

EUROMOD

COUNTRY REPORT



PORTUGAL (PT)

2009 - 2013

Carlos Farinha Rodrigues

Vítor Junqueira

Rita Figueiras

30 - 12 - 2013



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

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

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

EUROMOD coordinator: Holly Sutherland

EUROMOD coordination assistant: Cara McGenn

EUROMOD developer responsible for Portugal: Chrysa Leventi

National team for Portugal: Carlos Farinha Rodrigues, Vítor Junqueira, Rita Figueiras.

The results presented in this report are derived using EUROMOD version G2.0. EUROMOD is continually being improved and the results presented here may not match those that would be obtained with later versions of EUROMOD.

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

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

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

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

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

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

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

CONTENTS

1.	BASIC INFORMATION	5
1.1	Basic information about the tax-benefit system	5
1.2	Social Benefits	5
1.3	Social contributions	7
1.4	Taxes	7
2.	SIMULATION OF TAXES AND BENEFITS IN EUROMOD	8
2.1	Scope of simulation	8
2.2	Order of simulation and interdependencies	10
2.3	Policy switches	11
2.4	Social benefits	12
2.4.1	Introductory note on austerity measures	12
2.4.2	Unemployment benefits: insurance (<i>bunct_s</i>)	12
2.4.3	Unemployment benefit: assistance (<i>bunnc_s</i>)	13
2.4.4	Minimum pension (<i>poacm_s</i>)	16
2.4.5	Child benefit (<i>bch</i>)	17
2.4.6	Old age social pension (<i>poanc_s</i>)	19
2.4.7	Solidarity supplement for the elderly (<i>bsaoa_s</i>)	21
2.4.8	Social integration income (<i>bsa00_s</i>)	24
2.5	Social contributions	27
2.5.1	Employee social contributions	27
2.5.2	Employer social contributions	27
2.5.3	Self-employed social contributions	27
2.6	Personal income tax	29
2.6.1	Tax unit	29
2.6.2	Taxable income	29
2.6.3	Tax allowances	30
2.6.4	Tax base	31
2.6.5	Tax schedule	32
2.6.6	Tax credits	33
2.6.7	Extraordinary surtax on income (2011 and 2013)	34
2.7	Pension cuts	34
2.7.1	Extraordinary solidarity contribution on pensions (2012 and 2013)	34
3.	DATA	36
3.1	General description	36
3.1.1	Sample quality and weights	37
3.1.1.1	Non-response	37
3.1.1.2	Weights	37

3.2	Data adjustment	38
3.3	Imputations and assumptions	38
3.3.1	Time period	38
3.3.2	Gross incomes	38
3.3.3	Disaggregation of harmonized variables and other imputations	39
3.4	Uprating	39
4.	VALIDATION	40
4.1	Aggregate Validation	40
4.1.1	Components of disposable income	40
4.1.2	Validation of incomes inputted into the simulation	42
4.1.3	Validation of outputted (simulated) incomes	43
4.2	Income distribution	44
4.2.1	Income inequality	44
4.2.2	Poverty rates	45
4.3	Validation of employment adjustments	46
4.4	Summary of “health warnings”	46
5.	ANNEX I: UPRATING FACTORS	48
6.	ANNEX II: MACROVALIDATION TABLES	51
7.	REFERENCES	60

1. BASIC INFORMATION

1.1 Basic information about the tax-benefit system

- The Portuguese tax-benefit system is a single national system. However, the autonomous regions of the Azores and Madeira have lower income tax rates.
- The “fiscal year” coincides with the calendar year (*i.e.*, January 1st to December 31st). Changes to the tax system generally take effect in January whereas benefit changes can occur throughout the year.
- Legal retirement age is 65 (both men and women) throughout this period, although it can be lower for workers in some special occupations. The reforms implemented in 2007 introduced the “sustainability factor”, a reduction factor which is updated every year according to the national life expectancy. A worker aged 65 (legal retirement age) or more is given the option of retiring later with a pension bonus. This bonus will offset the pension reduction imposed by the sustainability factor and therefore will grant the (later retirement) worker a full pension.
- For tax purposes, dependent children are defined as children aged 18 or under, or those under 25 that have a monthly income below the national minimum wage, and attend or successfully completed year 11 or 12 at school during the relevant fiscal year.
- For benefit and tax credit purposes single parents are defined as parents of resident dependent children who are not cohabiting with a partner of the opposite sex; for tax purposes single parents are defined as parents of resident dependent children who are not married.
- Couple’s incomes are taxed jointly. The aggregate income is divided by two and the tax rate is applied. Then, the resulting tax liability is multiplied by two to obtain the couple’s total tax liability. Finally, any tax credits are applied to the total tax liability.
- Some income components, like capital income, are taxed at source and may be left out of the final tax calculations. Thus, capital income is taxed differently (*i.e.*, at a different rate) from the other income components.
- Taxpayers need to fill an annual tax return, as there can always be differences between the withholdings at source and the exact tax liability.
- The means-tested component of the benefit system uses different time scales to evaluate incomes: entitlement to a means-tested benefit can depend on the income of the previous year, the previous month or even the current income, depending on the specific benefit definition.

1.2 Social Benefits

Old age contributory pension (*Pensão de velhice*): Old-age insurance provides a pension to all the elderly aged 65 and over that contributed to the compulsory social insurance scheme (both employees and self-employed). The amount of the old-age pension is a function of the average monthly earnings adjusted over the person’s entire insurance life, up to a maximum of 40 years.

Old-age social pension (*Pensão social de velhice*): The social pension is a non-contributory means tested pension for the elderly that provides a minimum pension to elderly individuals aged 65 or more

on low incomes. There are also disability and survivor social pensions, but they cannot be simulated in EUROMOD.

Survivors pension (*Pensão de sobrevivência*): The survivor's pension is granted to the surviving spouse (aged at least 35) of a deceased insured person, or to the divorced surviving spouse in receipt on maintenance. It can also be granted to children until they are 18 (25 or 27 if they are in higher education) or, when there are no surviving children or spouses, to the dependent parents of the deceased.

Disability benefit (*Pensão de invalidez*): Any worker under the retirement age who becomes unable to earn more than one third of his/her normal wage due to illness or a work related accident not covered by health and safety legislation is entitled to the disability benefit/pension.

Minimum pension (*Pensão mínima*): New pensioners entitled to an old age or a disability pension and who contributed to the compulsory social insurance scheme are guaranteed a minimum pension. Its value is updated every year.

Sickness cash benefit (*Subsídio de doença*): The sickness cash benefit is available to all insured employees as part of the compulsory social insurance scheme, but participation is voluntary to the self-employed. Benefits are related to earnings.

Child benefits (*Abono de família para crianças e jovens*): The “Abono de família” is a social policy directed at families with children and young people as a compensation for their expenditure on raising and educating them. It belongs to the same group as funeral expenses allowances or special benefits paid to disabled and dependent people, essentially children. Although it is a means tested child benefit has a more “universal” character than the other policies that rely on income testing.

Maternity cash benefit (*Subsídio de maternidade*): The maternity cash benefit is available to all insured female employees as part of the compulsory social insurance scheme. Benefits are related to earnings.

Solidarity supplement for the elderly (*Complemento Solidário para Idosos*): The solidarity supplement for the elderly was introduced in 2006. It is a non-contributory means tested scheme designed to help pensioners aged 65 or more living on low incomes. It considers a wide range of income sources which are not usually taken into account in this kind of schemes, like the monetary income of the recipients' descendants, even when they don't live with their parents, or residence in an old age care institution funded by the Social Security.

Social integration income (*Rendimento Social de Inserção*): The Social integration income is a cash benefit granted together with an integration contract. Its aim is to ensure that individuals and their family members have sufficient resources to cover their basic needs, while promoting their gradual social and professional integration.

Unemployment benefit (*Subsídio de desemprego*): Unemployment insurance and unemployment assistance are the two main policies that provide financial compensation to the unemployed. Both are restricted to participants in the employees' compulsory social insurance scheme. Benefits are related to earnings.

National Minimum Wage (*Retribuição Mínima Mensal Garantida*): Although not strictly a social benefit, the minimum wage guarantees by law a minimum remuneration to all full time workers.

There are other less important benefits (or specific bonus or complements to the main benefits) in the Portuguese social security system which provide protection in areas like disability, death, or social inclusion.

1.3 Social contributions

Employee and employer social security contributions (*Contribuições do trabalhador por conta de outrem e da entidade patronal*): Contributions are shared between employees and employers. There are several different regimes reflecting specific occupations such as non-profit organizations, rural workers, football players, clergy, domestic services, young people in their first job, or disabled people.

Self-employed contributions (*contribuições de trabalhadores independentes*): Self-employed workers pay contributions according to the kind of protection they choose (either basic or broader coverage) and declared reference remuneration, regardless of their actual earnings.

Civil servants contributions: Workers that entered the Civil Service before 2006 belong to a separate social security scheme. From January 1st 2006, new civil servants (and their employer institutions) contribute to the regular Social Security scheme and follow the general regime rules.

1.4 Taxes

Some of the most relevant taxes:

Personal income tax (*Imposto sobre o Rendimento das Pessoas Singulares - IRS*): Personal income tax is paid by individuals residing in Portugal and by non-residents receiving income in Portugal. If the resident is part of a family unit composed by spouse and dependents, then this tax applies to all family members. Capital income is taxed at source (withholdings) and may be left out of the final tax calculations, meaning that a different tax rate can apply. Labour income is also taxed at source, but it is re-evaluated at the end of the year tax calculations stage.

Corporate income tax (*Imposto sobre o Rendimento das pessoas Coletivas – IRC*): Corporate tax is paid by companies on their profits at a flat rate. There is also a local government levy (“Derrama”) which is added to the IRC.

Property transfer municipal tax (*Imposto Municipal sobre as Transmissões Onerosas de Imóveis - IMT*): Local government tax on real estate transactions.

Property municipal tax (*Imposto Municipal sobre Imóveis - IMI*): Local government tax on rural and urban properties.

Value added tax (*Imposto sobre o Valor Acrescentado - IVA*): The general rate was set at 20% between July 2008 and June 2010, 21% between July-December 2010 and, finally, 23% since January 2011. Lower rates apply to specific classes of goods and in the autonomous regions of the Azores and Madeira.

Special taxes on consumption include Alcohol duty/Tax (*Imposto sobre o Álcool e as Bebidas Alcoólicas – IABA*), Fuel duty/tax (*Imposto sobre Produtos Petrolíferos e Energéticos – ISP*) and Tobacco duty/Tax (*Imposto sobre o Tabaco – IT*).

Taxes on vehicles include the ‘new car’ sales tax (*Imposto Sobre Veículos – ISV*) and the (annual) car Tax (*Imposto Único de Circulação – IUC*).

2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

2.1 Scope of simulation

Table 2.1 Simulation of benefits in EUROMOD

	Variable name(s)	Treatment in EUROMOD					Why not fully simulated?
		2009	2010	2011	2012	2013	
Old age contributory pension	poact_s	PS	PS	PS	PS	PS	No data on contributory career (years, amount of contributions); simulation of the minimum pension only;
Old age social pension	poanc_s	PS	PS	PS	PS	PS	No data on contributory career (years, amount of contributions); split of the original microdata aggregated variable related to old age pensions only;
Survivors pension	psu	I	I	I	I	I	No data on the loss of family members;
Disability benefit	pdi	I	I	I	I	I	No data on disability incidence;
Sickness cash benefit	bhl	I	I	I	I	I	No data on sick leave incidence
Child benefit	bch_s	S	S	S	S	S	
Other Family Benefits	bfa	I	I	I	I	I	Composed of several benefits impossible to split and to simulate, including maternity cash benefits
Solidarity supplement for the elderly	bsaoa_s	PS	PS	PS	PS	PS	No data on the offspring of beneficiaries that don't live together in the same household; no data on residence in social security funded institutions; difficulty in dealing with non-take up issue;
Social integration income	bsa00_s	PS	PS	PS	PS	PS	Difficulty in matching the simulated family unit with the actual one; difficulty in dealing with non-take up issue;
Other Social Assistance Benefits	bsaot	I	I	I	I	I	Composed of several benefits impossible to split and to simulate.
Education benefits	bed	I	I	I	I	I	Composed of several benefits impossible to split and to simulate.
Housing benefit	bho	I	I	I	I	I	Composed of several benefits impossible to split and to simulate.
Unemployment benefit (contributory)	bunct_s	PS	PS	PS	PS	PS	No data on reason for becoming unemployed (like voluntary or compulsory redundancy); split of the original aggregated variable only.
Unemployment benefit (non-contributory)	bunnc_s	PS	PS	PS	PS	PS	No data on reason for becoming unemployed (like voluntary or compulsory redundancy); no data on benefits history; split of the original aggregated variable only.

Notes: "E": *excluded* from the model as it is neither included in the micro-data nor simulated; "I": *included* in the micro-data but not simulated; "PS" *partially simulated* as some of its applicable rules are not simulated; "S" *simulated* although some minor or very specific rules may not be simulated.

Table 2.2 Simulation of taxes and social contributions in EUROMOD

	Variable name(s)	Treatment in EUROMOD					Why not fully simulated?
		2009	2010	2011	2012	2013	
Personal income tax	tin00_s	PS	PS	PS	PS	PS	Influenced by individual choices; no data available on some of the deductions/rebates (particularly health, one of the most important deductions)
Property transfer municipal tax		E	E	E	E	E	
Property municipal tax		E	E	E	E	E	
Value added tax		E	E	E	E	E	
Employee social insurance contribution	tscee_s	S	S	S	S	S	General rules assumed;
Employer social insurance contribution	tscer_s	S	S	S	S	S	General rules assumed;
Self-employed social insurance contribution	tscse_s	PS	PS	PS	PS	PS	General rules assumed. Significantly influenced by individual choices.

Notes: “E” policy is *excluded* from the model’s scope as it is neither included in the microdata nor simulated by EUROMOD; “PS” policy is *partially simulated* as some of its applicable rules are not simulated; “S” policy is *simulated* although some minor or very specific rules may not be simulated.

- *Structural changes between 2009 and 2010*

Indexation of pensions: General rule suspended. Only the lower pensions are updated.

Social pension: Income test level increased.

Personal income tax: General increase in marginal rates.

- *Structural changes between 2010 and 2011*

Unemployment benefit (both insurance and assistance): The family unit now includes all relatives that lives in resource sharing terms with the benefit’s recipient. Equivalence scale definition changed to one more similar to the original OECD scale (before: per capita). Financial and non-financial assets may be inputted as income. Housing benefits included in income. New financial assets test.

