EUROMOD

COUNTRY REPORT

PORTUGAL 2001

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List of Tables

1. Introduction

The main purpose of this report is to document the structure of the Portuguese tax-benefit system in 2001 as Euromod (a tax-benefit microsimulation model covering all 15 Member States of the EU) has developed it.

This report is divided in four sections. Section 2 presents a brief introduction of the actual social protection system in Portugal and shows its recent trends. It also describes succinctly the structure of the Portuguese tax system as well as its level in 2001. Section 3 then provides a detailed description of the Portuguese tax-benefit system in 2001, focusing on the benefits, social insurance contributions and income tax, included or simulated by Euromod. Although it does not cover the whole Portuguese system, it gives a relevant picture of the current system. To give an idea about the Portuguese data used in Euromod, we present in Section 4 a general description of the data sample, 'net to gross process' as well as the updating factors. To conclude, in Section 5, data available are then used to examine and validate the results simulated by Euromod.

2. Outline of the Portuguese tax-benefit system

2.1 Social protection in Portugal

In Portugal, a new Social Security Law was adopted in 2000[1]. It defines three fundamental goals: (i) to promote the improvement of the conditions and levels of the social protection and strengthening the principle of solidarity and equity; (ii) to promote social efficacy of the benefits schemes and the quality of their management; (iii) to promote the financial efficiency and sustainability of the system.

It also establishes new principles, namely social equity, positive discrimination, social inclusion, maintenance of the acquired rights and of those in course of acquisition, primacy of public responsibility, supplementary and information.

According to the Law, the social protection system comprises a public system of social security and a system of social action. The public system of social security can be divided into three different subsystems. The first is the subsystem of social welfare and citizenship, including a solidarity scheme (to protect all persons and families from situations of shortage

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[1] Law nº 17/2000 of 8 August, which came into force in February 2001.

or insufficient economic resources or benefits from other social protection systems) and a social action programme (to prevent and combat poverty and social exclusion). The second is a subsystem of family protection (to guarantee the compensation of family charges and protection in case of handicap or long-term care). Their subsystems cover the entire population. Lastly, the third is the subsystem of welfare (to guarantee the compensation of a loss or reduction of earnings in case of sickness, maternity, paternity, adoption, unemployment, employment injury and occupational disease, invalidity, old-age and death). This subsystem covers both employees and self-employed. It also covers all individuals of working age who are not in work or who even through they are not necessary covered by the system on an optional basis.

In order to complement specific cases, it was developed complementary schemes that comprise legal schemes (to cover against contingencies or the provision of benefits together with the public system of social security), contractual schemes (to provide complementary benefits of the welfare subsystem) and optional schemes (to strength the voluntary self-protection of the persons concerned).

Finally, the main objectives of the social action are the prevention and repair of situations of need and social economic inequality, as well as situations of dependence and social exclusion of the persons most vulnerable.

Also within the regulations associated with the new Law it was established a new framework for financing the social protection system, obeying to the principle of diversification of sources of financing and to the principle of selective suitability. It was also stipulated new bases for contributions and proposed steps to rationalise the current contribution levels.

Benefits

The social protection benefits, from public system of social security, can be divided into three different kinds: (i) benefits from the subsystem of welfare, based on employees and self-employed contributions; (ii) benefits from the subsystem of family protection, related with some kind of contingencies. It is financed by employees and employers contributions as well as taxes; (iii) benefits from the subsystem of social welfare and citizenship, based on the personal or family circumstances and also family incomes. It is financed by taxes.

Table 1 below presents the main benefits in the public system of social security for Portugal (2000).

Table 1 - Benefits in the public system of social security in Portugal

The subsystem of welfare	The subsystem of family protection	The subsystem of social welfare and citizenship
Sickness Sickness benefit Christmas and holiday bonus **Maternity Benefits** Benefit in case of particular risks during pregnancy Pregnancy allowance Maternity, paternity and adoption leave allowance Special leave to assist children who are seriously handicapped or suffering from a chronic illness Assistance for sick or handicapped minor children Parental leave allowance Special leave for grandparents Father leave of 5 days after the child birth **Occupational Illness** Increased pensions for permanent incapacity Temporary incapacity benefit Permanent incapacity pension Capital sum on death Housing rehabilitation allowance if total permanent incapacity Death grant and reimbursement of funeral expenses Cash redemption for permanent incapacity Provisional pension Supplementary care benefit Christmas and holiday bonus **Unemployment** Unemployment benefit Partial unemployment benefit **Invalidity** Invalidity pension **Old Age** Old-age pension **Death** Survivor's pension Death Grant	**Family allowances** Family allowance for children and young people Family allowance supplements for handicapped children and young people Special education allowance Monthly living allowance Allowance for the assistance of a third party Funeral allowance Unemployment Social unemployment benefit **Invalidity** Long-term care supplement Pension supplement for dependant spouse **Old Age** Long-term care supplement Pension supplement for dependant spouse **Death** Long-term care supplement	**Invalidity** Invalidity pension in special scheme for railway workers **Old Age** Old-age pension in special scheme for railway workers **Death** Survivor's pension in special scheme for railway workers **Guaranteeing sufficient resources** Minimum Income Scheme **Social Action** Children and young people Family and community Invalidity and rehabilitation Elderly people Social aid fund Programme "Ser Criança" Programme "Apoio Integrado a Idosos (PAII)" Non contributory regime Allowances Pension social supplements Special scheme for agricultural workers Allowances Rental benefit

Source: DEPP/MSST (2002) adapted

Recent trends in social protection

As shown in table 2, Portugal has been improving its relative position within levels of social protection. The expenditure on social protection rose from 14.6% in 1990 to 21.0% in 2001 (24.4% to 26.3% in Europe). However, Portugal still has to make more effort to catch up with its European counterparts in terms of its level of expenditure on social protection.

Table 2 - Evolution of social protection benefits (% of GDP), 1990-2001

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Portugal	14.6	15.5	16.5	18.5	19.4	20.1	19.1	18.9	19.3	19.8	20.5	21.0
EU 15	24.4	25.3	26.6	27.5	27.2	27.0	27.2	26.8	26.4	26.3	26.2	26.3

Source: Eurostat, Newcronos

Analysing the distribution of this expenditure among functions, Portugal shows a share of expenditure in sickness/health care (31.3%), disability (12.3%) and survivors (7.1%) ranking higher than the EU mean but presenting lower levels than the average in all the rest of social protection areas. The higher share of sickness/health care (31.3%) and old age benefit (38.6%) point out how the elderly have gained over the others functions. The population ageing has been require raising the level of public spending on pensions and health care in all EU.

Table 3 - Expenditures on social protection by function (% of total expenditures), 2001

	Sickness /Health care	Disability	Old age	Survivors	Family/ Children	Unemployment	Housing	Social exclusion
Portugal	31.31	12.33	38.64	7.14	5.64	3.64	0.02	1.27
EU 15	28.20	8.07	41.19	4.78	8.01	6.21	2.05	1.48

Source: Eurostat, Newcronos

2.2 Taxes and contributions

The structure of the Portuguese tax system

The Portuguese tax system aims both satisfying the financial needs of the country and income redistribution. It is constituted by a set of state and local taxes levied on income, net wealth and expenditure, in addition to other taxes imposed on certain specific situations. There are also social security contributions.

