

EUROMOD

COUNTRY REPORT



EUROMOD Country Report

FRANCE

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June 2001

Euromod Country report - FRANCE

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A. Tax-benefit system - Outline

The purpose of this report is to document the tax-benefit model Euromod as it has been developed to model the French tax-benefit system of 1998 :

- how to read the parameter sheets for this particular country
- how to understand the default system
- how to specify changes.

Put extremely briefly, Euromod, using as data the income components as discussed in chapter C, adds simulated benefits (section B.1) deducts social insurance contributions (section B.2) and income tax (section B.3) to compute disposable income. It does not cover the whole French system but gives a reasonable picture of the relevant tax-benefit items. Income base, tax ratio, tax unit and specific rules are described for each tax as well as the eligibility, entitlement and taxability for each benefit. The simplifications adopted are also given.

After introducing the global structure of the system (*Table A.0*), we summarise the French tax-benefit system in a few paragraphs. Entries in *italics* refer to benefits and contributions being simulated by Euromod.

In this document, we often refer to SYSSIFF, the French national microsimulation program, developed at DELTA for the 1998 French legislation.

Table A.0. Summary of the French tax-benefit system (detailed for incomes from work)

Social Contributions

Total Cost of Labour – Employers Social Contribution = **Gross Wages**

Gross Wages – Employees Social Contributions & Special Contributions = **Net Wages**

Other types of incomes (Self-employment, Pensions, Unemployment benefits, Other Incomes, Capital Incomes) + Net Wages - Social Contributions & Special Contributions = **Net Incomes**

Net Wages + Net Self-employment + Net Pensions + Net Unemployment benefits + Net Other Incomes + Net Capital Income = **Total Net Income**

Tax and Benefits

Net Wages + Net Self-employment + Net Pensions + Net Unemployment benefits + Net Capital Income + Other Taxable Incomes (+ Non-Deductible Special Contributions) = **Revenus Catégoriels**

Revenus Catégoriels - Deductions (*Abattements*) on Wages and Replacement Incomes (Pensions and Unemployment Benefits) = **Revenus Catégoriels Nets**

Revenus Catégoriels Nets - Attributable deficits - Special Charges - Special Deductions = **Net Taxable Income** (basis for *Quotient Familial* and Income Taxation)

Gross Income Tax - Credits = **Net Income tax (IR)**

Total Net Income - Net Income tax = **Income After Tax**

Income After Tax + Family Benefits + Social Assistance = **Disposable Income**

1. Replacement Incomes, Family Benefits & Social Assistance in France

Various schemes insure individuals against the risks they might be confronted with. Unemployed, Invalids, Pensioners who have sufficient contributions are granted with earnings-replacing benefits which provide them with earnings basically in relation with incomes they could have when active. Unemployment insurance is computed according to the previous wage with various conditions on contributions and age and is decreasing regularly. When invalidity is assessed, individuals below 60 years old are also granted with a contributory benefit depending on a reference wage and on the level invalidity. Finally, retired people benefit from the age of 60 years old from a pension providing they have enough contributions. In all cases, the rights open depend on the organism you contributed to which, in turn is varying with the status at work of the individual. For those who are not cover by contributory scheme, several means-tested minima exist.

For pensioners, widows and incapacitated having insufficient contributions, means tested allocations provide a minimum to live on. *Minimum Vieillesse* (MV), provides a minimum pension to all those who are aged 65 or more (or older than 60 and incapable of work). It is not one allocation but a generic term which includes several allocations and provides a minimum. It draws its origin from a benefit aimed at old age wage earners, *Allocation aux Vieux Travailleurs Salariés* (AVTS). Adults with an assessed incapacity and insufficient resources are granted an *Allocation aux Adultes Handicapés* (AAH) if they are not eligible for old age minimum or invalidity.

Several schemes are aimed to families with children. The general system of *Allocations Familiales* (AF) has been means-tested only in 1998. Except for this particular year, this system covers every family with children. This benefit is completed by some more specific means-tested schemes as *Allocation de rentrée Scolaire* (ARS), a lump-sum payment aimed at covering expenses for each children, and its complements, *Allocation pour Jeune Enfant* (APJE), covering pregnant mother and mother with children under three, and *Complément Familial* (CF), covering families with more than three children. Single parents are also taken into account with *Allocation Parents Isolés* (API) but only if the child is under three.

Means-tested housing benefits are also provided to households regarding the size of the family and the type of housing they have : *Aide Personnalisée au Logement* (APL), *Allocation de Logement Social* (ALS) and *Allocation de Logement Familiale* (ALF).

Unemployed who have exhausted their entitlement to the (earnings related) unemployment insurance benefit are entitled to a social assistance benefit called *Allocation de Solidarité Spécifique* (ASS) if they have a work record of at least 5 years out of the ten years prior to unemployment, if they are not full pensioner, if they look for a job and if they pass the means-test. Some allocations are also aimed at refugees or other marginal groups (*Allocation d'Insertion*).

Finally, for all those who cannot meet any of the requirement mentioned earlier, the basis of the system is provided by *Revenu Minimum d'Insertion* (RMI) created in 1988. RMI can be claimed by anyone resident in France, over 25 and having insufficient means to survive. Entitlement to RMI is conditional to a *Contrat d'Insertion*, contract under which claimants should undertake actions to get back to the labour market. Complementary to the RMI is the *Allocation Spécifique d'Attente* (ASA), aimed at people who have been contributing for at least 40 years in one of the contributory pension scheme and are waiting to perceive a pension.

2. Taxes and contributions

To finance replacement incomes, family benefits and social assistance, a number of taxes and contributions have to be paid. Employee and employers pay contributions on their wages to cover a variety of risks : health, maternity, widowhood, pensions, unemployment whereas family benefits and housing are financed only by employer contributions. Since the burden of contributions is high in France, new instruments have been created since the beginning of the 90s to diversify the financing of Social Security. The tax base is large encompassing incomes from activity, unemployment, pension and capital. Finally, income tax is paid by “foyers fiscaux” on the different kinds of incomes.

B. Tax-benefit system - Detailed description

In this chapter, we provide a description of relevant details of the tax-benefit system in France, focusing on the way it has been modeled by Euromod. All entries in *italic* refer to the names of policy modules in the relevant Euromod parameter sheets (in particular *pol_FR.xls*) and to the names of parameters and inputs.

In a number of instances, we mention where we make simplifying assumptions for Euromod, compared to the French legislation. All amounts pertain to the system valid in 1998. Table B.0 lists the policy sheets in *pol_FR.xls*, and refers to the sections in which the various policies are described.

Table B.0. Policies included in *pol_FR.xls*
section Policy

section	Policy	Description
B.3.2.	<i>pollT_cap_fr</i>	Capital Income Taxes
B.3.2	<i>polit_fr</i>	Income Tax
B.2.6	<i>poleesic_crds_frl</i>	French "Cotisations Social": CRDS Family Benefit contributions
B.2.4	<i>poleesic_cho_csg_fr</i>	French "Cotisations Social" CSG contribution for unemployment benefits
B.2.4	<i>poleesic_cho_crds_fr</i>	French "Cotisations Social" CRDS contribution for unemployment benefits
B.2.4	<i>poleesic_cho_retrcomp_fr</i>	French "Cotisations Social" - cho retrcomp contributions for unemployment benefits
B.2.1	<i>poleesic_emp_crds_fr</i>	French "Cotisations Social" CRDS employee income social contributions
B.2.1	<i>poleesic_emp_csg_red_FR</i>	French "Cotisations Social" CSG employment income social contribution first part
B.2.1	<i>poleesic_emp_csg_fr</i>	French "Cotisations Social" CSG employment income social contribution first part
B.2.1	<i>poleesic_pen_crds_fr</i>	French "Cotisations Social" CRDS pension income social contributions
B.2.5	<i>poleesic_pen_csg_fr</i>	French "Cotisations Social" CSG pension income social contributions

B.2.5	<i>poleesic_pen_cm_fr</i>	French "Cotisations Social" CM pension income social contributions
B.2.8	<i>poleesic_cap_FR</i>	French "Cotisations Social" Capital income CSG social contributions
B.2.7	<i>poleesic_csgfr</i>	French "Cotisations Social" Other income CSG social contributions)
B.2.2	<i>polersic_FR</i>	Employer Social Contribution
B.2.2	<i>polEESIC_FR</i>	Employee Social Contribution
B.1.4	<i>polsben_logement_virt_FR</i>	Allocation Logement: Housing Benefits (virtual calculation with RMI having an effect)
B.1.4	<i>polsben_logement_FR</i>	Allocation Logement: Housing Benefits
B.1.2	<i>polsben_veuvage_fr</i>	Allocation Veuvage: Survivor Minimum Pension (Todo get rules for this)
B.1.2	<i>polsben_alf_fr</i>	Allocation Familial: Family Benefits
B.1.2	<i>polsben_apje_cf_FR</i>	Complement familial/APJE: Family Benefits
B.1.2	<i>polsben_ars_fr</i>	Alloc. de rentrée scolaire: Education related Family Benefits.
B.1.3	<i>polsben_miv_FR</i>	Minimum Vieillesse: Minimum Pension for Elderly
B.1.1	<i>polsben_aah_FR</i>	French Means Tested Invalidation Benefit Allocation "Allocation Adultes Handicapés
B.1.3	<i>polsBEN_RMI_FR</i>	RMI : Means-tested minimum income
B.1.3	<i>polsBEN_LP_FR</i>	Allocation de Parent Isolé : Measn Tested Lone Parent Benefit

1. Benefits simulated by Euromod

Institution

The main institution in charge of allocating the family and social benefits is the “*Caisse Nationale des Allocations Familiales*” and locally the “*Caisses d'Allocations Familiales*”.