Child benefit: New education allowance for children at school.

Social integration income: New definition of the equivalence scale which is closer to the OECD original scale. Decrease in the income test limit. Real estate test limit reduced.

Personal income tax: Personal tax deductions on employment income frozen (extended to the next few years). Personal tax deductions on pensions income reduced (extended to the next few years). Extraordinary surtax on income introduced.

- *Structural changes between 2011 and 2012*

Unemployment benefit (both insurance and assistance): Length of insurance period reduced. Upper limit also reduced from 3 to 2.5 times the Social Support Index (SSI). Benefits awarded after the end of the 6 month unemployment benefit period are reduced by 10%. New bonus of 10% when both spouses or cohabiting partners are claiming unemployment benefit (only contributory regime), have

dependent children, or the claimant is the head of a single-parent household with no alimony/maintenance payments.

Child benefit: 4th and 5th income brackets abolished. Removal of the two first brackets bonuses of 25% introduced in 2008.

Self- employed social contributions: Rates and contribution base redefined.

Personal income tax: Elimination of life insurance expenses tax credit. Reductions in education and training tax credit (from 30% to 10% of expenses) and housing tax credit (from 30% to 15% of expenses). Introduction of upper limits to tax credits. Extraordinary surtax on income is suspended in 2012.

Income tax on capital income: Rates increased from 20% to 25%.

- *Structural changes between 2012 and 2013*

Social integration income: New definition of the equivalence scale which is closer to the OECD modified scale.

Solidarity supplement for the elderly: Decrease of 2.25% in the reference value.

Personal income tax: Major revamp of tax schedule. Almost all tax credits reduced. Return of the extraordinary surtax on income already applied in 2011.

2.2 Order of simulation and interdependencies

The following table shows the benefits and taxes simulated by EUROMOD for the years 2009-2013. As there were few structural changes in the Portuguese system during this period, the order in which the policies are simulated should remain unchanged and can be described in a single table.

The simulation order results essentially from the interdependence between policies, as the income simulated by some is then taken as an input by others. For example, the minimum wage and minimum pension policies are simulated first, as their outcomes are employment and pension's income, which will be used by subsequent policies. Unemployment benefits should be simulated next as all inputs required are now available (either from the original data or simulated) and its output (unemployment benefit income) will be used after. Child benefit comes next, although it is not used in later policies, and therefore its ordering becomes irrelevant. Next in the simulation spine are the taxes and contributions policies and, finally, although the order is now irrelevant, the minimum means tested schemes and the social integration income.

Table 2.3 EUROMOD Spine: order of simulation, 2009-2013

Policy	2009	2010	2011	2012	2013	
ConstDef_pt	on	on	on	on	on	DEF: CONSTANTS
uprate_pt	on	on	on	on	on	DEF: UPRATING FACTORS
ildef_pt	on	on	on	on	on	DEF: INCOME CONCEPTS
tundef_pt	on	on	on	on	on	DEF: ASSESSMENT UNITS
slnVars_pt	on	on	on	on	on	DEF: Initialise variables
random_pt	on	on	on	on	on	DEF: Random assignment for bsaoa_s
yem_pt	off	off	off	off	off	SWITCH: Minimum wage (salario mínimo)
neg_pt	on	on	on	on	on	DEF: recode negative self-employment income to zero
yempb_pt	toggle	toggle	on	on	on	INC: Public Sector wages cuts
poacm_pt	off	off	off	off	off	SWITCH: Minimum pension (Pensões mínimas)
pcuts_pt	toggle	toggle	on	on	on	INC: Pensions cuts
bunct_pt	on	on	on	on	on	BEN: Unemployment insurance (subsídio de desemprego)
bunnc_pt	on	on	on	on	on	BEN: Unemployment assistance (subsídio social de desemprego)
bunncm_pt	off	off	off	on	on	BEN: Unemployment benefit bonus
poanc_pt	on	on	on	on	on	BEN: Social Pension (Pensão social de velhice)
bch_pt	on	on	on	on	on	BEN: Child benefit (Abono de família para crianças e jovens)
tscee_pt	on	on	on	on	on	SIC: Employee social insurance contributions
tscer_pt	on	on	on	on	on	SIC: Employer social insurance contribution
tscse_pt	on	on	on	on	on	SIC: Self-employed social insurance contribution
tin00_pt	on	on	on	on	on	TAX: Progressive personal income tax
tiniy_pt	on	on	on	on	on	TAX: Income tax on capital income
bsaoa_pt	on	on	on	on	on	BEN: Solidarity supplement for the elderly (Complemento Solidário para Idosos - CSI)
bsa00_pt	on	on	on	on	on	BEN: Social integration income (Rendimento social de inserção ou mínimo garantido)
output_std_pt	on	on	on	on	on	DEF: STANDARD OUTPUT INDIVIDUAL LEVEL
output_hh_pt	off	off	off	off	off	DEF: STANDARD OUTPUT HOUSEHOLD LEVEL

2.3 Policy switches

As indicated in Table 2.3 above, the policy spine starts with various ‘switches’ that enable the model to take into account issues that seriously affect the implementation of most policies or not. Depending on user’s choices, relevant adjustments are then automatically applied throughout the model. The following switches are applicable to the case of Portugal:

- **Minimum Wage (yem_pt)** is turned off throughout due to unsatisfactory results: the underlying EU-SILC data seems to prevent the simulation of the minimum wage;
- The same applies to the **Minimum Pensions (poacm_pt)**, which is also turned off for the whole period.

2.4 Social benefits

2.4.1 Introductory note on austerity measures

Since August 2010, following the debt crisis, Portuguese authorities have been implementing a set of austerity measures with significant repercussions on social benefits, particularly on social unemployment benefit (assistance), social integration income, and child benefit.

2.4.2 Unemployment benefits: insurance (*bunct_s*)

The unemployment benefit cannot be fully simulated in EUROMOD, as there is no information on the reason for becoming unemployed (like voluntary or compulsory redundancy), nor on the duration of the most recent jobs. This constraint applies to the main unemployment benefit, sometimes called contributory or insurance unemployment benefit, and to the social unemployment benefit (see next section), also referred to as non-contributory benefit (although there was some limited contribution) or assistance unemployment benefit.

However, a split of the original variable in the database (*bun*) can be simulated by observing some of the occurrences more easily associated with the latter kind of benefit (see next section for a more detailed description of the splitting procedures).

New rules on the length of time this benefit can be claimed for (which was reduced) and on the insurance period needed (also reduced) were published in early 2012.

- **Definitions**

The unit of analysis is the individual. There are no benefit units (*i.e.* the units are single), and no income test.

- **Eligibility conditions**

- Have been made redundant (exclusively by decision of the employer) after working for at least 450 days over the previous 24 months (insurance period), and excluding self-employment. After April 2012: 360 days;
- Actively looking for work.

- **Benefit amount**

- Its value is equal to 65% of the referring reference remuneration (lower bound: the SSI, unless this value is higher than that remuneration; upper bound: three times the SSI. After April 2012: 2.5 times the SSI);
- The remuneration is calculated by averaging the earnings/wages of the first 12 months of the last 14 month period before being made redundant;
- For claims starting after April 2012, after six months the benefit value is reduced by 10% (even if it then becomes lower than the lower bound defined above); there is also a new bonus of 10% for couples with children if both partners claim regular or assistance unemployment benefit.

- *Length*

Table 2.4 Unemployment benefit's length, before April 2012

Age	Mths. with wage	Unemployment benefit's length		
		in days	in months	bonuses
Up to 29	up to 24	270	9	-
	25+	360	12	30 days for every 5 years employed
30-39	up to 48	360	12	-
	49+	540	18	30 days for every 5 years employed
40-44	up to 60	540	18	-
	61+	720	24	30 days for every 5 years employed
45+	up to 72	720	24	-
	73+	900	30	30 days for every 5 years employed

Table 2.5 Unemployment benefit's length, after April 2012

Age	Mths. with wage	Unemployment benefit's length		
		in days	in months	bonuses
up to 29	up to 14	150	5	-
	15-23	210	7	-
	24+	330	11	30 days for every 5 years employed
30-39	up to 14	180	6	-
	15-23	330	11	-
	24+	420	14	30 days for every 5 years employed
40-49	up to 14	210	7	-
	15-23	360	12	-
	24+	540	18	45 days for every 5 years employed
50+	up to 14	270	9	-
	15-23	480	16	-
	24+	540	18	60 days for every 5 years employed

2.4.3 Unemployment benefit: assistance (*bunnc_s*)

As mentioned above, the unemployment benefits cannot be fully simulated, but it is possible to simulate a split of the original unemployment benefit variable (*bun*) into social and contributory related variables (*bunnc* and *bunct*). First of all, it is important to review thoroughly the social (or assistance) unemployment benefit framework:

- **Definitions**

This benefit is awarded either as an initial benefit to claimants who have not worked long enough to claim the main unemployment benefit, or as an extension to those who cease to be entitled to the main assistance unemployment benefit (as long as they meet the additional conditions listed below).

Unlike the main benefit, the social benefit considers both individual and family units. Family units are defined as:

- the individual;
- his/her partner;
- any dependent children (those who have an income lower than the social pension if they are single or, if they have a partner, the couple's income is lower than twice the value of the social pension).

- **Eligibility conditions**

- Have been made redundant (exclusively by decision of the employer) after working for at least 180 days over the last 12 month period before being made redundant (insurance period), excluding self-employment;
- Actively looking for work.

- **Benefit amount**

- The amount is equal to 80% of the SSI for individuals in a single benefit unit;
- It is equal to 100% of the SSI if the benefit unit size is two or more.

- **Income test**

The family unit overall income (as defined below) divided by its size (*i.e.*, per capita) must be lower than 80% of the SSI.

Table 2.6 Unemployment benefit (assistance): assessed income

Variable	Label
yem	INCOME: Employment
yse	INCOME: Self employment
poact_s	BENEFIT/PENSION: Old age : contributory
poanc_s	BENEFIT/PENSION: Old age : non-contributory : simulated
psu	BENEFIT/PENSION: Survivors
pdi	BENEFIT/PENSION: Disability
bed	BENEFIT/PENSION: Education
ypp	INCOME: Private pension
ypr	INCOME: Property
iy	INCOME: Investment

- **Split**

For the split to be possible, the following rules must be observed (valid for 2009 and 2010, but check below for recent alterations):

- 1) Unemployment benefit exists: bun variable is different from zero.
- 2) Amount proximity: the value of the bun variable is between 90% and 110% of the reference threshold;

- a. 80% of the SSI if the unit size is 1;
 - b. 100% of the SSI if the unit size is two or more.
- 3) Benefit eligibility: unit's income per person less than 80% of the SSI.

If the conditions described above are fully met, then the split happens, and the original value of variable bun is transferred to the variable bunn. Otherwise, the value is transferred to the variable bunct (defined in the previous section).

The value of the SSI is €419.22 since 2009.

Significant changes in the rules were introduced in late 2010 and took effect from the beginning of 2011. They are described in the following table:

Table 2.7 Unemployment benefit (assistance): changes in late 2010

Change	Description	Effects start in:
Family unit composition	Before, the family unit comprised the couple and dependent children. Now, the family unit is a wider concept, close to the household concept of EU-SILC. The family unit now considers <u>every relative that lives with the benefit's recipient in resource sharing terms</u> .	August 2010 (*)
Equivalence scale	Previously, total income was divided by the number of people in the family (<i>i.e.</i> per capita). Now, the following scale is used: Recipient: 1 All other adults (aged 18+): 0.7 All children under 18: 0.5	August 2010 (*)
Investment income	If 5% of the total value of the financial assets is greater than the annual investment income declared, this will be the amount considered (impossible to simulate in EUROMOD).	August 2010 (*)
Property income	If 5% of the total value of non-financial (mainly real estate) assets is greater than the annual property income declared, this will be the amount considered. This total must not include the main home where the household lives permanently, at least up to 600 times the SSI (impossible to simulate in EUROMOD).	August 2010 (*)
New types of income	Housing benefits are now included in the income test. For non-monetary benefits, the maximum amount of rent subsidy is used (€46.36 in 2010, although not possible to simulate in EUROMOD), in progressive terms along the duration of the unemployment benefit.	August 2010 (*)
Financial assets test	The total value of the family's financial assets must be lower than 240 times the ISS (240 x €419.22 = 100,612.80 euros)	August 2010 (*)

(*) Mainly for new benefits claims, as existent claimants were given until December 2010 to update their families' composition and income.

2.4.4 Minimum pension (*poacm_s*)

The simulation of the contributory pensions is not achievable using the available microdata, due to the lack of information on several attributes required to compute them. However, it is possible to offer an approach to simulate the non-contributory pensions and, with some degree of simplification, the level of the minimum pensions. Furthermore, this methodology offers the possibility of “correcting” the original data on the grounds of low undervalued old age pension income.

EUROMOD Notes: this policy is switched off (*i.e.*, not executed) in the baseline, due to its underestimating effect on elderly poverty estimates.

- **Definitions**

The unit of analysis is the individual.

- **Eligibility conditions**

Minimum pensions are guaranteed to individuals with past contributions that retire at 65 or later, and have a statutory pension value lower than the minimum the pensioner is entitled to, as shown below.

- **Benefit amount**

Minimum pensions are composed of two parts: the statutory pension and the “social supplement” (the difference between the statutory and the minimum value). The former is financed by the social security budget while the latter is financed by the state budget. The minimum value is fixed each year and varies with the pensioners’ working career length. In the simulation, the variable *liwwh* (work history – length of time in months) is used as a proxy to the working career length. Thus, every old age contributory pension (*poact*) in the database is “corrected” accordingly to the following grid:

Table 2.8 Old age contributory pension: minimum values, 2009-2013 (monthly, in €)

Career Length	2009	2010	2011	2012	2013
Less than 15 years	243.32	246.36	246.36	254.00	256.79
15 to 20 years	271.40	274.79	274.79	274.79	274.79
21 to 30 years	299.49	303.23	303.23	303.23	303.23
More than 30 years	374.36	379.04	379.04	379.04	379.04

Note: updates in bold.

The 2007 reform brought in a new rule for the automatic update of pensions, which is a function of inflation and GDP growth. However, as inflation became negative in 2010, this rule was suspended, and the minimum pensions were upgraded in that year using an administrative factor of 1.25%, as shown in Table 2.8 above. Due to the crisis, this indexation rule was then suspended in 2011-13, and only the lowest of the minimum pensions were updated in 2012-13 as shown in the 1st row of the table above.

