfall in 2005) with the expenditure that is captured being 73% of the administrative total. One reason for the shortfall in the simulation may be the income reference period of the FRS data (current month) being rather different to the income assessment period for the tax credits (previous tax year). There may be families with part year earned incomes who qualify for tax credits that are not captured by our data. In the period we examine few corrections were made at the end of the year in the case of families whose income rose during the year (a tolerance of £25,000 increase in income was in operation). These “overpayments” will appear in the administrative totals but not in the EUROMOD simulations, which are based on a current entitlement calculation.

Working Tax Credit may be particularly sensitive to within-year changes because it depends on labour market activity as well as family income. This may explain the large under-estimate by EUROMOD. This may also be due to under-simulation of the child care element due to child care costs being under- or mis- reported in the FRS.





Table 40. 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
		2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Income tax	Individual	29,267	29,283	29,253	26,979	26,736	31,100	31,800	32,300	30,900	29,300	0.94	0.92	0.91	0.87	0.91	A
SIC Employees (Class 1)	Individual	20,176	20,188	20,204	20,185	20,117	25,570	25,170	28,180	~	~	0.79	0.80	0.72	~	~	B
SIC Self employed (Class 2 + 4)	Individual	2,428	2,438	2,438	2,437	2,411	3,050	3,050	3,060	~	~	0.80	0.80	0.80	~	~	B
Child Benefit	Child	13,106	13,106	13,106	13,106	13,106	13,112	13,233	13,267	13,341	13,604	1.00	0.99	0.99	0.98	0.96	C
	Family	7,296	7,296	7,296	7,296	7,296	7,315	7,413	7,475	7,583	7,770	1.00	0.98	0.98	0.96	0.94	C
Winter fuel allowance	Household	11,977	11,977	11,977	11,977	11,977	11,555	11,750	12,123	12,372	12,583	1.04	1.02	0.99	0.97	0.95	E
Working Tax Credit (WTC)	Family	1,880	1,774	1,730	1,879	1,944	1,768	1,919	2,008	2,215	~	1.06	0.92	0.86	0.85	~	D
Child Tax Credit (CTC)	Family	6,462	6,380	6,294	6,207	6,179	4,261	4,251	4,253	4,281	~	1.52	1.50	1.48	1.45	~	D
<i>Both CTC and WTC</i>	Family	1,085	1,052	1,038	1,079	1,111	1,496	1,614	1,672	1,810	~	0.73	0.65	0.62	0.60	~	D
<i>Either CTC or WTC</i>	Family	7,257	7,102	6,986	7,007	7,012	5,939	5,955	5,981	6,120	~	1.22	1.19	1.17	1.14	~	D
<i>Without children (WTC only)</i>	Family	795	722	692	800	833	272	305	336	405	~	2.92	2.37	2.06	1.98	~	D
Income Support (IS) +JSAinc	Family	3,426	3,506	3,496	3,355	3,455	2,798	2,848	2,782	2,890	3,353	1.22	1.23	1.26	1.16	1.03	F
<i>Income Support lone parents only</i>	Family	840	842	839	831	838	789	775	766	739	721	1.06	1.09	1.10	1.13	1.16	F
Pension Credit (PC)	Family	4,162	4,263	4,313	4,281	4,277	2,700	2,729	2,732	2,718	2,731	1.54	1.56	1.58	1.58	1.57	E
<i>Pension Credit GC only</i>	Family	1,310	1,320	1,326	1,352	1,364	767	776	806	882	926	1.71	1.70	1.65	1.53	1.47	G
<i>Pension Credit GC+SC</i>	Family	1,818	1,891	1,939	1,901	1,895	1,322	1,343	1,330	1,246	1,205	1.38	1.41	1.46	1.53	1.57	G
<i>Pension Credit SC only</i>	Family	1,034	1,052	1,048	1,027	1,019	594	599	598	591	600	1.74	1.76	1.75	1.74	1.70	G
<i>All IS+PC+JSAinc</i>	Family	7,588	7,769	7,809	7,636	7,732	5,498	5,577	5,514	5,608	6,084	1.38	1.39	1.42	1.36	1.27	
Housing benefit	Household	4,536	4,566	4,541	4,502	4,498	3,986	4,021	4,033	4,129	4,420	1.14	1.14	1.13	1.09	1.02	E
Council tax benefit	Household	7,529	7,648	7,638	7,541	7,559	5,029	5,080	5,066	5,141	5,437	1.50	1.51	1.51	1.47	1.39	E

