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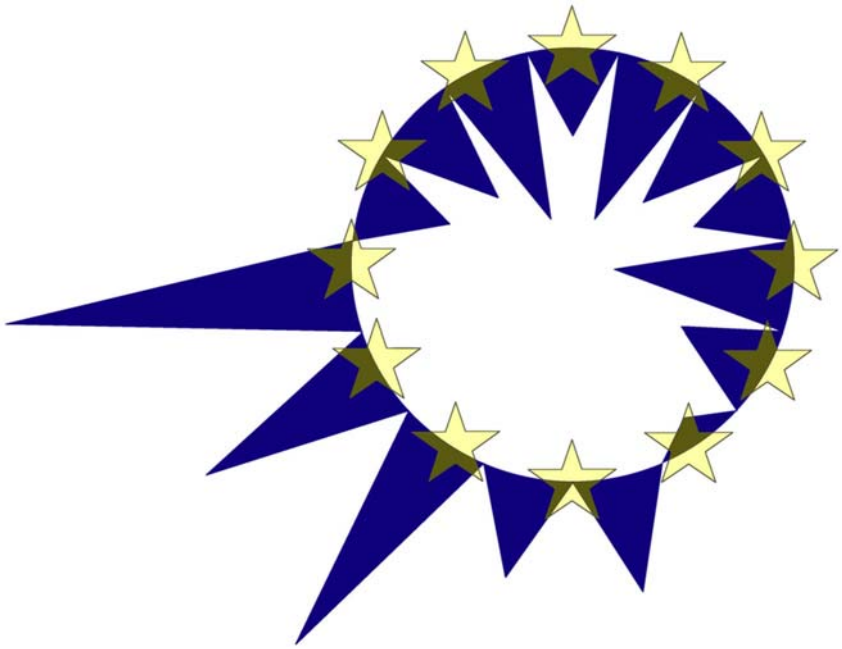
COUNTRY REPORT



EUROMOD Country Report

ITALY
(2001 TAX-BENEFIT SYSTEM)

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Euromod Country report - Italy

preliminary draft
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comments welcome

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Contents

1. Tax-benefit system - outline

The purpose of this report is to document the Italian 2001 tax-benefit system as it has been modelled in Euromod. The first part of the report provides an outline of the social assistance benefits and a brief description of the tax and social contribution components of the Italian system. Then it presents in some details how each component is included in the model. A general description of the original micro data, and their treatment in order to partially correct for the income tax evasion, is then provided. The last section of the report provides a validation of the aggregate figures produced by Euromod with respect to some available external sources.

The relationship between gross income, net income and the structure of the Italian fiscal system can be depicted as in the following table:

Social Contributions

Total Cost of Labour - Employers Social Security Contributions = **Gross Wages**

Gross wages – Employees Social Security Contributions = **Net Wages**

Self-Employment Income - Social Security Contributions = **Income from Self-employment Net of Contributions** *(Productive Activities Regional Tax (IRAP))*

Taxes and Benefits

Net Wages + Income from Self-employment net of contribution + Pensions + Income from real capital + Other Transfers = **Taxable Income** (*Family Benefits)*

Taxable Income – Tax Deductions = **Net Taxable Income** *(Personal Income Tax (Irpef), Additional Regional Irpef)*

Net Taxable Income x Irpef Tax Schedule[a] = **Gross Income Tax**

Gross Income Tax- Tax Credits = **Net Income Tax**

Gross Income from financial capital – Withdrawal Tax on Financial capital Income = **Net Income from Financial capital**

Cadastral Rent of Estates x ICI Marginal Tax Rate – Deductions Main House = **Estate Town tax *(ICI)***

Income from Self-employment Net of Contributions x IRAP Marginal Tax Rate = **Productive Activities Regional Tax (IRAP)**

Taxable Income - Net Income Tax + Net Income from Financial Capital – ICI – IRAP = **Net Income**

Net Income + Family Benefits = **Disposable Income**

(*) In brackets is the policy instrument for which the specific definition of Income is relevant

[a] The tax rate schedule includes increasing marginal tax rates, both at a national level and regional one.

In the Italian fiscal system taxation is levied at individual level. Members of the household are defined "fiscally dependent" when their income does not exceed a certain threshold (equal in 2001 to Lit 5,5 Millions or € 2840). In EUROMOD dependent members of the household among the first four persons beside the head of household are identified building a dummy variable that specifies not only whether they are dependent or not, but also the type of relationship they have with the head of household. The household considered by the Bank of Italy follows a broad definition that can easily include more than one nuclear family. In particular, we can retrace the following units:

1. "Nuclear Family" that includes the head of household and all the dependent persons;
2. "Individuals" who are part of the family, but declare their income separately;
3. "Households" including all family members according to the definition adopted in the Bank of Italy survey.

All the input data refer to 2001 and are monthly unless otherwise stated. Output data have been obtained using fiscal rules valid for 2001.

In the following paragraphs, we give a description of all tax and benefit schemes modelled by the Italian section of Euromod[1]. Entries in italics refer to benefits and contributions simulated by Euromod.

1.1 Social assistance transfers

A number of schemes, mainly in cash, belong to the area of social transfers different from pensions, either contributory or tax-financed. This area includes targeted programs for (large) households with low income and entail several kinds of means-test at the household level. The main monetary schemes and its most distinguishing features are briefly reviewed below.

Family Allowance (*assegno al nucleo familiare*). It is a transfer reserved to households of dependent or ex-dependent workers with family burdens. In particular, wage/pension earnings accruing to the household must be at least equal to 70% of total household taxable income. Despite its categorical content, Family Allowance represents by far the main subsidy for households with dependent children. The amount of the transfer is directly correlated with the number of the people belonging to the household and negatively correlated with its income. The income test was firstly introduced in 1983 and maintained, since then, even after a change in the design of the benefit, which took place in 1988.

[1] The description also includes some more recent schemes (the Family allowance for households with at least three children, the maternity allowance, the RMI) or targeting criteria (ISE), which are not yet modelled in Euromod.

The Budget Law for 1998 and some successive decrees (No. 109/1998 and No. 130/2000) introduced new general criteria for the evaluation of the economic means of applicants for social assistance. The new means testing criterion is called "Indicator of Economic Situation", dubbed ISE. The new indicator applies only to social services and cash benefits provided at a local level (kindergartens, local forms of minimum income, nursing homes for the elderly, etc.). The previous means tests (basically, taxable income, evaluated either at the individual or at the couple level) continue to apply to the cash transfers provided by the central government, while also two newly adopted social assistance programs (a maternity leave for housekeepers and a family benefit reserved to poor families with at least three children), below mentioned, are subject to ISE. The new targeting instrument has two distinguishing characteristics: first, the economic condition is defined in terms of both income and wealth, second, the reform identifies in the household the appropriate unit of reference to determine the level of individual welfare, thus using an equivalence scale to deflate the sum of its income and wealth components. More specifically, to the sum of all incomes of household members must be added the value of the wealth indicator, given by the product of total wealth by a coefficient α, equal to 0.2. Thus, ISE is a linear combination of income and wealth: ISE = (income + α wealth) / equivalence scale, where $\alpha = 0.2$.

As far as the income component of the ISE is concerned, the starting point for its determination is the total income relevant for the personal income tax, which is different from the personal income tax base since it also includes the social security contributions paid by the self employed (with rates of 15-16%), but not those paid by dependent workers[2]. The income component of ISE is obtained summing to total income a conventional financial income, given by the application to the stock of financial assets of the average rate of long run Treasury bills. Income from real assets is already taken into account in the personal income tax base. From the value of income thus computed a deduction of 10 million lire (5.165 euro) is allowed for tenants. The second component of ISE is given by the sum of the value of all real (houses, land,…) and financial assets. As for real estate, the relevant value is net of residual debts incurred for their purchase. Substantial disregards are provided: 30 million lire (15.494 euro) as far as the financial wealth is concerned, plus further 100 million lire (51.646 euro) if the household lives in its own house. An equivalence scale is used to compare the economic conditions of household of different composition. The scale is obtained simply by increasing the number of household components (N) to the power 0.65: $N^{0.65}$. This basic scale is then increased when the household is in conditions of particular difficulty, by 0.2 points for

[2] In this way, the legislator has tried to allow for an important difference between these two categories of workers: in fact, the tax base for the employees is gross of the expenses necessary to produce it (later corrected by tax credits), while that of the self-employed is net of these costs.

single parent households with dependent children, or if both parents of dependent children are working, and by 0.5 points for each member with a permanent handicap or seriously disabled.

Family Allowance for households with at least three children (*assegno alle famiglie con almeno tre minori*). In 2001 it amounted to 2.7 million lire per year (1.400 euro) for households with at least three dependent children, and with an ISE lower than 33,4 million for a reference household with 5 members (other thresholds are derived with the ISE equivalence scale). For an ISE higher than 33,4 million lire but lower than 37,5 million lire (the cut-out point), the amount of the subsidy is decreasing and is equal to the difference between the cut-out point and the ISE itself. Total spending for 1999 was estimated in 390 billion lire.