The income taxation comprises the *Imposto sobre o Rendimento das Pessoas Sigulares* (IRS) (personal income tax) and the *Imposto sobre o Rendimento das Pessoas Colectivas* (IRC) (corporate income tax). The IRS is designed to tax income in a global and personalised way while the IRC concerning business taxation. The net wealth taxation is made by way of the gift and inheritance tax and two taxes allocated to local authorities, the *Imposto sobre as Transferências Onerosas* (transfer tax) and *Imposto Municipal sobre Imóveis* (local transfer on real estate). The former is levied on the transfer against payment of immovable property, and the later on the patrimonial value of both rural and urban property. The expenditure taxes are constituted by the *Imposto sobre o Valor Acrescentado* (IVA) (value added tax) and a number of excise taxes levied only on the consumption of certain goods.

Furthermore, in the so-called parafiscal system, the financing of the public scheme of social security is mainly formed by special contributions to social security shared between employers and employees.

Taxation level and the tax structure

Despite the increasing tendency in the tax revenues and parafiscal receipts in the last years, the fiscal pressure in Portugal is lower than the average value of EU. According to data from OCDE, taxes in Portugal represent about 33.5% of GDP (against the European average of 41.0%).

The most important taxes are those on goods and services, which account 40% of total tax receipts, much above EU average. Social security contributions (25.4%) represent the second most important source of tax revenue. Conversely, revenue from personal income tax (17.9%) accounts for a smaller share of total revenues than in the EU countries, as do other taxes. On the other hand, the share of corporate income tax (10.8%), which has increased in the last years, is higher than the EU average.

Table 4 - Taxation, 2001

	Total tax receipts (% of GDP)	Tax structure (% of total tax receipts)					
		Personal Income tax	Corporate Income Tax	Social Security Contributions		Tax on goods and services	Other taxes
				Employees	Employers		
Portugal	33.5	17.9	10.8	10.0	15.4	40.0	5.8
EU average	41.0	25.8	8.9	9.2	16.1	30.1	10.0

Source: OECD in Figures, 2003

3. Tax benefit system – detailed description

In this chapter, we provide a detailed description of all taxes and benefits in Portugal modelled by Euromod.

Euromod simulates not all the Portuguese taxes and benefits. Most of them are not simulated in the Euromod because the ECHP database does not have sufficient information to simulate all the conditions required. In order to correctly interpret the model results, it is necessary to describe and understand the rules of each tax and benefit included and simulated in Euromod.

In the following table 5, we summarize how the different tax and benefits are treated in Euromod. It shows the instruments that are included or simulated by Euromod, providing a brief explanation as to why the instrument is not simulated or partially simulated.

Table 5 – Treatment of taxes and benefits in Euromod 2001

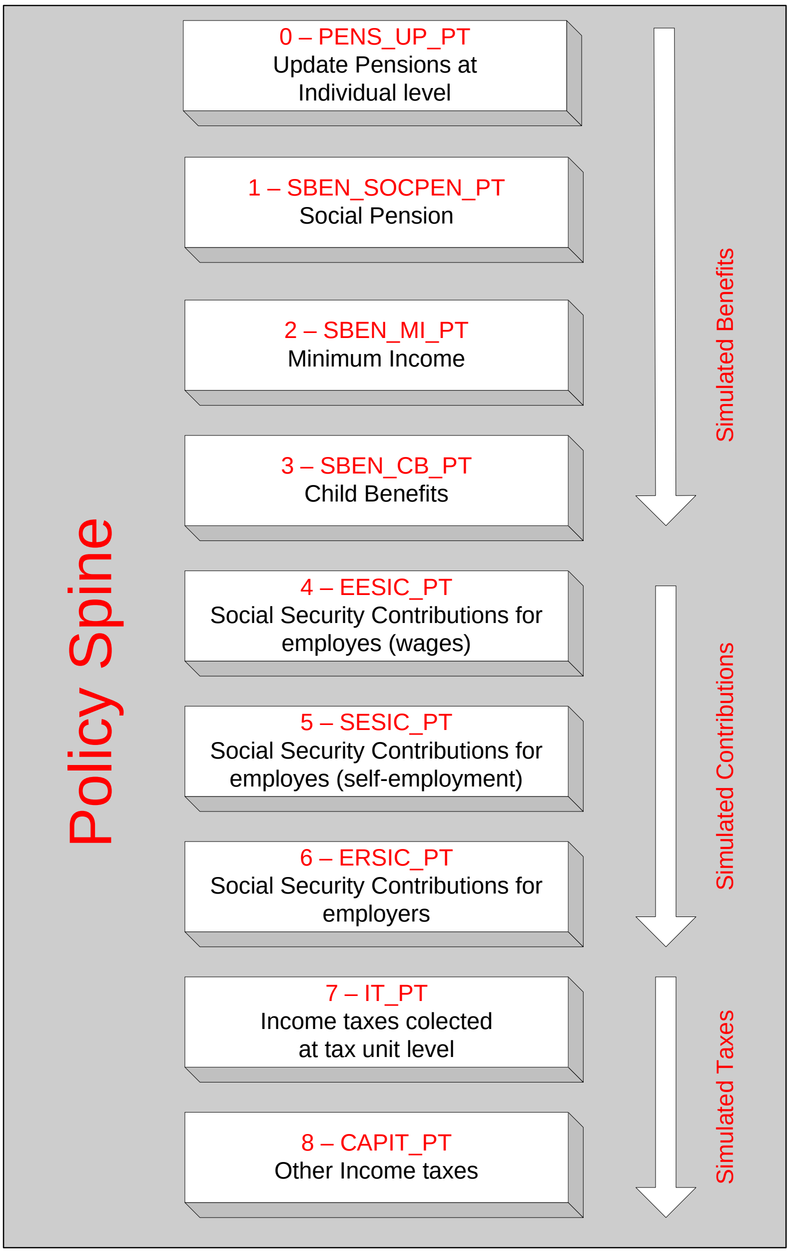
Benefit	Treatment in Euromod	Variable Name	Observations / why not fully simulated
Unemployment benefits	included	ptben01	no information about labour and contribution history.
Old-age insurance	included	ptben02	no information about labour and contribution history.
Old-age social pension	simulated	ptben03	simulated as sim_spen
Survivors related benefits	included	ptben04	no information about labour and contribution history.
Sickness benefits	included	ptben05	no information en ECHP to simulate
Invalidity pension	included	ptben06	no information en ECHP to simulate
Child benefits	simulated	ptben07	simulated as sim_ch_b
Family benefits	included	ptben08	no information en ECHP to simulate
Guaranteed Minimum income	simulated	ptben09	simulated as sim_gmi
Social assistence	included	Ptben10	no information en ECHP to simulate
Housing benefits	included	cohb	no information en ECHP to simulate
Student payments	included	coedy	no information en ECHP to simulate
Other regular cash payments	included	coregy	no information en ECHP to simulate
Income taxes	simulated	coinctax	The model simulated income taxes on work/ pensions (sim_tax1) plus taxes on capital (sim_tax2)
Employee social insurance contributions	simulated	coeesic	The model simulated wages contributions (sim_ssc1) and self-employment contributions (sim_ssc2)
Employer social insurance contributions	simulated	coersic	simulated as sim_ssc3

Note: ‘included’ means that the benefit is included in the microdata but there is not enough information to simulate it. The values from the original data are updated to 2001 using convenient update factors.‘simulated’ means that most of the rules are simulated, however, some minor specifications may not be simulated

3.1 Euromod simulation procedure

Table 6 synthesised the spine for Portuguese tax-benefits system in 2001. This describes the process of simulation, and the sequence, in Euromod model. First, the model simulates the benefits. The contributory pensions are not simulated but they require updating at individual level because they depend of the previous amounts. Secondly it simulates the social security contributions. Finally, both simulated benefits and contributions are used to simulate income tax.