1.1 Family benefits

Dependent children

Before starting with the detail of the system, it is necessary to explain the notion of *dependent children*. This definition is used in the calculation of the Family benefits or Housing Benefits.

A child is "socially" dependent if he respects one of the following group of conditions :

- To be aged strictly under 16 (compulsory schooling)
- To be aged strictly under 19 and to earn less than 55% of the minimum wage i.e. "SMIC base 169 heures" (*Fr_smic* / 81 566 F yearly); the income considered is the gross income from employment.
- To be aged strictly under 20 and to be student (*coEMPST=6*) or trainee (no information on this) and respect the same condition as above on ceiling employment income.
- To be declared as disabled (*coEMPST=8*) or to open right to "Allocation d'Education Spéciale" (AES).

Another relative is "socially" dependent if he respects the following conditions :

- To be a grand-parent (*lien=5*) of the recipient or his spouse and to receive a net taxable income smaller than the "*minimum vieillesse*" (*fr_Asst_Soc_pers_Ylt* / 42,658 F yearly) and to be aged over 65 or to be disabled (*coEMPST=8*).

"BMAF"

Lots of the family and social benefits refer to the "*Base Mensuelle des Allocations Familiales*" (BMAF hereafter) which is the Monthly Base for Family Benefits. That corresponds to a base amount of benefit for a single person (*SingPay* / 2131.68 FF monthly in 1998).

Benefit unit / Recipient

In most of the case, the benefit unit and the recipient are the same person, but the condition of eligibility can depend on the other member (income of the spouse, number of "socially dependent" children ...etc). In our simulation, the recipient for the Family Benefit is always the 1st member of the household in the data order.

Means-test resources

The resources taken into account in most of the benefits (AF, APJE, CF, AAH) are the sum of the net capital income and the net taxable income of the two spouses. The net taxable income ("revenu net imposable") is the sum of the net taxable incomes of various nature (earned income, pension, unemployment benefit) after non-deductible CSG and CRDS and after various deduction ("abattements")¹.

Taxation

Some of the benefits are subject to the payment of a CRDS² (0.5%). This is the case for AL, APJE, CF, Housing Benefits, ARS, AS, ASF and APE.

1.1.1 “Allocations Familiales” (AF) / Family Allowance (*polsben_alf_fr*)

This is the most important element of the Family Benefit system in France. It is allowed to households with two (*nch_limit* >1) or more dependent children and varies according to the number of children. Except in 1998, this allowance is not means-tested.

Amount

The monthly allowance given for each dependent child is a proportion of the BMAF. The rates are as follows :

- 32% (*es_ch_parity2*) for the second "socially dependent" child, which gives 682 FF monthly
- 41% for the third and any additional child (*es_ch_parity3*), which gives 874 FF monthly for each of this children after the 2nd one.

If the number of dependent children is strictly more than two, an extra amount is given for each child according to his age :

- If he is strictly over 10 (*es_age1_max*), an extra 9% (*es_age2*) of the BMAF is given.
- If he is strictly over 15 (*es_age2_max*), an extra 16% (*es_age3*) of the BMAF is given.

This results are summarized in the table below :

Table B.1.2.1 Amounts of Family Allowance

1995	Monthly Amount	% of BMAF
2 dependent children	682	0.32
Each child after the 2 nd	874	0.41
Increase for child over 10	192	0.09
Increase for child over 15	341	0.16

Means-test

For 1998 only³, the AF are subject to a means-test. Households are eligible to AF if the net taxable income (*alf_incomebase*) of the parents is smaller than a given ceiling. This ceiling

¹ see section 3.2 for the accurate definition

² see Special Social Contribution CRDS in section B.2.

depends on the number of "socially dependent" children and is raised when the persons in charge of these children are either :

- a single
- or a couple with 2 earned incomes; both these incomes, counted here as net earned incomes (*netE*), have to be bigger than BMAF; if only one spouse respect this last condition, then it is considered that the couple has only one income with regards to the maximum income determination.

The maximum income is calculated as follow :

- the maximum for couple with 1 income
 - o and 0 child is 129,600 FF (*ind_lt*)
 - o for any additional child : the previous plus 43,200 FF (*ch_lt1*) per additional child.
- the maximum for a single or a couple with 2 incomes : the same as for a couple with 1 income plus an additional 60,480 FF (*second_earn_lt* and *lp_lt*).

This computation is summarized in the following table :

Table B.1.2.2 Maximum yearly income at which AF can be received (FF)

Nb of "socially dependent" children	Couple with 1 income	Lone parent or couple with 2 incomes
2	216,000	276,480
For each additional child	43,200	43,200

"Reduced" allowance

If the yearly resources are slightly above the maximum level (but under this ceiling plus 12 times the amount of the actual allowance), then a "reduced" allowance is given. The yearly amount allowed corresponds logically to the maximum income plus 12 times the amount of allowance minus the yearly resources⁴.

1.1.2 "Allocation Pour Jeunes Enfants" (APJE) and "Complément Familial" (CF) / Mean-tested Young Children Allowance and Family Complement (*polsben_apje_cf_FR*)

These two allowances are also targeted to family with children :

- at least one child aged strictly under 3 for the APJE (*es_fr_apje_age* =<2)
- at least 3 children (*es_fr_cf_nch*) aged 3 or over for the CF.

They are simulated together as they use the same means-test and the same way to compute the amount of allowance (a fixed rate of the BMAF).

Right to several benefits

A household is not allowed to receive both a "long APJE" and the APE (*Allocation Parentale d'Education*), the latter prevailing on the former : the APJE is then computed only if the test

³ And only from the 1st of March of this year.

⁴ For example, a single with 3 children under 10 will receive a monthly AF of 1556 FF if his resources are lower than 319,680 FF and $[(319,680 + 12*1556) - \text{resources}]/12$ if they are bigger than this ceiling but below 319,680 + 12*1556 = 338,352 FF, for instance 446 F monthly with resources of 330,000 FF.

on the input (*APE*) is negative. Either, a household is not allowed to receive both a "long APJE" and the CF, the former prevailing on the latter⁵.

Amount

The monthly allowance is proportional to the BMAF :

- For the APJE, the rate is 45.95% in 1998 (*es_fr_apje_parity_nch*), which gives 980 FF monthly. Only one APJE is given, no matter the number of children under 3 is.
- For the CF, the rate is 41.65% in 1998 (*es_fr_cf_parity_nch*), which gives 888 FF monthly

Means-test

Households pass the means-test for both allowances if the net taxable income (*sben_incomebase*) of the parents is smaller than a given ceiling. This ceiling depends on the number of "socially dependent" children and is raised when the persons in charge of these children are either :

- a single
- or a couple with two earned incomes; both these incomes, counted here as net earned incomes, have to be bigger than BMAF; if only one spouse respect this last condition, then the couple is supposed to have only one income (with regards to the maximum income rule).

The maximum income is calculated as follow :

- the maximum for a couple with 1 income and
 - o with 0 child is 86,132 FF (*fr_apje_ceiling*),
 - o with 1 child : the previous plus 25% (*fr_sben_apje_cf_par1_2*) of it,
 - o with 2 children : the previous plus 25% of 86,132 FF (*idem*),
 - o with 3 children or more : the previous plus 30% (*fr_apje_cf_par3*) of 86,132 FF for any additional child;
- the maximum for a single or a couple with 2 incomes : the same as for a couple with 1 income plus an additional 34,618 FF (*fr_apje_maj*).

This computation is summarized in the following table :

Table B.1.2.3. Maximum yearly income at which APJE and CF can be received (FF)

Nb of "socially dependent" children	Couple with 1 income	Lone parent or couple with 2 incomes
1	107,665	142,283
2	129,198	163,816
3	155,038	189,656
4	180,877	215,495
For each additional child	25,840	25,840

Neutralization

The only measure we can simulate here is the one that allows one of the spouses to neutralize their earned income and their unemployment benefits in the total of resources taken into account for the computation of APJE or CF :

⁵ For instance : if a 4th child is born in a family with 3 children of 3 or over (then receiving the CF), the right to APJE will replace the right to CF (the amount of APJE is a little better), until the 3rd birthday of this last child, when the APJE stops and the right to CF is open again.

- if he is eligible to RMI
- if he benefits from AAH and cannot work.

"Reduced" allowances

Finally, if the yearly resources are slightly above the maximum level, then a "reduced" allowance is given. The yearly amount allowed corresponds logically to the maximum income plus 12 times the amount of allowance minus the yearly resources.

For instance, with the CF : a single with 3 children over 3 and an income of 160,000 FF yearly will receive a monthly CF of : $[(155,038 + 12*888) - 160,000]/12 = 474.5$ FF.

1.1.3 "Allocation de rentrée scolaire" (ARS) / Mean-tested education related Family Benefits (*polsben_ars_FR*)

The ARS is an annual lump-sum allowance given to households under income threshold for each dependent children of age 6-18 (*fr_ars_minage* and *fr_ars_maxage*). This allowance has been created to help the family to face the cost of school materials when the school resumes in September.

Means-test

Households pass the means-test for the ARS if the yearly net taxable income (*as_income base*) of the parents is smaller than a ceiling function of the number of "socially dependent" children and computed as follows :

- 77,182 F (*fr_ars_resource_lt*) for one dependent child,
- same amount plus an additional 30 % (*fr_ars_withdrawal_rt*) per additional dependent child.

Contrary to the previous benefits, the ceiling is not raised for single or couple with two incomes.