Maternity Allowance (*indennità di maternità*). In 2001 it amounted to 2,5 million lire (1.291 euro) for each new child, granted if ISE is lower than 52,1 million lire (26.918 euro) for a reference household of three members, and if the mother is not covered by any forms of maternity insurance. Total estimated spending is 25 billion lire per year.

Minimum Insertion Income (*Reddito Minimo di Inserimento* - RMI). It represented a first, temporary, and significant step towards the adoption in Italy of a universal subsidy for the alleviation of poverty, modelled on the basis of the safety nets present in almost all European countries[3]. The RMI has been experimented upon almost 160 local areas (among them Naples, Catania, Genoa, and Reggio Calabria), chosen according to a set of social and economic characteristics, and mainly concentrated in the southern part of Italy, the poorest one. The maximum amount of the RMI in 2001 was 0.53 million lire (274 euro) per month for a single person, while for other households the corresponding amounts are found with the application of the ISE equivalence scale. The transfer was set so as to cover the difference between the maximum amount and household income. Earnings were counted in total household income only for 75% of their total amount, to attenuate the poverty trap, so that the RMI reproduced a negative income tax scheme with a marginal tax rate of 0.75, covering a constant share of the poverty gap. The entitlement rules for the RMI do not adopted ISE as a selection instrument or as a measure of living standard, even if they shared with the ISE legislation the same equivalence scale and the adoption of the household as the resource unit. Any amount of assets, with the exception of the house of residence, was a sufficient condition for losing eligibility. The receipt of the minimum income was conditional on joining an insertion program, devised by the local authorities with the objective of reintroducing the beneficiary in the labour market, through acceptance of any job proposals, attendance in training courses, or involvement in care services. Provisional estimates of the RMI extension to all national territory show that the it would cost about 3.000 billion lire per year.

1.2 Taxes and contributions

The main Italian income Tax (IRPEF) is computed applying increasing marginal tax rates to the income brackets.

Employers and employees contributions are levied on gross earnings from wages. In both cases the rates of contribution vary according to firm size, sector of activity and employment status. In the model three main work statuses are considered (blue collar, white collar and executives), and only eight sectors of activity could be taken into account following the level of detail allowed by survey data.

In general, the system of social contributions is finalized to find resources for a wide variety of benefit schemes such as family allowances, unemployment support, invalidity and maternity (before the fiscal reform of IRAP in the 1998, the social security contributions financed mainly the National Health System (SSN : Servizio Sanitario Nazionale)).

These contributions and other deductions (such as Deduction for owner occupied house and Approximate deductions which are not simulated) are subtracted from gross income in order to obtain the taxable income.

2. Tax-benefit system - Detailed description

In this chapter we provide a description of relevant details of the tax-benefit system in the Italy, focusing on the way they have been modelled in Euromod. All entries in *italic* refer to the names of policy modules, and to parameters and conditions in the relevant Euromod parameter sheets (in particular *pol_IT.xls*). In a number of instances, we mention where we make simplifying assumptions for Euromod.

Table 1 lists the policy sheets in *pol_IT.xls*. The number under "Section" heading in column 1 refer to the sections of this report in which the various policies are described.

Note that **sben_spen_IT** (Social Pension), **sben_dis_IT** (State Non-Contributory Disability Pension) and **polIT_Property_IT** (Local Property Tax) are not currently simulated but they are modelled .

[3] The experiment expired in 2003 and a new scheme, the *Income of Last Resort* (*Reddito di ultima istanza* – RUI), has been introduced with the Budget Law for 2004. The effective implementation of RUI should start shortly.

Table 1. Policies included in pol_IT.xls

Section	Policy	Description
2.1.1	**IT_rentY_cadY_IT**	Computes Rental Income and Cadastral Income relevant for Income Tax
2.1.2	**polIT_Property_IT**	Local Property Tax ('ICI') (NOT SIMULATED)
2.2.1	**EESIC_IT**	Employee Social Insurance Contributions
2.2.2	**ERSIC_IT**	Employer Social Insurance Contributions
2.3.1	**SBEN_suppPen_IT**	Supplementary Pension
2.4.1	**IT_ded_IT**	Compute Deductions relevant for Income Tax
2.3.2	**sben_spen_IT**	Social Pension (NOT SIMULATED)
2.3.3	**sben_dis_IT**	State Non-Contributory Disability Pension (NOT SIMULATED)
2.1.3	**IT_IT**	Income Tax
2.1.4	**IT_DEP_IT**	Tax on deposits
2.1.4	**IT_SB_IT**	Tax on government Bonds
2.1.4	**IT_OB_IT**	Tax on other bonds
2.1.4	**IT_DIV_IT**	Tax on dividends
2.1.5	**IT_severance_pay_IT**	Income Tax on Severance Pay
2.1.6	**IT_Productive_Act_IT**	Income Tax for self-employed on income from production activities (IRAP)
2.5	**SBEN_FA1a0ch_IT**	Family Allowance for 1 adult and 0 own children but at least one 'other' child
2.5	**SBEN_FA2a0ch_IT**	Family Allowance for 2 partners and 0 children
2.5	**SBEN_FA1a1ch_IT**	Family Allowance for 1 parent and children
2.5	**SBEN_FA2a1ch_IT**	Family Allowance for 2 parents and children
	OUTPUT_std_IT	Output (unit of analysis can be freely chosen)
	OUTPUT_final_IT	Standard Output (individual level)

2.1 Income taxation

In order to impute the personal income tax to each taxpayer, all relevant taxable incomes (earnings, self-employed incomes, income from land and real asset, and capital income) are summed up; before applying the tax schedule, some deductions are subtracted from the gross income. Then the tax schedule is applied and the gross income tax is calculated. For each taxpayer the family characteristics (dependent members) are identified in order to compute the net income tax.

2.1.1 Rental Income and Cadastral Income relevant for Income Tax (policy: IT_rentY_cadY_IT)

Next to the personal income components, the tax base also includes imputed income from owner occupied housing, income from letting or sub-letting one’s owned or rented house and other income from real estate property (income from land and tenements).
The part of rental income which is taxable is 85% (*it_ten_tax_prop*).

When real estate property does not produce lease income, the taxable amount becomes Cadastral income. In order to compute Cadastral income the imputed rent variable is used, *itIMPREL* for land, *itIMPRET* for tenements and *itIMPREH* for main house. In the first case, Cadastral income is equal to *itIMPREL *IT_LAND_PAR* (0,1558); in the second and third case, *itIMPRET* and *itIMPREH* are compared, respectively, with income brackets of the following table and multiplied by the correspondent rate.

Table 2. Parameters to estimated Cadastral rent from imputed rent by deciles

Deciles (Lit*1000)	Parametrs
0	0.09357687
1000	0.09357687
1800	0.08028825
2700	0.08310584
3200	0.11251543
4000	0.12645375
4800	0.14307834
6000	0.17840219
7200	0.25326589
9600	0.25326589

This method to calculate the Cadastral income is a simplification of the actual Italian system that defines the Cadastral rent as estimation of the value of different building typology. Starting from 1994, this value can be established at municipal level.

2.1.2 Local Property Tax 'ICI', (policy *polIT_Property_IT*)

ICI is a local tax on real estate property destined to any use. The real estate subjected to taxation are:

- buildings
- areas feasible for construction (*area edificabile*)
- agricultural land.

The rateable base is equal to the value of the real estate property determined according to the type of the property. The first step is to compute the Property value: Total estimated land income**rev_land_par* (75) + (*cadastral rent of tenements + Total estimated tenement income + cadastral rent of main house*)**it_rev_ten_par* (100) + [if you have Self-employment income and

you are in the agricultural sector then you have *estimated land value**rate (this depends on income brackets, see table 3)] otherwise estimated land value.

Table 3. Parameters for ICI on land income

Brackets	Rates	Constant
0	0	0
50000	0.7	0
120000	0.5	49000
200000	0.25	40000
250000	0	12500

The Property value is then used to get the Gross ICI: Property value *ICI_tax_rate (on average 0,005). This amount, net of main house deductions, equals Net ICI. In Euromod this tax is not currently simulated.

2.1.3 Income Tax (policy *polIT_IT*)

The amount of gross income tax is determined summing up two components: *Irpef* and *Additional regional Irpef*. *Irpef* is obtained applying marginal progressive rates to the increasing income brackets (See Table 4); *Additional regional Irpef* is obtained applying an additional marginal rate to the same net taxable income.