Table 6 – Policy Spine in Euromod 2001



3.2 Benefits included or simulated by Euromod

3.2.1 Unemployment benefits

Unemployment insurance and unemployment assistance are the two main policies to provide financial compensation to unemployment. Both are restricted to compulsory social insurance scheme for employers with benefits related to the registered earnings.

Unemployment insurance is a monthly payment made to insured employees who are out of work. To be eligible, one must be capable of and available for work, have to be registered at the employment office and not be in receipt of an invalidity or old-age pension. Eligibility also requires at least 540 days of salaried work and contribution payment, or assimilated situation, in 24 months prior to unemployment.

Unemployment assistance as the same conditions as above plus: to have exhausted entitlement to unemployment insurance benefit or not to have completed the qualifying period required for unemployment insurance benefit. Eligibility requires at least 180 days' salaried work in the 12 months preceding commencement of unemployment. The condition of means test restricts eligibility to those unemployed whose average monthly income not exceeding 80% of national minimum wage (NMW) in the relevant sector.

The length of payment for unemployment insurance depends on age. If under 30, the benefit last for 12 months; the period increases in age bands up to 30 months for those unemployed whose age exceeds 45 years.

In case of unemployment assistance, the duration of benefit is also according to age, with the same periods as unemployment insurance. If unemployment is granted after the allowed limit, the benefit is restricted to the half of the period. For the unemployed aged 45 or more at the requested date, some extended benefits are accorded for 2 months for each group of 5 years of registered payment during the last 20 calendar years previous to the unemployment situation.

The amount of the unemployment insurance is 65% of the reference wage. The earnings taken into account are the average daily wage for 12 months preceding the 2 months prior to commencement of unemployment.

The minimum benefit is the value of the national minimum wage unless worker's remuneration is below that level. In this case, the benefit amount corresponds to the average payment. The maximum benefit is three times the national minimum wage.

For unemployment assistance, the rate of the unemployment allowance is 80% of the minimum income for those living alone or 100% if the unemployed has dependents.

The Euromod model does not simulate unemployment benefits. It's only updates the amount declared in the data set by using the ptben01_ind index. The index value is 1.055 for the period of 2000-2001.

Updating Policy **Unemployment benefits (ptben01)**
$ptben01_{2001} = ptben01_{2000} \times 1.055$

3.2.2 Old-age contributory pensions

Old-age insurance provides a pension to all who are aged 65 and over, integrated in a compulsory social insurance scheme for the active population (employees and self-employed) with benefits related to the registered earnings and to the duration of affiliation.

Eligibility requires contributions paid or credited at least 15 years. It is necessary to prove 120 registered days of pay for each year to be taken into account. Contributions paid for 40 years are the condition for drawing full pension.

Early pension is possible at age 55 with an accomplished period of 30 calendar years of contributions, although the pension amount is reduced. This situation is also possible for the unemployed from the age of 60. For those who have contributed 20 calendar years and are aged 50 or more when unemployed, it is also possible from the age of 55. In this case the pension amount is reduced. In case of heavy or unhealthy work, as a rule, early pension is possible from the age of 55 (only for professions legally foreseen). Deferred retirement is permitted at age 65.

The monthly rate of old-age pension is calculated at 2% of the average monthly remuneration of the 10 best years within the last 15 years:

0.02 x N x R

N = number of years insured

R = remuneration of the 10 best years within the last 15 years

Monthly pension paid out 14 times in a year, including a Christmas bonus and a holiday bonus equivalent to the amount of the pension paid for the corresponding month.

The minimum pension is 30% of reference earnings (average monthly wages of the best 10 years) and the maximum pension is 80% of reference earnings.

For pensioners whose contribution period varies between 15 and 40 years, minimum pensions will be indexed at the national minimum wage reduced by the employee' contribution rate (11%), at percentages varying from 65% to 100% depending on the contribution period.

These minimum amounts referred are achieved by a social supplement of the non-contributory system and by a supplement of the contributory pension scheme.

3.2.3 Survivor's pensions

A survivor pension is available to all members of a compulsory social insurance scheme for the active population (employees and self-employed).

The survivor pension can be granted, on the one hand, to a spouse of a previously insured person, aged at least 35, and divorced former spouse who is entitled to alimony. The person who lived with the deceased during the two years preceding the death in similar conditions as a spouse is regarded as such for the purposes of survivors' benefits. On the other hand, it can be granted to children until the age of 18 (25 or 27 in the case of further or higher education) and to parents dependent on the deceased are entitled, if there are no spouse or children.

The amount of benefit is 60% of the retirement or invalidity pension received by the insured person, or to which he would have been entitled at the moment of his death; 70% if, in addition to the spouse, there is a former spouse who is entitled to the pensions.

The maximum for all those entitled to benefits is 100% of the insured person pension or 110% if in case of divorce two spouses are entitled to the pension. The minimum pension is based on the minimum disablement or old-age pensions.

3.2.4 Disability benefit

The disability benefits aims to protect any worker who, before reaching retirement age, becomes unable to earn more than one third of a normal wage, as a result of an illness or accident not covered by the specific legislation on employment injuries and occupational diseases.

The period considered is from first day of month in which claim was submitted or day determined by the medical certificate. It is necessary to have made contributions for 5 years, but there are other shorter periods in case of certain chronic sicknesses.

The invalidity pension is calculated as follows:

Monthly amount = 0.02 x N x R

N = number of years insured (the 2% rate does not apply for years with less than 120 registered days of paid work)

R = remuneration of the 10 best years within the last 15 years

Monthly pension is paid out 14 times in a year, because there is a Christmas and holiday bonus. There is a minimum pension of 30% of reference earnings. However, the amount of the pension can not be lower than the following minimum amounts: minimum for pensioners with up to 15 contribution years, 36000$ per month (180€); for pensioners whose contribution period varies between 15 and 40 years, minimum pensions will be indexed at the national minimum wage reduced by the employee contribution rate (11%), at percentages varying from 65% to 100%, depending on the contribution period. These minima are achieved by a social supplement of the non-contributory system and by a supplement of the contributory pension scheme. The maximum pension consists of 80% of the reference earnings.

Furthermore, there is a long-term care supplement which is paid to invalidity, old age or survivor pensioners who need permanent attendance by a third party. Monthly amount is indexed to the social pension of the non-contributory scheme: 50% or 90% of 26250$ (131€), according to the 1st or 2nd degree of dependency.