2.4.5 Child benefit (*bch_s*)

- **Definitions**

The unit of analysis is the family. The recipients are the children, and the number of recipients is the only data needed for the equivalence scale calculations, although the family income is also observed.

The benefit’s law specifies a wider concept of benefit unit than the one which is used in general. The *de facto benefit* unit is basically a tax unit including the recipient child (or children), his/her siblings, his/her parents, tutors or step parents.

Equivalence scale for income evaluation: 1 for each recipient plus one. This scale only takes into account the number of children. For example: the income of a family with two recipient children is divided by 3.

- **Eligibility conditions**

Child(ren) aged 16 or below. It may be extended up to, but not above, individuals aged 24 under certain conditions:

- aged 17 or 18: if in primary education (school year 1 to 6) or higher;
- aged 19 or 20: if in secondary education (school year 7 to 12) or higher;
- Until age 24: if in tertiary (higher) education;
- Also until 24: disabled children on disability allowance (not simulated) and children not in work.

- **Income test**

The annual “reference income” cannot exceed five times the SSI. It is calculated as the total annual family unit income divided by the total number of recipients plus one. Families are ranked in five income brackets (three from November 2010, as the two highest were suspended):

Table 2.9 Child benefit income brackets, 2009-2013

Income bracket	Income bracket upper bounds (in euros)	
	2009 - 2010	2011 - 2013
1 st	0.5x14x419.22 = 2934.54	...x419.22 = 2934.54
2 nd	1x14x419.22 = 5869.08	...x419.22 = 5869.08
3 rd	1.5x14x419.22 = 8803.62	...x419.22 = 8803.62
4 th	2.5x14x419.22 = 14672.70	-
5 th	5x14x419.22 = 29345.40	-

Note: Social Support Index (SSI):€419.22 (2009-2013).

Table 2.10 Child benefit: assessed income

Variable	Label	Remarks
yem	INCOME: Employment	
yse	INCOME: Self employment	70% of earnings, 20% of sales.
bunct	BENEFIT/PENSION: Unemployment insurance	
bunct_s	BENEFIT/PENSION: Unemployment : contributory: simulated	
bunnc_s	BENEFIT/PENSION: Unemployment : non-contributory: simulated	
poact_s	BENEFIT/PENSION: Old age : contributory	
poanc_s	BENEFIT/PENSION: Old age : non-contributory : simulated	
psu	BENEFIT/PENSION: Survivors	
pdi	BENEFIT/PENSION: Disability	
bed	BENEFIT/PENSION: Education	
ypp	INCOME: Private pension	
ypr	INCOME: Property	
yyi	INCOME: Investment	
yot	INCOME: Other	

- **Benefit amount**

The amount paid every month depends on the child's age and the income bracket of the child's family, as shown in the following table (two highest brackets suspended from November 2010):

Table 2.11 Child benefit amounts, 2009-2013 (monthly, in €)

Income bracket	2009		2010		2011-2013	
	<=12yrs	>12yrs	<=12yrs	>12yrs	<=12yrs	>12yrs
1 st	174.72	43.68	174.72	43.68	140.76	35.19
2 nd	144.91	36.23	144.91	36.23	116.74	29.19
3 rd	92.29	26.54	92.29	26.54	92.29	26.54
4 th	56.45	22.59	56.45	22.59	-	-
5 th	33.88	11.29	33.88	11.29	-	-

Supplement for large families:

- When a second child is born (or integrated) in a family, the benefit of all children aged between 12 and 36 months is doubled;
- When a third child is born (or integrated), the benefit of all children aged between 12 and 36 months is tripled.

The child benefit is paid monthly, twelve times a year. An extra payment (of the same monthly value) is made in September to children that meet all of the following criteria:

- Their family is in the 1st income bracket;
- They are aged between 6 and 16 (age reached during the civil year);
- They attend school regularly.

- **New features introduced in the period 2009-2013**

- From September 2009: **New education allowance for children at school**. Amount of the allowance: twice the amount of benefit the child was already receiving. Set of criteria that must be met in full:
 - o The family income is in either the first or second brackets;
 - o The child is attending years 10-12;
 - o The child is less than 18 years old (or becomes 18 during the current school year);
 - o The child is a high academic achiever (impossible to simulate);
- As mentioned above, the two highest income brackets are suspended since November 2010, as well as the 25% supplement to the two lowest brackets introduced in 2008.

2.4.6 Old age social pension (*poanc_s*)

- **Definitions**

The recipient is the individual, although if he/she lives with a spouse/partner, the income of the couple is taken into account in the income test.

Equivalence scale: single recipient: 1, couple: 5/3 (until 2009) and 1.5 (since 2010) – derived from the income test (see below).

EUROMOD Notes: the original EU-SILC py100g variable (Old-age benefits) must be split first as it may include a social pension. This split should be done according to the policy rules described below.

- **Eligibility conditions**

Minimum age: 65 years.

- **Income test**

- single recipient: monthly gross income up to 30% (40% since 2010) of the SSI;
- couple: monthly gross income up to 50% of the SSI (60% since 2010).

The framework of the social pension is unclear about which types of income should be included in the means test evaluation, but at least they should include:

Table 2.12 Old age social pension assessed income

Variable	Label
yem	INCOME: Employment
yse	INCOME: Self employment
bun	BENEFIT/PENSION: Unemployment
poact_s	BENEFIT/PENSION: Old age : contributory
psu	BENEFIT/PENSION: Survivors
pdi	BENEFIT/PENSION: Disability
bed	BENEFIT/PENSION: Education
ypp	INCOME: Private pension
ypr	INCOME: Property
bsaot	Social assistance other
bho	BENEFIT/PENSION: Housing
yy	INCOME: Investment
yot	INCOME: Other

Only the base value of the social pension of the couple is included in the income test, but not the ‘Extraordinary Solidarity Supplement’.

- **Benefit amount**

The monthly value of the social pension was equal to €187.18, in 2009 as shown in Table 2.13 below. Each recipient is also awarded an ‘Extraordinary Solidarity Supplement’ (Complemento Extraordinário de Solidariedade) with a value that varies with their age. In 2009, its value was equal to €7.32 for those aged 65-69 and €34.63 for those aged 70 or more. Therefore, the total actual values of the social pension were €204.50 and €221.81, respectively. See full table for the period 2009-2013:

Table 2.13 Old age social pension amounts, 2009-2013 (monthly, in €)

	2009		2010		2011		2012		2013	
	65-69	70+	65-69	70+	65-69	70+	65-69	70+	65-69	70+
Social pension base amount	187.18		189.52		189.52		195.40		197.55	
Extraordinary supp. solidarity	17.32	34.63	17.54	35.06	17.54	35.06	17.54	35.06	17.54	35.06
Sum	204.50	221.81	207.06	224.58	207.06	224.58	212.94	230.46	215.09	232.61

Note: updates in bold.

The social pension is paid monthly 14 times a year: there is an extra (13th) month paid in July and an extra 14th paid in December. Given their low value, these extra monthly payments were not affected by the 2012 and 2013 pension cuts.

2.4.7 Solidarity supplement for the elderly (bsaoa_s)

- *Definitions*

The recipient is the individual, although if he/she lives with a spouse/partner, the income of the couple is observed. Their children/descendants' income is also observed in an indirect way. Thus, the family unit is the individual, if living alone, or the couple, if not.

Equivalence scale for the recipient's "family unit": single recipient: 1, couple: 1.75. This benefit also considers a second family unit: the household of the recipient's children.

- *Eligibility conditions*

Age: 65 or more.

- *Income test*

- single recipient: annual gross income up to €4960 (in 2009);
- couple: annual gross income up to 1.75*€4960 (in 2009); however, the single recipient means test must also be met: if one of the spouses/partners has an annual gross income exceeding €4960, he/she will not be eligible.

Table 2.14 Solidarity supplement for the elderly: reference values, 2009-2013 (annual, in €)

	2009	2010-2012	2013
Single	4960.00	5022.00	4909.00
Couple (1.75xsingle)	8680.00	8788.50	8590.75

The income of both elements of the family unit (Y1 and Y2 in the formulae in Table 2.19 below) include a wide range of income variables in EUROMOD, as listed in Table 2.15 below, although some types of income are impossible or difficult to simulate..

Table 2.15 Solidarity supplement for the elderly assessed income

Variable	Label	Remarks
yem	INCOME: Employment	
yse	INCOME: Self employment	Only 65% of the amount
bunct	BENEFIT/PENSION: Unemployment insurance	
bunnc_s	BENEFIT/PENSION: Unemployment : contributory	
poact_s	BENEFIT/PENSION: Old age : contributory	
poanc_s	BENEFIT/PENSION: Old age : non-contributory : simulated	
psu	BENEFIT/PENSION: Survivors	
pdi	BENEFIT/PENSION: Disability	
bed	BENEFIT/PENSION: Education	
ypp	INCOME: Private pension	
ypr	INCOME: Property	
bsaot	Social assistance other	
bho	BENEFIT/PENSION: Housing benefit	
yyi	INCOME: Investment	
yot	INCOME: Other	
ypt	INCOME: Private transfers	
-	Family solidarity (imputed)	Not fully simulated.
-	Institution attendance	Annual subsidy paid by Social Security to social institutions. Impossible to simulate.
-	Income imputation from wealth	5% of the value of financial assets (when this value is higher than the investment income declared) and 5% of real estate (when this value is higher than the property income declared). Impossible simulate.

“Family Solidarity”:

As mentioned above, this benefit also takes into account the income of the recipient’s children, or descendants. They are evaluated within their own households, as defined by the Portuguese tax system (full definition given in section 2.6 below) and comprise their own partners and any dependent children of their own. The income level of each of the recipient’s descendants is thus observed and the family solidarity income calculated. This income is then added to the recipient’s own income, and if a descendant’s income is high enough, the parent/recipient is excluded from the CSI. However, it is only possible to simulate the family solidarity (FS) income when both the recipient and his/her descendants live in the same household.

The types of income of the recipient’s descendants that are evaluated are listed in Table 2.16 below:

Table 2.16 Solidarity supplement for the elderly assessed income (family solidarity)

Variable	Label
yem	INCOME: Employment
yse	INCOME: Self employment
poa	BENEFIT/PENSION: Old age
psu	BENEFIT/PENSION: Survivors
pdi	BENEFIT/PENSION: Disability
bed	BENEFIT/PENSION: Education
ypp	INCOME: Private pension
ypt	INCOME: Private transfers
ypr	INCOME: Property
bsaot	Social assistance other
bho	BENEFIT/PENSION: Housing benefit

Then, the household’s total income is equivalised through an “OECD modified” resembling scale of equivalence (1 for the first adult, 0.5 for other adults aged 18 or more, and 0.3 for every child aged 0-17). The equivalent income computed is then used to position the descendant on a scale:

Table 2.17 Solidarity supplement for the elderly: family solidarity scale

Equivalent income	Rank
Below or equal to 2.5 x times the reference value (RV)	1 st
Between 2.5 and 3.5 times the RV	2 nd
Between 3.5 and 5 times the RV	3 rd
Above 5 times the RV	4 th

Note: RV values for 2009-13 given in Table 2.14 above.

Each ranking is translated into a family solidarity value as defined in the table below:

Table 2.18 Solidarity supplement for the elderly: family solidarity amounts

Rank	Family Solidarity (FS)	
	Parent(recipient) has no partner	Parent(recipient) has a partner
1 st	No FS	No FS
2 nd	5% of the RV	5% of the RV x 1.75
3 rd	10% of the RV	10% of the RV x 1.75
4 th	Automatic exclusion from the benefit	

This process is repeated for each descendant of the same recipient, and all FS amounts are then added to the recipient’s income. If the rank of one of these descendants is equal to 4, and whatever the rank of his/her siblings if there are any, the parent is immediately excluded from the CSI.

Two important remarks:

- a) A descendant “generates” a FS value to each of his/her parents (and only to them). For example, if two recipients who live as a couple have a son with rank 2, then each of them will be awarded an extra CSI of €434 calculated as 5% of €4960 times 1.75, using 2009 values. But if the person is the son of only one of the recipients, for example, the wife, then he will only “generate” one extra amount of €434 awarded to his mother, and her husband will not be entitled to any CSI from this FS ‘source’;

- b) The FS only happens when a parent is a recipient. For example, if an elderly couple have a daughter together, but only the wife is a recipient, then she will only “generate” the FS to her mother.

In the formulae presented in the next section, Y_1 and Y_2 include the FS, but only in the case of the recipients (this stands essentially for Y_2).

- **Benefit amount**

In general, the amount paid is the difference between the "reference value" (€960 in 2009, see Table 2.14 above for other values) and the annual income of the recipient. The calculations are simple when the recipient lives alone, but become complicated when they live in couples:

- When there is only one recipient in the couple (*i.e.*, the other partner does not meet the entitlement criteria), the amount paid is the minimum of two values: the difference between the "reference value" and the actual individual income of the recipient (or half of the actual income of the couple), and the difference between the "total equivalent reference value" (€960*1.75 in 2009) and the couple's total income;
- When both are recipients, the amount paid is given by the second difference above, *i.e.*, the difference between the "total equivalent reference value" and the couple's total income. This amount is then divided between the two recipients according to specific rules.

Table 2.19 Calculation of the solidarity supplement for the elderly

Single recipient:	$amount = RV - Y_1$
Couple, one recipient:	$amount = \min \left\{ \begin{array}{l} RV - Y_1 \\ RV \times 1.75 - Y_1 - Y_2 \end{array} \right.$
Couple, two recipients:	$amount = RV \times 1.75 - Y_1 - Y_2$

Note: Y_1 is the total individual income of the sole recipient or of the first recipient in a couple where both are recipients, while Y_2 is the total individual income of the partner or second recipient in the couple; RV is the reference value.

The Solidarity supplement for the elderly is paid monthly, twelve times a year.

Given the impossibility of simulating all means tested conditions of the non-resident descendants, the simulation overestimates the number of recipients and the amounts of benefit. Thus the number of recipients was calibrated to guarantee consistency with the official statistics.

2.4.8 Social integration income (*bsa00_s*)

- **Definitions**

The unit of analysis is the family. This unit comprises:

- The head of the family;
- His/her partner;
- Relatives of the head aged under 18;
- Other direct descendants of the head aged 18+ that are his dependents. Dependency is defined as having an income of up to 70% of the social pension.