Eligibility

Apart the condition on children and incomes, there is an additional condition for year 1998 only : the household must be recipient of one of the other Family Benefit or one of the Housing Benefits or the RMI or the API or the AAH during the month of July before the school resumes for the children opening the right. Obviously, we do not have the monthly details allowing the simulation of such condition.

Amount

The monthly allowance for each eligible child which should be of 20% of the BMAF (*fr_ars_withdrawal_rt*) has been raised for several years to a lump-sum payment of 1600 F (*fr_ars_rt2*).

1.1.4 Other family benefits

The following allocations are not modeled as we need an information not available in the data about the record of each individual in the household. However, we have some inputs for each of these allowance which are taken into account and put in the sum of all the Family Benefits.

Allocation de Soutien Familial (ASF)

A child under 21 who is not raised by both his parents gives to the person in charge of him the right to an allowance of 640.78 FF monthly (480.59 FF if one of his parents is still alive and in charge of him). This benefit is not means-tested.

Allocation d'Education Spéciale (AES)

This allowance is given if a child has a disability of at least 80% (50% under specific conditions). The basic amount is 687 FF monthly and additional amounts (515 FF, 1546 FF and 5726 FF) are allowed with an increasing level of disability.

Allocation Parentale d'Education (APE)

This non means-tested allowance is given after the birth of the 2nd child and until his 3 years birthday if the person in charge of him stops or reduces his professional activity (from full to part-time job for instance) to raise this child.

Numerous other family benefits exist especially concerning the costs of child care. We don't have any information on these in our database.

1.3 Social Assistance Benefits, Minimum Incomes (in Pol_Fr)

1.3.1 "Revenu Minimum d'Insertion" (RMI) / Means-tested minimum income (PoISBEN_RMI_FR)

This Minimum Income was created in 1988 to prevent social exclusion for workers trying to reenter the labour market.

Benefit unit / Recipient

The benefit unit is the household; legally, the recipient is the same recipient as for the Family Benefit, if eligible according to the conditions below, otherwise the other parent, if eligible.

Status and age test

The recipient must respect the following conditions for the household to be eligible :

- he must not be at school or a student (employment status, *coEMPST* must be respectively different from 0 and from 6)
- he must have "socially dependent" children or respect the following age criteria :
 - o to be aged 25 or over (*ge_Age1_Lt / ge_Age1_Lt*)
 - o to be aged strictly under 65 (*le_Age1_Lt / le_Age1_Lt*) or be exempt of Minimum Pension for Elderly.

Dependent children according to RMI

Children are dependent according to RMI if they fulfil ALL the following conditions (all simulated) :

- they live in the household (automatic if the individual is in the sample)
- they are younger than 25
- they are "socially dependent" persons or have a family tie with the recipient (*lien=3, 4, 5 or 6*)
- they give the right to an additional amount of RMI (called "Majoration" and computed as described in the chapter on Maximum Amount below) bigger than their own Net Income (before deduction of the CSG and CRDS special contribution).

Income Base

The monthly family income base (*Means_inc_il = rmi_sben*) for the computation of RMI consists of :

- The monthly Net Capital income.

- The monthly allowance for the following Benefits : AL, APJE, CF, API, AAH, APAD, ASF, APE, Minimum Pension (ARS, AS, AES are excluded as well as a part of the "short" APJE which is not simulated anyway : see APJE for more details); Housing Benefits are included via a lump-sum (see line below).
- A lump-sum called “Forfait Logement” if the household is recipient of a Housing benefits or has no housing costs (see below).
- The monthly Net Total Income (before deduction of the CSG and CRDS special contribution) of all the persons benefiting of the RMI i.e. the two adults of the couple and the dependent children (in the meaning according to RMI).

Maximum Amount

This maximum amount of RMI allowable is calculated as follow :

- a base of 2492.42 FF monthly for a single with no child in 1998 (*sing_pay*)
- 50% (*es_depand_num1*) of this base is added for the 1st dependent child (if a single) or for the spouse (if a couple)
- 30% (*es_ch*) of the base is added for each additional dependent child up and until the 2nd.
- 40% (*fr_rmi_3ch*) of the base is added for each additional dependent child after the 2nd.

Table B.1.3.1. Monthly maximum amount of RMI in 1998

Nb of dependent children according to RMI	Maximum RMI for one person	Maximum RMI for a couple
0	2492.42	3644.13
1	3644.13	4372.95
2	4372.95	5101.78
3	5344.72	6073.55
4	6316.49	7045.32
5	7288.26	8017.08

Amount of RMI

The amount of RMI is differential : it is computed as the difference between the monthly maximum amount (depending on the number of dependent children according to RMI as described above) and the monthly family income base defined above.

“Forfait Logement”

If the household’s housing is owned outright (*coTENURE=1*) or has no rent (*coTENURE=5*), this lump-sum added to the Income Base is >0 and is computed as follows :

- 12% of the Maximum RMI for one (291.5 FF) if a single person,
- 16% of the Maximum RMI for two (583.1 FF) if a couple or a single with one dependent child "according to RMI",
- 16.5% of the Maximum RMI for 3 persons (721.5 FF) if a couple with a least one dependent child "according to RMI" or if a single with at least two dependent children "according to RMI".

If the household receives a Housing Benefit, this lump-sum is included in the Income Base but only if lower than the Housing Benefit itself and this time, its amount depends on both the number of dependent children "according to RMI" and the number of "socially dependent" children/persons; the computation is described in the following table :

Table B.1.3.2 “Forfait Logement” in case of positive Housing Benefits.

		Number of dependent children according to RMI		
		1	2	3 and more
Number of "socially dependent" children	1	12% of Max. RMI for 1	12% of Max. RMI for 1	12% of Max. RMI for 1
	2	12% of Max. RMI for 1	16% of Max. RMI for 2	16% of Max. RMI for 2
	3 and more	12% of Max. RMI for 1	16% of Max. RMI for 2	16.5% of Max. RMI for 3

Link with Housing Benefit

In the 1998 French legislation, the households granted with a RMI can also neutralize their resources in the computation of the Housing Benefits. This cause a circularity as the computation of the RMI bears a condition on Housing Benefits through the “Forfait Logement” (in the Income Base for the RMI). To break it, we compute a second Income Base with no “Forfait Logement” and a second amount of RMI via this parallel Income Base in order to check the condition on RMI in Housing Benefit computation.

1.3.2 "Allocation de parent isolé" (API) / Mean-tested lone parents benefit (PoISBEN_LP_FR)

The API grants the lone parents raising one or more children aged below 20 with a Minimum Income based on the computation of the RMI.

Recipient

In our simulation, we test the eligibility on the 1st member of the household in the order of the data (with full conditions). We also give the chance to one of the other members to be the recipient: this accounts for the case of a lone parent living in the household of his own parents with his child. We finally assume that both cases cannot happen in the same time (in the second case, one parent would be too old to be himself a lone parent eligible to API).

1st case : test on the 1st member and his children age

The 1st member, as claimer, must justify the fact that he is really a lone parent:

- he must officially have no [married or cohabiting] spouse (*lien*<>2 for all the other members of the household)
- if he lives with third party people like friends (*lien*=7), he has to be of the same sex (test on input *sex*) or these people have to be married themselves (*coMARST*=2).

The youngest child in the household must be younger than 3⁶.

2nd case : test on a potential receiver among the other members

⁶ We have no record of pregnancy for individual so we miss in our simulation the lone pregnant women who are entitled as such to API.

He would then be a lone parent living in the household of his own parents with his children. As such, he must be :

- a child himself (*lien=3*),
- over 16,
- not married (*coMARST ≤ 2).*

and there must be in the household at least one grand-child (*lien=4*) below three.

Income Base

The monthly family income base (*Means_inc_il = lp_sben*) for the computation of API consists of :

- The monthly Net Capital income.
- The monthly allowance for the following Benefits : AL, APJE, CF, AAH, APAD, ASF, APE, Minimum Pension (RMI, ARS, AS, AES are excluded as well as the "short" APJE which implicitly partly simulated : see APJE for more details); Housing Benefits are included via a lump-sum (see line below).
- A lump-sum called "Forfait Logement" if the household is recipient of a Housing benefits or has no housing costs (see below).
- The monthly Net Total Income of the recipient.

Maximum Amount

This maximum amount of API allowable is calculated as follow :

- 200% (*es_htu + es_ch*) of the BMAF for a lone parent with one dependent child (4,264 FF monthly)
- 50% (*es_ch*) of the BMAF for each additional dependent child (1,066 FF monthly).

Amount of API

The amount of API is differential : it is computed as the difference between the monthly maximum amount (depending on the number of dependent children as described above) and the monthly family income base defined above.

"Forfait Logement"

If the household's housing is owned outright (*coTENURE=1*) with no loan reimbursement (*charg1 + charg2 / coSVCHRG = 0*), or if the household has no rent (*coTENURE=5*), or if it receives a Housing Benefit, then this "housing lump-sum" added to the Income Base is >0 and is computed as follows :

- 27.35% of the BMAF (583.1 FF) if one dependent child
- 33.85% of the BMAF (721.5 FF) if two dependent children or more.

1.3.3 "Minimum Vieillesse" (AVTS) / Minimum pension for elderly (PoISBEN_MIV_FR)

"Minimum Vieillesse" provides a minimum pension to all those who are aged 65 and over (*fr_sben_Asst_Soc_minage*) or older than 60 (*fr_Asst_Soc_minage_inv*) but incapable to work (*coREGY > 0*). "Minimum Vieillesse" is not one allocation but a generic term which encompasses several minima. "Minimum Vieillesse" draws its origin from a benefit aimed at old age wage earners (*Allocation aux Vieux Travailleurs Salariés* or AVTS). So the name AVTS is misleading as we do not simulate it only but the several minima : in fact, the reason is that we use eligibility criteria from AVTS for the whole minimum pension scheme.