The Euromod model does not simulate the old-age insurance, the survivor's benefits and the invalidity pension. In these cases, Euromod just requires the confirmation that the individual receives the benefit and it's only updates the amounts declared in the data set by using the following indexes for the period of 2000-2001: ptben02_ind., ptben04_ind and ptben06_ind, whose values can be 1.035 or 1.029, accordingly the specific condition given in the next table.

Updating Policy **Old-age insurance (ptben02) , Survivor's benefits (ptben04) and Invalidity pension (ptben06)**
$if \quad ptben0x_{2000} \leq 300000\$ \qquad ptben0x_{2001} = ptben0x_{2000} \times 1.035$ $if \quad ptben0x_{2000} > 300000\$ \qquad ptben0x_{2001} = ptben0x_{2000} \times 1.029$

3.2.5 Social pension

As it was referred before, the financial support for old age is not restricted to the contributory regimes. Old-age social pension is a non-contributory pension for old-age that provides a minimum pension to all those who are aged 65 or more whose income is not above 30% of the national minimum wage; in case of married couple, the income limit is 50%.

In case of old-age social pension (ptben03), it is fully simulated by Euromod (sim_spen).

3.2.6 Sickness cash benefit

The sickness cash benefit is available in the compulsory social insurance scheme for all insured employees (voluntary scheme for self-employed) with benefits to the registered earnings.

To be eligible, the beneficiaries have to make proof of incapacity for work by medical certificate. Eligibility also requires 6 months membership with registered salary and 12 days salary registered during the 4 months prior to the one proceeding the day of incapacity.

The amount of the benefit consists of 65% of average daily wage for 6 months preceding the 2 months in which the illness began. Benefit rises to 70% of that average wage in case of long-term illness (at least 365 days). However, in the event of tuberculosis is considered 80% of average wage or 100% in case of hospitalisation or if insured has 2 or more dependents.

Benefit is payable after a 3 days waiting period for up to 1,095 days (in the event of tuberculosis is unlimited).

The minimum benefit is 30% of average wage or the average earning if it is lower than this percentage.

The Euromod model does not simulate sickness benefits. It's only updates the amount declared in the data set by using the ptben05_ind index. The index value is 1.055 for the period of 2000-2001

Updating Policy Sickness benefits (ptben05)
$ptben05_{2001} = ptben05_{2000} \times 1.055$

3.2.7 Child benefit

The child benefit, *Subsídio Familiar a Crianças e Jovens*, is available in the compulsory social insurance scheme for employees (voluntary scheme for self-employed) with benefits related to the registered earnings.

The child benefit is a benefit designed to all insured families with children. Note that, the family unit for this kind of benefits consists of the head of the tax unit, the spouse of the head, the cohabiting partner of the head and own children of anyone in the family unit.

It is granted to all child aged 16 years or until the age of 24 in the case of further education or vocation training. They also must be dependent on the insured person and not exercise an activity covered by compulsory social protection scheme. The age limit can also be extended up to 3 years in case of serious infirmity.

Monthly amounts are calculated on the basis of the family income, the number of beneficiaries and their respective ages. There are three earnings levels, which vary with national minimum wage.

Table 7 - Monthly amounts for child benefit, Subsídio familiar a Crianças e Jovens, 2001

Descendants age	**Number of descendents**	
	Up to the second child	**From third child on**
Children aged 12 months or less:		
Family income <= 1.5 x NMW	16520$ (82 €)	24800$ (124 €)
Family income <= 8 x NMW	12550$ (63 €)	16870$ (84€)
Family income > 8 x NMW	7860$ (39 €)	10230$ (51 €)
Children over 12 months old::		
Family income <= 1.5 x NMW	4960$ (25 €)	7450$ (37 €)
Family income <= 8 x NMW	3370$ (17 €)	4570$ (23 €)
Family income > 8 x NMW	3000$ (15 €)	3900$ (19€)

3.2.8 Guaranteed Minimum Income

The Guaranteed Minimum Income (GMI), Rendimento Mínimo Garantido, aims to ensure that individuals and their family will have sufficient resources to cover their basic needs, which favouring at the same time their gradual social and professional integration.

GMI applies to all citizens legally resident in Portugal, regardless nationality. Beneficiaries must be at least 18 years old with some exceptions: pregnant women, young people with dependent children and dependent people with disabilities. Eligibility also requires availability for employment, as well as occupational training and integration activities;

exhaustion of other claims, i.e., applicants and all members of the household must have exhausted all other benefits to which they may be entitled.

The amount of the benefit is indexed to the amount of the social age pension. The size of the household is taken into account in calculating the amount of the benefit. The monthly benefit payment corresponds to the difference between the amount of all family earnings together and the minimum income amount for this same family, which is calculated as follows:

- 100% of the social pension for the first two adults;
- 70% of the social pension for each adult from the third;
- 50% of the social pension for each minor.

Family allowances, student grants and 20% of net income from training grants and work (after all deductions) are not included in the calculation of the household's total income. The same applies to 50% of wages and grants from training in the first year for those beneficiaries that join the labour market.

The beneficiaries are eligible for one year with the possibility of automatic renewal.

In the Euromod, the GMI is fully simulated (sim_gmi) based in household characteristics, household disposable income and value of social pension.

3.3 Social insurance contributions

3.3.1 Employee and employer social insurance contributions

Social security contributions are shared between employers and employees according to the type of income (employment, self-employment), occupational status and sector of activity. The tax base for general employees is the gross salary.

The total amount of employee's contribution is the result of applying a flat rate to the gross employment income. In general, employees pay a tax of 11% on their current monthly earnings and employers pay 23.75% on the same earnings base.

However there are reduced contributions for certain activities, in particular for non-profit organisations, agricultural workers, soccer professionals, clergy, domestic services, and for certain groups as for young people looking for their first job, and for handicapped people.

Note that, Euromod only simulates the most common contributions: 11% for employees and 23.75% for employers (sim_ssc1 and sim_ssc3).

3.3.2 Self-employed contributions

In terms of self-employed contributions, the worker can opt between two different rates of contribution (25,4% or 32%), depending on whether it concerns, respectively, the compulsory minimum coverage or a broader coverage.

The total amount of the contribution is the result of applying these rates to a flat rate remuneration selected by worker between eleven levels indexed to the highest national minimum wage (NMW). As shown in the following table if the gross annual income of self-employed work is twelve times less than the highest national minimum wage, the tax base of contribution is decreased, the limit being 50% of this remuneration.

In case of self-employed that are at same time employees, they can contribute to both social security schemes.

Table 8 - Self-employed contributions, 2001

Contributions levels	Monthly amount
1st	1 x NMW
2nd	1.5 x NMW
3rd	2 x NMW
4th	2.5 x NMW
5th	3 x NMW
6th	4 x NMW
7th	5 x NMW
8th	6 x NMW
9th	8 x NMW
10th	10 x NMW
11th	12 x NMW

In Euromod model, the employee social insurance contributions from self-employment are partially simulated (sim_ssc2). The rate of self-employed contributions is fixed at 25.4% of the NMW (67 000$ in 2001), assuming that all persons are in the 1st contribution level.