Table 4. Progressive Income Tax Rates

Income Brackets (millions): taxable income	Rate	Constant (millions)
up to 20	0.18	0
Over 20 up to 30	0.24	3.6
Over 30 up to 60	0.32	6.0
Over 60 up to 135	0.39	15.6
Over 135	0.45	44.85

Table 5. Additional Regional Irpef tax rate

Marginal Rate
0.90%

All residents who produce income, even if not in Italy, are subjected to Irpef; total income (the sum of income from land or tenements, income from capital, income from employment, income from self-employment and others) except some deductions (*oneri deducibili*) is taxable. Irpef does not

apply for some particular kind of income (exempted income) as Maintenance payments received, other private transfers received, Social Pension, Social Assistance Benefits (e.g. Family Allowance), and Student payments. Further, there are some typologies of income that because of their characteristics of being either *una tantum* or of special nature (concerning more than one fiscal years), are subject to separate taxation (total interest, severance pay). The *Additional regional personal income tax* is computed as 0,9% of taxable income (*tax_inc*).
There is one extra income taxes at municipal level that has not been simulated due to lack of data.

2.1.3.1 Tax credit

Tax credits are subtracted to gross income tax to obtain the value of net income tax that has to be paid. However, they cannot be allowed for a value greater than income tax. Since the incidence of the credits on gross income tax (often resulting in an exemption from income tax for low incomes and then rapidly diminishing) decreases as gross income tax increases the whole amount of credits can be interpreted as a kind of low income support.
There are three types of tax credits: Credits for former Deductions, Credits for Work-related Expenses and Family Credits.

Credits for former Deductions (it_it_imputed_tcred)
The first kind of tax credits, introduced in the latest years, is allowed as a percentage (19%) of some expenses that used to be deductible: they include interests on mortgages for the first-owned house, medical expenses, school or education fees, insurance, etc. As for deductions (see par. 2.4), the incidence of these expenses on different levels of taxable income is estimated and the resulting parameters adopted in the simulation (see Table 6).

Table 6. Imputed former deductions

Income	Perc
0	0.062
3000	0.028
4000	0.025
5000	0.028
6000	0.025
7000	0.014
9000	0.015
11000	0.016
13000	0.015
15000	0.014
17000	0.014
19000	0.012
22000	0.012

25000	0.013
30000	0.014
35000	0.015
40000	0.015
50000	0.015
60000	0.015
80000	0.013
100000	0.013
125000	0.012
150000	0.011
175000	0.011
200000	0.010
250000	0.009
300000	0.008
350000	0.007
400000	0.006
450000	0.006
500000	0.006
550000	0.003

Work-related expenses (it_it_earnings_tcred, it_it_se_earnings_tcred and it_it_pen_tcred)

Credits for dependent workers and pensioners. Earned Income Credit allows for an income tested amount that decreases slightly at increasing levels of taxable income as shown in Table 7. An additional credit is allowed to pensioner with income below the threshold of £ 18,000,000 (*it_pen_tcred_thresh* - see table 8).

Table 7 Amount of income tested earned income credit

Income Brackets (thousands)	**Amount of Tax Credit (thousands)**
Up to 12,000	2,220
Over 12,000 up to 12,300	2,100
Over 12,300 up to 12,600	2,000
Over 12,600 up to 15,000	1,900
Over 15,000 up to 15,300	1,750
Over 15,300 up to 15,600	1,600
Over 15,600 up to 15,900	1,450
Over 15,900 up to 16,000	1,330
Over 16,000 up to 17,000	1,260
Over 17,000 up to 18,000	1,190
Over 18,000 up to 19,000	1,120
Over 19,000 up to 30,000	1,050
Over 30,000 up to 40,000	950
Over 40,000 up to 50,000	850
Over 50,000 up to 60,000	750
Over 60,000 up to 60,300	650
Over 60,300 up to 70,000	550
Over 70,000 up to 80,000	450
Over 80,000 up to 90,000	350
Over 90,000 up to 90,400	250

Over 90,400 up to 100,000	150
Over 100,000	100

Table 8 Pensioner additional tax credit

Income Brackets (thousands)	Up to 75 years old	Over 75 years old
Up to 9,400	190	430
Over 9,400 up to 18,000	120	360
Over 18,000 up to 18,500	--	180
Over 18,500 up to 19,000	--	90

Tax credits for self-employed

Tax credits for self-employed are completely income-tested, slightly decreasing according to increasing levels of income and allowed only for incomes below the threshold of £ 60 Millions (*it_se_earnings_tcred_lt7*).

Table 9 Self-employment income tax credit

Income Brackets (thousands)	**Amount of Tax Credit (thousands)**
Up to 9,100	1,100
Over 9,100 up to 9,300	1,000
Over 9,300 up to 9,600	900
Over 9,600 up to 9,900	800
Over 9,900 up to 15,000	700
Over 15,000 up to 15,300	600
Over 15,300 up to 16,000	480
Over 16,000 up to 17,000	410
Over 17,000 up to 18,000	340
Over 18,000 up to 19,000	270
Over 19,000 up to 30,000	200
Over 30,000 up to 60,000	100

Family credits (it_it_tcred_dep_sp, it_it_tcred_dep_oth, it_it_tcred_dep_ch and it_it_tcred_lpch)

Tax credits for dependent relatives according to the standard fiscal definition including dependent husband or wife, dependent children and any other dependent members of the family are always allowed at any level of income.

Family credits are allowed separately to other members of the household that constitute an independent tax unit.

The amount of credits for dependent children increases with the number of children and it varies according to total income level.

Table 10. Credits for Dependent Relatives

Tax credit for dependent spouse

Income brackets (millions)	**Credit**
Up to 30	1.057.552
From 30 to 60	961.552
From 60 to 100	889.552
Over 100	817.552

Tax credit for dependent children

Spouse present in the family

	Income up to 100 millions	Income over 100 millions
Number of children	Yearly amount (thousands of liras)	
1 child	276	258
2 children	584	516
3 children	892	774
4 children	1.200	1.032
5 children	1.508	1.290
6 children	1.816	1.548
7 children	2.124	1.806
8 children	2.432	2.064
For any other child	308	258

Lone parent

As for dependent consort considering the first child as the consort.	
336.000	Each children after the first

Tax credit for other dependent

336.000	Each other dependent

2.1.4 Taxation of Financial Capital

The amount of *Tax on financial assets* is a withdrawal tax calculated with three different rates according to the type of the asset: “Government bonds” and “Other bonds” are taxed with a tax rate of 12.5%, while “Short Term Bank Deposits” are taxed with a rate of 27%. In the model the tax is subtracted to gross financial capital to determine the net amount of financial capital that is part of

disposable income. Since financial capital is strongly underestimated in the Bank of Italy survey, the revenue of the tax in the model results proportionally underestimated.

Computation

Tax on government Bonds and Tax on other bonds is 12,5% of Interests on bonds;

The amount of tax on deposits is 27% of Interests on deposits;

The amount of tax on dividends is 12,5% of Dividends (firms with more than 20 employees).

2.1.5 Severance Pay (*polIT_severence_pay_IT*)

An annual amount, equal to 0.0714% of gross earnings, is paid to a special fund (TFR) that collects the money necessary for the payment of severance pays.

Taxable (conventional) income from TFR is: Severance pay minus a parameter (*tfr_par1*) multiplied by the length of time in work.

You have to compare Severance Pay/Length of time in work with the bands for computing Personal income tax (IRPEF), in this way you can get Average tax rate (conventional) on TFR income.

Table 11.

Tax Band	Tax Rate
0 – 20000	0.18
20000- 30000	0.24
30000 – 60000	0.32
60000 – 135000	0.39
+ 135000	0.45

Income base (*tfr*) = TFR-(600*Length of time in work)

2.1.6 Income tax on income from production activities – IRAP (*polIT_Productive_act_IT)*

IRAP is a tax with wide rateable base that allows to have a very reduced and contained rate. It represents tax on productive activity collected at a regional level. It is the main regional tax, and the first important example of administrative devolution in the Italian system.

"IRAP tax" has replaced "ILOR tax", some previous social contribution and minor taxes. The tax is applicable at a rate ranging from 2.5% to 5.4% (see tab.12) on the profit, gross of interest charges and labour costs (which latter costs are therefore not deductible for IRAP tax purposes);

Tab. 12. The Irap tax rates

Irap tax rates (tax on productive activities)	
Agriculture	0.0250
Banks and insurance.	0.0540
Other sectors	0.0425

Computation

IRAP tax is calculated with three different rates, as a percentage of self-employment income, according to the typology of productive activities.

2.2 Social security contributions

Since the incidence of contributions on earned income is different according to the type of income (dependent, self-employment, pensions), occupational status and sector of activity, the model identifies these characteristics.

2.2.1 Employee Social Insurance Contributions (*EESIC_IT*)

Gross earnings are obtained grossing up net earnings from Survey data according to the specific rate of contribution as shown in Table 13. Gross earnings and contributions are summed to obtain the overall value of contributions by individual.