Assistance for old age is composed of two elements, one basic element and a supplementary element.

1. The **basic element** is provided by the contributory pension; if not sufficient, it is completed by “*complément de retraite*” so that each individual reaches a minimum level (top-up to reach the level of AVTS). When no contributory pension are granted, allocations for old wage earners, mothers, special allocation⁷ can be distributed. If the conditions of eligibility differ, they are all based on the same thresholds and amounts.
2. The **supplementary allocation** (“*Allocation Supplémentaire*”) tops up the basic element either contributive or not.

To simulate these minima, the (AVTS) eligibility used is based on criteria of age (as mentioned above) and incomes, with different thresholds :

- 42,651 FF for single person (*fr_Asst_Soc_pers_Ylt / fr_sben_Asst_Soc_pers_Ylt*)
- 74,720 FF for households (*fr_Asst_Soc_HH_Ylt / fr_sben_Asst_Soc_HH_Ylt*).

The income considered (*grossy and grossy_pen*) is the sum of Net pension, Gross earned income and Gross capital income. The amount granted is then taken as a whole (allocation + complement + supplement) and is granted as a differential allocation.

1.3.4 Survivor Minimum Pension (*polsben_veuvage_fr*)

A minimum pension can be granted for a limited duration of time to a spouse of a previously insured person. Persons eligible have to be widowed (IsWidowed1) without being married again, under 55 years old (*le_age1_lt*) with resources (net incomes) under a threshold.(11790F per year). A person eligible is granted an allocation for a limited period of three years. This is decreasing and amounts to 3107F monthly for the first year, 2041F for the second year and 1554 for the third. As we don't know in which year of widowhood persons are, we introduced an alea to solve this problem.

1.3.5 "Allocation aux adultes handicapés" (AAH) / Disabled benefit (*polsben_aah_fr*)

Are entitled for a minimum for disability (AAH) individuals with a disability greater than a given percentage and assessed by an organism. Children are eligible if they are not more socially dependent⁸. As no information is given in the database on the degree of disability, we consider as disabled individuals perceiving AAH⁹ (input *aah / frBENAAH*).

⁷ Allocation aux Vieux Travailleurs Salariés, Allocation aux Vieux Travailleurs Non Salariés, Allocation aux mères de Famille, Secours Viager, Allocation Spéciale.

⁸ Aged more than 20 (*ge_Age1_lt*) or more than 16 (*ge_Age2_lt*) and perceiving incomes greater than the thresholds of 55% of SMIC (*le_incl_lt*), or no receiving any of the family benefits.

⁹ This creates a problem as the number of disabled is underestimated in our database. This is also due to the type of data we consider, as persons in institutions are not represented in our sample.

Whereas ceilings depend on the family situation, the allocation granted is individual.

Ceilings

For singles : 42,658 FF (*fr_Asst_Soc_pers_Ylt*) + 50% (*fr_avts_enf*) per socially dependent child.

For couples : the double 85,316 FF (2 x *fr_Asst_Soc_pers_Ylt*) + 50% (*fr_aah_enf*) per socially dependent child.

Amount

The level of allocation is set to 41,651 FF (*SingPay* or *Fr_aah* ??) yearly. Usually, people targeted by AAH also receive an old age minimum or an invalidity pension (input *Regy / coREGY*). Thus, the AAH is granted as a differential allocation, topping-up these incomes. Finally, a complement is given for disabled who receive AAH at a full rate or AAH as a complement of old age or invalidity. The complement is 16% (*fr_aah_comp_rt*) of the AAH amount.

1.4 Housing Benefits

(*polsben_logement_FR* & *polsben_logement_virt_FR*)

There are 2 main types of Housing Benefit :

- *Aide personnalisée au logement* (APL) which concerns given types of housings
- *Allocation de logement* (AL), divided into *Allocation de logement familiale* (ALF) and *Allocation de logement sociale* (ALS)

Both depend on resources of the household and/or of the number of dependent children.

APL is allocated to :

- owners with certain type of loan (state-subsidized loan called ""Prêts aides par l'Etat" or "Prêts conventionnés")
- and to tenants living in subsidized housing ("logements conventionnés" like "HLM") of "logements-foyers"

It is computed according to the amount of rent paid (or loan repayment) and the resources.

ALS and ALF are allocated to tenants or to owner on mortgage for housing respecting some criteria of surface and healthiness. They are means-tested and contrary to APL, strongly modulated according to the resources of the household and the number of dependent children/persons.

Amount of housing benefit

The general formula giving the amount of housing benefit is as follows :

$$AL = K [(L+C) -Lo]$$

K : "gap ratio"

L : real rent in the limit of a certain ceiling

Lo : minimum rent

C : lump-sum charge

Each term will be explicated in what follows. Roughly, the amount is equal to the difference between the real rent (increased by a "lump-sum charge") and the minimum rent, multiplied by a ratio function of the income and the number of dependent people.

Nothing is paid if AL falls below 100 F (*fr_lodg_min_pay*).

Dependent people and number of shares (N)

The dependent people are understood here as "socially dependent" people. According to the number of dependent persons, the household receives a number of shares (N) as presented below :

Table B.1.5.1 Number of shares according to family composition

Family composition	Shares
single person	1.2
Couple with no dependent person	1.5
Single or couple with 1 dependent person	2.5
with 2 dependent persons	3
with 3 dependent persons	3.7
with 4 dependent persons	4.3
per additional dependent person	0.5

The values of this tab are the parameters *fr_lodg_npartp1* to *fr_lodg_npartp9*.

Gap ratio (K)

This ratio is function of the resources and the number of shares (N) and computed as follows :

$$K = 0.9 - \text{Resources} / (105804 \times N)$$

We use the parameters 0.9 (*fr_logt_k1*) and 105,804 (*fr_logt_k2*). R is the resources taken into account (see below).

K is computed with a different formula in the case of APL for "logements-foyers" (and APL for owners on mortgage ?).

Real rent or real monthly repayment (L)

The real rent (if input *stalog / coTENURE* = 3) is taken into account in the limit of a ceiling function of the geographical zone (1, 2 or 3) where the household lives and of the number of dependent people, as presented below :

Table B.1.5.2 Ceiling of real rents according to family composition and zone

Family composition	Zone1	Zone2	Zone3
single person	1546	1357	1272
Couple with no dependent person	1864	1662	1543
lone parent or couple with 1 dependent person	2031	1799	1681
with 2 dependent persons	2089	1863	1751
with 3 dependent persons	2250	1926	1821
with 4 dependent persons	2310	1990	1890
with 5 dependent persons	2363	2130	2032
with 6 dependent persons	2568	2317	2209
per additional dependent person	205	186	177

The values of this tab are the parameters :

- *fr_zone1_par_per1* to *fr_zone1_par_per9* for zone 1
- *fr_zone2_par_per1* to *fr_zone2_par_per9* for zone 2
- *fr_zone3_par_per1* to *fr_zone3_par_per9* for zone 3.

Our simulation bears assumptions here as the table presented here is for ALS and ALF and the one used for APL is different but not simulated (the ceilings are slightly higher).

Geographical zone

The zone (1,2 or 3) depends on the geographical area ("*département*") where the household lives (input *dep* : 1 to 95); there is a table giving the corresponding zone for each "*département*" (parameter *fr_zone_dept1* to *fr_zone_dept95* / *depzone0* to *depzone95*).

Minimum rent (Lo)

This is the minimum amount that the household must allocated to its housing expenditure, function of the resources (R) and the number of shares (N).

The minimum monthly amount of housing expenditure that the household must pay is computed as follows :

$$Lo = (0\%R1 + 3\%R2 + 26\%R3 + 29\%R4 + 41\%R5 + 471) / 12$$

The resources of the household (R) are splitted into 5 brackets R1 to R5 whose level depend on the number of shares N and on which we apply the corresponding rate :

- 0% (Euromod : *fr_lodg_r1*) on bracket R1 : 0 (parameter *fr_lodg_lt_tranche1* / ???) to N x 7029 FF (parameter *fr_lodg_lt_tranche2* / *fr_lodg_lt_tranche1*).
- 3% (Euromod : *fr_lodg_r2*) on bracket R2 : N x 7029 FF to N x 10113 FF (parameter *fr_lodg_lt_tranche3* / *fr_lodg_lt_tranche2*).
- 26% (Euromod : *fr_lodg_r3*) on bracket R3 : N x 10113 FF to N x 12990 FF (parameter *fr_lodg_lt_tranche4* / *fr_lodg_lt_tranche3*).
- 29% (Euromod : *fr_lodg_r4*) on bracket R4 : N x 12990 FF to N x 20227 FF (parameter *fr_lodg_lt_tranche5* / *fr_lodg_lt_tranche4*).
- 41 % (Euromod : *fr_lodg_r5*) on bracket R5 : above N x 20227 FF.

We also add a constant of 471 FF (*fr_lodg_min*).

The rates and brackets are different in the case of APL (owner on mortgage). For APL "logements-foyer" type 2, Eo is computed as Lo.

Lump-sum charges (C)

This is a monthly incremental (lump-sum) charge systematically added to L, even when L reaches its own ceiling.

The amount of lump-sum charges depend on the number of dependent persons:

- single or couple with no dependent person : 293 FF (parameter *fr_lodg_zone_par3*)
- single or couple with 1 dependent person : 357 FF (previous + parameter *fr_lodg_zone_par1* / 64 FF)
- per additional dependent person : 64 FF (parameter *fr_lodg_zone_par1*)

Resources (R)

The resources counted are the Net Taxable Incomes (see section 3.2 for the definition) of all the persons in the household of the recipient (we assume here only one recipient).