3.4 Income tax (Personal income tax)

Personal income tax is due by the individual's resident in Portugal and by non-residents individuals receiving incomes in Portugal.

In both cases, the Portuguese income tax unit is an individual system. However, in the case of individuals resident in Portugal, when the individual is part of family unit, the income taxation can apply to the whole members of family unit.

A family unit can be composed by:

- Both spouses and their dependents;
- Each spouse or ex-spouse and any dependent in charge;
- Unmarried father or mother and dependents in charge;
- Unmarried adopting father or mother and dependents in charge.

In this context, the following are considered as children[2] dependent:

- Adopted children and stepchildren, minor of age and not emancipated;
- Adopted children and stepchildren, major of age, who are not older than 25 years old, and their income must be smaller than the national minimum wage and having attended the 11th or 12th year of schooling or concluded their compulsory military service or civil service;
- Adopted children or stepchildren, major of age, who are unable to work and to provide their own maintenance and income must be smaller than the national minimum wage;
- Minors in wardship, which is not earning any income.

Dependents may however be dependent parents[3] of the head or his/her partner, if partner is in tax unit.

The Personal income tax, Imposto sobre o Rendimento das Pessoas Singulares (IRS), is computed as follows:

Personal Income Tax
$\begin{aligned} & \textit{Gross Income} \\ - \; & \textit{Income Specific deductions} \\ - \; & \textit{R eductions} \\ = \; & \textit{Taxable Income}^{(a)} \\ \times \; & \textit{Rate}^{(b)} \\ = \; & \textit{Tax liability} \\ - \; & \textit{Tax credits} \\ = \; & \textit{Personal Income Tax} \end{aligned}$
[(a)] According the splitting system, the income from married couples is divided by two before being subjected to the tax rate [(b)] In the case of married couples, the resulting tax is multiplied by two to obtain the tax liability

2 Children are persons aged between 0 and 17; persons aged between 17 and 25 if in secondary or tertiary fulltime education; persons aged up to 25 and they can't fulfil none of the following conditions: married, cohabiting, have own income as defined in 'taxabley' greater than minimum wage. Finally, persons who have children cannot be children.

3 A dependent parent can be persons who has own income as defined in 'taxabley' less or equal 38 000$ and they can't be married neither aged at least 65. Dependent parent can't be persons living in the same household as their spouses, married persons and persons cohabiting with someone.

IRS is levied on the annual overall income from specific six categories of income: employment, self-employment, investment income, rental income, net worth increases and pensions, respectively identified by letters A, B, E, F, G and H.

Taxable income

Methods for income determination and tax collection may vary from category to category. However, the taxable income is total income resulting from the aggregation of gross incomes of different categories less income specific deductions, applying to each income category, and less reductions.

The following two tables present, respectively, the main deductions according to different categories of income and the taxpayer reductions in 2001.

Table 9 - Income specific deductions, 2001

Income Category	Deductions
A - Employment income	70 % of amount received without exceeding a maximum limit of 578880$ (2887 €), or 72 % of 12 times national minimum wage, if greater. If, however, the social security contributions are higher than this fixed limit, the whole amount of such contributions shall be deducted
	The general limit shall be increased up to 603000$ (3008 €) in case of contributions to professional bodies or expenses incurred with professional training
B - Business and professional income	Expenses connected with the exercise of a professional activity, mostly subject to a individual limit (10 % of gross professional income and a overall limit (up to 25 % of overall income).
E - Investment income	No deduction.
F - Rental income	Repairs and maintenance expenses effectively incurred
G - Net worth increases	50% of the net annual gain is taxable; this rule does not apply to realised gains from the sale of financial assets (where a 10% special rate is in force)
H - Pensions	The total income with a maximum limit up to 1 523 000$ (7 597 €), excluding temporary annuities and life annuities.

Table 10 - Income specific deductions, 2001

	Taxpayer's situation	Maximum limit
Pensions under court decision.	Married/Single	No limit
Expenses with a purchase or building of the private residence of taxpayer (whether owner or tenant).	Married/Single	10% up to 305 000$ (1521 €)
Amounts received under rental agreements if the rent is equal to or less than the social rent.	Married/Single	500000$ (2494 €)

Taxes

The amount of taxable income is submitted to tax rates according to the income brackets, as it shown in the table 11.

Table 11 - Description of the personal income tax schedule, 2001

Income brackets per year	Rate	
	Marginal	Deduct
Up to 800000$ (3990 €)	12%	0
Over 801000$ (3991 €) up to 1210000$ (6035 €)	14%	16000$ (80 €)
Over 1211000$ (6036 €) up to 3000000$ (14964 €)	24%	137000$ (683 €)
Over 3001000$ (14965 €) up to 6900 000$ (34417 €)	34%	437000$ (2180 €)
Over 6900000$ (34418 €) up to 10000000$ (49880€)	38%	713000$ (3556 €)
Over 10000000$ (49881 €)	40%	913000$ (4554 €)

Note: The income of the spouses and their dependents is aggregated and the tax is determined according to the splitting system (division by 2). In Azores and Madeira the marginal tax rates are lower than in Mainland

To attenuate the income taxation of family, the Portuguese system gives a different weight to married couples, known as ‘income splitting’. This principle means that the income tax of a married couple is calculated by applying the tax function to half of the added income of the spouses, and this amount is then doubled to determine the tax amount of the couple.

Under the Portuguese system of progressive taxation this implies that the amount of the income tax of a married couple may be lower than the tax the same couple would have to pay if both spouses were taxed individually according to the principle of separable taxation.

In order to obtain the personal income tax, certain expenses can be subtracted to the tax liability: health and education expenses, costs with institutions for old-age care, buildings, insurance premiums, personal tax credits and other deductions as the following table illustrates.

Table 12 – Tax Credits, 2001

	Taxpayer's situation	Maximum limit
Personal tax credits		
Tax credits regarding the taxpayers and their dependents, parents and grandparents	Married	67000$ (334€)
	Single	40200$ (201€)
	Lone parents	53600$ (267€)
	Per dependent	26800$ (134€)
	Per parent/grandparent	30300$ (151€)
Allowances		
Health	Married/Single	30% up to the greater of the following amounts: a) 10 500$ (52€) b) 2.5% of the other health expenses
Education and training	Married/Single	30% up to 107200$ (535€)
	Three or more dependents	30% up to 20100$ per dependent (100€)
Retirement homes	Married/Single	25% up to 59 200$ (295€)
Buildings	Married/Single	30% up to 101000$ (504€) or 30% up to 102000$ (509€) for rents
Life and personal accident insurance premiums	Married	25% up to 21000$ (104€)
	Single	25% up to 10500$ (52€)
Health insurance premiums	Married	25% up to 14000$ (70€)
	Single	25% up to 28000$ (140€)
	Per dependent	25% up to 7000$ (35%)
Other benefits		
Retirement/Educational-savings plans	Married/Single	25% up to 5% of the total gross income or 112250$ (560 €)
Share-savings plans	Married/Single	7.5% up to 39300$ (196€)
Shares acquired in privatisation	Married	5% up to 68200$ (340€) for workers; 7.5% up to 102800 (513€) for non-workers
	Single	5% up to 34100$ (340€) for workers; 7.5% up to 51400$ (256 €) for non-workers
House-savings deposit accounts	Married/Single	25% up to 110100$ (549€)
Acquisition of computers and other electronic equipment	Married/Single	30% up to 100000$ (499 €) or 120000$ (599€)
Renewable energy equipment	Married/Single	20% up to 26200$ (131 €)
Legal counselling	Married/Single	25% up to 35000$ (175 €)

Facing the problem of too many-detailed information about the personal income tax, that is complex to simulate, we had to take some decisions to make it possible to calculate.