Table 13. Employees contribution

Sectors		**Blue Collars**	**White Collars**	**Executives**
Industry exc. Constr. CIGS	1	9.19	9.19	0.00
Industry exc. Constr. No CIGS	2	8.89	8.89	0.00
Construction CIGS	3	9.19	9.19	0.00
Construction NO CIGS	4	8.89	8.89	0.00
Commerce and P. Services	5	8.89	8.89	8.89
Services CIGS	6	9.19	9.19	8.89
Banking and Insurance	7	8.89	8.89	8.89
Agricolture	8	0	8.54	8.54

Computation

After identification of the different sectors:

sector 1 (Manufacturing sector with less than 50 workers)

sector 2 (Manufacturing sector with more than 50 workers)

sector 3 (Building sector with less than 50 workers)

sector 4 (Building sector with more than 50 workers)

sector 5 (Services sector with less than 50 workers and Public Administration)

sector 6 (Services sector with more than 50 workers)

sector 7 (Banking)

sector 8 (Agricultural sector)

the corresponding rates are different for Blue Collars, White Collars and Executives. These rates, are then used to multiply the gross income from employment. If this income is greater than a threshold (y_thresh), the gross income minus that limit are multiplied by an additional rate (0.01). For executives in the industry and construction sectors there is a particular treatment; the social insurance contribution is means tested.

Table 14. Employees contribution special category of executive (INPDAI)

Inc. brackets	Rate	Constant
0	0.0889	0
64128	0.0989	5700.97
254244	0	24503.45

2.2.1.1 Self employed contributions

Self-employed pay a minimum contribution and a contribution for social security with rates varying according to the type of occupational status (see Table 15 as an example for manual workers and for the Commerce sector). The average rate is around 10%. However, due also to the strong under-reporting of self-employment income, the amount of contribution is still very limited.

Table 15. Self employed contribution

Manual workers and Commerce social contribution				
Brackets	**Mw-Rate**	**Constant**	**Comm-rate**	**constant**
0	0.000	3812	0.000	3881.7
23244	0.164	3812	0.167	3881.7
68048	0.174	11160	0.177	11363.9
113413	0.000	19053	0.000	19393.5

For agriculture independent workers the rate is 0,163 (*agr_rate*) of self-employment income, whereas for professional men or partners in a company and other workers (entrepreneur or owner, assistant of a household firm) the income is multiplied by *sic_rate* (0.07983) and then two fixed amounts (*mat_con, fix_con*) are added to it.

2.2.1 Employer Social Insurance Contributions (*ERSIC_IT*)

Average rates are about 42% for employers' contributions but they vary considerably according to the size of the firm, to the work status of the dependent worker, to the sector of activity and to the level of income (above or below a ceiling of £40 Millions of net earned income). No contributions are paid over £150 Millions threshold.

Table 16. Employers contribution

Sectors (firm category)		**Blue Collars**	**White Collars**	**Executives**
Industry exc. Constr. (CIGS)	1	40.7	38.5	3.2
Industry exc. Constr. (No CIGS)	2	42.1	39.9	3.5
Construction (CIGS)	3	44.8	39.3	3.2
Construction (No CIGS)	4	45.7	40.4	3.2
Commerce and P. Services	5	34.2	34.2	36.1
Services (CIGS)	6	39.4	39.4	36.3
Banking and Insurance	7	36.3	36.3	36.1
Agriculture	8	0	35.5	3.4

Computation

As in the case of Employee Contributions, after identifying the different 8 sectors, the corresponding rates vary according to the typology of workers (Blue Collar, White Collar and Executives). If the worker is in the Manufacturing sector with less than 50 workers and he is a "Blue Collar", "Supervisor and Intermediate", or "White Collar", then to the rate is added an additional rate (*0.003*).

The executives in industry and construction have a particular treatment for Employer Contribution too. The social insurance contribution is means tested as before, but different rates apply if the worker started to work in 1996 or after.

Table 17. Employers contribution special category of executive (INPDAI+INPS)

	Enrolled after 31/12/95		**Enrolled before 31/12/95**		
Inc. brackets	**Rate**	**Constant**	**Rate**	**Constant**	
0	0.331		0.331		INPDAI
2759.9	0.341		0.341		
10942	0.0040		0.0040		
	0.0476		0.0562		INPS

Relief

For large firms in Manufacturing and Building Industry there is a relief equal to gross income* er_rel_rate (*0.0016*), this is an exemption from social-security taxes. A special relief is for firms that

are in the Southern regions: for large firms in Manufacturing and Building Industry, small firms in Services and Banks that are in the South of Italy and whose gross income is less than certain limit (*er_south_lt*), there is an amount (*er_south_amt*) as relief.

2.3 Pensions

For some of the simulated pensions there exist corresponding input variable from the Bank of Italy survey, except for Supplementary pensions, Social Pensions (corresponds to input variable itBENSOC), and State Non-Contributory Disability Pension (corresponds to input variable itBENDE1).

2.3.1 Supplementary Pension

The Supplementary Pension is an allowance from State to pensioner, through INPS, when his contributions are not sufficient to reach the minimum income. In this case the amount of pension is integrated until reaching a threshold arranged every year. The receipt of the subsidy is conditional on a test, introduced in 1983, on the taxable income of the potential beneficiary (plus that of the partner, if the beneficiary is married). In brief, the income test excludes non-taxable forms of income, e.g. capital incomes, and other items, such as imputed rents on owner-occupied house. The pension reform of 1995 has abolished this scheme for the new entrants in the labour market, but it continues to apply for all other cases.

Supplementary pensions were (and still are) the biggest means-tested benefit in Italy. In 2001, the average amount of Supplementary pension was 4.808.720 LIT per year. The total expenditure (in 2000) was 28,8 billions LIT.

For the simulation, we assumed that benefits are paid for the lowest pension (data on aggregate expenditure for supplementary pensions are extremely difficult to find, official data were made available only in 1997 (for 1995) by the “Commissione Onofri”, an official commission that studied social assistance in Italy at that time).

Eligibility

There are two different supplementary schemes, one for “Disability pensions” and one for “Other pensions”. In the first case, entitlement to receive *Supplement for Disability Pensions* exists for pensioners who receive a disability pension. In the second case, pensioners are eligible to receive *Supplement for Non-Disability Pensions*, if receiving other pensions except disability pensions. If retired before 1994, then relevant pension is not subtracted from personal income. At the same time, the relevant income is only pensioner’s income, and from January 1994 personal income added with

spouse income is the relevant variable and it cannot be greater than five times the amount of the pension. If retired from January 1995, the limit of family income must be four times the amount of the pension.

The incomes that are not considered in the computation:

- income exempted from Irpef
- severance pay
- income from main house
- arrears subject to separated taxation
- the amount of pension that has to be integrated.

Table 18. Income limits 2001

	Entitled for Supplementary	**Entitled for Supplementary (partially)**		**Not Entitled for Supplementary**
		from	**To**	**From**
Personal Income	£ 9.624.550	£ 9.624.551	£ 19.249.099	£ 19.249.100
Family income(If retired before 1994)	£ 38.498.200	£ 38.498.201	£ 48.122.749	£ 48.122.750
Family income(If retired after 1994)	£ 28.873.650	£ 28.873.651	£ 38.498.199	£ 38.498.200

2.3.2 Social Pension (*polSBEN_SPEN_IT*)

Social Pension (pensione sociale). It is a form of minimum income for people over 65 who are not entitled to a contributory pension, and thus neither to the supplementary pension. In 2001, it amounts to around 9 million lire per year for people aged less than 75 and to around 9,2 million lire per year for people over 75. The receipt is subject to an income test of the single or of the couple, irrespective of the economic conditions of the household where one lives. Just in case the means-test applies to a couple, the means tested income has to be less than two times the upper income limit (*amount*), otherwise the upper limit. In 1995 this scheme changed its name to *Social Allowance* (a*ssegno sociale*), but its main characteristics remain unaltered. In Euromod this scheme is not currently simulated.

2.3.3 State Non-Contributory Disability Pension (*polSBEN_dis_IT*)

State non-contributory InvalidityPension (pensione di invalidità civile). This scheme is very similar to the Social Pension (i.e. it is non-contributory), but it is reserved for the disabled without even a minimal accrued pension. The income test is strictly individual, regardless of the size of the family the beneficiary belongs to.

Eligibility

All residents older than 65 (*ge_age1_lt*) or younger than 18 (*le_Age1_lt*) are entitled to receive Disability Pension if personal income is less than 430.000 liras per month (*ge_inc_lt*) and if they are disabled. The Benefit is composed by two amounts, but in the model we computed just the sum of them (*SingPay*). In Euromod this scheme is not currently simulated.