There is a deduction of 42,193 FF yearly (parameter *fr_lodg_spec*) on the Net Taxable Incomes of the following members :

- Grandparents and ancestors (*lien*=5) aged 65 or more older than
- Descendant or ancestors (*lien*=3, 4, or 5) if they are disabled (*empst*=8).

If the recipient is a student (*coEMPST=6*), he can choose between his resources and an upper limit of 24,000 FF (*stu_income_max*) yearly.

There are also deductions for the whole household :

- **Lump-sum deduction for double activity** : deduction of 500 FF (*fr_lodg_2emplo_ded*) if both spouses receive a gross earned income bigger than 12 times the BMAF.
- **Lump-sum deduction for lone parent** : 4,644 FF (*fr_lodg_lp_1_2_par*) for lone parents with 1 or 2 (socially) dependent children/persons and 6,962 FF (*fr_lodg_lp_3_par*) if 3 or more dependent children/persons.
- **Deduction for baby-sitting charge** : 5,000 FF (*logt_garde_par*) maximum per children under 7 (we apply the maximum and not the real charge (unknown) in the simulation but only if the parents are working : test on their incomes).

2. Social insurance contributions

Despite real progress in harmonization, some discrepancies still exist in regimes of social security¹⁰. These depend on employment status of individuals and sometimes on the sector they work in : the French system is thus neither uniform nor general. The most important regime (“régime général”) covers employees against the financial consequences of different risks (illness, accident) or situations (family, old age, widowhood). These systems are financed by contributions from both employees (2.1) and employers (2.2) (sometimes either one or the other) on wages and related income (holidays with pay, allowances, various bonuses and fringe benefits) (parameter *gross_earn_il*). This will be described in the following as well as the insurance system for unemployment, complementary system for old age and new contributory instruments (CSG, CRDS see 2.3). Some contributions also apply on replacement incomes (2.4 and 2.5), family benefits (2.6), other incomes (2.7) and capital income (2.8).

2.1 Social insurance contribution on employee income (*poIEESIC_FR*)

Besides risks covered by the social security system, unemployment is covered by an organism with parity representation of unions and employers. The tax unit is individual.

Policy 1 : Contribution for medical insurance

Policy 2 : Contribution for pensions

Policy 3 : Contribution for unemployment insurance

2.1.1 Employee contributions to health insurance and widowhood

Contributions for health insurance and widowhood are paid on the whole gross income (*gross_earn_il*). Employee contributions to health insurance (health, maternity, accident, death) have been decreased in 1998 to the rate of 0.75% (*fr_eesic_illness_maternity*) to compensate for the increase of CSG rate. This rate is valid for all departments except for some departments of Alsace- Lorraine¹¹ (*dep=57;dep=67;dep=68*) which apply a rate of 2.55% (*fr_eesic_illness_maternity_alsascelorr*). The widowhood contribution is of 0.1% (*fr_eesic_widow*).

¹⁰ The Social Security system described is the one prevailing in June 1998.

¹¹ Alsace-Lorraine has a special regime of social security (“régime local”) due to the period of “Concordat”.

2.1.2 Employee contributions to old age

Rates of contributions are progressive, up to a certain limit. Thresholds are defined with reference to the social security ceiling equal to 169,080 FF (*fr_SIC_lt*) and called P hereafter. Employees contribute to old age on the fraction of the gross income less than 1P (*fr_SIC_lt*) at a rate of 6.55% (*fr_eesic_oldage*). This system is supplemented by a system of compulsory complementary pension¹², which allows employees to top up their pension. Two systems coexist depending on the occupation status of individuals: AGIRC (“Association Générale des institutions de retraites des cadres”) takes in charge white collars and ARRCO (“Association des Régimes de Retraite Complémentaires”) the others. These two regimes are ruled by a coalition of unions and employers.

- **complementary pension for non white collars:**

The rate at which contributions are paid (called “taux d’appel”) depends on two parameters: the contractual rate chosen by the firm in which you work which must be comprised between a minimum and a maximum value, and a percentage of this rate chosen by unions and employers. Roughly, the rate obtained¹³ is 6.875% in 1998, 60% of the rate being paid by the employer, 40% by the employees (2.75% = *fr_nc_ret_eesic_amt_calc*). This is paid on gross income below 507,240 FF (*fr_nc_ret_eesic_lt=3* times the social security ceiling).

- **complementary pension for white collars:**

White collar employees (*occl=1;occl=2;occl=3*) also contribute to the ARRCO regime up to one P (*fr_c_ret_eesic_lt*) and with the same rate of 2.75% (*fr_c_ret_eesic_arco_calc*). Specific to the white collar regime are contributions paid to AGIRC, whose rates are computed on the same basis as for ARRCO: the mean rate paid by employees is 7.35% between 1P (*fr_c_ret_agirc_lt2*) and 4P (*fr_c_ret_agirc_lt3*) and is supposed to be the same¹⁴ from 4P (*fr_c_ret_agirc_lt4*) to 8P (*fr_c_ret_agirc_lt5*). A contribution introduced in 1997, the “Contribution Exceptionnelle Temporaire” (CET) adds to the AGIRC contributions but does not give any right to pensions. This is paid on the fraction of income under 8P (*fr_c_ret_cet_lt*) at a rate of 0.05% (*fr_c_ret_cet*). A threshold (*fr_c_ret_eesic_max*) guarantees that employees contribute to a minimum to open rights to pension.

Finally, white collars contribute to the unemployment agency for white collars (APEC) at a rate of 0.024% (*fr_c_ret_apec*) between 1P (*fr_c_ret_apec_lt2*) and 4P (*fr_c_ret_apec_lt3*) and pay a lump-sum (*fr_c_ret_apec_ft*) every year.

2.1.3 Employee contributions to unemployment insurance

Employees in the private sector are covered against the risk of unemployment and pay their contributions to ASSEDIC. The rates are 2.21% (*fr_assedic1*) up to 1P (*fr_assedic_lt*), 2.71% (*fr_assedic2*) between 1P (*fr_assedic_lt2*) and 4P (*fr_assedic_lt3*).

Fund created to lower the age of retirement to 60 years old, l’“Association pour la Structure Financière” (ASF) is based on the same functioning. The rates are 0.8% (*fr_asf1*) up to one P (*fr_asf_lt*), 0.89% (*fr_asf2*) between 1P (*fr_asf_lt2*) and 4P (*fr_asf_lt3*).

¹² All individuals affiliated to the system of social security have to contribute to the complementary pension scheme since 1972.

¹³ For firms created since 1997, a special rate is applied which is not taken into account in our simulation.

¹⁴ The distribution between employers and employees is free but we assess that it applies on the same rules as for the preceding band.

2.2 Employer social insurance contributions (*polersic_FR*)

Policy 1 : Contribution for medical insurance
Policy 2 : Contribution for pensions
Policy 3 : Contribution for unemployment insurance
Policy 3 : Deductions

In addition to the policies examined so far, some contributions such as family contributions and housing only concern employers.

2.2.1 Employer contributions to health insurance, family benefits and housing

Employers contribute at a rate of 12.8% (*fr_ersic_maternity*) on gross earnings (*gross_earn_il*) as a whole. Only paid by employers, contributions for family benefits¹⁵ (*fr_ersic_alocfam*) of 5.4% also apply on earnings as a whole and housing is paid at a rate of 0.1% (*fr_ersic_lodg*) on the fraction under 1 P (*fr_ersic_lodglt*). Some other schemes exist for firms, which embody more than 9 employees, but these are not simulated so far due to a lack of information.

2.2.2 Employer contributions to old age

Contributions for old age insurance apply at a rate of 1.6% (*fr_ersic_oldage*) on the whole earnings and at 8.2% (*fr_ersic_oldage2*) for earnings below 1P.

Complementary pensions systems function on the same basis than explained before (2.1.2). The rate paid depends on a rate bracket so as on an agreement between unions and employers.

- Complementary pension for non white collars:

Employers pay a rate of 4.125 (*fr_ersic_nc_ret_amt_calc*) on earnings below 3P (*fr_ersic_nc_ret_lt*) to the association for complementary pensions (ARRCO).

- Complementary pension for white collars:

The contribution paid to ARRCO is also of 4.125% (*fr_ersic_c_ret_arco*) but up to a limit of 1P (*fr_ersic_c_ret_arco_lt*). Contributions for the white-collar scheme (AGIRC) occur at a mean rate of 12.25% (*fr_ersic_c_ret_agirc1b*) between 1P (*fr_ersic_c_ret_agirc_lt2*) and 4P (*fr_ersic_c_ret_agirc_lt3*) and we suppose a same rate (*fr_ersic_c_ret_agirc2b*) on the third band between and 8P (*fr_ersic_c_ret_agirc_lt4*). In addition to CET which is paid at a rate of 0.09% (*fr_ersic_c_ret_cet*) on 8P (*fr_ersic_c_ret_cet_lt*) and APEC, rate of 0.036% (*fr_ersic_c_ret_apec*) between 1P and 4 P and a lump sum amount (*fr_ersic_c_ret_apec_ft*), employers pay also a death insurance at a rate of 1.5% (*fr_ersic_c_ret_assdec1*) on the fraction below 1P (*fr_ersic_c_ret_assdec_lt*).

2.2.3 Employer contributions to unemployment

Employers contribute to ASSEDIC at the same rate of 3.97% (*fr_ersic_assedic1* and *fr_ersic_assedic2*) on both brackets up to 1P (*fr_ersic_assedic_lt1*) and between 1P

¹⁵ Some schemes of exemptions for law wage exist for firms that are based in special areas.