Notes: Comparable data are not available for Employer SICs. ~ not yet available



**Sources:**

- A. HMRC 2009 [http://www.hmrc.gov.uk/stats/tax\\_receipts/table1-4.pdf](http://www.hmrc.gov.uk/stats/tax_receipts/table1-4.pdf)
- B. Annual Abstract Table 10.2. [http://www.statistics.gov.uk/downloads/theme\\_compendia/AA2010/aa2010final.pdf](http://www.statistics.gov.uk/downloads/theme_compendia/AA2010/aa2010final.pdf)
- C. HMRC [http://www.hmrc.gov.uk/stats/child\\_benefit/chb-geog-aug09.pdf](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-may10.pdf>
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- F. Annual Abstract Table 10.16 [http://www.statistics.gov.uk/downloads/theme\\_compendia/AA2010/aa2010final.pdf7](http://www.statistics.gov.uk/downloads/theme_compendia/AA2010/aa2010final.pdf7).
- G. Annual Abstract Table 10.17 [http://www.statistics.gov.uk/downloads/theme\\_compendia/AA2010/aa2010final.pdf7](http://www.statistics.gov.uk/downloads/theme_compendia/AA2010/aa2010final.pdf7).



Table 41. 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
		2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Working Tax Credit (WTC)	Family	1,013	979	952	1,021	1,047	1,768	1,919	2,008	2,215	~	0.57	0.51	0.47	0.46	~	D
Child Tax Credit (CTC)	Family	5,197	5,150	5,053	4,988	4,979	4,261	4,251	4,253	4,281	~	1.22	1.21	1.19	1.17	~	D
<i>Both CTC and WTC</i>	<i>Family</i>	<i>873</i>	<i>846</i>	<i>824</i>	<i>871</i>	<i>902</i>	<i>1,496</i>	<i>1,614</i>	<i>1,672</i>	<i>1,810</i>	<i>~</i>	<i>0.58</i>	<i>0.52</i>	<i>0.49</i>	<i>0.48</i>	<i>~</i>	<i>D</i>
<i>Either CTC or WTC</i>	<i>Family</i>	<i>5,337</i>	<i>5,284</i>	<i>5,180</i>	<i>5,138</i>	<i>5,123</i>	<i>5,939</i>	<i>5,955</i>	<i>5,981</i>	<i>6,120</i>	<i>~</i>	<i>0.90</i>	<i>0.89</i>	<i>0.87</i>	<i>0.84</i>	<i>~</i>	<i>D</i>