Until 2010, there was the possibility of splitting eligible large families into two or more smaller units. For example, when a large family became eligible, the grandparents could be split from the rest of the family members and become a new family unit, therefore creating two ‘families’ in terms of this benefit. However, if the family as a whole was not eligible, no split was possible and no individual was entitled to the RSI.

Equivalence scale for income evaluation (until late 2010): 1 for 1st and 2nd adults (aged 18+); 0.7 for all other adults; 0.5 for 1st and 2nd children; 0.6 for all other children. There is a maternity supplement: 0.3 for the pregnant head or head’s partner (not possible to simulate in EUROMOD) and, after the birth, 0.5 during the child’s first year. There is also a disability supplement (not possible to simulate in EUROMOD).

Equivalence scale for income evaluation (between late 2010 and late 2012): 1 for the first adult (aged 18+); 0.7 for each additional adult; 0.5 for each child.

Equivalence scale for income evaluation (from late 2012): 1 for the first adult (aged 18+); 0.5 for each additional adult; 0.3 for each child.

- **Eligibility conditions**

Age: individuals of all ages, but the head of the family, has to be an adult (aged 18 or older).

- **Income test**

The family’s total income must be lower than their Social Integration Income(SII) value which is equal to the product of the social pension (€187.18 in 2009) by the scale of equivalence, *i.e.*, the family’s equivalent income must not be higher than the social pension.

In 2010 and 2011 the social pension was equal to €189.52. In 2012, the social pension threshold value was changed to a fixed proportion of the SSI such that it kept the same value as the previous two years (€189.52). In 2013, the threshold value was again revised and lowered to €178.15.

Table 2.20 Social integration income assessed income

Variable	Label	Remarks
yem	INCOME: Employment	Only 80% of the amount
yse	INCOME: Self employment	Only 80% of the amount
bunct	BENEFIT/PENSION: Unemployment insurance	
bunnc_s	BENEFIT/PENSION: Unemployment : contributory	
poact_s	BENEFIT/PENSION: Old age : contributory	
poanc_s	BENEFIT/PENSION: Old age : non-contributory : simulated	
psu	BENEFIT/PENSION: Survivors	
pdi	BENEFIT/PENSION: Disability	
bed	BENEFIT/PENSION: Education	
ypp	INCOME: Private pension	
ypt	INCOME: Private transfers	
ypr	INCOME: Property	
yyi	INCOME: Investment	
yot	INCOME: Other	

- **Benefit amount**

The amount paid is the difference between the SII (social pension times the scale of equivalence) and the family’s total income. The SII is paid twelve times a year.

Housing costs supplement:

Until 2010, a housing costs supplement was paid to families whose rent or mortgage payments exceeded 25% of their own SSI. This supplement has an upper bound equal to the highest rent allowance paid to a family of the same size, as given in Table 2.21 below:

Table 2.21 Social integration income housing supplement limits (monthly, in €)

Family size	Upper bound
1	101.33
2	140.74
3	163.26
4	182.96
5	205.48
6	219.55
7	230.81
8	253.33
9	278.66
10+	295.55

- *Changes in late 2012*

The SII suffered a profound reform in 2010 (with visible effects from 2011), but was again altered in 2012. These latter changes started to be implemented in July and will therefore be simulated in 2013. The most significant change concerns the equivalence scale used. Before 2012, an approximation to the so-called “OECD old scale” was used which was replaced by the “OECD modified scale” (although the children condition is still defined for the under 18, rather than the OECD under 14). This change reduced the potential target universe and the benefit amounts awarded to families with more than one person.

Change	Description
Equivalence scale	First adult: 1 (unchanged); Other adults: 0.5 (from 0.7); Children: 0.3 (from 0.5)
Real estate limit	Reduced from 120 to 60 times the SSI
Threshold indexation	Threshold now indexed to the SSI (45.208% of the SSI in late 2012, again revised in 2013 to 42.495% = €178.15). Previous threshold: social pension value.

Other modifications not documented here affect the benefits claiming, renewal and administrative processes, and may have a negative impact on the number of recipients, such as:

- New rules for new claims and renewals of the SII may increase the bureaucratic process and create additional difficulties to families, leading to an increase in non-take-up and exit issues;
- Increased emphasis in inspection checks to combat fraudulent claims, an important issue in the past;
- Individuals must now follow stricter rules concerning their insertion programs. If an individual fails to attend a social security services meeting without reasonable motive his/her benefit is cancelled;

- Individuals who live in institutions funded by the state (including jail) are no longer eligible.

2.5 Social contributions

2.5.1 Employee social contributions

Generally, employees pay contributions on their gross employment income at an 11% flat rate. Civil servants that started working before 2006 contribute to a separate scheme with multiple rates, but their average rate is similar to the private sector flat rate.

EUROMOD notes: There are several regimes, according to specific activities/situations (non-profit organizations, rural workers, football players, clergy, domestic services, young people in their first job, disabled). Due to lack of detailed information in the available data, EUROMOD can only simulate the general rule.

2.5.2 Employer social contributions

Employers pay contributions on their employees' gross income at a 23.75% flat rate.

2.5.3 Self-employed social contributions

Until late 2011

The self-employed workers can decide on two levels how to pay contributions. Firstly, they can choose between the compulsory minimum coverage and a broader coverage, which have different rates:

- Compulsory minimum coverage in social protection: 25.4%
- Broader coverage: 32%

EUROMOD notes: Again, as for employees, there's a wide range of rates, but the general regime is widespread, and the only one possible to simulate in EUROMOD.

Secondly, regardless of his/her actual remuneration, the self-employed worker can also define the reference remuneration used to calculate the monthly contribution (12 months if active throughout the year) from the ten levels indexed on the SSI and given in Table 2.22:

Table 2.22 Self-employed contributions voluntary amounts (until late 2011)

Contribution level	Monthly amount
1 st	1.5 times the SSI
2 nd	2 times the SSI
3 rd	2.5 times the SSI
4 th	3 times the SSI
5 th	4 times the SSI
6 th	5 times the SSI
7 th	6 times the SSI
8 th	8 times the SSI
9 th	10 times the SSI
10 th	12 times the SSI

Note: SSI in 2009-2013: €419.22.

EUROMOD notes: EUROMOD simulates the social contributions as if every worker chooses the compulsory coverage rate (25.4%) and the minimum reference remuneration (1.5 times the SSI).

Exemptions:

The self-employed workers are exempt from paying social contributions if: their annual income from self-employment is less than 6 times the SSI; they have earned as employees an income above 12 times the SSI, or they receive old-age or disability pensions. All these exemptions are simulated in EUROMOD.

Since late 2011

The self-employed contributions scheme was redesigned in early 2011 and took effect from October that year. The main changes were.

- One general rate: 29.6% (28.3% for agricultural workers);
- The contribution base is no longer left as an option, but is approximately the actual self-employment income. However, the self-employed individuals may still opt for a base higher than his/her actual income;
- The contribution level is fixed each October (brackets given in Table 2.23 below) and remains fixed for 12 months as long as the individual remains self-employed for that period;
- New self-employed individuals (or those who had no income for a during the previous year or longer) are placed in the first bracket;
- The contribution base of all other self-employed individuals is defined as that of the bracket immediately below one twelfth of the previous year’s income. The annual income is defined as 70% of services or 20% of sales, according to the nature of the business;
- Progressive adjustment: every October the income bracket position of all self-employed individuals is revised.

If the self-employed individual works on a regular basis for one institution, *i.e.*, more than 80% of his/her self-employment income is paid by this institution and the individual has no other source of employment income, then the institution pays a contribution of 5% of the total amount it paid for the (self-employed) services.

Table 2.23 Self-employed contributions amounts (from late 2011 onwards)

Contribution bracket	Monthly amount
1 st	1 times the SSI
2 nd	1.5 times the SSI
3 rd	2 times the SSI
4 th	2.5 times the SSI
5 th	3 times the SSI
6 th	4 times the SSI
7 th	5 times the SSI
8 th	6 times the SSI
9 th	8 times the SSI
10 th	10 times the SSI
11 th	12 times the SSI

2.6 Personal income tax

2.6.1 Tax unit

Personal income tax (Imposto sobre o Rendimento Singular – IRS) is paid by individuals residing in Portugal and by non-residents receiving income in Portugal. When the individual residing in Portugal is part of a family unit, the income tax applies to all its members. The basic tax unit is composed by the two partners and their dependent children who are defined as:

- Children, adopted children or stepchildren younger than 18 and not emancipated;
- Children, adopted children or stepchildren aged between 18 and 25 (adults), with a monthly income below the national minimum wage, who attended school up to year 11, or completed the compulsory military or civic service if male;
- children, adopted children or stepchildren aged 18 or more that have been declared unfit to work and have a monthly income below the national minimum wage (the model assumes that all disabled individuals are unfit to work);
- Minors (less than 18) living with a guardian and earning no income.

The age assessment's date is the 31st December.

Dependent parents do not belong to the tax unit, but constitute a different tax unit of their own that is only included in the deductions phase. However, if they fulfil the conditions required to be considered dependent parents (*i.e.*, income below the minimum pension) they are exempt from tax obligations. So, for simplicity in the calculation of the deductions, the model assumes that they are part of the son/daughter's tax unit.

Joint taxation for unmarried couples is not compulsory, but is by far the most frequent option. Therefore it is assumed to be compulsory for EUROMOD purposes.

2.6.2 Taxable income

Methods for income determination and tax collection may vary between different income sources. Nevertheless, the taxable income is always the total income resulting from the aggregation of gross incomes of different sources minus income specific deductions applied to each income category, and specific reductions (for allowances, see next section).

Table 2.24 Personal income tax assessed income (before allowances deduction)

Variable	Label	Remarks
yem	INCOME: Employment	
yse	INCOME: Self employment	
poact_s	BENEFIT/PENSION: Old age : contributory	
poanc_s	BENEFIT/PENSION: Old age : non-contributory : simulated	
psu	BENEFIT/PENSION: Survivors	
pdi	BENEFIT/PENSION: Disability	
ypp	INCOME: Private pension	
ypr	INCOME: Property	
		Although interest is subject to personal income tax, it is generally taxed at source, through the banking system, at a flat rate (20% until 2011, 25% from 2012). Thus, in EUROMOD, it is simulated separately and not added to the families' income.
yiy	INCOME: Investment	

2.6.3 Tax allowances

Deductions are applied at the individual level, even when there is joint taxation. For instance, if both spouses/partners work, the deductions of the first income category (see Table 2.25 below for definitions) are applied separately to their individual incomes, with zero as limit for the outcome for each of them. Hence, if only one of the partners received employment income, only one deduction is applied. The same rule applies to pensions.

Table 2.25 Personal tax deductions, 2009-2013

Income category	Deductions				
	2009	2010	2011	2012	2013
A – Employment income	72% of twelve times the national minimum wage (NMW)= €3888.00. If contributions to Social Security are higher, then their amount will be the limit. (Not simulated :) The general limit may be increased up to 75% of twelve times the NMW when there were contributions to professional associations or professional training expenses.	No changes, apart from... 72% of NMW*12 = €4104.00	Frozen at €4104.00	No changes	No changes
B – Business and professional income	Simplified regime: taxable income is 20% of sales or 70% of other earnings, with the minimum set at €150 (half of the annual NMW). The simulation assumes a 30% deduction on self-employment income.	No changes, apart from NMW. ½ NMW*14 = €3325	No changes, apart from NMW. ½ NMW*14 = €395	No changes	No changes
E – Investment income	No particular deduction, but only 50% of the net annual gain is taxable. (not simulated)	No changes	No changes	No changes	No changes
F – Rental income	Repairs and maintenance expenses effectively incurred.	No changes	No changes	No changes	No changes
G – Net worth increases	50% of the net annual gain is taxable; Special rate of 10% on gains from financial assets transactions.	No changes	No changes	No changes	No changes
H – Pensions	Pensions up to €30,000: deduction of €6000 (or value of annual pension if this is lower). Pensions above €30,000:13% of the pension surplus is subtracted from the €6000 deduction (until deduction reaches zero). For instance, a single pensioner with a €40,000 annual pension, will have a deduction of €4700: <input type="checkbox"/> €0,000–€30,000 = €1,000 <input type="checkbox"/> 13% of €10,000 = €1300 <input type="checkbox"/> €000–€1300 =€4700 Couple: pensioner with annual €40,000 pension, and pensioner B with €20,000 <input type="checkbox"/> deduction for A: €4700 (as above) <input type="checkbox"/> deduction for B: €6000 (as €20,000 is below €30,000) <input type="checkbox"/> total deduction = €4700 + €6000 = €10,700	Benchmark changed to €30,240. The deduction is subtracted by13% of the annual pension surplus above €30,240 until it reaches zero (pension of €7,393.85).	New benchmark value: €2,500 Rate of deduction subtracted by13% of the annual pension surplus above €2,500 until it reaches zero (pension of €2,500)	New deduction limit: €4104. Benchmark value remains at €2,500. Deduction subtracted by 20% of the annual pension surplus above benchmark until it reaches zero (pension of €43,020)	No changes

For the reductions, the only thing that counts is the pensions that are under court decision, with no limit (not simulated).

2.6.4 Tax base

Personal income tax (IRS) is computed as follows:

$$\text{IRS} = \text{TAXABLE INCOME (a)} * \text{RATE (b)} - \text{TAX CREDITS}$$

Where **TAXABLE INCOME = GROSS INCOME – INCOME SPECIFIC DEDUCTIONS – REDUCTIONS**

- a) According to the splitting system, income from married couples is divided by 2 before applying the tax rate;
- b) In the case of married couples, the resulting tax is multiplied by two to obtain the tax liability (before tax credits).

IRS is levied on the annual total income from six specific categories of income: employment and self-employment income, investment income (if the tax-payer wants it to be included), rental income, net worth increases and pensions, which are identified by the letters A, B, E, F, G and H, respectively, in the previous section.