(*fr_ersic_assedic_lt2*) and 4P (*fr_ersic_assedic_lt3*). Contributions to ASF are also collected by ASSEDIC on the basis of 1.16% (*fr_ersic_asf1*) up to one P (*fr_ersic_asf_lt1*) and 1.29% (*fr_ersic_asf2*) between 1P (*fr_ersic_asf_lt2*) and 4P (*fr_ersic_asf_lt3*). Finally, employers also contribute to guarantee employees' wages against the risk of official receivership (FNGS: Fonds National de Garantie des Salaires). The contribution is of 0.25% (*fr_fngs_amt1*) on the fraction of earnings below 4P (*fr_fngs_lt*).

2.2.4 Employer contributions deductions

A range of measures have been introduced or modified in the last two years to lower the cost of low wages. These concern either exemption of family contributions on low wages, help for a first hire, or reductions of contributions for the diminishing time of labour. These mostly concern firms established in special areas or new firms created. Except for these specific policies, a more general policy is aimed at low wages and reduce the total amount of employer contributions: reductions depend on the level of the wage paid. Wages under the SMIC benefit from a reduction of 18.2% (), wages between SMIC and 1.3 times the SMIC () benefit on this range of a reduction of 60.7%. There is a ceiling for the total amount which can be deduced and adjustments to take account of the time worked.

2.3 Special contributions (taxes) on employment

Since of the beginning of the 90s, new instruments have been created to diversify the financing of Social Security with CSG (Contribution Sociale Généralisée: 2.3.1) or reimbursing the social debt CRDS (Contribution au Remboursement de la Dette Sociale: 2.3.2). These have social goals but are considered as taxes in the french legislation whereas as contributions in the UE. The tax base is large encompassing incomes from activity, unemployment, pension and capital.

2.3.1 "CSG" special contributions (tax) on employment (*poleesic_emp_csg_fr* and *poleesic_emp_csg_red_fr*)

CSG contributions on employment income apply to the gross income (*gross_earn_il*) after a reduction of 5% (*fr_csg_red*) for professional expenses. The rate paid is of 7.5 %. Due to the increase of the CSG rate in 1998, this contribution which could not be deducted from the tax base before the reform has been modified: a fraction of 2.4% (*fr_emp_csgY*) cannot be removed from the tax base (simulated in module *poleesic_emp_csg_fr*); the other fraction of 5.1% (*fr_emp_csgY*) is removed from the tax base (simulated in module *poleesic_emp_csg_red_FR*). The fiscal unit is individual.

2.3.2 "CRDS" special contributions (tax) on employment (*poleesic_emp_crds_fr*)

CRDS contributions on employment income apply globally on the same basis as CSG. It is paid on gross income (*gross_earn_il*) after a reduction of 5% (*fr_crds_red*) for professional expenses. The rate paid is of 0.5 % (*fr_crds*).

2.4 Social insurance contribution & special contribution (tax) on pension income

2.4.1 Health contributions on pensions (*fr_eesic_pen_cm*)

Pensioners contribute to health insurance on the basis of their gross pension (*gross_pen_il*). In 1998, the general policy of reducing health contributions made the former contribution of 2.8% to disappear on “basic” pensions. The contribution on complementary pension has also been reduced and is now of 1% (*fr_pen_cm*). As we cannot identify, in our database, the part of pension declared to be paid as the “basic” pension and the part paid as a complement, we assessed that the rate was paid on the part of the pension greater than the basic pension of 84,540 FF (*fr_pen_base*).

2.4.2 "CSG" Special Contribution on Pension Income (*poleesic_pen_csg_fr*)

Departing from the proportionality principle in effect until 1998, different rates now apply for pensioners and invalids. The income base (*gross_pen_il*) includes pension for retired and disabled and is zero rated if the unit has low income, otherwise it is taxed at 3.8% (*fr_pen_csg2*) if the income tax is less than a given amount paid, at a rate of 6.2% (*fr_pen_csg1*) in other cases.

Hence simulation of this policy takes part in two modules, one determining the income limits (*fr_eesic_csg_ded_limit*), the other computing CSG paid (*fr_eesic_pen_csg*).

- Income limits

Persons are exempt from CSG if the tax unit is under a ceiling which is the same as the one to be exempt from housing tax ("Taxe d'Habitation") and adjusted for family size (takes into account Family Ratio QF : cf. Income Tax in part B.3). The ceiling varies according to the number of additional half-parts¹⁶ of Family Ratio ("Quotient familial" QF). Set to 43,550 FF (*fr_pen_csg_red1*) for one individual, it is increased by 11,650 FF (*fr_pen_csg_red1*) for each additional half-part. The tax unit is the Tax Group (cf. Income Tax in part B.3).

- Once the limits are established, one can compute CSG.

If the tax base is under the ceiling determined (*fr_eesic_csg_ded_limit*), no CSG is paid. If the tax base is above the ceiling but the income tax is less than 400F (*fr_pen_decote_limit*), the CSG is 3.8% (*fr_pen_csg2*). Otherwise, the CSG is paid at a rate of 6.2% (*fr_pen_csg1*).

Another case of exemption of CSG on pension is for persons which perceive a minimum for old age.

2.4.3 "CRDS" Special Contribution on Pension Income (*poleesic_pen_crds_fr*)

CRDS contributions apply on the same basis as CSG. It is paid on gross income from pensions and invalidity (*gross_pen_il*). For individuals not eligible to old age minima, the rate paid is 0.5 % (*fr_crds*). The tax unit is also individual.

2.5 Social insurance contribution & special contributions (taxes) on unemployment benefit

2.5.1 "CSG" Special Contribution (tax) on Unemployment Benefit (*poleesic_cho_csg_fr*)

¹⁶ Quotient familial = 3 means that there are 4 additional half parts (4-3)/0.5.

Rules stated for CSG on pension and invalidity are also valid for CSG on unemployment. The simulation of this module also proceeds into two parts, one determining the income limit on the same base as the one mentioned before¹⁷ (*fr_eesic_csg_ded_limit*), the other computing CSG on unemployment income (*fr_eesic_cho_csg*). Depending on the levels of incomes, three rates can be applied to the unemployment base (*gross_ub_il*) after a deduction of 5% (*fr_csg_red*) for professional expenses.

Persons under the ceiling (*fr_eesic_csg_ded_limit*) are exempt from CSG on unemployment, pay at a rate of 3.8% (*fr_cho_csg2*) if the income tax is under 400F (*fr_cho_decote_limit*) and 6.2% (*fr_cho_csg1*) otherwise.

2.5.2 "CRDS" special Contribution (tax) on Unemployment Benefit (*poleesic_cho_crds_fr*)

The fiscal unit used is the individual. CRDS is paid at a rate of 0.5% (*fr_crds*) on gross unemployment benefits (*gross_ub_il*) after a deduction of 5% (*fr_crds_red*) for professional expenses.

Payment of CSG and CRDS cannot make the level of unemployment benefits to fall under the ceiling of gross minimum wage (gross SMIC : *fr_smic*).

2.5.3 "Retraite Complémentaire" special Contribution for retirement on Unemployment Benefits (*poleesic_cho_retrcomp_fr*)

Unemployed pay a contribution for retirement on unemployment benefits pay by the insurance fund. The rate is of 1.2% (*fr_cho_retrcomp*) on the reference wage ("salaire journalier de référence) with the additional condition that the amount perceived after reduction cannot be under the minimum for this allocation (*fr_min_csg*).

2.6 Special contributions (taxes) on family benefits (*poleesic_crds_fr*)

Whereas no CSG is paid on family benefits, most of them are subject to the payment of CRDS at a rate of 0.5% (*fr_crds*). The tax base (*prest_fam_il*) consists of all these family benefits except for the allocation for handicapped children (Allocation d'Education Spéciale) and allocation for lone parents (Allocation Parent Isolé). Minima for disabled adults (Allocation Adultes Handicapés) and old age (Minimum Vieillesse) are also exempted.

2.7 Special contributions (taxes) on other incomes (*poleesic_csgfr*)

Other types of incomes (*gross_other_il*) as earnings from games can be submitted to CSG at the normal rate of 7.5% (*fr_other_csg*).

2.8 Special contributions (taxes) on capital (*poleesic_cap_FR*)

Capital (*gross_capital_il*) is also subject to a rate of 0.5% (*fr_crds*) of CRDS and 7.5% (*fr_capital_csg*) of CSG. In the latter case, it is due if the amount to be paid is above a ceiling of 160 FF (*fr_capital_lt*). Finally, "Prélèvement Social" is paid on capital incomes and

¹⁷ See 2.4.1

finance family benefits as well as old age insurance. A rate of 2% (*fr_capital_ps*) is applied to the tax base.

3. Taxation (*polit_fr*)

Tax Group

The income taxation does not apply to the whole household but to sub-groups within the household known as "foyers fiscaux", and which consist of one taxpayer plus the persons who "fiscally" depend on him. **Married couples** form one tax group as a whole whereas **common law husbands** are taxable separately (they are considered as 2 singles), each of them forming an independent tax group, and "share" the "fiscally dependent" children.

In a microsimulation model, we cannot fully simulate the tax optimization realized by the members of the household but try to identify the "most common situations". We therefore consider 4 potential Tax Groups (foyers fiscaux).

The **first Tax Group** gathers :

- the married couple
- or the richer of the two common law husbands
- or a lone person

and all the "fiscally dependent" children. This assumption is strong since sometime it is worth "sharing" the children between the common law husbands to minimize the tax paid. However, in the definition of "fiscally dependent", we have introduced an arbitrary condition saying that their gross income must be smaller than the minimum wage, otherwise, it is likely that they will be fiscally independent. The impact of the dependent children is double : they bring a share of the Family Ratio and their income is included in the total net taxable income of the Tax group.