<i>Without children (WTC only)</i>	<i>Family</i>	<i>140</i>	<i>134</i>	<i>127</i>	<i>150</i>	<i>144</i>	<i>272</i>	<i>305</i>	<i>336</i>	<i>405</i>	<i>~</i>	<i>0.51</i>	<i>0.44</i>	<i>0.38</i>	<i>0.37</i>	<i>~</i>	<i>D</i>
Income Support (IS) +JSAinc	Family	2,845	2,906	2,901	2,777	2,865	2,798	2,848	2,782	2,890	3,353	1.02	1.02	1.04	0.96	0.85	F
<i>Income Support lone parents only</i>	<i>Family</i>	<i>759</i>	<i>767</i>	<i>768</i>	<i>765</i>	<i>759</i>	<i>789</i>	<i>775</i>	<i>766</i>	<i>739</i>	<i>721</i>	<i>0.96</i>	<i>0.99</i>	<i>1.00</i>	<i>1.04</i>	<i>1.05</i>	<i>F</i>
Pension Credit	Family	2,782	2,860	2,902	2,867	2,909	2,700	2,729	2,732	2,718	2,731	1.03	1.05	1.06	1.05	1.07	E
<i>Pension Credit GC only</i>	<i>Family</i>	<i>965</i>	<i>990</i>	<i>1,000</i>	<i>1,004</i>	<i>1,027</i>	<i>767</i>	<i>776</i>	<i>806</i>	<i>882</i>	<i>926</i>	<i>1.26</i>	<i>1.28</i>	<i>1.24</i>	<i>1.14</i>	<i>1.11</i>	<i>G</i>
<i>Pension Credit GC+SC</i>	<i>Family</i>	<i>1,350</i>	<i>1,386</i>	<i>1,434</i>	<i>1,414</i>	<i>1,418</i>	<i>1,322</i>	<i>1,343</i>	<i>1,330</i>	<i>1,246</i>	<i>1,205</i>	<i>1.02</i>	<i>1.03</i>	<i>1.08</i>	<i>1.13</i>	<i>1.18</i>	<i>G</i>
<i>Pension Credit SC only</i>	<i>Family</i>	<i>467</i>	<i>484</i>	<i>469</i>	<i>449</i>	<i>465</i>	<i>594</i>	<i>599</i>	<i>598</i>	<i>591</i>	<i>600</i>	<i>0.79</i>	<i>0.81</i>	<i>0.78</i>	<i>0.76</i>	<i>0.78</i>	<i>G</i>
<i>A l IS+PC+JSAinc</i>	<i>Family</i>	<i>5,627</i>	<i>5,766</i>	<i>5,803</i>	<i>5,644</i>	<i>5,774</i>	<i>5,498</i>	<i>5,577</i>	<i>5,514</i>	<i>5,608</i>	<i>6,084</i>	<i>1.02</i>	<i>1.03</i>	<i>1.05</i>	<i>1.01</i>	<i>0.95</i>	
Housing benefit	Household	4,181	4,177	4,162	4,130	4,151	3,986	4,021	4,033	4,129	4,420	1.05	1.04	1.03	1.00	0.94	E
Council tax benefit	Household	6,252	6,355	6,356	6,262	6,341	5,029	5,080	5,066	5,141	5,437	1.24	1.25	1.25	1.22	1.17	E