The components of income that are taxable at tax unit level are: employment income (coempy), self-employment income (coslfemy), lumps sum income (columpy), old-age insurance (ptben02), old age social pension (ptben03), survivors related benefits (ptben04), sickness benefits (ptben05) and invalidity pension (ptben06).

Taxable income is computed as the sum of all those variables minus the employee deduction (empded), pensioner deduction (pended) and self-employee deduction (selfded). Employees deduct 70% of the employment income up to an annual limit of 578880$ (2887 €), however if it overcomes this amount, the deduction will be 72% of 12 times national minimum wage, 67000$ (334 €) in 2001. If any compulsory social contributions are above this threshold, the whole amount shall be allowed as a deduction. People from self-employment deduct 35% of their annual income. Pensioners deduct the total income with a maximum limit up to 1523000$ (7597 €).

After that, the tax units are aggregated to obtain the tax rates that are according to the splitting system. In order to obtain the tax liability the resulting tax is then multiplied by two.

Euromod do not deduct from tax liability all possible expenses. It is only considered tax deduction of 30% of housing benefits and a tax credit regarding the taxpayers and their dependents, parents and grandparents: 40200$ (201 €) for single; 67000$ (334 €) for married; 26800$ (134 €) per dependent, 30300$ (151 €) per parent/grandparent, 53600$ (267€) for lone parents.

Regarding the capital components of income, they are taxable at source at a fixed rate of 20%, namely private transfers (coprvpen), investment income (coinvy), property income (copropy) and other capital (coothery).

4. Data

4.1 General description

The Portuguese data used in Euromod is taken from the eighth wave (held in 2001) of the European Community Household Panel (ECHP) conducted by Eurostat, and collected, at national level, by the Portuguese Statistical Office (INE). The ECHP is a survey based on a standardized questionnaire that involves annual interviewing of a representative panel of households and individuals. It covers a wide range of topics including demographics, income, social transfers, housing, education, employment, etc.

Three instruments are used to inquire about those various topics. The first one is the household register, which breaks the household structure down into separable units, The second one is a household survey, which deals with the living and economic situations of the household. Finally, a personal questionnaire is applied to all people aged 16 or older, to gather the following characteristics: present and former occupations, earned income, welfare income, and other income, vocational and occupation-oriented further education, health, family and social integration, and demographic information..

4.2 Sample selection, weighting

The sample size of the 2001 wave of ECHP is 4614 households with 13285 individuals (including 11067 individuals aged 16 or more). The selection of the households took place as part of a stratified, two-step area sample, whereas communities were the sampling units in the first step, as were households in the second step. The area units or selection districts were the starting point for the random-route selection of each household.

A small group of households (26) were excluded from the sample because they present no recorded income values. The final Euromod database consists of 4588 households and 13237 individuals (11027 aged 16 or more).

ECHP database presents weights for households and persons. These weights are calculated taking into account the sample design and characteristics of persons and households. The weights are calibrated to reflect the structure of the population. Each household is assigned the cross-sectional weight of the household members. This means that the cross-sectional household weight is proportional to the cross-sectional weights of persons. The household weights are scaled such that their sum over the interviewed sample equals the actual number of completed household interviews. This means that the average household weight is 1. In Euromod these weights have been scaled-up to offset the cut-offs done to original sample and extrapolated to represents the whole population

4.3 Data adjustment

This section describes the most important adjustment made on the data in order to make it suitable for the purposes of Euromod.

4.3.1 Imputation of missing values

As seen in previous section the Euromod dataset consists of 4588 households. However not all persons aged aged 16 or more, belong to those households, answer to the personal questionnaire. Those persons (145) are missing in the personal file and we don’t have the information about their characteristics and about their incomes. The procedure used to input this missing information follows the guidelines developed by Eurostat document “*DOC. PAN 164/2002-12 – ‘IMPUTATION OF INCOME IN THE ECHP*”. Using information from the previous wave and information from the household people belong is possible to estimate, at least partially, the information need. Particular attention was given to missing income variables in order to be consistent with the household income variable HI140 (Adjusting household income for within household non-response).

4.3.2 Euromod income variables and splitting of social benefits

Social benefit variables in ECHP present a great level of aggregation and most of them contain more than one benefit. This high level of aggregation represents a serious limitation for Euromod’s propose of describe and analyze the social benefit system

To overcome this drawback some imputation methods were used to split the aggregated variables into the benefits needed. A detailed work based on the information provided in the survey and legislation has been done to identify the type of pension or benefit that the individual in fact receives. Once identified, the value of the benefit is imputed to the recipient.

Table 13 presents the ECHP income variables and how they have been adjusted to fit Euromod proposes.

Table 13 – Income variables – from ECHP to Euromod

Euromod variable		ECHP variable	
COEMPY	employment income	PI1111	wage and salary earnings (regular)
COSLFEMY	self employment income	PI112	self-employment income (net)
COPRVPEN	private pension income		information not available in ECHP
COINVY	investment income	PI121	capital income
COPROPRY	property income	PI122A	assigned property/rental income
COMAINTY	maintainence payments received	PI123	private transfers received
COPRVTRN	private transfers		information not available in ECHP
COOTHERY	other capital		information not available in ECHP
COLUMPY	lumps sum income	PI1112	wage and salary earnings (lump sum)
PTBEN01	unemployment related benefits	PI131	unemployment related benefits

PTBEN02	old-age insurance	PI1321 (-)	old-age related benefits
PTBEN03	old-age social pension	PI1321 (-)	old-age related benefits
PTBEN04	survivors related benefits	PI1322	survivors' benefits
PTBEN05	sickness benefits	PI134 (-)	sickness/invalidity benefits
PTBEN06	invalidity pension	PI134 (-)	sickness/invalidity benefits
PTBEN07	child benefits	PI133 (-)	family-related allowances
PTBEN08	family benefits	PI133 (-)	family-related allowances
PTBEN09	minimum income (rmg)	PI137A (-)	assigned social assistance
PTBEN10	social assistence	PI137A (-)	assigned social assistance
COHB	housing benefits	PI138A	Assigned housing allowance
COEDY	student payments	PI135	education-related allowances
COMATERY	maternity income		information not available in ECHP
COREGY	other regular cash payments	PI136	any other (personal) benefits
COIRREGY	other irregular lump sum income		information not available in ECHP

As we can see from the table the ECHP variables PI1321, PI133, PI134 and PI137A have been split using the method described below.

4.3.3 ‘Net-to-gross’ conversion

To obtain gross incomes it was used an iterative process of estimation, because the ECHP data only contain income net of income taxes and social insurance contributions.