The **second Tax Group** is the other common law husband (the poorer) if any.

The **third Tax Group** gathers the richest child among the potential "fiscally independent" children. The potential "fiscally independent" children are the grown-up children (*lien* = 3, *age* > 17) who are not spotted as "fiscally dependent". Logically, they earn more than the minimum income or are older than 24 or are between 20 and 24 but not student. Among all these persons, the richest is very likely to be "fiscally independent" and form an independent tax group on his own.

The **fourth Tax Group** gathers the other members of the household (other independent children, grand-parents, friends, ...etc)

"Fiscal dependency"

This definition is used in the calculation of Income Tax ("Impôt sur le Revenu des Personnes Physiques" or IRPP).

Roughly, each "fiscally depend" person in the household is given a weight used to reduce the Tax Rate paid by the household through the mechanism of Fiscal Ratio. The concept of "fiscal dependency" is then crucial.

A child is **automatically "fiscally dependent"** if :

- Minor and single (unless he has a personal income and claims for fiscal dependency);
- Disabled (*empst* = 8).

A child can be **considered as "fiscally dependent"** if :

- single and under 21
- or if single and under 25 and still student (*coEMPST=6*)

We have had a condition for the two latter which is : gross income must be smaller than the minimum wage (*Fr_smic* / 81,566 F yearly), otherwise, it is unlikely that they still be fiscally dependent on their parents.

Every child who fails to respect this conditions and who is 18 or more then will be taxable separately.

Each fiscally dependent child opens the right for a share in the computation of the Fiscal Ratio and his income is added to the one of the tax payer he is dependent on.

If a child is disabled (*coEMPST=8*) and single, he will be dependent whatever his age.

We now describe the general principles and our corresponding simulation for the taxation of each Tax Group.

From the various net incomes to the Net Taxable Income

For each tax group, the net taxable income ("*revenu net imposable*") is computed as follows :

Sum of the various net incomes (earned incomes or wages, self-employment, pensions, unemployment benefits, capital income, other incomes)
+ non-deductible CSG and CRDS
= **Sum of "*Revenus catégoriels*"**

- income deductions ("*abattements*") of 10% and 20% on Wages and Replacement Incomes
- additional deductions for certain activities
- specific deductions on income of non-workers
= **sum of "*Revenus Nets Catégoriels*"**

- attributable deficits (from land, agricultural activities, commercial activities ...etc)*
= "***Revenu Brut Global***"

- some charges¹⁸ *
= "***Revenu Net Global***"

- some special deductions¹⁹ *
= **Net Taxable Income ("*Revenu Net Imposable*")**

* item we cannot simulate by lack of data (the last one may improve with further development of our simulation); we then just compute the non-deductible CSG and CRDS and the usual deductions specific to each kind of income ("*abattements*"); an approximation is proposed to account for the non-simulated deficits, charges and deductions.

¹⁸ Like alimony ("*pensions alimentaires*"), "*frais d'accueil des personnes âgées*", "*souscription de Sofica*", "*Sofipêche*", investments in the "*dom-tom*")

¹⁹ For taxpayer in charge of married children (under 21 or under 25 and student), for poor pensioner or disabled people

CSG and CRDS removable from the tax base and "*Revenus catégoriels*"

In the CSG special social contribution computation (rate of 7.5% in general or 6.2% for replacement incomes, deduced from the tax base)²⁰, a part of it (2.4% in all cases) is non deductible for the Income Tax computation and must be reintroduced in the incomes. CRDS is totally non deductible.

Consequently, from the earned incomes (wages and self-employment income), from capital incomes and from "other incomes", all net of normal social contributions, we withdraw the deductible part of 5.1% (*fr_csg_ded*) of the CSG. For replacement incomes (unemployment benefits and pensions, including invalidity), the removable part is of 3.8% (*fr_csg_remp_ded*).

Capital Taxation (module *pollT_cap_fr*)

Part of the capital income is not counted in the "*revenus catégoriels*" and therefore is taxed separately from other incomes. For this part (after removal of the 5.1% (*fr_csg_ded*) of deductible CSG), different rates ("*prélèvements libératoires*") exist, corresponding to the different type of incomes from capital (gain in value, dividends, rents ...). As we have no detail on these various capital incomes for each household, we simply apply a flat tax rate of 15% (*fr_IT_kptal_imp / tax_rate1*) on the taxable capital.

Usual deductions

For 3 of the various incomes ("*revenus catégoriels*"), earned income, unemployment benefits and pensions, we now need to apply some deductions before computation of the Income Tax.

Deductions of 10% for professional expenses

Workers have the choice between a deduction of their real expenses and a deduction of 10% (*fr_IT_prof_ded*) of their earned incomes + unemployment benefits : ignorant of the former, we only simulate the latter.

This individual deduction has to respect a maximum of 76,840 FF (*fr_IT_prof_ded_max*) and a minimum of 2,290 FF (*fr_IT_prof_ded_min*).

We end up with net taxable earned incomes and unemployment benefits.

Deductions of 10% on pensions

At the level of each member (individual amount of deduction) :

- Theoretic deduction : 10% (*fr_IT_pen_ded*) of the pensions.
- However, there is a minimum deduction of 2,020 FF (*fr_IT_pen_ded_min*) to apply; this minimum cannot create a negative after-deduction pension.

At the level of the Tax Group :

- Maximum amount of deduction : 24,000 FF (*fr_IT_pen_ded_max*)
- We take this maximum fully into account for the first Group Tax only (normally the richest so the most likely to reach the maximum); if the sum of the individual deductions for all members in this tax group reach the maximum allowed, this maximum amount is divided between the pensioners of this first tax group to have an individual maximum deduction.

Finally, the individual deductions are withdrawn from the individual pensions to give net taxable pensions (which fall to 0 if deduction > pension).

²⁰ See Special Contributions in section B.2 for a reminder.

Deduction of 20%

The net taxable earned incomes + unemployment benefits + pensions also benefit from a 20% (*fr_pers_ded* / *fr_it_pers_ded*) deduction, in the respect of a maximum of 140,200 FF (*fr_pers_ded_it*), computed individually. We finally add the other incomes to obtain an individual net taxable income.

Other deductions and Net Taxable Income

We add the individual net taxable incomes of all the member of each Tax Group. To obtain the total NET TAXABLE INCOME per tax Group, we need however to take account of the non-simulated deficits, charges and deductions (see above).

In that purpose, we impute a further deduction on each Tax Group which is an average deduction computed from the macro data and depending on the bracket of net taxable income (before this last deduction) in which the Tax Group is. These deductions are presented in the following table :

For each Tax Group, individual net taxable incomes are added together. To obtain the total NET TAXABLE INCOME per tax Group, we need however to take account of the non-simulated deficits, charges and deductions (see above).

In that purpose, we impute an average deduction²¹ depending on the tax bracket of net taxable income in which the Tax Group is. These deductions are presented in the following table :

Table B.3.2.1 Average Deductions

Net Taxable Income Bracket	Deduction
0	546
40009	1047
50009	1234
60009	1375
70009	1545
80009	1692
90009	2004
100009	2040
125009	2362
150009	2851
200009	3439
250009	4700
500009	14160

Family Ratio

To take account of the family size (horizontal equity), the French system gives a weight to each member of the family and add them together to compute a Family Ratio ("Quotient familial" or QF hereafter),

A weight is given actually to each person of the Tax Group (not of the household), according to following table :

Table B.3.2.2 Weight of each individual in a Tax Group

Number of "fiscally dependent"	0	1	2	3*
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²¹ Macro data DGI

persons in the Tax Group				
Type of Tax Group				
Single	1	1	.5	1
Couple#	2	.5	.5	1

* A weight of 1 is given to any additional "fiscally dependent" person in both kind of group.
Married or not.

The QF is the total weight obtained for each Tax Group.
Children either issued from married couples or parents living together open a right to 0.5 additional part for the first two children and an additional part of 1 per child from the third one²². For single persons, the right to 1 additional part is open for the first child, 0.5 additional part for the second child and 1 additional part per child from the third one.

The other rules are as follows.
Each disabled person (parents or dependent children) in the tax group open the right to a 0.5 additional weight (we just add one time 0.5 to the QF if the input AES positive, which likely to be the general case).
A widow whose dependent children are children of him/her and the deceased spouse (this is the most likely case) will have the QF of a married person (and only 1 if no dependent child).

Computation of the Income Tax

Dividing the total net taxable income (after deductions) of a Tax Group by its QF gives the net taxable income per part of QF, which is in fact the equivalised net taxable income of the Tax Group according to the IR equivalence scale. This amount is submitted to tax rates according to the income brackets given in the following table :

Table B.3.2.3 Income Tax Brackets (1998)

Income Bracket (FF per year)	Marginal Tax Rate
0-25890	0%
25890-50930	10.5%
50930-89650	24%
89650-145160	33%
145160-236190	43%
236190-291270	48%
Over 291270	54%

Brackets : Euromod parameters *tax_band1* to *tax_band6*.
Marginal tax rates : Euromod parameters *tax_rate1* to *tax_rate7*.

The amount of income tax computed is then multiplied by QF to give the total tax liability for the Tax Group²³.

²² For instance, the QF of a married couple with 3 dependant children is $2+0.5+0.5+1 = 4$. If they were common-law husbands, the man being (fiscally) in charge of one child and the woman of the 2 others, then the man would form a Tax Group with $QF=1+0.5 = 1.5$ and the woman a second Tax Group with $QF=1+0.5+0.5=2$.