Sources:

D. HMRC finalised table 1.1 <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-final-awards-may10.pdf>

E. DWP table C1 [http://statistics.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://statistics.dwp.gov.uk/asd/asd4/medium_term.asp)

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Note: ~ not yet available



Table 42. 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
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Income tax	116,792	122,060	126,448	125,812	123,758	130,481	143,327	147,324	147,856	134,357	0.90	0.85	0.86	0.85	0.92	A
SIC Employees (Class 1)	31,335	32,556	33,929	36,181	36,949	34,810	37,021	38,041	40,409	~	0.90	0.88	0.89	0.90	~	B
SIC Employers	41,457	43,366	44,774	45,889	45,676	46,824	49,528	51,752	55,347	~	0.89	0.88	0.87	0.83	~	B
SIC Self employed (Class 2 + Class4)	3,195	3,309	3,440	3,700	3,801	2,825	2,930	3,013	3,092	~	1.13	1.13	1.14	1.20	~	B
<b>SIC total (any SIC)</b>	<b>75,988</b>	<b>79,231</b>	<b>82,143</b>	<b>85,770</b>	<b>86,426</b>	<b>84,459</b>	<b>89,479</b>	<b>92,806</b>	<b>98,848</b>	<b>97,704</b>	<b>0.90</b>	<b>0.89</b>	<b>0.89</b>	<b>0.87</b>	<b>0.88</b>	<b>C</b>
Child Benefit	9,909	10,170	10,539	10,941	11,593	9,627	10,124	10,414	10,954	~	1.03	1.00	1.01	1.00	~	B
Winter fuel allowance	1,921	1,921	1,921	1,921	2,451	1,982	2,015	2,071	2,694	2,731	0.97	0.95	0.93	0.71	0.90	E
Working Tax Credit (WTC)	3,135	3,099	3,073	3,617	3,866	4,568	5,393	5,915	7,097	~	0.69	0.57	0.52	0.51	~	D
Child Tax Credit (CTC)	13,983	14,290	14,645	16,261	17,423	14,017	14,923	15,679	18,020	~	1.00	0.96	0.93	0.90	~	D
<b>CTC and WTC</b>	<b>17,118</b>	<b>17,389</b>	<b>17,718</b>	<b>19,878</b>	<b>21,290</b>	<b>18,585</b>	<b>20,317</b>	<b>21,595</b>	<b>25,117</b>	~	<b>0.92</b>	<b>0.86</b>	<b>0.82</b>	<b>0.79</b>	~	<b>D</b>
<b>WTC only</b>	<b>969</b>	<b>935</b>	<b>909</b>	<b>1,127</b>	<b>1,207</b>	<b>520</b>	<b>627</b>	<b>719</b>	<b>952</b>	~	<b>1.86</b>	<b>1.49</b>	<b>1.26</b>	<b>1.18</b>	~	<b>D</b>
Income Support (IS) +JSAinc	10,740	11,802	12,464	11,837	12,304	10,975	10,801	10,764	10,835	12,599	0.98	1.09	1.16	1.09	0.98	E
<b>Income support lone parents only</b>	<b>2,474</b>	<b>1,612</b>	<b>2,731</b>	<b>2,727</b>	<b>2,808</b>	<b>3,786</b>	<b>3,415</b>	<b>3,321</b>	<b>3,118</b>	<b>2,667</b>	<b>0.65</b>	<b>0.47</b>	<b>0.82</b>	<b>0.87</b>	<b>1.05</b>	<b>F</b>
Pension Credit Guarantee Credit	6,494	7,156	7,680	7,933	8,153	5,424	5,758	6,271	6,533	6,820	1.20	1.24	1.22	1.21	1.20	E
Pension Credit Savings Credit	1,373	1,544	1,675	1,695	1,741	1,003	1,111	1,192	1,265	1,380	1.37	1.39	1.41	1.34	1.26	E
<b>Pension Credit(PC) total</b>	<b>7,867</b>	<b>8,699</b>	<b>9,355</b>	<b>9,628</b>	<b>9,893</b>	<b>6,427</b>	<b>6,869</b>	<b>7,463</b>	<b>7,798</b>	<b>8,200</b>	<b>1.22</b>	<b>1.27</b>	<b>1.25</b>	<b>1.23</b>	<b>1.21</b>	<b>E</b>
<b>all IS+PC+JSAinc</b>	<b>18,607</b>	<b>20,502</b>	<b>21,817</b>	<b>21,464</b>	<b>22,198</b>	<b>17,402</b>	<b>17,670</b>	<b>18,227</b>	<b>18,633</b>	<b>20,799</b>	<b>1.07</b>	<b>1.16</b>	<b>1.20</b>	<b>1.15</b>	<b>1.07</b>	
Housing benefit	14,822	15,767	15,900	16,355	16,515	13,928	14,840	15,732	17,181	19,632	1.06	1.06	1.01	0.95	0.84	E
Council tax benefit	5,339	5,754	5,914	6,047	6,216	3,774	3,943	4,023	4,230	4,648	1.41	1.46	1.47	1.43	1.34	E

Sources:

A. HMRC table 1.2 [http://www.hmrc.gov.uk/stats/tax\\_receipts/table1-2.pdf](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](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](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-may10.pdf>