Invalidity Pension (*pensione di invalidità*). Like the former programs, this scheme is provided by the National Institute for Social Protection (*Istituto Nazionale per la Previdenza Sociale*, INPS), the institute responsible for the management of many contributory transfers, and is paid to workers with at least five years of contributions. Eligibility is conditional on both a medical test and an income test, and the accrued amount is supplemented to the minimum. Although formally a contributory scheme, this program should be more correctly considered as part of social assistance, because there is clear evidence, particularly in the 1970s and the 1980s, of its misuse as a rough substitute for a missing universal safety net in preventing poverty, especially in the South and in non-industrial areas. In Euromod this scheme is not currently simulated.

Other social benefits. This is a residual category which includes, among others, the locally provided minimum incomes and the indemnity for person accompanying the seriously disabled, a transfer paid without any form of means-testing. In Euromod this scheme is not currently simulated.

2.4 Deductions

Net taxable income is obtained by subtracting from taxable income some deductible expenses: social contributions due by self-employed individuals; some medical expenses; alimony; donations to religious institutions; etc..

There is no information in the Survey on these deductible expenses that vary from household to household according to preferences and medical conditions. Nevertheless they significantly affect

the fiscal revenue since they represent almost 4% of declared taxable income. The first and immediate solution would have been an imputation of a 4% deduction to all taxable incomes. However, the availability of the breakdown of these deductions made available by the Ministry of Finance shows that they significantly vary according to the level of income and the occupational status of the head of the nuclear family. While this information highlights that a proportional imputation on all taxable incomes would have biased the distribution, at the same time it suggests a method (the estimation of different parameters according to the level of income) to obtain a satisfactory appraisal of the missing quantity. The amount of deductions is therefore approximated with a series of parameters representing their incidence at various levels of income, obtained elaborating the data of the fiscal accounts. These parameters, varying from 1% to 10%, are only approximations since they take into account only different level of income while they appear vary according to the source of income as well. There is a threshold under which deductions are imputed for a fixed amount.

2.4.1 Deductions relevant for Income Tax (*polIT_ded_IT*)

Deduction for owner occupied house (*it_it_mh_ded*)

If the partner haven't imputed rent from main house, the deduction is the Property Income if less then *it_mh_ded_fix* (1.100.000 liras), otherwise the amount of deduction is just *it_mh_ded_fix.* Instead, if imputed rent of partner is greater then zero, the deduction is always the Property (main residence) income, if it is lower than it_mh_ded_fix/2, otherwise *it_mh_ded_fix*/2 is the deduction limit.

Approximate deductions which are not simulated, as a proportion of income (*it_it_imputed_ded*)

Deduction from taxable income (if this is >0) is obtained comparing the taxable income before deduction (*tax_inc_bef_ded*) with income brackets, establishing the relative rate (see table 19). Therefore, the amount of deduction will be *tax_inc_bef_ded**rate.

Table 19. Imputed Deductions

Income	**Perc**
0	0.00445
3000	0.00234
4000	0.00196
5000	0.00156
6000	0.00140
7000	0.00072

9000	0.00100
11000	0.00099
13000	0.00080
15000	0.00074
17000	0.00063
19000	0.00050
22000	0.00048
25000	0.00054
30000	0.00063
35000	0.00078
40000	0.00102
50000	0.00134
60000	0.00174
80000	0.00211
100000	0.00251
125000	0.00279
150000	0.00291
175000	0.00294
200000	0.00296
250000	0.00298
300000	0.00315
350000	0.00368
400000	0.00307
450000	0.00338
500000	0.00303
550000	0.00257

2.5 Family Benefits

They represent the main cash family benefit of the Italian system. The allowance is formally given to the head of the family nucleus, provided that his/her work status be of dependent worker or pensioner, and that wage or pension earnings be the main component (greater than 70%) of total household taxable income. Their amount varies according to the level of income, the number of household components, and if both parents are present. The family allowance is instead reduced for the presence of each brother, sister or nephew of the head of the family nucleus (see Tables 20, 21, 22). No family benefit is allowed beyond the threshold.

In case of family nucleus with lone parent, the income brackets are increased by 3.158.000 Liras.

Table 20. Family Allowance (monthly amount). Family nucleus with both parents and at least one minor child.

Family Income brackets (thousands lire)	**Number of family members**						
	1	2	3	4	5	6	7
0	0	0	253	485	695	953	1200
21536	0	0	222	427	658	932	1163

26649	0	0	179	369	606	916	1131
31761	0	0	127	306	548	879	1094
36871	0	0	85	216	468	789	983
41985	0	0	50	158	421	757	946
47097	0	0	30	111	342	705	904
52211	0	0	30	75	263	657	851
57321	0	0	25	50	199	615	825
62433	0	0	25	50	178	436	772
67544	0	0	25	45	178	299	567
72659	0	0	0	45	152	299	424
77771	0	0	0	45	152	256	424
82884	0	0	0	0	152	256	366
87996	0	0	0	0	0	256	366
93110	0	0	0	0	0	0	366
98224	0	0	0	0	0	0	0

Note: for household bigger than 7 members the amount of the last column is increased of 10% plus 104 for each member beyond the 7th.

Table 21. Family Allowance (monthly amount). Family nucleus with lone parent and at least one minor child.

Family Income brackets (thousands lire)	**Number of family members**						
	1	2	3	4	5	6	7
0	0	193	358	798	1073	1403	1727
24944	0	154	319	721	1029	1386	1683
30057	0	105	264	644	952	1359	1634
35167	0	45	198	561	880	1309	1590
40280	0	40	143	446	781	1194	1441
45394	0	40	94	369	715	1150	1397
50506	0	0	66	308	611	1084	1342
55618	0	0	66	264	506	1023	1276
60730	0	0	55	231	429	968	1238
65841	0	0	55	231	396	732	1172
70956	0	0	55	198	396	550	902
76069	0	0	0	198	341	550	715
81179	0	0	0	198	341	473	715
86293	0	0	0	0	341	473	616
91406	0	0	0	0	0	473	616
96250	0	0	0	0	0	0	616
101632	0	0	0	0	0	0	0

Note: for household bigger than 7 members the amount of the last column is increased of 10% plus 104 for each member beyond the 7th.

Table 22. Reduction of family allowance.

	Reduction
Family nucleus with only one child	-20,000 for the first brother, sister or nephew -104,000 for each other brother, sister or nephew.
Family nucleus with more than one child	-104,000 for each other brother, sister or nephew.

Table 23. Family Allowance (monthly amount). Nuclear family without children.

Familiar Income brackets (thousands lire)	**Number of family members**						
	1	2	3	4	5	6	7
0	0	90	160	230	300	370	440
20456	0	70	140	200	280	360	420
25569	0	50	110	170	250	350	400
30682	0	20	80	140	220	330	380
35793	0	0	50	110	200	320	360
40905	0	0	20	80	170	300	340
46019	0	0	0	50	120	270	310
51131	0	0	0	20	70	240	280
56242	0	0	0	0	20	210	260
61353	0	0	0	0	0	100	230
66466	0	0	0	0	0	0	100
71579	0	0	0	0	0	0	0

3. Data

3.1 General description

The dataset used for Italy originates from the 1996 Survey of the Bank of Italy on 1995 Household Income and Wealth (SHIW95). During the period between May and September 1996, Families are interviewed about their income in the preceding calendar year (which coincides with the fiscal year). The dataset covers 8.135 households representative of the whole Italian population. About 44.8 % of the sample (3,645 families) is obtained by re-interviewing families already interviewed in 1994 (about their income in 1993).

Municipalities are first divided into 51 strata (17 regions and three classes of population size) and then families are selected from the registry office records. The response rate was about 57 % and it tends to be inversely correlated with income, wealth and education of the head of the family. Data on wealth are considered to be less reliable than data on income. The selection bias is likely to generate a underestimation of the mean and dispersion of income, although the post stratification partially overcome the problem. Further, data inconsistencies are examined with particular attention and some questionnaires (e.g. those with savings greater than income and negative savings greater than consumption) were submitted to compatibility checks and were discarded if no explanation was found. Studies based upon the survey on 1989, show the selection bias to be moderate.

Missing values concerning some variables have been imputed (by researchers of the Bank of Italy). This procedure is necessary for elementary variables which are component of aggregate variables (i.e. it is necessary to impute the value of non-cash fringe benefits in order to compute the income of dependent workers).

The basic survey unit is the household, which is defined as “a group of individual linked by ties of blood, marriage or affection, sharing the same dwelling and pooling all or part of their incomes”. Thus in particular, only one unit is recorded where two or more nuclear families, as registered at the registry offices, are linked by ties and live together. This explains why the survey-based estimate of average family size tends to exceed the estimate based on records held at registry offices. The questionnaire does not provide all the information that would be needed to identify exactly each nuclear family. However, we used all the available information to overcome the problem by imputing the individuals to nuclear families. An alternative possibility is to divide the household in a nuclear family composed by the head of household and all the dependent persons, and single individuals who are part of the family, but declare their income separately.