2.6.5 Tax schedule

The computed taxable income is subjected to tax rates according to income brackets, as shown in the following tables 2.26-2.29:

Table 2.26 Personal tax marginal rates, 2009

Income bracket (€)	Marginal Rate
Up to 4755	10.5%
4755-7192	13.0%
7192-17836	23.5%
17836-41021	34.0%
41021-59450	36.5%
59450-64110	40.0%
Above 64110	42.0%

Table 2.27 Personal tax marginal rates, 2010

Income bracket (€)	Marginal Rate
Up to 4793	11.08%
4793-7250	13.58%
7250-17979	24.08%
17979-41349	34.88%
41349-59926	37.38%
59926-64623	40.88%
64623-150000	42.88%
Above 150000	45.88%

Table 2.28 Personal tax marginal rates, 2011-2012

Income bracket (€)	Marginal Rate
Up to 4898	11.5%
>4898 – 7410	14.0%
>7410 – 18,375	24.5%
>18,375 – 42,259	35.5%
>42,259 – 61,244	38.0%
>61,244 – 66,045	41.5%
>66,045 – 153,300	43.5%
Above 153,300	46.5%

Table 2.29 Personal tax marginal rates, 2013

Income bracket (€)	Marginal Rate
Up to 7000	14.5%
>7000 – 20,000	28.5%
>20,000 – 40,000	37.0%
>40,000 – 80,000	45.0%
Above 80,000	48.0%

Plus “additional solidarity tax”: income between €80,000 and €250,000 is additionally taxed at 2.5%; income above €250,000 is additionally taxed at 5%.

Notes: The income of spouses and dependents is aggregated and the tax liability is determined according to the splitting system (division by 2). In Azores and Madeira the marginal tax rates are lower than in the mainland (not simulated).

2.6.6 Tax credits

Certain expenses related to health, education old age-care, housing, insurance premiums, and disability can be deducted from the taxable income and thus reduce the total tax liability. Table 2.30 below lists all personal tax credits and other deductions:

Table 2.30 Personal tax credits, 2009-2013

Tax credit group	Taxpayer’s situation	Maximum limit (in €)		
		2009	2010-2012	2013
Tax credits regarding taxpayers and their dependents, parents and grandparents	Per partner in the couple (or for a single)	247.50	261.25	213.75
	Single parent	360.00	380.00	332.50
	Per dependent child	180.00	190.00 (new: 380 if aged less than 3)	213.75 (427.50 if aged less than 3)
	Per parent/grandparent (with income below the minimum pension)	247.50 (382.50 if only one)	261.25 (403.75 if only one)	261.25 (403.75 if only one)
Health	Married/single	30% of expenses until 2011, 10% since 2012 (with upper limits) – not simulated		
Education and training	Married/single	25% of expenses (with upper limits) – not simulated		
old age homes	Married/single	30% (up to 591)		
Housing mortgages – both capital and interest – and rent	Married/single	30% (up to 586)	15% in 2012 (up to 591)	15% (up to 296)
Life and personal accident insurance premiums	Married/single	25% of expenses (with upper limits) – not simulated	Abolished	
Health insurance	Married/single	10% of expenses (with upper limits) – not simulated		
	Per dependent	Above limits increase a fixed amount per dependent – not simulated		
Disability	Married	3600.00	3800.00	3800.00
	Single	1800.00	1900.00	1900.00
	Per dependent	675.00	712.50	712.50

There are also tax credits associated with investing in private retirement plans, stocks and shares savings plans, mortgage savings accounts, buying computers and renewable energy equipment, or for legal counselling fees, amongst others.

Since 2011, the total amount of tax credits is limited per income bracket as shown in the following table:

Table 2.31 Tax credits' limits, 2011-2013

Year	Income bracket	Limit (€)
2011	Up to 6 th	No limit
	7 th	1.666% of taxable income, up to 1100
	8 th	1100
2012	Up to 2 nd	No limit
	3 rd	1250 (+10% per dependent child)
	4 th	1200 (+10% per dependent child)
	5 th	1150 (+10% per dependent child)
	6 th	1100 (+10% per dependent child)
	7 th and above	0
2013	1 st	No limit
	2 nd	1250 (+10% per dependent child)
	3 rd	1000 (+10% per dependent child)
	4 th	500 (+10% per dependent child)
	5 th	0

2.6.7 Extraordinary surtax on income (2011 and 2013)

The extraordinary surtax on income” (“sobretaxa extraordinária sobre rendimentos”) is a special one-off flat rate tax of 3.5% paid on the personal taxable income earned during 2011 minus the amount of one annual (14 months) national minimum wage (NMW) (14 times €485 = €6790):

$$(\text{Personal Taxable income} - \text{€6790}) * 3.5\%$$

Tax credits on this surtax:

- 2.5% of the monthly NMW ($2.5\% * \text{€}485 = \text{€}12.13$) per dependent;
- Amounts deducted at source by employers or pension providers related to the surtax (not needed for EUROMOD’s simulation);
- This surtax was re-applied in 2013 in the same terms.

Examples:

- A couple with no children and each partner earning an annual employment income of €8,200 (total: €36,400). Total personal taxable income: €28,192 (€36,400 total income – 2 * €104 in specific deductions). Total surtax taxable income: €14,096 (€28,192 – 2 * €6790). Total surtax: €511.42 (€14,096 * 3.5%);

- The same couple, but with two dependent children. Surtax: €487.16 (previous example surtax €511.42 – €12.13 * 2 children deduction).

2.7 Pension cuts

2.7.1 Extraordinary solidarity contribution on pensions (2012 and 2013)

In 2012, pensions above €530.64 paid an “extraordinary solidarity contribution” computed in the following way:

- 25% of the annual pension amount if it falls between 12 and 18 times the SSI, *i.e.*, if the pension amount is between €530.64 and €7545.96;
- (cumulatively) 50% of the annual pension amount that exceeds 18 times the SSI, *i.e.*, above €7545.96.

In 2013, the pension cuts are computed in the following way:

- 3.5% of the monthly pension amount between €1350 and €1800;
- 3.5% of €1800 plus 16% of the pension amount between €1800.01 and €3750;
- 10% of the amount above €3750;
- (cumulatively) 15% of the amount between 12 and 18 times the SSI;
- (cumulatively) 40% of the amount above 18 times the SSI.

3. DATA

3.1 General description

The Portuguese database consists of the European Union Statistics on Income and Living Conditions (EU-SILC), which is a rotating panel survey (4 rotational groups) representative of the Portuguese households. The observation units are both households and individuals. Households are clusters of individuals where all members of a selected household are eligible for inclusion in the sample. The EU-SILC enables the study of the composition and distribution of the households' and individuals' income; living conditions (for example: housing conditions, comfort, financial capacity); the impact of social transfers poverty and social exclusion; the link between poverty and economic activity, employment, family structure, education, health, housing, amongst others. The survey takes place between May and July of the year following the income reference year.

According to the Portuguese Quality Report, the EU-SILC sample is composed of four independent sub-samples where each one follows a stratified two-stage cluster sampling design. The primary sampling units are the areas of the Master Sample (census enumeration areas) and stratified by a regional criterion. The second stage comprises the selection of dwellings and all households and therefore all the persons living in the same dwelling are interviewed.

The primary sampling units are the areas of the Master Sample. Each area comprises one or more contiguous census enumeration areas in order to achieve a minimum of 240 dwellings as usual residence per area.

The secondary sampling units (and also the final sampling units) are the dwellings, each one identified by an address and the name of the household head.

The primary sampling units (areas of the Master Sample) are stratified by NUTS 3, but for EU-SILC purposes a sub-sample of areas was selected independently in each NUTS 2.

Table 3.1 EUROMOD database description

EUROMOD database	PT_2010_a1
Original name	EU-SILC UDB
Provider	Eurostat
Year of collection	2010
Period of collection	Fieldwork executed between 18th May and 15th August 2010.
Income reference period	2009
Sampling	stratified, multi-stage, clustered
Unit of assessment	Household and Personal
Coverage	Private households (Households living at private residential addresses). Persons living in the institutional households (e.g. in care or imprisonment institutions, etc.) are excluded
Sample size	5182 households, 13368 individuals
Response rate	86% (household interview response rate)

Source: Statistics Portugal (2011) "Intermediate Quality Report - Portugal".

3.1.1 Sample quality and weights

The target population of the EU-SILC data is the private households. Households are selected from a Master Sample (MS). It is a stratified one-stage cluster sample used by Statistics Portugal as the sampling frame for household surveys. The MS was designed and selected using the information of the most recent Census of Population and Housing (Census/2001). It is composed by almost 750,000 private dwellings, and excludes collective households and institutions (which represent only 1% of the total population residing in Portugal).

3.1.1.1 Non-response

Table 3.2 Response rate

Response rate for households	
Number of addresses successfully contacted (DB120=11)	6024
Number of valid addressed selected (DB120=11, 21, 22)	6080
Ra (address contact rate)	99%
Number of household interviews completed and accepted for database (DB135=1)	5182
Number of eligible households at contact addressed (DB130 filled)	6024
Rh (proportion of complete households interviews accepted for database)	86%
NRh (household non-response rate)	14.77%
Response rate for persons	
Number of personal interviews completed (RB250=11, 12, 13)	11380
Number of eligible individuals in households whose interviews were completed and accepted for the database (RB245=1, 2, 3)	11461
Rp (proportion of complete personal interviews within the households accepted for the database)	99.3%
Overall individual non-response rates (NRp)	0.7%
NRp=[1-(Ra*Rh*Rp)]*100	15.37%

Non-response is corrected by re-weighting the final sample, i.e., by recalculating the sample weights.

3.1.1.2 Weights

Adjustments to the weights are made for the whole sample (combining the four sub-samples) at household and individual level using the SAS macro CALMAR. An integrative calibration is applied to ensure consistency between households and individuals because all household members receive the same cross-sectional weight as the household they belong to.

In the case of households, the calibration variables are “number of households by household size (1, 2, 3 and 4 or more household members)” and “number of households by NUTS II”. The source of information is the Labour Force Survey of the second quarter of 2010.

The calibration variables for individuals are the distribution of the population by five year age groups and by gender according to the Independent Estimates of the Population.

Table 3.3 below shows descriptive statistics for the grossing up weights used.

Table 3.3 Descriptive Statistics of the Grossing-up weight rb050

	EU-SILC UDB Portuguese data
Number	13368
Mean	795.7595
Median	666.2334
Maximum	5818.9022
Minimum	56.8217
Max/Min	101.4063
Decile 1	36.3047
Decile 9	1293.3413
Decile 9 / Decile 1	8.2418

3.2 Data adjustment

Adjustments to the variables are kept to a minimum. Some minor data cleaning is done to ensure that the relationships of individuals within households are coherent. In order to guarantee consistency between demographic variables and income variables which refer to the previous year (and on which EUROMOD simulation are based), all children born between the end of the income reference period and the data of the interview (34 cases) were dropped from the sample. However, the weights were not re-adjusted to take into account the drop of these individuals. The EUROMOD final sample consists of 5,182 households and 13,334 individuals.

3.3 Imputations and assumptions

3.3.1 Time period

In the EU-SILC dataset the income reference period is the year previous to the year of the survey. All monetary amounts are expressed in annual terms. These are converted into monthly amounts (divided by 12) for the EUROMOD database.

There are two age variables in the EU-SILC dataset: one relates to the age of the individual at the moment of the survey and the other to his/her age at the end of the income reference period. EUROMOD uses the first one to characterise all individuals in the dataset.

3.3.2 Gross incomes

The EU-SILC survey contains information on both gross and net monetary incomes, if applicable. The survey also contains flag variables, which indicate if the observation has been collected either in gross or net form.

Income data can be provided by respondents in either gross or net values. Hence, the net series is obtained by Statistics Portugal using a specific gross-to-net micro simulation model. This model was presented at the EU-SILC Conference on Comparative EU Statistics on Income and Living Conditions: Issues and Challenges, Helsinki, 6-8 November 2006, and is available in its proceedings volume, pages 157-172, “Income in EU-SILC – Net/Gross Conversion Techniques for Building and Using EU-SILC Databases”.

3.3.3 Disaggregation of harmonized variables and other imputations

Some variables required for the simulation of the tax-benefit system in Portugal are not available in the EU-SILC UDB and thus have to be fully imputed in the EUROMOD dataset by splitting of the original variables. These are:

- a. Old-age pensions are split into contributory pensions (poac) and the means-tested non-contributory benefit for the elderly (poanc - Social Pension). The splitting is based on both the benefit eligibility rules relating to age and income of the elderly and the observed total amount of this benefit in the dataset;
- b. The unemployment benefit in the UDB is disaggregated into the contributory unemployment benefit (bunct) and the means-tested unemployment benefit (bunnc). The disaggregation is based on the benefit rules: individual's unemployment benefit is classified as non-contributory if he/she meets the eligibility conditions and reports a compatible benefit amount;
- c. The aggregate family benefits variable in the UDB is split into two components: the child benefit (bch) is calculated using the benefit rules, and the residual amount is placed in a separate variable (bfa – Other family benefits).
- d. Social exclusion benefits are split into three components. First, the minimum income benefit (bsa00) is calculated using both the benefit rules and the age and income of the potential beneficiaries. Secondly, the CSI (Solidarity supplement for the elderly) (bsaoa) is calculated by applying the benefit rules. Finally, any residual amount is saved in a separate variable (bsaot - Other social assistance benefits).

Education status and level of education are imputed to children aged under 16 according to their age and the rules of the Portuguese education system.

Incomes reported at household level are assigned to the relevant member of the household or to the first member closer to age 45.

3.4 Uprating

Updating factors are used to account for any time inconsistencies between the input dataset and the policy year. Each monetary variable (*i.e.*, each income component) is updated to account for changes in the non-simulated variables that have taken place between the year the data was collected and the simulation year of the tax-benefit system. Updating factors are generally based on the changes in the average value of the relevant income component between the two years. For detailed information on the construction of each updating factor and sources used, see Annex I.

As a rule, updating factors are given in Annex I for both simulated and non-simulated income components included in the input dataset. Note, however, that in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the uprated original variables in the dataset. Updating factors for simulated variables are given to enable the user to turn off the simulation of a particular variable if and when required.

4. VALIDATION

4.1 Aggregate Validation

EUROMOD results are validated against external benchmarks. Detailed comparisons of the number of individuals receiving a particular income component and total annual amounts are given in Annex II. Market incomes and non-simulated taxes and benefits in the input dataset plus simulated taxes and benefits are validated against external official data. The main discrepancies between EUROMOD results and external benchmarks are discussed in the following subsections. Factors that may explain the observed differences are also discussed.

4.1.1 Components of disposable income

This subsection outlines the differences in the definition of disposable income in EUROMOD and EU-SILC 2010. The major components of disposable income are the same in both sources: original incomes (+); benefits (+), taxes (-), employee social insurance contributions (-); and self-employed social insurance contributions (-). However, there are two differences at the level of individual components as can be seen from Table 4.1:

- i) The EU-SILC 2010 definition of disposable income includes the (imputed) annual value of (using) a company car, while EUROMOD excludes it;
- ii) Pensions from individual private plans are included in the disposable income concept used in EUROMOD, while they are excluded in EU-SILC 2010.