E. DWP GB Expenditure from table 3 [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp)

F. DWP GB Expenditure from table 7 [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp)

Notes: ~ not yet available



Table 43. 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
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	
Working Tax Credit (WTC)	1,933	1,945	1,901	2,248	2,394	4,568	5,393	5,915	7,097	~	0.42	0.36	0.32	0.32	~	D
Child Tax Credit (CTC)	11,688	12,077	12,251	13,715	14,587	14,017	14,923	15,679	18,020	~	0.83	0.81	0.78	0.76	~	D
<b>CTC and WTC</b>	<b>13,621</b>	<b>14,022</b>	<b>14,153</b>	<b>15,963</b>	<b>16,981</b>	<b>18,585</b>	<b>20,317</b>	<b>21,595</b>	<b>25,117</b>	~	<b>0.73</b>	<b>0.69</b>	<b>0.66</b>	<b>0.64</b>	~	<b>D</b>
<b>WTC only</b>	<b>187</b>	<b>176</b>	<b>161</b>	<b>203</b>	<b>203</b>	<b>520</b>	<b>627</b>	<b>719</b>	<b>952</b>	~	<b>0.36</b>	<b>0.28</b>	<b>0.22</b>	<b>0.21</b>	~	<b>D</b>
Income Support+JSAinc	8,946	9,823	10,365	9,967	10,295	10,975	10,801	10,764	10,835	12,599	0.82	0.91	0.96	0.92	0.82	E
<b>Income support lone parents only</b>	<b>2,221</b>	<b>2,382</b>	<b>2,490</b>	<b>2,525</b>	<b>2,558</b>	<b>3,786</b>	<b>3,415</b>	<b>3,321</b>	<b>3,118</b>	<b>2,667</b>	<b>0.59</b>	<b>0.70</b>	<b>0.75</b>	<b>0.81</b>	<b>0.96</b>	<b>F</b>
Pension Credit Guarantee Credit	4,797	5,317	5,723	5,898	6,141	5,424	5,758	6,271	6,533	6,820	0.88	0.92	0.91	0.90	0.90	E
Pension Credit Savings Credit	869	966	1,043	1,060	1,098	1,003	1,111	1,192	1,265	1,380	0.87	0.87	0.88	0.84	0.80	E
<b>Pension Credit total</b>	<b>5,666</b>	<b>6,283</b>	<b>6,766</b>	<b>6,958</b>	<b>7,239</b>	<b>6,427</b>	<b>6,869</b>	<b>7,463</b>	<b>7,798</b>	<b>8,200</b>	<b>0.88</b>	<b>0.91</b>	<b>0.91</b>	<b>0.89</b>	<b>0.88</b>	<b>E</b>
<b>all IS+PC+JSAinc</b>	<b>14,612</b>	<b>16,106</b>	<b>17,131</b>	<b>16,925</b>	<b>17,534</b>	<b>17,402</b>	<b>17,670</b>	<b>18,227</b>	<b>18,633</b>	<b>20,799</b>	<b>0.84</b>	<b>0.91</b>	<b>0.94</b>	<b>0.91</b>	<b>0.84</b>	
Housing benefit	13,797	14,599	14,707	15,016	15,429	13,928	14,840	15,732	17,181	19,632	0.99	0.98	0.93	0.87	0.79	E
Council tax benefit	4,592	4,929	5,083	5,177	5,407	3,774	3,943	4,023	4,230	4,648	1.22	1.25	1.26	1.22	1.16	E

Sources:

D. HMRC finalised table 1.1 1 <http://www.hmrc.gov.uk/stats/personal-tax-credits/cwtc-final-awards-may10.pdf>

E. DWP GB Expenditure from table 3 [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp)

F. DWP GB Expenditure from table 7 [http://research.dwp.gov.uk/asd/asd4/medium\\_term.asp](http://research.dwp.gov.uk/asd/asd4/medium_term.asp)

Notes: ~ not yet available



- ***Income Support and Pension Credit***

After the take-up correction the numbers of recipients of Income Support and Pension Credit (PC) are quite well captured by EUROMOD (Table 42). However, within PC there are too few Savings Credit recipients and too many in receipt of Guarantee Credit. Expenditure in total is somewhat underestimated in both cases by around 10%. In the case of IS a lower proportion is captured by EUROMOD for the 2009 policy year (82%) because the EUROMOD updating procedure does not take account of the increasing numbers on IS because of lack of employment due to the recession.