For each fiscal unit, where the original net income is recorded, the iterative process would estimate different levels of gross income. Applying the detailed tax benefit rules (as presented in the previous section) to the gross income and subtracting simulated income taxes and social insurance contributions from gross income, a new value for net income will be produced.

4.3.4 Updating

To update monetary variables not simulated by Euromod to the common base line 2001, the following updating factors have been used:

Table 14 – Updating factors, 2000 – 2001

Euromod Variable	Description	Index name	Index value	Index type	Source
coempy	Employment income	coempy_ind	1.05500	Earning	(2)
coslfemy	Self-employment income	coslfemy_ind	1.07100	Incomes from work (includes employers' contri butions to the S..Security)	(2)
coinvy	Investment income	coinvy_ind	1.04900	Incomes from enterprises and properties	(2)
copropy	Property income	copropy_ind	1.04900	Incomes from enterprises and properties	(2)
comainty	Maintainence payments received	comainty_ind	1.06960	inflation	(3)
columpy	Lumps sum income	columpy_ind	1.05500	Earning	(2)
ptben01	Unemployment related benefits	ptben01_ind	1.05500	Earning	(2)
ptben02	Old-age insurance			Updating of pensions depending on the previous amount or level of the pension	
	If ptben02 in 2000 <300000	ptben02_ind	1.03500		(4)
	If ptben02 in 2000 >300000		1.02900		
ptben04	Survivors related benefits			Updating of pensions depending on the previous amount or level of the pension	
	If ptben04 in 2000 <300000	ptben04_ind	1.03500		(4)
	If ptben04 in 2000 >300000		1.02900		
ptben05	Sickness benefits	ptben05_ind	1.05500	Earning	(2)
ptben06	Invalidity pension			Updating of pensions depending on the previous amount or level of the pension	
	If ptben04 in 2000 <300000	ptben06_ind	1.03500		(4)
	If ptben04 in 2000 >300000		1.02900		
ptben08	Family benefits	ptben08_ind	1.05500	Earning	(2)
Ptben10	Social assistance	Ptben10_ind	1.06960	Inflation	(3)
cohb	Housing benefits	cohb_ind	1.06979	Inflation (housing, water, electricity, gas and other fuel)	(1)
coedy	Student payments	coedy_ind	1.06704	National minimum wage	(5)
coregy	Other regular cash payments	coregy_ind	1.06960	Inflation	(3)
comorint	Mortgage interest	comorint_ind	0.87824	Interest rates	(6)
corent	Rent	corent_ind	1.06979	Inflation (housing, water, electricity, gas and other fuel)	(1)

Notes: (1) INE - Índices de Preços no Consumidor, Habitação; (2) Banco de Portugal, Relatório do Conselho de Administração 2001; (3) INE – Índices de Preços no Consumidor, Total Geral Nacional; (4) Diário da República; (5) Diário da República - I Série; (6) Banco de Portugal e Indicadores de Conjuntura.

5. Validation

This section provides comparisons using Euromod base line run with external sources in order to validate the aggregates produced.

5.1 Population

Table 15 presents some demographic information. Analysing both, national statistics and Euromod, it shows that their values are very similar. However, in the Euromod there are more people aged less than 24 and fewer than aged 25 years and over. Population in Lisboa e Vale do Tejo is overestimated, while in the others ones is underestimated. (Norte is an exception, presenting the same percentage).

Table 15 – Population structure by sex, age and region, 2001

	National statistics		Euromod	
	Individuals	%	Individuals	%
Sex				
Male	5000141	48.3	4843572	48.3
Female	5355976	51.7	5180018	51.7
Age				
Less than 14	1656602	16.0	1671411	16.7
Between 15 and 24 years	1479587	14.3	1586607	15.8
Between 25 and 64 years	5526435	53.4	5262567	52.5
65 years and over	1693493	16.4	1503005	15.0
Region				
Norte	3687239	35.6	3560086	35.5
Centro	2348397	22.7	1791530	17.9
Lisboa e Vale do tejo	2661850	25.7	3301201	32.9
Alentejo	776585	7.5	509293	5.1
Algarve	395218	3.8	361938	3.6
Açores	241763	2.3	224023	2.2
Madeira	245011	2.4	275519	2.7
Total	10356117	100.0	10023590	100.0

Source: Euromod 2001; Censos 2001

The next table provides background demographic information on households in the different deciles produced by Euromod. Note that deciles groups are formed by ranking according to equivalised household disposable income using the modified OECD equivalence scale and weighted by household size.

Table 16 – Household composition, 2001

Decile group	Household average number of persons				
	Persons	Children	Working age	Elderly	Economically Active
1st	2.99	0.86	1.45	0.68	0.59
2nd	3.24	1.04	1.43	0.77	0.79
3rd	3.27	0.89	1.67	0.71	0.96
4th	3.75	0.92	2.25	0.58	1.52
5th	3.38	0.70	2.18	0.51	1.57
6th	3.12	0.65	2.05	0.42	1.61
7th	3.61	0.54	2.65	0.43	2.01
8th	3.31	0.65	2.34	0.33	1.90
9th	3.27	0.63	2.39	0.25	1.95
10th	2.92	0.54	2.14	0.25	1.66
Total	3.27	0.74	2.04	0.49	1.44
% of Population	100.0%	22.6%	62.4%	15.0%	44.0%

Source: Euromod 2001

Notes: Children - Persons aged 18 or younger; Working Age - Persons aged between 19 and 64 (both included); Elderly -Persons aged 65 or older; Economically Active - Working aged persons having employment or self-employment income.

5.2 Income components and benefits

Income components

Employment income and self-employment income variables in the model can only be updated to the common base year 2001 using the updated factors. Comparing the results from Euromod and national statistics, the income variables appear to be quite underestimated in the Euromod. However, in case of employment income, the individuals are close to the ones from national statistics.

Table 17 – Labour Income - Euromod outcome versus national statistics, 2001

		Individuals			**Amounts (10^6 Euros)**		
		Euromod	National statistics	Ratio (%)	Euromod	National statistics	Ratio (%)
coempy	Employment income	3866209	3645300	106	42044		
coslfemy	Self-employment income	937395	1204600	78	7682		
	Total	4803604	4849900	99	49726	55179	90

Source: Euromod 2001, Banco de Portugal - Relatório Anual 2001.

Benefits

Child benefit, guaranteed minimum income and social pension are the only benefits fully simulated by Euromod. Table 18 shows those simulated benefits by Euromod and the corresponding number of beneficiaries and expenditure from the national statistics. All of the benefits are overestimated. Note that, in case of guaranteed minimum income, it can be explained by the fact that is assumed 100% take-up.

Table 18 – Simulated Benefits - Euromod outcome versus national statistics, 2001

		Number of beneficiaries			Amounts (10^6 Euros)		
		Euromod	National statistics	Ratio (%)	Euromod	National statistics	Ratio (%)
Sim_spen	Social pension	57201	54750	104	98		
Sim_ch_b	Child benefits (1)	1499641	1243612	121	629	528	119
Sim_gmi	Minimum income (1)	157928	138903	114	313	244	128

Source: Euromod 2001, IIES-Estatísticas da Segurança Social 2001-2002, IGFSS - Conta da Segurança social 2001, CGA - Relatório e Contas 2001.
Note: (1) Households and not individuals

Although we cannot simulate some benefits in the Euromod, we can update them to the common base line 2001, as shows the table 19.