Besides these differences in the definition, the value of the disposable income of the same household can differ because the simulated income components in EUROMOD can differ from their observed counterparts in EU-SILC dataset.

Table 4.1 Components of disposable income

	EUROMOD	EU-SILC 2010	Notes
Household disposable income	ils_dispy	hy020	
Employee cash or near cash income	yem	py010g	yem derived from py010g
Company car	-	py021g	-
Cash benefits or losses from self-employment	yse	py050g	yse derived from py050g
Pension from individual private plans	ypp	-	ypp derived from py080g
Investment income	yyi	hy090g	yyi derived from hy090g
Income from rental of a property or land	yprrt	hy040g	yprrt derived from hy040g
Income received by people aged under 16	yot	hy110g	yot derived from hy110g
Regular inter-household cash transfer received	ypt	hy080g	ypt derived from hy080g
Regular inter-household cash transfer paid (-)	xmp	hy130g	xmp derived from hy130g
Old-age benefits	poact_s	py100g	poact_s derived from the split of py100g into contributory and non-contributory old age pensions
	poanc_s		poanc_s derived from the split of py100g into contributory and non-contributory old age pensions
Survivor' benefits	bsu	py110g	bsu derived from py110g
Disability benefits	bdi	py130g	bdi derived from py130g
Unemployment benefits	bunct_s	py090g	bunct_s derived from the split of py090g into contributory and non-contributory unemployment benefit
	bunnc_s		bunnc_s derived from the split of py090g into contributory and non-contributory unemployment benefit
Housing allowances	bho	hy070g	bho derived from hy070g
Family/children related allowances	bfa	hy050g	bfa is derived from the split of hy050 into child benefits and other family allowances
	bch_s		bch_s derived from the split of hy050 into child benefits and Other family benefits
Education related allowances	bed	py140g	bed derived from py140g
Sickness benefits	bhl	py120g	bhl derived from py120g
Social exclusion not elsewhere classified	bsaot	hy060g	hy060g split into minimum income benefit (bsa00_s), CSI (poanc_s) and other social exclusion benefits (bsaot)
	poanc_s		
Tax on income and social contributions (-)	tin_s	hy140g	EUROMOD data includes three simulated components: tin_s (simulated income tax); tscee_s (simulated SIC employee) and tscse_s (simulated SIC self-employee).
	tscee_s		
	Tscse_s		
Regular taxes on wealth (-)	tpr	hy120g	tpr derived from hy120g

Note: all “_s” variables are EUROMOD simulated benefits or taxes

4.1.2

4.1.3 Validation of incomes inputted into the simulation

Note: Please see Annex II for tables.

Table 6.1 (in Annex II) compares the number of employed and unemployed people estimated in EUROMOD and the external source of data. The latter clearly shows the effects of the crisis on the labour market, with employment falling by 8%, and unemployment rising by 63% between 2009 and 2012 (early 2013 data indicates an intensification of this trend). It also shows a clear overestimation of the number of unemployed in EUROMOD (38% ‘extra’ unemployed compared with the external source in 2009), and underestimation of employed people (less 14%). There are certainly differences in the methodologies used by each source to calculate these figures but it is always to be expected that using EU-SILC data will lead to different values

However, what is most important for the EUROMOD validation process is the evolution of these comparison ratios. As the number of employed people is kept constant for the entire period in EUROMOD, it is not surprising that the drop in the employed numbers in the official statistics is bringing these two figures close: in 2012, the unemployed calculated by EUROMOD are equal to 93% of the external source, seven percentage points more than in 2009. The opposite occurs with unemployment figures: the initial overestimation gradually turns into underestimation (*i.e.*, while the number of unemployed was held constant in EUROMOD, the external source figure rose so significantly that it even surpassed that (fixed overestimated) level). In order to account for the labour market changes, an optional employment adjustment module was introduced for the period of 2009-2013 (the module is switched off in the baseline). The impact of employment adjustments on the main EUROMOD indicators is briefly described in Section 4.3.

Tables 6.2 and 6.3 in Annex II show the number of recipients and annual levels of income earned from different sources reported but not simulated in EUROMOD. However, it is not possible to obtain data from external sources to validate all types of income. The number of employees and the level of total wages are quite similar to the figures obtained from external sources in all policy years. However, the increase in employment income during the period 2009-2011 above the values of the external sources needs an additional explanation. In EUROMOD, the rate of increase of wages is based on the variation of the average nominal compensation per employee as reported in the official statistics and reproduced in the update factors; it is not based on the global wage amounts which have a lower rate of increase, mainly due to the growth in unemployment. As the number of employees is kept static at the 2009 level for individual matters, the total wage amounts will not reflect the increase in unemployment if the average rate of increase of wages is used. The decline in the global wages amounts in 2012 reflects mainly the changes in policies, and does not reflect the significant rise in the unemployment rate in 2011/2012. Notice that in the base year the unemployment rate is around 9.5%, rises to 12.7% in 2011, 15.7% in 2012, and the expected value for 2013 is above 17%.

The number of recipients of self-employment income appears under-estimated, whereas the level of self-employment income appears clearly over-estimated. This underreporting of the number of recipients seems justified because the external source (the tax system) records all people that are declared as self-employed even if in a certain year they earn no income of this type, whilst the values in EUROMOD are obtained by counting each individual with income of this type. The complexity of the social security contributions system could thus explain part of the difference in that amount. The Portuguese version of the EU-SILC and EUROMOD actually attribute social security contributions to most of the self-employed that actually do not pay them due to the multiple exemption schemes and to the lack of capacity to deal with tax evasion (see Table 6.6).

Table 6.4 (in Annex II) shows the number of recipients of the non-simulated benefits. Disability and survivor's benefits are taken from Social Security (SS) data sources and not corrected or simulated in EUROMOD. The number of recipients and the amounts received are significantly underestimated in the EU-SILC dataset compared to the SS external sources. Consequently, EUROMOD reproduces this underestimation by around 10-40% (see Tables 6.4 and 6.5).

The number of sickness benefits recipients is clearly underreported in the EU-SILC and in EUROMOD. The number of recipients is around a quarter of the number reported by the SS external sources. However, the aggregate amount is very similar to the one recorded by the external sources. One possible explanation is that external data is constructed using sickness episodes along the year and there is no information on the EU-SILC about the number of individuals experiencing various episodes along the year.

4.1.4 Validation of outputted (simulated) incomes

Note: Please see Annex II for tables.

Tables 6.6 and 6.7 show that the figures on the old-age contributory pensions are quite accurate in the base year. However, moving from the original year (2009) to the year there is external data to compare with (2012 to both number of recipients and amounts) the underreporting of both increases slightly. The increase in the number of persons in retirement in Portugal during this period could explain it.

In the base year EUROMOD underestimates the number of social pension recipients of the social pension by 50%. Unfortunately it is not possible to validate the evolution of the values of the social pension due to the lack of official data.

The validation process reveals a poor performance of the simulation of the number of unemployment benefits recipients. However, it is quite accurate with respect to the total amount of benefit. Such differences can be partly explained by the significant increase in unemployment in Portugal over the period and the corresponding impact on its total expenditure, whilst EUROMOD relies on the structural data from the first year, *i.e.*, the number of recipients is kept constant throughout (the default simulation process is basically a split of the original unemployment benefit variable).

The simulation of child benefit reveals that EUROMOD overestimates the number the recipients (around 10% at the household level) while underestimating the total amount of benefits. The assumption of full take-up in the simulation could explain the overestimation of the number of households receiving child benefit. On the other hand, EUROMOD does not simulate some complementary benefits associated with child benefit (for instance, disability benefit) that could explain, at least partially, the underestimation of the total amount. The reduction in the number of the recipients between 2010 and 2011, around 30%, is consistent with external data about the reduction in the number of participants in the scheme due to the changes in the means tested entitlement conditions.

The difficulty of simulating the minimum income program in Portugal stems from the difficulties in capturing the means tested entitlement conditions in the simulations, the complex issue of non-take up, and the changes to the entitlement conditions between 2010 and 2013. The latter implied that a large percentage of the participants in the programme was then excluded, and the amount of benefits received by those remaining clearly fell (see Rodrigues (2012), for example). At the same time, the aggravation of the economic and social crisis, particularly the increase in unemployment, implied that new households are now eligible to the Social Integration Income. Therefore, the simulation in EUROMOD underestimates the number of recipients (between 10% and 20% at household level) while overestimating the total amount of benefits.

While the number of recipients of the Solidarity supplement for the elderly (CSI) is rather in line with external source statistics (ratios ranging from 1.04 to 0.97), the amounts are overestimated. In 2009 EUROMOD overestimated it by 34% but this ratio decreases over time (1.17 in 2010 and 1.13 in 2011). The overestimation of the amounts by EUROMOD could be explained because it does not take into account the incomes of the descendants of the beneficiary that do not belong to the household, yet are relevant to the calculation of the amount of benefit received.

Tables 6.6 and 6.7 also include the number of taxpayers and amount of taxes collected during the period 2009-2013 as simulated by EUROMOD. The overestimation of direct taxes paid by households is not surprising because the model does not take into account important tax credits like those for education and health expenditures. Another explanation is that the model is not able to simulate the lower tax schedule in Azores and Madeira autonomous regions because the Portuguese version of EU-SILC does not permit the identification of the region where taxpayers live. Given the limitations of the model, an overestimation of 10-15% of income tax revenue collected seems acceptable.

The overestimation of the number of taxpayers by around 40-45% is also a direct consequence of not taking into account important tax credits. This means that in EUROMOD there is a large number of tax units paying small amounts of taxes when in reality they are exempt. The impact on the aggregate amount of collected taxes is not significant, but it implies a clear overestimation of the number of tax units.

The simulation of social contributions is quite accurate about the amounts of SICs paid by employers and employees. However, the values estimated for the self-employed regime are extremely high, but still in line with the overestimation of self-employment income discussed above.

4.2 Income distribution

Note: Please see Annex II for tables.

The analysis in this section provides the indicators of income distribution, poverty and inequality. 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 are: first adult=1; additional individuals aged 14+ = 0.5; additional individuals aged under 14 = 0.3.

4.2.1 Income inequality

In this section the changes in income distribution estimated by EUROMOD are compared with the “official” results published by Eurostat and computed from different waves of the EU-SILC. At the present moment (December 2013), only the micro-data from the EU-SILC 2010 to 2012 is available thus enabling its use as a benchmark for the EUROMOD estimates between 2009 and 2011.

The equivalised disposable income simulated in EUROMOD is slightly different from the original EU-SILC data. Several reasons may explain this difference:

- i) Inclusion of different sources of income in the definition of household income. For example, the EU-SILC includes in disposable income (variable HY020) the company car (py021)

which is not included in EUROMOD; EUROMOD includes pensions received from individual private plans (py080) and repayments/receipts for tax adjustment not included EU-SILC;

- ii) Changes in the sample and weighting of the observations;
- iii) Changes in the amounts of some income sources due to their simulation in EUROMOD.

Table 6.8, in Annex II, shows the distribution of equivalised income by deciles according to the two sources of information. The mean disposable income simulated by EUROMOD is slightly higher (4%) than the figures provided by Eurostat. However, the share of the first decile estimated by EUROMOD is much higher (19%), possibly due to the assumption of full take-up in the simulation of most of the benefits. The differences between EUROMOD and Eurostat figures are not significant for the other nine deciles.

The same table also shows the main inequality indices calculated using both sources. Compared to the EU-SILC figures, the EUROMOD simulation estimates lower income inequality indices. The EUROMOD higher income share of the bottom decile (which results from its assumption of full take-up of most benefits) can explain, at least partially, this discrepancy.

4.2.2 Poverty rates

Table 6.9 in Annex II shows that the poverty rates estimated by EUROMOD are similar to those computed using the EU-SILC data for poverty lines defined as 50%, 60% and 70% of the median equivalent income. However, EUROMOD poverty estimates are significantly lower if the poverty line is defined as 40% of the median. These results suggest that the increase in incomes in the lower part of the distribution is not enough to compensate the increase in the median, and the poverty lines are closer to the median income.

According to the poverty rates and income distribution results, the changes introduced in the original EU-SILC data in order to meet the EUROMOD requirements lead to a small increase in the inequality and poverty figures. The main difference between the two distributions is a consequence of the inclusion of the repayments/receipts for tax adjustment (variable tad) in EU-SILC. However, the final simulation of the EUROMOD model inverts this situation mainly due to the increase in the bottom decile income share. The assumption of full take-up associated with the simulation of social benefits certainly explains a significant part of this difference.

Table 6.9 shows the poverty rates for the base year using 40%, 50%, 60% and 70% of the median equivalent income as alternative definitions of the poverty line for the whole population and by gender. It also compares the EUROMOD and EU-SILC (external source) and shows that EUROMOD produces slightly lower poverty rates.

Both sources suggest an increase in the poverty rates during the period 2009-2010, followed by a decrease in 2011 for the EU-SILC (external) sources, which is inconsistent with the simulation results, and a decrease in the simulated rates for 2012, which must be read carefully. The latter is associated with a strong reduction in the mean and median equivalised income simulated by EUROMOD for 2012: between 2011 and 2012, the median equivalised income and all the poverty lines fell by more than 2%. The decrease in the poverty rates in 2012 is clearly a statistical effect of the reduction in the equivalised income and does not imply a better situation for the poorest part of the society. This joint decrease in the values of the poverty line and poverty rate detected by the EUROMOD simulation in 2012 may have happened before in Portugal. According to Statistics Portugal, the main poverty line (corresponding to 60% of the median equivalised income) decreased by 3% between 2009 and 2010. The slight increase in the poverty rate from 17.9% to 18.0% in the same period would have been much higher if the poverty line had remained unchanged.

In order to isolate the effect of decreasing poverty lines, at-risk-of-poverty rates anchored at a fixed moment in time can be used to evaluate poverty in periods of high instability such as the one Portugal is going through. Table 6.10 shows the evolution of the at-risk-of-poverty rate calculated using both EUROMOD and official data under the hypothesis that the poverty line had remained fixed to its 2009 values updated only according to prices evolution. The validation process now reveals what seems to be a poorer performance for EUROMOD: in 2010 the simulated poverty rate is almost the same as in the previous year, whilst it rises by almost two percentage points in the official data estimation.

4.3 Validation of employment adjustments

An optional employment adjustment module was introduced for the period of 2009-2013 (the module is switched off in the baseline) to model labour market changes. Table 6.11 (in Annex II) shows the impact of these employment adjustments by comparing them with the baseline results.