- ***Housing Benefit and Council Tax Benefit***

After the take-up correction Housing Benefit recipients and expenditure are well-estimated by EUROMOD, although by the 2009 policy year there is some under-estimation due to not capturing increasing numbers of households becoming entitled due to the recession.

Council Tax Benefit (CTB) is over-estimated even after the take-up correction, by around 25%. 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. To the extent that some non-simulated benefits are under-reported and the 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 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 44 shows a comparison with published UK official statistics (Households Below Average Income or HBAI) based on the same data as EUROMOD (FRS) but for the relevant policy year rather than the data year (2003/4).

The first, unshaded, panel shows the comparison of 2005 HBAI (Before Housing Costs) poverty statistics with EUROMOD’s 2005 policy year. The data have been updated using the methods described in section 3 above, which adjust the level of incomes but do not otherwise account for economic change since 2003/4, nor for any demographic or other relevant changes in the composition of the population. Aside from differences introduced due to using simulated rather than recorded income components and any differences in the precise sample or income concept<sup>23</sup> we would expect the HBAI and EUROMOD results to be close but not identical.

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<sup>23</sup> 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.



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 14.6% compared with 18% in HBAI. Once the take-up correction is applied the EUROMOD estimate rises to 16.9%; close but not identical. The child poverty rate is 20.3% compared to 22% from HBAI; too low but not dramatically so. However, the poverty rate for older people, which roughly matches that from HBAI without the take-up correction, is too high with the correction; 23.5% compared with 21% from HBAI.

Using the 50% threshold brings the two estimates closer (11.7 and 11%). Using the 70% threshold, while resulting in close estimates for children and the population as a whole, still results in a substantial difference for older people (36.6 compared with 33%).

Median income (and hence the poverty thresholds) are a little lower using EUROMOD with incomplete take-up than that from HBAI, perhaps explaining the slightly lower poverty rates for children and the whole population. It remains to be explained why the EUROMOD estimate of poverty among older people is so high.

The lower panels of Table 44 compare HBAI poverty statistics using 2006-8 data with estimates from the EUROMOD baseline for the policy years 2006-8. EUROMOD estimates for 2009 are also given. 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, with the exception of poverty rates for older people, which diverge further, and for poverty using the 50% threshold, the estimates of poverty headcounts from HBAI and EUROMOD with the take-up correction remain close. For example, using the 60% threshold and “2008” estimates the population poverty rate is 17% in HBAI and 16.8% from EUROMOD. The rate for children is 20% in HBAI and 20.4% from EUROMOD.



Table 44. Poverty risk indicators from the UK Households Below Average Income (HBAI) statistics (2005-8 incomes) and from EUROMOD (2005-9 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%
2005	HBAI	1,046	10.0	18.0	26.0	11.0	22.0	33.0	11.0	21.0	33.0
	EUROMOD 100%	1,044	6.1	14.6	24.2	5.2	17.1	30.4	8.8	20.6	34.1
	EUROMOD incomplete	1,032	8.8	16.9	25.9	9.3	20.3	32.2	11.7	23.5	36.6
2006	HBAI	1,132	10.0	17.0	26.0	12.0	21.0	32.0	11.0	21.0	32.0
	EUROMOD 100%	1,084	6.1	14.7	24.4	5.2	17.3	30.8	9.0	20.7	34.4
	EUROMOD incomplete	1,071	8.8	16.9	26.0	8.8	20.3	32.5	12.0	23.8	36.7
2007	HBAI	1,135	10.0	18.0	26.0	11.0	21.0	32.0	11.0	21.0	31.0
	EUROMOD 100%	1,125	6.1	14.7	24.6	5.3	17.5	31.0	8.8	20.7	34.7
	EUROMOD incomplete	1,112	8.8	17.0	26.1	9.0	20.4	32.7	11.9	24.1	37.3
2008	HBAI	1,176	10.0	17.0	26.0	11.0	20.0	31.0	10.0	19.0	29.0
	EUROMOD 100%	1,175	6.2	14.6	24.2	5.0	16.4	29.6	9.3	21.1	35.1
	EUROMOD incomplete	1,158	8.7	16.8	25.6	8.2	19.4	31.2	12.2	24.2	37.3
2009	HBAI	~	~	~	~	~	~	~	~	~	~
	EUROMOD 100%	1,205	5.5	13.7	23.4	4.3	15.1	28.3	7.1	19.8	33.4
	EUROMOD incomplete	1,190	8.2	16.0	25.0	8.4	18.0	30.5	10.3	23.1	35.8