Survey data can be grossed up to aggregate values thanks to appropriate weights assigned to each household according to its probability to be included in the survey. The grossing up can be achieved

at a household level - calculating the grossing up factor by dividing the total number of household (approx. 20 millions) by the number of households present in the survey-or at an individual level-total population divided by total number of surveyed. The former method is the one adopted in the model.

The available data used by the model refers to the year 1995. Thus, in order to obtain data of the right order of size, all monetary variables have been up-rated to the year 2001 with different parameters obtained from Official National Accounts [Istat, 2002] according to the type of income.

The up-rating factors 2001, including both growth and the rate of inflation are as follows:

Updating Index	**Updating Coeff. (1998)**	**Updating Coeff. (2001)**	**Euromod Variables which updating factor applies**
E_ind	1,10715	1,2641573	coEMPY
E_ind_{SE}	1,1492281	1,3051870	coSLFEMY
I_ind	0,958229	0,935522	CoINVY, itDIVINC, itFINDEP, itFINOB, itFINSB, itPASINT
I_ind_{PR}	1,336403	1,617109	CoPROPY, itIMPREH, itIMPREL, itIMPRET, itRENTYL, itRENTYT
P_ind	1,2263522	1,6368254	itDEBT

The questionnaire defines the head of the household as “the person responsible of the family economy”. However in many cases in the data-set, while the person registered as the head of the family resulted not to earn any income, the consort had a positive income. In this cases data have been re-coded by ISTAT registering the consort as the head of the family. In SHIW95 dataset, all capital variables are collected at the household level instead of individual level and the capital is always imputed at the head of the household. Therefore income from non-financial capital is considered as a component of the taxable income of the head of household (even if it belongs to different members of the household that are taxed separately). However the dataset provides information concerning the ownership of non-financial capital. Thus data have been re-coded by ISTAT in order to attribute the non-financial capital to the real owners. As a consequence, the number of income collectors has risen with respect to the original dataset.

A partial reconstruction of the dataset was needed to make it comparable with other countries. It has mainly concerned the redefinition of variables and codes. The transformations of Survey data needed to fulfil the common codes are shown in Tables 24.

The Italian survey collects data for up to nine members of the household. Variables 1…9 refer only to the members of the household over 16 years old.

Table 24. Description of the variables

Variable name	Definition	SHIW Variables used
Idm	Household identifier	
Type	Category of household	PARENT(see code C5)
dpt	Geographical code	IREG
Ponder	Weighting coefficient	PESOFL
Monloy1	Monthly rent payment	TFITTO
Monloy2	Gross mortgage interest	
Kpital	Total household investment income	KYC (gross value of YC)*
ycf1	Interests on Bank deposits	YCF1is (gross value of YCF1)*
ycf2is	Interests on Government bonds	YCF2is (gross value of YCF2)*
ycf3is	Interests on other bonds	YCF3is (gross value of YCF3)*
ycf4	Passive interests	YCF4
Ycr	Real capital	YCR
Nbpers	Number of persons in the household	NCOMP
an 1...8	Age of child 1...8	ANASC
sex 1...5	Sex of adult 1..5	SEX
age1...5	Age "	ETA
csc1...5	Work status	APQUAL, APNONOC (see C1)
statut1...5	Occupational status	APSETT, ASNONOC (see C2)
matri1...5	Marital status	STACIV (see C3)
ysal_gross1...5	Gross wage	
ysal1...5	Net wage (Gross wage-employees SIC)	KYL (gross value of YL)*
Lbr_cost1...5	Total Labour Costs	
cho1...5	Unemployment Benefit	CIG
pen1...5	Current state pension	KYTP(gross value of YTP)*
inc1...5	Self Employment Income	KYM*
otres1	Other income	(KYTA*-CIG)
curred1...5	Current Education Level	
hrs1...5	Weekly hours of employment	
nmtb1...5	Non mean tested benefits	
tenure1...5	Tenure	
Propinc1...5	Individual investment income	
Privpens1...5	Private pension	
ecsect1...5	Sector of activity	
lien2...5	Relationship with head of household	PARENT (see C4)

*Gross values from Mastrict Model (see Proto 1999).

Table 25. RELTOHOH codification (Relationship with household head)

EUROMOD categorisation	SHIW variables code	Database variable (Reltohoh) code
0 = Self	Parent = 1	Reltohoh = 0
1 = Spouse (married)	Parent = 2 (Spouse/Partner) and Staciv = 1(legal marital status = married)	Reltohoh = 1
2 = Partner (cohabiting)	Parent = 2 (Spouse/Partner) and	Reltohoh = 2

	Staciv >1 (legal marital status = single, separated/divorced, widow)	
3 = Son/daughter	Parent = 3 (Son, daughter)	Reltohoh = 3
4 = Parent	Parent = 4 (Parent)	Reltohoh = 4
5 = Grandparent 6 = Grandchildren 7 = Brother /sister 8 = Parent in law 9 = Son in law, daughter in law 10 = Other relative	Parent = 5 (other relative/relative in low)	Reltohoh = 10
11 = Other non-relative	Parent = 6 (other non-relative)	Reltohoh = 11

Table 26. MARSTAT codification (Legal marital status)

EUROMOD categorisation	SHIW95 variable code	Database variable (MARSTAT) code
1=Single	STACIV=2	MARSTAT=1
2=Married	STACIV=1	MARSTAT=2
3=Separated 4=Divorced	STACIV=3	MARSTAT=3
5=Widowed	STACIV=4	MARSTAT=5

Table 27. EDUC codification (Education)

EDUC code = EUROMOD categorisation	SHIW95 variable code
EDUC=1 (Primary)	STUDIO=2
EDUC=2 (Lower secondary)	STUDIO=3
EDUC=3 (Upper secondary)	STUDIO=4, 5; (4 =Vocational School; 5=High School)
EDUC=4 (Tertiary)	STUDIO=6,7,8; (6=short degree; 7=degree; 8=Specialization)
EDUC=5 (None)	STUDIO=1

Table 28. CITID codification (Citizenship)

CITID code = EUROMOD categorisation	SHIW95 variables code
CITID=1 (this country)	ENASC="."
CITID=2 (Other EU)	ENASC=1,2; (1=Eastern Europe, 2=Western Europe)
CITID=3 (Other)	ENASC=3,4,5,6,7; (3=North America, 4=Suth and Central America, 5=Africa, 6=Asia, 7=Oceania)

*Since individual citizenship could depend on parents place of birth or could change with marriage we could use also the information provided by ENASC for other household members.

Table 29. Aggregation of net income variables (SHIW95)

Name[4]	Description	Questionnaire reference: Section or annexes and name of disaggregated variables
y	Net disposable income (yl+yt+ym+yc)	
yl	Net income from employment (yl1+yl2)	
yl1	Net wage	B1: YLM
yl2	Non monetary integrations	B1: YLNM
yt	Pensions and net transfers (ytp+yta)	
ytp	Pensions and arrears (ytp1+ytp2)	
ytp1	Pensions	B5: TPENS × MESIPEN
ytp2	Arrears	B5: TARRET
yta	Other transfers (yta1+yta2+yta3)	
yta1	Cig	B6: YTB1, YTB2,
yta2	School ‘s grant	YTB3,YTC1,YTC2,YTC3,YTC4,YTC5,YTC6,YTC7.
yta3	Alimony cheques	B6: YTD1.
ym	Self-employment net income (ym1-ym2)	B6: YTD2, YTD3, YTD4.
ym1	Self-employment income	
ym2	Depreciation (-)	B2: YM. B3: YM. B4: COMPFISS+DIVIDUT (less than 20 empoyed).
yc	Capital income (ycf+ycr)	B2: AMMORT. B3: AMMORT
ycr	Real estate income (ycr1+ycr2+ycr3)	
ycr1	Profits	
ycr2	Effective rents	
ycr3	Imputed rents	B4: COMPFISS+ DIVIDUT (more than 20 employed)
ycf	Financial income (ycf1+ycf2+ycf3-ycf4)	D1: AFFEFF. D2: AFFEFF.
ycf1	Interests on deposits	D: (TFITIMP× 12). D1: AFFIMP (excluding real estate used in prod. activity by self employed)
ycf2	Interests on State bonds	
ycf3	Interests on other bonds	C: (C41A1+C41A3+C41A4+ C41A5+C41A6+C41B1+C41B2)×(RATE1). C: (C41C1+C41C2+C41C3+C41C4+C41C5)×(RATE2). C: (C41D1+C41D2+C41E1+C41E2+C41E3+C41E4+C41E5+C41F1+C41F2+C41F3+C41G1+C41G2+C41G3+C41H)×(RATE3) C: (TDEB95A+TDEB95B)×(RATE3)
ycf4	Interest’s payments (-)	

Table 30. OCCUP categorisation (Occupation)

Alternative categorisation: variable OCCUP	SHIW categorisation: variables APQUAL / ASNONOC
1 = Senior Officials and Managers (ISCO category)	ASNONOC / APQUAL = 5 (MANAGER, HEAD MASTER, MAGISTRATE, UNIVERSITY TEACHER)
2 = Professionals (ISCO category)	ASNONOC / APQUAL = 6 (PROFESSIONAL)
3 = Supervisor and Intermediate Decision Position (similar to the item 3 “Technicians and associate professionals” in ISCO categorisation)	ASNONOC / APQUAL = 4 (WHITE COLLAR (HIGH LEVEL)) ASNONOC / APQUAL = 3 (SCHOOL TEACHER)
4 = White Collar (low level) (Probably it covers the items 4 “Clerks” and 5 “Services and Sales Workers” in ISCO categorisation)	ASNONOC / APQUAL = 2 (WHITE COLLAR (LOW LEVEL))
7 = Employer or Self-employed non included in Professionals	ASNONOC / APQUAL = 7 (SOLE PROPRIETOR) ASNONOC / APQUAL = 8 (SELF

[4] The income variables listed below are included in the file MERGE95.