The EUROMOD underestimation proportion of the number of employees in 2009 (base year) is equal to 86% (ratio between EUROMOD and official statistics) and kept throughout the period as the adjustments force the simulation results to follow the official employment rates, whereas in the baseline scenario the overestimation is reduced along the period (from the same 86% in 2009 to 93% in 2012).

On the unemployment benefit's side, the adjustments produce a gradual approximation to the official statistics along the period. For the main unemployment benefit, for instance, the ratio grows from 76% to 86%, moving in the opposite direction of the baseline model (which shrinks from 76% to 56%).

These adjustments have some expected consequences on the income distribution. Income from work is obviously lower with the adjustments (-5.5% in 2013 on gross employee earnings' total), as well as other work-related benefits (e.g., paternal leave, sickness benefits). On the other hand, the total amount of unemployment benefits rises now substantially more than before: in 2013, it almost doubles the baseline values and increases so much faster than the external data that it is overestimated by 2011 (contributory benefit; with the non-contributory since the year before). The resulting disposable income in 2013 is 5% lower than what is obtained from the baseline model.

4.4 Summary of "health warnings"

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

- Care should be taken in interpreting results for small sub-groups due to small sample sizes.
- The weights do not control for the increase of unemployment in Portugal over the time period under consideration (unemployment rose from 8.0% in 2008 to more than 15% in 2012).
- No adjustments are made for structural changes in the characteristics of the population between the data year (2010) and the simulation years;
- The Portuguese version of the EU-SILC clearly underestimates some social benefits and this is not corrected by EUROMOD unless these benefits are simulated;
- The simulation of some benefits in EUROMOD is conditioned by the difficulty of splitting some income variables from the EU-SILC user database and by the difficulty some of the recipients have in clearly identifying the source of their incomes;
- Non-take-up of benefits is not modelled in most policies (the exception being the Social Supplement for the Elderly). This has the effect of inflating the simulated incomes of

households who do not actually take up these benefits. This is particularly relevant in the simulation of child benefits and minimum income;

- The social security contributions reported in EU-SILC and estimated by EUROMOD seem clearly overestimated. More work is needed to understand fully all system rules and exceptions, and to identify the recipients;
- Comparisons between EUROMOD and administrative figures on personal income tax have to take into consideration the existence of tax evasion as well as the lack of adequate information for the simulation of a number of tax allowances and deductions.

5. ANNEX I: UPRATING FACTORS

Table 5.1 Monetary updating factors in reference to 2009

Variable		2010	2011	2012	2013	Source/comments	
Employment income							
Dependent employment income							
Civil servants	yem	1.000	1.000	1.000	1.000	Wages frozen	
Private sector employees		1.030	1.045	1.037	1.057	Soc. Security (avg. wages submitted for contributions processing)	
Self-employed income							
Agriculture and Fishing		1.016	0.961	0.956	0.957		
Mining, manfctrng. & utilities		1.083	1.102	1.084	1.079		
Construction		0.950	0.875	0.734	0.621		
Wholesale and retail trade		1.009	1.020	1.014	1.021		
Hotels and restaurants	yse	1.009	1.020	1.014	1.021	INE (Statistics Portugal), GDP at market prices from the production side - GVA by industry, A8 (current prices; annual)	
Transport and communication		0.991	1.004	0.996	0.993		
Financial intermediation		1.032	1.032	1.036	1.042		
Real estate and business activities		1.005	0.962	0.899	0.905		
Public administration & defense		1.005	0.962	0.899	0.905		
Education		1.005	0.962	0.899	0.905		
Health and social work		1.005	0.962	0.899	0.905		
Other		1.005	0.962	0.899	0.905		
Imputed value: wage/salary	yvvg	1.030	1.045	1.037	1.057		(In line w/private wages)
Pensions							
Main old age pension, survivors pension, disability pension							
if pension <= 243.32	poact,	1.013	1.013	1.044	1.055	PT law on pensions updating	
if 243.32 < pension <= 628.83	psu, pdi	1.013	1.013	1.013	1.013		
if 628.83 < pension <= 1500		1.010	1.010	1.010	1.010		
if pension > 1500		1.000	1.000	1.000	1.000		
Social pension	poanc	1.013	1.013	1.039	1.049		
Private pension	ypp	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation	

EUROMOD Country Report – PORTUGAL

Unemployment benefits						
Unemp. benefit (insurance and assistance)	bun, bunnc	1.030	1.045	1.037	1.057	(In line w/private wages)
Sickness benefits						
Sickness benefit (for civil servants)		1.000	1.000	1.000	1.000	(In line w/civil servant wages)
Sickness benefit (for private sector employees)	bhl	1.030	1.045	1.037	1.057	(In line w/private wages)
Family and child benefits						
Family benefits (for civil servants)		1.000	1.000	1.000	1.000	Essentially, parental leave benefits (uprated in line w/civil servant wages)
Family benefits (for private sector employees)	bfa	1.030	1.045	1.037	1.057	Essentially, parental leave benefits (uprated in line w/private wages)
Child benefit	bch	1.000	1.000	1.000	1.000	In line with Social Support Index (kept frozen since 2010)
Social assistance						
Social assistance and social assistance (other)	bsa, bsaot	1.000	1.000	1.000	1.000	In line with Social Support Index (kept frozen since 2010)
Social insertion income	bsa00	1.000	1.000	1.000	0.940	PT law on social insertion income's threshold update
Social supplement for the elderly	bsaoa	1.013	1.013	1.013	0.990	PT law on social supplement for the elderly's threshold update
Other benefits						
Education benefits	bed	1.000	1.000	1.000	1.000	In line with Social Support Index (kept frozen since 2010)
Housing benefits	bho	1.000	1.000	1.000	1.000	In line with Social Support Index (kept frozen since 2010)
Imputed benefit in kind	kfbbc	101.4	105.2	108.1	109.8	INE (Statistics Portugal) - inflation
Investment/property income						
Investment income and property income (rent)	yi, ypr	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Other income						
Private transfers; non-cash income; income received by <16	ypt, kfb, yot	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Assets						
Financial capital	afc	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Expenditure items						
Rent paid; housing costs (other); maintenance payment	xhcrt, xhcot, xmp	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Interest on mortgage payment	xhcmomi	0.589	0.762	0.735	0.464	INE (Statistics Portugal) – implicit interest rates on housing credit

EUROMOD Country Report – PORTUGAL

Expenditure on private pensions	xpp	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Tax and SICs						
Property tax	tpr	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Income tax; Income tax repayments/receipts	tin, tad	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
SIC employee, SIC self-employed; SIC employer	tscee, tscse, tscer	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Income tax and SICs	tis	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Other						
Disposable income	yds	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation
Social Support Index	upr_ssi	1.000	1.000	1.000	1.000	Frozen since 2010
Imputed house rent	kivho	1.014	1.052	1.081	1.098	INE (Statistics Portugal) - inflation

Note: For sources and more detailed information refer to the model or the DRD. Not all the updated components are used for EUROMOD calculations. Simulated values used instead of updated once where relevant.

6. ANNEX II: MACROVALIDATION TABLES

Table 6.1 Number of employed & unemployed, thousands

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Employed	4327	4327	4327	4327	4327	5054	4978	4837	4635	n/a	0.86	0.87	0.89	0.93
Unemployed	730	730	730	730	730	529	603	706	860	n/a	1.38	1.21	1.03	0.85

Notes: EUROMOD number of employed and unemployed computed based on months in employment/unemployment - numbers computed as averages of monthly data over the year.

Table 6.2 Market Income-Number of recipients, thousands (using 2010 data)

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Original income														
Employment	4169	4169	4169	4169	4169	4235	4186	4147	n/a	n/a	0.98	1.00	1.01	n/a
Self-employment	713	713	713	713	713	968	969	948	n/a	n/a	0.74	0.74	0.75	n/a
Investment	754	754	754	754	754	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Property	336	336	336	336	336	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Private pension	28	28	28	28	28	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Private transfers	121	121	121	121	121	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other	5	5	5	5	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Severance payments	101	101	101	101	101	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
In-kind income														
Fringe benefits	230	230	230	230	230	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Imputed housing	5082	5082	5082	5082	5082	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Social Security, Statistics Portugal

Table 6.3 Market Income-Aggregate amounts, annual amounts in million €

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Original income														
Employment	57482	58963	59215	57774	59807	56817	57060	55403	n/a	n/a	1.01	1.03	1.07	n/a
Self-employment	8230	8286	88117	7768	7677	6083	5635	4793	n/a	n/a	1.35	1.47	1.69	n/a
Investment	795	806	836	859	873	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Property	1171	1188	1232	1266	1286	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Private pension	182	185	192	197	200	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Private transfers	531	539	559	574	583	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other	24	24	25	26	26	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Severance payments	268	271	282	289	294	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
In-kind income														
Fringe benefits	325	329	342	351	357	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Imputed housing	3575	3625	3761	3864	3925	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Social Security, Statistics Portugal

Table 6.4 Non-simulated taxes and benefits-Number of recipients/payers, thousands

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Pensions														
Disability pension	251	251	251	251	251	299	291	285	279	n/a	0.84	0.86	0.88	0.90
Survivor's pension	580	580	580	580	580	812	820	830	836	n/a	0.71	0.71	0.70	0.68
Not simulated benefits														
Sickness benefit	134	134	134	134	134	588	549	554	498	n/a	0.23	0.24	0.24	0.27
Family Benefits	500	500	500	500	500	270	286	287	279	n/a	1.85	1.75	1.74	1.79
Education Benefits	49	49	49	49	49	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Not simulated taxes														
Property tax	1819	1819	1819	1819	1819	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Social Security, Statistics Portugal

Table 6.5 Non-simulated taxes and benefits-Aggregate amounts, annual amounts in million €

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Pensions														
Disability pension	1128	1142	1142	1118	1146	1421	1411	1398	1375	n/a	0.79	0.81	0.82	0.81
Survivor's pension	2005	2027	2027	1990	2040	2724	2818	2783	2813	n/a	0.74	0.72	0.73	0.71
Not simulated benefits														
Sickness benefit	388	400	405	402	410	455	450	454	418	n/a	0.85	0.89	0.89	0.96
Family Benefits	331	340	345	343	349	509	562	587	569	n/a	0.65	0.61	0.59	0.60
Education Benefits	112	112	112	112	112	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Not simulated taxes														
Property tax	474	480	498	512	520	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Social Security, Statistics Portugal

Table 6.6 Simulated taxes and benefits-Number of recipients/ payers, thousands

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Simulated benefits														
Old-age contributory pensions	2122	2122	2122	2122	2122	2102	2174	2256	2329	n/a	1.01	0.98	0.94	0.91
Social Pension	31	36	36	35	35	59	57	54	n/a	n/a	0.52	0.63	0.67	n/a
Unemployment benefit	304	304	304	304	304	400	425	453	544	n/a	0.76	0.72	0.67	0.56
Unemployment social benefit	94	92	66	68	65	193	202	137	140	n/a	0.49	0.46	0.48	0.48
Child benefit	1420	1419	847	856	845	1263	1260	926	854	n/a	1.12	1.13	0.91	1.00
Social insertion income	173	170	144	143	91	192	207	173	160	n/a	0.90	0.82	0.83	0.89
Old age social assistance	231	240	242	239	234	223	235	236	245	n/a	1.04	1.02	1.03	0.98
Taxes														
Income tax	2693	2812	2774	2867	3190	2008	2013	2062	n/a	n/a	1.34	1.40	1.34	n/a
Tax base	4124	4128	4134	4636	4644	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tax credits	4095	4099	4107	4535	4565	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
main tax credit	4097	4099	4107	4608	4618	4129	4140	4153	n/a	n/a	0.99	0.99	0.99	n/a
child tax credit	1198	1192	1199	1209	1215	1358	1289	1285	n/a	n/a	0.88	0.92	0.93	n/a
housing tax credit	1607	1608	1613	1723	1728	1084	1104	1109	n/a	n/a	1.48	1.46	1.45	n/a
lone parent tax credit	119	117	119	126	128	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Social contributions														
Employer	4169	4169	4169	4169	4169	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Employees	4169	4169	4169	4169	4169	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Self-employed regime	482	482	482	300	295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: Child benefit recipient data in terms of households

Source: Social Security, Statistics Portugal

Table 6.7 Simulated taxes and benefits- Aggregate amounts, annual amounts in million €

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Simulated benefits														
Old-age contributory pensions	16397	16529	16521	15278	16289	16684	16824	17004	17240	n/a	0.98	0.98	0.97	0.89
Social Pension	80	96	96	96	97	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Unemployment benefit	1474	1494	1546	1505	1527	1609	1794	1825	2267	n/a	0.92	0.83	0.85	0.66
Unemployment social benefit	367	356	283	299	287	436	427	278	326	n/a	0.84	0.83	1.01	0.92
Child benefit	914	902	587	593	586	1067	1039	743	735	n/a	0.86	0.87	0.79	0.81
Social insertion income	552	553	373	375	217	480	489	384	357	n/a	1.15	1.13	0.97	1.05
Old age social assistance	299	307	307	304	272	224	261	268	268	n/a	1.34	1.18	1.15	1.14
Taxes														
Income tax	8098	8764	9715	8431	12140	8148	8502	8395	n/a	n/a	0.99	1.03	1.16	n/a
Tax base	55687	56483	56815	56335	59418	59366	59207	57663	n/a	n/a	0.94	0.95	0.99	n/a
Tax credits	2241	2279	2261	2220	1967	3737	3769	3514	n/a	n/a	0.60	0.60	0.64	n/a
main tax credit	1603	1692	1696	1879	1541	1365	1426	1431	n/a	n/a	1.17	1.19	1.19	n/a
child tax credit	349	367	369	370	418	340	343	344	n/a	n/a	1.03	1.07	1.07	n/a
housing tax credit	697	565	641	404	268	562	569	579	n/a	n/a	1.24	0.99	1.11	n/a
lone parent tax credit	43	44	45	48	43	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Social contributions														
Employer	13652	14004	14063	13721	14204	14313	14460	14023	n/a	n/a	0.95	0.97	1.00	n/a
Employees	6323	6486	6514	6355	6579	6121	6121	6303	n/a	n/a	1.03	1.06	1.03	n/a
Self-employed regime	906	906	1056	891	875	596	549	601	n/a	n/a	1.52	1.65	1.76	n/a