Source: DWP, 2010: HBAI Tables A2, H1, H2 and H4 [http://research.dwp.gov.uk/asd/hbai/hbai2008/supp\\_tabs.asp](http://research.dwp.gov.uk/asd/hbai/hbai2008/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 45 compares estimates of income inequality and descriptions of the income distribution from EUROMOD with those published in the Official UK HBAI statistics for 2005. 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.

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 and there is still quite a large discrepancy between the HBAI estimate (0.35) and the EUROMOD estimate (0.32). 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 45 for the mean and the income share of the top decile group.<sup>24</sup> 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 remarkably close. One exception, in addition to the Gini, is the income of the bottom decile group which is higher in EUROMOD than in HBAI. A plausible explanation for this is the imprecision of the non take-up correction.

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<sup>24</sup> It is also likely to affect the median of the top decile group. 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. But it seems plausible that some of these people could be below the median of the top decile group.



Table 45. Income distribution statistics from UK Households Below Average Income (HBAI) statistics and from EUROMOD 2005 incomes, for two take-up assumptions

	HBAI	EUROMOD		Ratio EUROMOD:HBAI	
		100%	Incomplete	100%	Incomplete
Gini coefficient	0.35	0.31	0.32	0.87	0.91
Mean	1,280	1,248	1,228	0.97	0.96
Median	1,046	1,044	1,032	1.00	0.99
Decile Group medians					
1	407	506	451	1.24	1.11
2	598	631	596	1.05	1.00
3	716	739	713	1.03	1.00
4	838	844	825	1.01	0.99
5	971	975	960	1.00	0.99
6	1,121	1,118	1,107	1.00	0.99
7	1,291	1,291	1,284	1.00	0.99
8	1,511	1,515	1,511	1.00	1.00
9	1,843	1,840	1,837	1.00	1.00
10	2,713	2,619	2,619	0.97	0.97
Decile Group Share %					
1	2.8	3.6	3.1	1.30	1.12
2	4.6	5.1	4.8	1.10	1.05
3	5.6	5.9	5.8	1.06	1.04
4	6.6	6.8	6.7	1.03	1.02
5	7.6	7.8	7.8	1.03	1.03
6	8.7	9.0	9.0	1.03	1.04
7	10.1	10.4	10.5	1.03	1.04
8	11.9	12.2	12.3	1.02	1.04
9	14.5	14.8	15.0	1.02	1.04
10	27.6	24.5	24.8	0.89	0.90

Sources: DWP HBAI Tables A2 and A3. [http://research.dwp.gov.uk/asd/hbai/hbai2008/supp\\_tabs.asp](http://research.dwp.gov.uk/asd/hbai/hbai2008/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.

Table 46 makes the same comparison for 2006-2008 HBAI income estimates and using EUROMOD baselines for 2006-2008 policies, using the incomplete take-up assumption.

As with the poverty comparisons there is no particular reason to believe that the two sets of estimates should move in the same way. However, it seems that the “2006” comparison is particularly out of line and that there is no particular trend moving the estimates apart. It will, however, be instructive to compare “2009” estimates when the 2009 HBAI statistics are available, to establish how the beginning of the recession impacts on the comparisons.