(Partially similar to the item 7 “Craft and Trades Workers” in ISCO categorisation)	EMPLOYED/CRAFTSMAN) ASNONOC / APQUAL = 9 (OWNER, ASSISTANT OF A FAMILY FIRM) ASNONOC / APQUAL = 10 (PARTNER/MANAGING AGENT IN A COMPANY)
9 = Blue collars (probably it covers the items 6 “Skilled agricultural”, 8 “Elementary occupations” and 9 “Plant and machine operators” in the ISCO categorisation)	ASNONOC / APQUAL = 1 (BLUE COLLAR AND SIMILAR POSITION)

The variable ASNONOC have the same categorisation as APSETT .

Caution: the SHIW95 and thus the alternative categorisation does not explicitly consider the item “ 0 “ (=Armed Forces) of the ISCO categorisation, thus correspondent individuals must be included in the other items (1,3,4 and 9 in the Alternative Categorisation).

Table 31. INDUS categorisation (INDUSTRY)

INDUS code = EUROMOD categorisation	SHIW95 variable code
INDUS =1 (Agriculture)	APSETT=1 (Agriculture, Hunting, Silviculture, Fishing, Fish-breeding and linked services)
INDUS =2 (Industry)	APSETT=2,3 (2=Mining, Food, Beverage, Textile, Clothing, Leather, Wood, Paper, Chemistry, Metals, Other Manufacturing; production and distribution of Energy, Water, Gas; 3=Building Industry)
INDUS =3 (Services)	APSETT=4 -10 (4=Trade, Shops, Hotels, Car and Motorcycle Repairs; 5= Transports, Storing, Communications; 6=Banking, Insurance, Finance; 7=real estate services, Hiring, Research, Computer and Other Managerial and professional activities; 8=Domestic Help, other Private Services; 9=Public Administration, Defence, Health, education, other public services; 10=International Organisations)

Table 32. EMPSTAT code (Employment Status)

EUROMOD categorisation	SHIW95 variable code	Database variable (EMPSTAT) code
1 = Farmer		
2 = Employer or Self Employed	APQUAL = 6-10 (6 = PROFESSIONAL MAN; 7 = ENTREPRENEUR; 8 = SELF EMPLOYED; 9 = OWNER, ASSISTANT OF A FAMILY FIRM; 10 = PARTNER IN A COMPANY.)	EMPSTAT= 2 (EMPLOYER OR SELF-EMPLOYED)
3 = Employee	APQUAL =1-5 (1= BLUE COLLAR, AND SIMILAR POSITION; 2=WHITE COLLAR (LOW LEVEL); 3=TEACHER; 4=WHITE COLLAR (HIGH LEVEL); 5= MANAGER, HEAD MASTER, MAGISTRATE, UNIVERSITY TEACHER).	EMPSTAT= 3 (EMPLOYEE)
4 = Pensioner	APQUAL = 15, 16 (15 = RETIRED FROM WORK; 16 =RETIRED NOT FROM WORK)	EMPSTAT= 4 (PENSIONER)

5 = Unemployed	APQUAL =11, 12 (11 = SEEKING FIRST OCCUPATION; 12= UNEMPLOYED)	EMPSTAT= 5 (UNEMPLOYED)
6 = Student	APQUAL =17	EMPSTAT= 6 (STUDENT)
7 = Inactive	APQUAL = 13, 14, 18 (13 = HOUSEWIFE; 14 = INDEPENDENTLY WEALTHY; 18 = PRE SCHOOL AGE CHILD).	EMPSTAT= 7 (INACTIVE)
8 = Other	APQUAL=19 (19 = SERVING IN THE ARMY)	EMPSTAT= 8 (SERVING IN THE ARMY)

Caution: the SHIW95 and thus the Database categorisation does not explicitly consider the item " 1 " (=Farmer) of the EUROMOD categorisation, thus correspondent individuals are possibly included in the other items (2, 3 in the EUROMOD/Database Categorisation)

Table 33. HOUSE code (Housing tenure)

HOUSE code = EUROMOD categorisation	SHIW95 variables code
HOUSE =1 (Social rented)	GODABIT=2 (RENTED) and TIPOAFF= 1, 5, 6 (1= CONTROLLED RENT, 5= SOCIAL, 6= COUNCIL HOUSE)
HOUSE =2 (Other rented)	GODABIT =2 (RENTED) and TIPOAFF=2, 3, 4, 7,"." (2= NOT CONTROLLED RENT, 3=RENT FOR USE OF GUESTS, 4= INFORMAL, 7= OTHER)
HOUSE =3 (Owned on mortgage (loan))	GODABIT=3 (WITH RIGHT OF REDEMPTION)
HOUSE =4 (Owned outright)	GODABIT=1 (PROPERTY)
HOUSE =5 (Other)	GODABIT=4, 5 (4=USUFRUCT, 5= FREE USE)

Table 34. Value of financial capital by type: Categorisation

Categorisation: for the following 26 variables codes are:
0 if Z = 0
1 if Z≤2ml.
2 if 2<Z≤4ml.
3 if 4<Z≤8ml.
4 if 8<Z≤12ml
5 if 12<Z≤16m
6 if 16<Z≤24m
7 if 24<Z≤36m
8 if 36<Z≤70m
9 if 70<Z≤140m
10 if 140<Z≤300m
11 if 300<Z≤600m
12 if 600<Z≤1bil
13 if 1<Z≤2bIl
14 if Z>2bil.
where Z is the amount the considered variable.
m=1,000,000. bil=1,000,000,000.
c41a1 = Bank current account amount
c41a3 = Personal savings book amount
c41a4 = To bearer savings book amount
c41a5 = Certificate of deposit amount
c41a6 = Repurchase agreement amount
c41b1 = Postal accounts, deposits amount
c41b2 = Postal interest bearings bonds amount

c41c1 = Treasury Bills (BOT) amount
c41c2 = Treasury Certificate (CCT) amount
c41c3 = Long Term Treasury Bonds amount
c41c4 = Zero Coupon Bonds amount
c41c5 = Other Government Bonds amount
c41d1 = (non Government) bonds amount
c41d2 = Investment funds shares amount
c41e1= Stocks of listed companies amount
c41e2 = c41e1: of privatised companies
c41e3 = Unlisted companies: stocks amount
c41e4 = Shareholding (limited companies) amount
c41e5 = Shareholding (partnership) amount
c41f1 = Estate management at Bank amount
c41f2 = Estate management at SIM amount
c41f3= Estate management trust companies amount
c41g1= Foreign Government bond amount
c41g2= Foreign stocks, holding amount
c41g3= Other foreign assets amount
c41h = Lending to cooperative amount

The following five variables enter with negative sign.
tdeb95a = Debts for real estate purchase, renewal amount
tdeb95b = Debts for valuable goods purchase amount
DEBCR951= Building/estate long/medium run debts
DEBCR952 = Firm investment long/medium run debts
DEBCR953 =Financial trust/bank short run debts
Categorisation: amount.

Table 35. SELFEMP code (Self-employment activity type)

Database variable (SELFEMP) code	SHIW95 variable (PROF) code
SELFEMP=1 (entrepreneur)	PROF=1 (entrepreneur)
SELFEMP=2 (professional)	PROF=2 (professional)
SELFEMP=3 (self-employed)	PROF=3 (self-employed)
SELFEMP=4 (family firm)	non-defined
SELFEMP=5 (partner/manager in companies)	non-defined

3.2 Grossing-up and correction for Tax Evasion

The Bank of Italy's Survey collects data on income values net of taxes (Personal Income Tax and contributions) and including benefits. The grossing up procedure from the net values to the gross ones, needed as an input for the microsimulation model, is not straightforward given the high rate of under-reporting of income that characterises declarations to the fiscal authorities. Comparisons with the aggregate values indicate that survey data benefit of a more truthful declaration of effective income. The value of Survey disposable income is therefore made of two components. The first one resulting from the amount of gross income that is declared to the Fiscal Authorities and on which taxes are paid (or benefits received). The second one which is the part of gross income hidden to the

Fiscal Authorities but declared to the interviewers of the Bank of Italy[5]. When modelling the tax benefits system these behaviours are taken into account to avoid generating aggregate results of the fiscal revenue that reflect potential but not effective liabilities. One way of taking them into account is by the estimation of the evasive/elusive behaviour according to households' characteristics- mainly level and type of income - in order to correct the income figures declared to the survey interviewers.