Source: Social Security, Statistics Portugal

Table 6.8 Income distribution

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
Decile shares, %														
1 st decile	3.4	3.4	3.3	3.4	3.2	2.9	2.9	2.7	n/a	n/a	1.19	1.19	1.20	n/a
2 nd decile	4.8	4.8	4.8	4.9	5.0	4.6	4.5	4.5	n/a	n/a	1.04	1.05	1.05	n/a
3 rd decile	5.8	5.8	5.8	6.0	6.0	5.7	5.6	5.7	n/a	n/a	1.02	1.03	1.03	n/a
4 rd decile	6.6	6.6	6.8	6.9	7.0	6.5	6.6	6.6	n/a	n/a	1.01	1.01	1.03	n/a
5 th decile	7.6	7.7	7.8	7.9	8.0	7.7	7.6	7.6	n/a	n/a	1.00	1.02	1.03	n/a
6 th decile	8.9	8.9	9.1	9.1	9.2	8.9	8.7	8.7	n/a	n/a	1.00	1.03	1.04	n/a
7 th decile	10.2	10.3	10.5	10.4	10.5	10.2	10.1	10.0	n/a	n/a	1.00	1.02	1.05	n/a
8 th decile	12.1	12.0	12.2	12.0	12.1	12.0	11.9	11.9	n/a	n/a	1.00	1.01	1.03	n/a
9 th decile	14.9	14.9	14.9	14.8	14.8	15.0	15.0	15.1	n/a	n/a	1.00	0.99	0.99	n/a
10 th decile	25.7	25.6	24.9	24.6	24.2	26.6	27.2	27.3	n/a	n/a	0.97	0.94	0.91	n/a
Mean income (Equivalentised)														
total population	10979	11118	10893	10690	10529	10540	10407	10251	n/a	n/a	1.04	1.07	1.06	n/a
males	11121	11261	11029	10818	10650	10665	10567	10388	n/a	n/a	1.07	1.10	1.09	n/a
females	10846	10983	10765	10570	10415	10423	10257	10127	n/a	n/a	1.02	1.04	1.04	n/a
Median income (Equivalentised)														
total population	9072	9224	9199	9090	9054	8678	8410	8323	n/a	n/a	1.05	1.10	1.11	n/a
males	9249	9420	9400	9192	9209	8800	8536	8416	n/a	n/a	1.08	1.14	1.14	n/a
females	8897	9068	9032	8927	8881	8575	8255	8224	n/a	n/a	1.01	1.06	1.07	n/a
Income quintile ratio (S80/S20)	5.0	4.9	5.0	4.7	4.7	5.6	5.7	5.8	n/a	n/a	0.89	0.87	0.85	n/a
Gini Coefficient	32.2	32.0	31.7	30.8	30.6	33.7	34.2	34.5	n/a	n/a	0.96	0.93	0.92	n/a

Notes: Based on household disposable income (HDI) equalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions; computed at the individual level.

Source for External Data: Statistics Portugal, EU-SILC-UDB

Table 6.9 At risk of poverty rates by gender and age, percent

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
40% median HDI														
total population	3.6	3.6	5.6	4.6	5.6	6.3	5.5	6.6	n/a	n/a	0.57	0.66	0.85	n/a
males	3.4	3.5	5.7	4.6	5.8	6.1	5.4	6.9	n/a	n/a	0.56	0.64	0.82	n/a
females	3.7	3.8	5.5	4.6	5.5	6.5	5.6	6.3	n/a	n/a	0.57	0.67	0.88	n/a
50% median HDI														
total population	9.6	9.6	10.5	9.9	9.7	11.3	11.1	11.5	n/a	n/a	0.85	0.86	0.91	n/a
males	9.6	9.5	10.5	9.9	9.7	11.2	10.9	11.5	n/a	n/a	0.86	0.87	0.91	n/a
females	9.7	9.7	10.5	9.8	9.7	11.5	11.3	11.4	n/a	n/a	0.84	0.86	0.92	n/a
60% median HDI														
total population	16.7	16.6	17.6	16.3	16.4	17.9	18.0	17.9	n/a	n/a	0.93	0.92	0.98	n/a
males	15.7	15.6	16.6	15.5	15.5	17.3	17.6	17.5	n/a	n/a	0.91	0.88	0.95	n/a
females	17.5	17.6	18.5	17.1	17.3	18.5	18.4	18.2	n/a	n/a	0.95	0.95	1.02	n/a
70% median HDI														
total population	24.9	25.0	25.6	24.8	24.8	26.0	25.6	24.8	n/a	n/a	0.96	0.98	1.03	n/a
males	23.8	23.9	24.5	23.7	23.5	25.2	24.7	24.3	n/a	n/a	0.95	0.97	1.01	n/a
females	25.9	26.0	26.7	25.9	26.0	26.7	26.4	25.3	n/a	n/a	0.97	0.99	1.06	n/a
60% median HDI														
0-17 years	20.4	20.4	22.5	21.4	21.7	22.4	22.4	21.7	22.4	n/a	0.91	0.92	1.04	n/a
18-24 years	17.4	17.2	18.7	17.0	17.2	18.7	21.8	22.2	18.7	n/a	0.93	0.79	0.84	n/a
25-49 years	13.8	13.9	14.9	13.6	13.9	14.9	15.0	15.5	14.9	n/a	0.93	0.93	0.96	n/a
50-64 years	15.9	15.8	16.2	15.2	15.0	16.2	16.4	17.4	16.2	n/a	0.99	0.96	0.93	n/a
65+ years	19.2	19.1	19.1	17.8	17.6	21.0	20.0	17.4	21.0	n/a	0.91	0.95	1.10	n/a

Notes: Computed for individuals according to their household disposable income (HDI) Equivalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions.

Source for External Data: Statistical Portugal, EU-SILC-UDB

Table 6.10 At-risk-of-poverty rate anchored at a fixed moment in time (2009) by gender, percent

	Euromod (I)					External Source (II)					Ratio (I/II)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012
60% median HDI														
total population	16.7	16.6	19.1	20.4	21.3	17.9	19.6	21.3	n/a	n/a	0.93	0.84	0.90	n/a
males	15.7	15.6	18.1	19.3	20.1	17.3	19.1	20.7	n/a	n/a	0.91	0.81	0.87	n/a
females	17.5	17.5	20.2	21.4	22.4	18.5	20.0	21.8	n/a	n/a	0.95	0.88	0.92	n/a

Notes: Computed for individuals according to their household disposable income (HDI) Equivalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions.

Source for External Data: Statistical Portugal, EU-SILC-UDB

Table 6.11 Impact of employment adjustments compared to baseline scenario, annual monetary amounts in million € if not stated otherwise

	Employment adjustments (I)					Baseline (II)					Ratio (I/External)				Ratio (II/External)			
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2009	2010	2011	2012
Number of employees, thous.	4327	4269	4166	3995	3901	4327	4327	4327	4327	4327	0.86	0.86	0.86	0.86	0.86	0.87	0.89	0.93
Contributory unemployment benefits recipients, thous.	304	314	356	465	520	304	304	304	304	304	0.76	0.74	0.79	0.86	0.76	0.72	0.67	0.56
Non-contributory unemployment benefits recipients, thous.	94	132	84	96	104	94	92	66	68	65	0.49	0.65	0.61	0.68	0.49	0.46	0.48	0.48
Disposable income (total)	68147	69387	68688	65462	66402	68147	69719	69893	68175	70158	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gross employee earnings (total)	57482	58704	58267	55482	56546	57482	58963	59215	57774	59807	1.01	1.03	1.05	n/a	1.01	1.03	1.07	n/a
Income tax (total)	8098	8759	9624	8278	11786	8098	8764	9715	8431	12140	0.99	1.03	1.15	n/a	0.99	1.03	1.16	n/a
Employee SICs (total)	6323	6457	6409	6103	6220	6323	6486	6514	6355	6579	1.03	1.05	1.02	n/a	1.03	1.06	1.02	n/a
Contributory unemployment benefits (total)	1474	1561	1874	2459	2845	1474	1494	1546	1505	1527	0.92	0.87	1.20	n/a	0.92	0.83	0.99	n/a
Non-Contributory unemployment benefits (total)	367	532	366	436	472	367	356	283	299	287	0.84	1.25	1.31	n/a	0.84	0.83	1.01	n/a
Gini (Eq HDI)	32.2	31.9	31.5	30.7	30.5	32.2	32.0	31.7	30.8	30.6	0.96	0.93	0.91	n/a	0.96	0.93	0.92	n/a
At poverty risk (60% median)*	16.7	15.4	16.6	15.0	14.5	16.7	16.6	17.6	16.3	16.4	0.91	0.88	0.95	n/a	0.93	0.92	0.98	n/a

7. REFERENCES

CEAFGEA (2008). *Economia Informal em Portugal*. Centro de Estudos de Gestão e Economia Aplicada, UCP, Porto.

INE (2009), *Portuguese EU-SILC Methodology*, INE, Lisboa

INE (2011), *EU-SILC 2010 -Intermediate quality report – Portugal*, INE, Lisboa.

Rodrigues, C.F. (2004) “The Redistributive Impact of the Guaranteed Minimum Income Programme in Portugal”, School of Economics and Management (ISEG), Economics Department, Working Paper 9/2004.

Rodrigues, C.F. (2007) “Income in EU-SILC - Net/Gross Conversion Techniques for Building and Using EU-SILC Databases”, in Eurostat(ed), *Comparative EU Statistics on Income and Living Conditions: Issues and Challenges*, Eurostat, Luxembourg, pp 159-172.

Rodrigues, C.F. (2012) “Minimum Income in Portugal - changing the rules in times of crisis”, School of Economics and Management (ISEG), Economics Department, Working Paper 5/2012.

OECD (2006) *OECD in Figures 2006*, OECD Publications, Paris.

OECD (2007) *OECD in Figures 2007*, OECD Publications, Paris.

OECD (2008) *OECD in Figures 2008*, OECD Publications, Paris.

OECD (2009) *OECD in Figures 2009*, OECD Publications, Paris.

Eurostat (2012), website database.

Verbist, G. (2004) “Redistributive effect and progressivity of taxes An International Comparison across the EU using EUROMOD”, EUROMOD Working Paper No. EM5/04.

- ***Sources for tax-benefit descriptions/rules***

Social benefits descriptions and rules (in Portuguese):

www.seg-social.pt

On-line legislation (in Portuguese):

www.dre.pt

Unemployment benefits

- dre.pt/pdf1s/2006/11/21200/76897706.pdf
- dre.pt/pdf1sdip/2010/06/11500/0208102089.pdf
- dre.pt/pdf1sdip/2012/03/05400/0123701242.pdf

Minimum pension (and social support index)

- 2007: dre.pt/pdf1s/2009/12/24800/0873608737.pdf
- 2008: dre.pt/pdf1s/2008/01/00200/0008200087.pdf
- 2009: dre.pt/pdf1s/2008/12/24800/0902309027.pdf
- 2010: dre.pt/pdf1s/2009/12/25200/0881808818.pdf
- 2012: dre.pt/pdf1s/2011/12/25002/0027200275.pdf

Child benefit

- dre.pt/pdf1s/2003/08/177A00/45944605.pdf
- dre.pt/pdf1sdip/2008/12/24400/0891108926.pdf
- dre.pt/pdf1s/2009/08/16700/0569005692.pdf
- dre.pt/pdf1sdip/2010/06/11500/0208102089.pdf

- <dre.pt/pdf1sdip/2010/10/20600/0476404765.pdf>
- <dre.pt/pdf1sdip/2010/10/21000/0489704897.pdf>

Old age social pension

- <dre.pt/pdf1s/1980/05/12200/11851188.pdf>
- <dre.pt/pdf1s/1980/10/23700/33573360.pdf>
- <dre.pt/pdf1sdip/2002/01/024A00/07100711.pdf>
- <dre.pt/pdf1s/2010/04/08201/0006600384.pdf>
- <dre.pt/pdf1sdip/2001/07/173A00/45794580.pdf>
- <dre.pt/pdf1s/2011/12/25002/0027200275.pdf>

Solidarity supplement for older persons

- <dre.pt/pdf1s/2005/12/249A00/73197323.pdf>
- <dre.pt/pdf1sdip/2006/02/023B01/00020005.pdf>
- <dre.pt/pdf1s/2006/02/026B00/08930900.pdf>
- <dre.pt/pdf1sdip/2006/12/23600/83098310.pdf>
- <dre.pt/pdf1s/2007/01/00900/02890290.pdf>
- <dre.pt/pdf1s/2007/03/05600/16701672.pdf>
- <dre.pt/pdf1sdip/2008/02/04100/0130501306.PDF>
- <dre.pt/pdf1s/2008/04/06700/0205702057.pdf>
- <dre.pt/pdf1s/2008/08/16400/0599805999.pdf>
- <dre.pt/pdf1s/2009/12/25200/0881808818.pdf>

Social insertion income

- <dre.pt/pdf1sdip/2003/05/117A00/31473152.pdf>
- <dre.pt/pdf1sdip/2003/05/124A00/32803285.pdf>
- <dre.pt/pdf1sdip/2003/11/259A00/75027515.pdf>
- <dre.pt/pdf1s/2005/08/165A00/50665068.pdf>
- <dre.pt/pdf1s/2006/02/039A00/14901507.pdf>
- <dre.pt/pdf1s/2007/01/01100/03450356.pdf>
- <dre.pt/pdf1sdip/2010/06/11500/0208102089.pdf>
- <dre.pt/pdf1sdip/2012/06/12300/0327003304.pdf>

Social contributions

- <dre.pt/pdf1s/1999/06/132A00/32113216.pdf>
- <dre.pt/pdf1s/2009/09/18000/0649006528.pdf>
- <dre.pt/pdf1sdip/2011/01/00101/0000400016.pdf>

Personal income tax

- <dre.pt/pdf1sdip/1988/11/27701/00020035.pdf>
- <dre.pt/pdf1sdip/2006/12/24901/00020379.pdf>
- <dre.pt/pdf1s/2007/12/25101/0000200227.pdf>
- <dre.pt/pdf1s/2008/12/25201/0000200389.pdf>
- <dre.pt/pdf1s/2010/04/08201/0006600384.pdf>
- <dre.pt/pdf1sdip/2010/06/11400/0202502025.pdf>
- <dre.pt/pdf1sdip/2010/06/12501/0000200013.pdf>

- <dre.pt/pdf1s/2010/12/25301/0000200322.pdf>
- <dre.pt/pdf1s/2011/12/25001/0004800244.pdf>