Analysing the number of beneficiaries and the amounts, all the benefits are underestimated in the Euromod. However, in terms of beneficiaries the unemployment and sickness benefits are very close to the national statistics. At sane time, old-age insurance amount in Euromod is very similar to the national statistics.

Table 19 – Other Benefits - Euromod outcome versus national statistics, 2001

		Number of beneficiaries			Amounts (10^6 Euros)		
		Euromod	National statistics	Ratio (%)	Euromod	National statistics	Ratio (%)
ptben01	Unemployment benefits	164027	180419	91	599	870	69
ptben02	Old-Age Insurance	1491239	1818292	82	7454	9296	80
ptben04	Survivors benefits	406635	734716	55	964	1670	58
ptben05	Sickness benefits	171405	146791	117	257	469	55
ptben06	Invalidity benefits	224139	357344	63	710	1228	58
ptben08	Family Benefits	83034			118		

Source: Euromod 2001, IIES-Estatísticas da Segurança Social 2001-2002, CGA - Relatório e Contas 2001, IGFSS - Conta da Segurança social 2001.

5.3 Social insurance contributions and taxes

Table 20 presents the social insurance contributions and taxes estimations. In terms of social insurance contributions, all of the simulation results are overestimated, except in case of the individuals in employee's social insurance contributions (wages). Regarding the income taxes on work/pensions and income taxes on capital, it is only possible to conclude about Euromod individual estimates, which are also higher than the ones from national statistics.

Table 20 – Simulated Taxes/Contributions - Euromod outcome versus national statistics, 2001

		Individuals			Amounts (10^6 Euros)		
		Euromod	National statistics	Ratio (%)	Euromod	National statistics	Ratio (%)
Sim_ssc1	Employee SSC (wages)	3866209	4227499	91	4625	4205	110
Sim_ssc2	Employee SSC (self)	498994	434791	115	593	544	109
Sim_ssc3	Employer SSC	3866209			9986	8413	119
Sim_tax1	Taxes work/pensions	3384528	3662195	111	5767		
Sim_tax2	Taxes on capital	674172			277		

Source: Euromod 2001, IIES-Estatísticas da Segurança Social 2001-2002, CGA - Relatório e Contas 2001, IGFSS - Conta da Segurança Social 2001, INE - Estatísticas das Receitas Fiscais 2000.

5.4 Income distribution and poverty

In order to evaluate Euromod outcomes on income distribution we will compare the results generated by Euromod with the most recent study on income distribution in Portugal. Albuquerque *et al.*(2005) presents different tables on income distribution using the ECHP user-database. The most important advantage of compare Euromod results with other studies using the same dataset is that we can evaluate how the construction of the model and all process of microsimulation changes/improves the representation of income distribution. The disadvantage of this comparison is that errors/limitations on the original dataset act the same way in both results. For example, if we compare measures on income distribution produced by Euromod with the ones presented in Rodrigues,C.F.(2004) most of the differences result from the use on that study of another source of data (the Portuguese household budget survey) who has information not only on monetary income as ECHP but also about non-monetary income.

Table 21 shows the income distribution by decile of equivalent income produced by Euromod, which are very similar to those produced by Albuquerque *et al*. An equivalent income 7% higher in Euromod can easily be explained by the update variables from 2000 to 2001 values and by the assumption of full take-up taken in the simulation of almost benefits simulated.

Comparing the share of national equivalised income the similitude of the results give consistency to Euromod estimations.

Table 21 – Income Distribution - Euromod outcome versus other sources, 2001

Decile group	Euromod					Albuquerque *et al.*	
	Disposable Income	Original income	Earned income	Equivalised income	Equiv.Inc. share (%)	Equivalised income	Equiv.Inc. share (%)
1st	4726	1982	1919	2552	3.2	2004	2.6
2nd	6552	3914	3823	3293	4.0	3173	4.2
3rd	8522	5972	5835	4216	5.2	3979	5.2
4th	11446	9253	9113	5073	6.3	4723	6.2
5th	12407	11168	10960	5900	7.2	5552	7.3
6th	13665	12825	12634	6951	8.6	6487	8.5
7th	18218	16806	16535	8142	10.0	7602	10.0
8th	20129	20852	20457	9669	11.7	8998	11.8
9th	25457	27938	27459	12534	15.4	11671	15.3
10th	43841	53019	50236	23421	28.6	22124	29.0
All	16726	16719	16215	8166	100	7634	100.0

Source: Euromod 2001, Albuquerque *et al.*(2005); Income values in euros/year.

The next table presents the tax benefit components of the household income by decile group produced by Euromod. The degree of redistribution is determined by characteristics of the social security and taxation system. In Portugal the progressivity of the redistributive system plays an important role in reducing income inequality. Households with low incomes receive a relatively higher proportion of social benefits and pay a smaller amount of social insurance contributions.

Table 22 – Simulated benefits/taxes 2001

Decile group	All benefits	Simulated benefits	Simulated benefits (%)	All Taxes	Social Insurance Contributions
1st	2956	1149	39	11	220
2nd	3099	521	17	30	464
3rd	3234	285	9	102	620
4th	3373	360	11	204	1002
5th	2728	196	7	309	1192
6th	2572	181	7	411	1378
7th	3958	148	4	794	1786
8th	2917	170	6	1509	2139
9th	3526	168	5	3200	2846
10th	7675	129	2	11874	5066
All	3644	339	9	1971	1701

Source: Euromod, 2001; Income values in euros/year

The different inequality index seems also very similar with Euromod generating, as expected, lower values to the indices more sensitive to the lower part of the income distribution.

Table 23 – Inequality - Euromod outcome versus other sources, 2001

Inequality Index		Euromod	Albuquerque *et al.*
Gini index		0.3630	0.3690
Atkinson Index	e = 0.5	0.1056	0.1117
	e = 1.0	0.1926	0.2092
	e = 1.5	0.2643	0.3040
G. Entropy Index	a = 0	0.2139	0.2347
	a = 1.0	0.2322	0.2421

Source: Euromod 2001, Albuquerque *et al.*(2005)

The following table compares the annual poverty line, the poverty rate and poverty intensity of the Euromod baseline with the comparable study.

The poverty rate in Euromod, defined as 60% of median equivalised household income, based on the OECD equivalence scale, is slightly higher (21%) than the ones found in Albuquerque *et al.* (20%). On the contrary, poverty intensity is lower in Euromod, explained by a small poverty gap associated with the simulation of means-tested benefits.

Table 24 – Poverty - Euromod outcome versus other sources, 2001

% of median equiv. income	Euromod			Albuquerque *et al*.		
	Poverty Line (€)	Poverty Rate	Poverty Intensity	Poverty Line (€)	Poverty Rate	Poverty Intensity
40	25681	4.9	0.05	2393	6	
50	3210	13.9	0.023	2991	13	
60	**3852**	**20.8**	**0.049**	**3590**	**20.1**	**0.056**
70	4494	28.2	0.0769	4188	28	

Source: Euromod 2001, Albuquerque et al.(2005)

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