Table 46. Income distribution statistics from UK HBAI (2006-8 incomes) and from EUROMOD (2006-8 policies with incomplete take-up)

	2006			2007			2008		
	HBAI	EUROMOD	ratio	HBAI	EUROMOD	ratio	HBAI	EUROMOD	ratio
Gini coefficient	0.35	0.32	0.91	0.36	0.32	0.89	0.36	0.32	0.89
Mean	1,392	1,275	0.92	1,407	1,320	0.94	1,465	1,378	0.94
Median	1,132	1,071	0.95	1,135	1,112	0.98	1,176	1,158	0.99
Decile Group medians									
1	425	470	1.11	425	484	1.14	436	502	1.15
2	638	619	0.97	633	640	1.01	662	669	1.01
3	777	738	0.95	774	765	0.99	809	802	0.99
4	913	855	0.94	913	886	0.97	950	927	0.98
5	1,057	996	0.94	1,054	1,031	0.98	1,101	1,076	0.98
6	1,208	1,148	0.95	1,219	1,189	0.98	1,262	1,241	0.98
7	1,392	1,332	0.96	1,401	1,381	0.99	1,462	1,441	0.99
8	1,635	1,568	0.96	1,644	1,624	0.99	1,707	1,694	0.99
9	2,005	1,904	0.95	2,016	1,972	0.98	2,112	2,065	0.98
10	2,924	2,714	0.93	2,984	2,812	0.94	3,097	2,935	0.95
Decile Group Share %									
1	2.7	3.2	1.17	2.6	3.1	1.21	2.6	3.1	1.20
2	4.5	4.8	1.08	4.5	4.8	1.08	4.5	4.9	1.08
3	5.6	5.8	1.03	5.5	5.8	1.05	5.5	5.8	1.06
4	6.5	6.7	1.03	6.5	6.7	1.03	6.5	6.7	1.04
5	7.6	7.8	1.03	7.5	7.8	1.04	7.1	7.8	1.10
6	8.7	9.0	1.04	8.6	9.0	1.05	9.1	9.0	0.99
7	10.1	10.5	1.04	10.0	10.5	1.05	10.0	10.5	1.05
8	11.7	12.3	1.05	11.7	12.3	1.05	11.7	12.3	1.05
9	14.6	15.0	1.03	14.0	15.0	1.07	14.5	15.1	1.04
10	28.0	24.8	0.89	28.6	24.8	0.87	28.5	24.8	0.87

Sources: DWP HBAI Tables A2 and A3. [http://research.dwp.gov.uk/asd/hbai/hbai2008/supp\\_tabs.asp](http://research.dwp.gov.uk/asd/hbai/hbai2008/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.
- There are two versions of the baseline. One assumes 100% take-up of means-tested benefits and tax credits and the other applies a correction 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). For many applications users are advised to explore both options.
- 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 2003/4 not 2006 (2005 incomes).
  - No adjustments have been made for demographic changes or changes in the composition or distribution of market incomes between 2003/4 and 2005 (except those captured by updating by income source).
  - 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 2006-9 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 2003/4 (except those captured by updating by income source). In particular “2009” baseline results do not capture the effects of the beginning of the 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. These include:
  - The under-estimation of income tax and SICs.
  - The apparent over-representation of DLA recipients receiving an average level of benefit that is too low in the FRS.
  - The over-estimation of Pension Credit (GC) even after the take-up correction.
  - The fact that CTC is under-estimated (compared with HMRC statistics) and child poverty is somewhat too high (compared with HBAI). While PC (GC) is over-estimated (compared with DWP statistics) while the poverty rate for older people is too low (compared with HBAI statistics).



## 5. REFERENCES

- Department for Work and Pensions (2010), Households Below Average Income 1994/95 – 2008/09, DWP: London.
- Department for Work and Pensions (2007), *Income Related Benefits Estimates of Take-Up in 2005/2006*. DWP: London.
- HMRC (2007), *Child Tax Credit and Working Tax Credit Take-up Rates 2004-05*. 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
- Child Poverty Action Group (2006) “Welfare Benefits and Tax Credits Handbook 2006/2007”, 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 (2005) “Tax Benefit Reference Manual 2005-06 Edition”, HM Treasury London.

### 6.2 Useful websites:

**Her Majesty’s Revenue and Excise - [www.hmrc.gov.uk](http://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>