The gross income data are provided by ISTAT as results of a simulation with "Mastrict" microsimulation model using the Bank of Italy dataset (Proto, 1999). The model uses net income variables as input, the used variables are obtained by slightly modifying the original ones in the Bank of Italy dataset (see table 36).

The Mastrict model includes, along with personal income tax and capital taxation, rates of fiscal evasion which allow to derive tax liabilities consistent with fiscal data according to the following steps :

Self-employment net Income from survey data is corrected for under reporting obtaining YNAUT* (see table 36). YNAUT* is corrected with the estimate rates to obtain the net values resulting to the fiscal authorities (YNDAUT). (YNAUT*-YNDAUT) = EV is the amount of tax evasion estimated.

Adding YNDAUT to the other net incomes provides the total net income resulting to the fiscal authorities: YND =YNDAUT*+ YNDIP*+ ytp + yta+ YLKR+YNKF* (see table 37).

Since taxes and benefits are levied on the latter notion of income (YND) this value is grossed up to go from the net value to its gross one (YND + TAX)=YLD. Where TAX indicates the full system of taxes (Personal Income Tax and Contributions).

The actual value of gross income (YL) is obtained adding the estimated amount of tax evasion that was excluded from the declaration to the Fiscal Authorities.(YLD+EV=YL) .

Table 36. Differences between SHIW95 and MASTRICT net income definition.

SHIW95	MASTRICT
yl1 = **Net wage**	YNDIP* = yl1
ym1 = **Self-employment income** This item includes also ycr1(-20) = COMPFISS+ DIVIDUT = "fixed income and dividends from activity of partner/manager", restricted to firms with *less* than 20 employed.	YNAUT* = [ym1 + ycr1(+20)] ×1,5 (correcting for under-reporting) ycr1(+20) ="fixed income and dividends from activity of partner/manager" restricted to firms with *more* than 20 employed. (=profits) That is , this definition includes the variable ycr1 without any restriction.
ycr = **Real estate income** (ycr1+ycr2+ycr3) There are three differences between YLKR* and ycr:	$YLKR^* = z \times (ycr^{HF} - ycr3_{NO}^{HF}) - ycr1_{(+20)}$

[5] Part of the *non-declared* component, however, is probably due to elusion and tax-expenditure in general that are not easily detected within the microsimulation model.

1) YLKR* does not include profits (ycr1(+20)) which are included in YNAUT*. 2) real estate incomes are attributed to the owner instead of the head of family (using COMPRO*). 3) impute rents are restricted to the property (in strict sense) real estate.	where: z =F(COMPRO*); COMPRO* =status of joint ownership of each real estate[6]. ycr^{HF} = gross income from real estate attributed to the household head (in SHIW95). $ycr3_{NO}^{HF}$ = imputed rent not of property real estates (?)
ycf = **Financial income** (ycf1+ycf2+ycf3-ycf4) ycf= (rates of interest)×(financial activities)	YNKF*= (rates of interests)×(financial activities corrected by "Servizio Studi" of Bank of Italy) YNKF* has been attributed to the HH, who is not always the one indicated by Bank of Italy.

*Gross values from Mastrict Model.

The model uses the values of YL as input. The procedure followed within the model to obtain net disposable income from gross income follows these steps:

YL- EV = YLD (Income declared to the fiscal authorities)
YLD-TAX = YND (Disposable income as resulting from the declaration to the fiscal authorities)
YND +EV=YN (Effective Disposable income)

Net aggregate figures from survey data, even if higher than those resulting to the Fiscal Authorities result to be far below the figures on Net Income given by the Official Statistics (ISTAT). There is a lot of evidence to believe that the Survey data also understates the official value of variables with different magnitude according to different types of income. While dependent income is only slightly under-reported and transfers seem not to be declared for approximately one fourth, almost a half of self-employed income is not declared. The phenomenon is even clearer for income from financial assets of which less than one third appears to have been declared in the survey[7]. On this base we used net figures provided by ISTAT were both income from self employment and income from financial assets were corrected for under reporting. While the precise quantification of the amount of underestimation is quite controversial we believe that survey data as corrected by ISTAT are an acceptable proxy for reality. The remaining gap with National Accounts is taken into account in the calculation of the real Parity of Purchasing Power that brings all national survey figures to the standard coming from European economy/OECD statistics. This may implies a bias since all

[6] The variable COMPRO* has been calculated by ISTAT using the variables PROi (= owners: household member (i)) i = 1, 2, 3, 4.

[7]The presumed rates of underestimation are due to a variety of previous studies on the rate of income tax evasion (see Monacelli (1996)) and on the distance between Survey data and National Accounts (see Cannari, Ceriani, D'Alessio (1997)).

monetary values are grossed up by the same ratio while the amount of underestimation could still differ according to income sources.

4. Validation

4.1 Data problem

Aggregate figures from the original survey data, even if higher than those declared to the fiscal authority are far below the ones on income in the ISTAT National Accounts. The data understate the official value of variables in different proportion according to different types of income. While wage income is just slightly under-reported, almost half of the self-employment income is declared and less than one third of the income from financial assets. However ISTAT provides data on net self-employment income grossed-up to overcome the under-reporting phenomenon and data on net incomes from financial assets corrected for under-reporting by the Research Department of Bank of Italy. The gross income data provided by ISTAT as result of a simulation with the "Mastrict" microsimulation model are based upon these corrected variables.

4.2 Comparison

In this section we compare some basic results from the Euromod baseline run with national statistics, in order to validate the aggregates produced by Euromod.

One of the main difficulty for validation of the model against National Accounts, in many Countries, regards effectiveness of input data, in particular of self employment income. In fact, in general the ratio between employment income from the model and that from National Accounts is more than 90%, otherwise the ratio for self employment income can vary from 30% to 70%. This problem is due to tax evasion and income under-reporting.

Table 37, for the main aggregates simulated by Euromod, reports the shares between output from the model and values of National Accounts for the year 1998 and 2001.

In 2001 the Social Insurance Contribution on employees aggregate produced by Euromod represent the 102% of the National Accounts aggregate, while Social Insurance Contributions of Employer is the 82% of the National Accounts aggregate. This latter result is underestimated even if it is very close to aggregate value. It is reasonable to expect that contribution of employer should be most underestimated because it is consistent with an underestimation of self-employment income.

Regarding the income tax IRPEF, we used as external source Relazione Generale del Ministero del Tesoro, del Bilancio e della Programmazione Economica by 2001. The ratio between output from Euromod and external source is equal to 77%, according to the problem of under-reporting.
The over-estimation of Family Allowances expenditure compare to aggregate statistics (126%) is a common feature of majority of Italian microsimulation models despite the under-reporting of employed income but we consider the result acceptable. This datum seems to be in according with Euromod output. Finally, the 65% of Disposable Income is coherent with the under-estimation of National Income Tax and with the under-estimation of Self-employment Income.

Table 37. Euromod: comparison with external sources (aggregate values in billions of Lit/year)

	EUROMOD		EXTERNAL SOURCES		**B/D**
	A	B	C	D	
	1998	**2001**	**1998**	**2001**	
Earnings:					
Income from Employment (wages and salaries)	509.259,23	581.478,38	435.379,00	497.121,00	116,97%
Self-employment Income	242.814,46	275.766,20	254.577,00	289.125,00	95,38%
National Income taxes	200.066,73	214.388,24	247.805,00	279.884,00	76,60%
Sic:					
Employees	73.900,40	92.362,41	78.200,00	89.990,08	102,64%
Employers	156.169,26	212.475,58	185.200,00	260.354,74	81,61%
Family benefits	12.398,82	12.963,42	8.020,00	10.314,51	125,68%
Supplementary pensions	28.205,90	30.538,09	30.303,00	28.863,00	105,80%
Disposable Income	908.763,96	1.021.468,26	1.367.659,00	1.560.931,00	65,44%
Poverty rate	*20,12*	*19,70*	*18*	*19*	
Gini	*34,85*	*34,46*		*33,86*	

External Sources: ISTAT (2002); http://www.istat.it/Economia/Conti-nazi/index.htm (Tab.4); Ministero del Tesoro (2002), [Allegato CN-35 pgg. 156-1]; INPDAP (2002); Mazzaferro, Toso (2001); Bosi, Guerra (2002).

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