²³ Continuing the previous example : if the married couple has a net tax able income of 150,000 FF, then the taxable income per part of QF is 37,500 and the income tax per part of QF is $10.5\%*(37,500-25,890) + 0\%*(25,890-0) = 1,219$ FF. They will pay a yearly income tax of 4,876 FF.

The tax reduction due to the Family Ratio is subject to a maximum for each additional 0.5 parts in the QF (above 2 parts for a married couple and 1 part for other cases). The ceiling amount per additional half-part of QF is 11,000 FF (*fr_it_ch_max1*), except for single or divorced people for whom it is 20,270 FF (*fr_it_ch_max2*) for the two first half-parts as a whole. The additional half-part of QF allowed for the presence of a disabled person (condition on input AES) in the Tax Group is submitted to a maximum of 16,380 FF (*fr_it_ch_maxinv*).

This is computed as follows. We first calculate the tax liability without the advantages of the QF (that is to say : tax liability with QF = number of parents). From this amount, we withdraw the maximum computed above. This gives a "floor" tax liability (tax liability with no QF advantage – maximum advantage for the additional parts of QF = a minimum). The tax to pay is therefore the maximum between the normal tax liability (with QF) and this "floor" tax liability.

Tax Rebate ("décote")

A tax rebate is given to any Tax Group whose tax to pay is less than 3,300 FF (parameter *fr_decote_ded*). The rebate is the difference between this amount and the tax to pay. The net tax to pay is finally the gross tax to pay minus this rebate. If it is less than 400 F (parameter *fr_min_IT*), nothing has to be paid.

Tax credit ("reductions")

A great variety of tax credit exist. Facing again the problem of too many detailed situations that we cannot simulate (same problem as for deductions), we account for it by imputing an average credit²⁴ depending on the tax bracket of net taxable income in which the Tax Group is. These tax credit are presented in the following table :

Table B.3.2.4 Average Tax Credit

Net Taxable Income Bracket	Tax credit (reduction)
0	1
40009	55
50009	183
60009	335
70009	521
80009	724
90009	903
100009	1345
125009	1960
150009	2743
200009	3907
250009	6589
500009	12659

Euromod parameters : *band1* to *band13* and *amount1* to *amount13*.

C. Data

²⁴ Macro data DGI

1. General description

The data used are from the 1994 Family Budget Study ("Enquête sur le budget des ménages") collected by the French Statistics Institute (INSEE). The datafile used has been customised by José Sastre and Benedicte Sabatier at Delta.

The final sample contains 11221 weighted households representative of the French population (23.2 million of households). For each members from n°1 to n°8 in each household, we collect general pieces of information (sex, age, education, marital status, employment sector, relation to "head" of household ...Etc) as well as data about the various gross incomes received. We also have household related information like data on housing.

We currently assume 100% take-up.

2. Sample selection, weighting

The inputs variables from 1994 Family Budget Study included in the Euromod-database are described in the Data Requirements Document. The data were collected between 1993 and 1994 and gross-up to 1998 for the purpose of the SYSIFF and EUROMOD simulation using the 1998 French tax-benefit system.

The main selection has been the deletion of 65 households bearing an input $lien2 = 1$ and 5 households input $lien3 = 1$ ($lien = 1$ means "person of reference" and this person has to be the 1st member in the order of the data). We end up with 11221 households.

The weights ("ponderation") provided by by the French Statistics Institute are household weights. As yet, no reweighting has been applied to take into account that the deletion of households with missing information may be selective. No grossing-up has been applied to the number of household to match with the increase in population between 1994 and 1998.

3. 'Net-to-gross' conversion

The conversion from Net to Gross incomes has been done with the help of the national model SYSIFF.

Let W be the gross earnings of a worker and N his/her net earnings. (we focus here on the most frequent case where the difference between W and N corresponds to social insurance contributions (SIC)). The relationship between W and N writes:

$$N = W - SIC(W, x, c) \quad (E1)$$

where $SIC(W, x, c)$ defines social insurance contribution as a function of gross earnings, W , worker characteristics, x , and a set of parameters, c .

The problem we face is : we are given N and we want to solve equation (E1) with respect to W , knowing the function SIC and the two sets of arguments, x and c . If $SIC()$ were a simple function of W , this would be extremely simple. It would still be easy if SIC were an "analytical" function of x . But practically, $SIC()$ consists of several lines of codes and a set of

conditions on W and x determining how it must be computed. Under these conditions, using a *resolution algorithm* for equation (E1) becomes necessary.

In order to solve (E1) for each observation in the French sample, we have used the following method (based on *Excel circular calculation feature*) :

It is sufficient to operate with three cells. In cell C1, enter net earnings, N . Define cell C2 as the sum of cell C1 and cell C3. Finally equate cell C3 with the result of all operations necessary to compute $SIC(W, x, c)$.

$$(C2) = (C1) + (C3)$$

$$W = N + SIC(W, x, c) \quad (E2)$$

The circularity comes from the fact that (C3) uses (C2), and (C2) is defined on the basis of (C3). Excel accepts this circularity and repeats cell computations until stability. (No special method was requested (gradient, Newton or other), simple iteration of cell calculation was used)

4. Updating

To update ("gross-up") the monetary data to the common base year 1998, an updating factor has been computed on the basis of an average wage growth indicator for France between 1993/94 and 1998, whose components are wage inflation and inflation (CPI). We find 12.85 %. Here is the detail on how we proceeded.

The study on Family Expenditure Survey ("Enquête Budget des ménages " INSEE) giving the 1994 sample has been created over 1994 and 1995 so it takes into account the incomes over 1993 and 1994. Thus, we took an average of these two years as the starting year.

For 1993/94-1997, we used an indicator accounting for both productivity growth and inflation (= negotiation for purchasing power) : the growth rate of the gross wage per worker has been chosen (Source : tab 09.03 "valeur par tête et pouvoir d'achat du revenu des ménages" in "Comptes nationaux / Comptes de la Nation", 1998, INSEE).

This indicator is not available for 1997-98, so we compute an approximation of this growth rate thanks to the aggregated data "Salaires et traitements nets" (annual evolution of the purchasing power, in %) (Source : tab 1.20 "Revenus et évolution du pouvoir d'achat des ménages" in "Comptes nationaux / Comptes de la Nation", 1999, INSEE).

Applying the same gross-up factor is of course not as sophisticated as using a specific factor for each of the monetary data of the sample. This improvement could be one of the further developments for both the French national model SYSIFF and the French part of EUROMOD.

D. Validation of Aggregates

In this chapter we compare some basic preliminary results from the model baseline run with national statistics, in order to validate the aggregates produced by our simulation.

This validation will focus on both the amount of tax or benefits and the number of taxpayers or benefit recipients. Effectively, some modules may reach the right number of people but be unable to apply the right rules to each specific situation and therefore the right total amount. The other way around, we may forget one type of individual (ex : pregnant women) so the number of recipient will be underestimated but the total amount may seem to be right for some reasons.

1. Method

Validation should be carried out in relation to external sources. We present SYSIFF outputs. The differences between these and EUROMOD outputs should be small since EUROMOD and SYSIFF estimates are based on the same data (1994/5 Family Expenditure Survey grossed-up to 1998 by a unique updating factors applied to monetary data).

Comparisons with external sources provide a check on the model database and on the method as a whole.

2. Results and comments for Benefits (Family benefits and social assistance)

We now compare some basic preliminary results from the Sysiff baseline run with national statistics, in order to validate the aggregated output produced by the models.

Tables D.2.1 and D.2.2 compares total amounts of benefits and benefit recipients for the benefits simulated.

Table D.2.1 : Amounts of Benefits - comparison of Sysiff base line run with National Statistics

	Simulation	National Statistic	% error	Source
Allocations familiales (AF)	65,9	66,3	-1%	CNAF
Allocation de parent isolé (API)	2,4	4,4	-47%	CNAF
Allocation de rentrée scolaire (ARS)	7.4	8,8	-15%	CNAF
Complément familial (CF)	8.9	9,7	-8%	CNAF
Allocation pour jeune enfant (APJE)	14.1	13.7	3%	CNAF
Allocation pour adultes handicapés (AAH + complément)	7,4	23,1	-68%	CNAF
Revenu minimum d'insertion (RMI)	15,1	23,5	-36%	CNAF
Minimum vieillesse	8.7	7,9	10%	CNAV

Table D.2.2 : Number of recipients - comparison of Sysiff base line run with National Statistics

	Simulation	National Statistic	% error	Source
Allocations familiales (AF)	4088	4174	-2%	CNAF
Allocation de parent isolé (API)	84	150	-44%	CNAF
Allocation de rentrée scolaire (ARS)	2575	2966	-13%	CNAF
Complément familial (CF)	848	903	-6%	CNAF
Allocation pour jeune enfant (APJE)	1266	1268	0%	CNAF
Allocation pour adultes handicapés (AAH + complément)	195	646	-70%	CNAF
Revenu minimum d'insertion (RMI)	753	992	-24%	CNAF
Minimum vieillesse	633	587	8%	CNAV

Notes :

CNAF : family fund

CNAV : pension fund

Except for “Allocations Familiales” and “Allocation pour Jeune enfants”, family benefits are generally largely underestimated in this model. This might be due to a problem of grossing-up, all the revenues being inflated by the same percentage. A closer look at the validation shows that this underestimation is due to a problem of recipients. The amounts are underestimated as the number of recipients of the family benefits are underestimated. This is less clear in the RMI case but the income test in this type of allocation is especially difficult to appreciate. Theoretically, all the revenues should appear in the income base but in reality a lot of persons are bound to “forget” some of their income sources. To take account of this problem, we decided not to take account of small amounts of capital in the income base of family benefits.

Despite the revenue side, a demographic investigation also showed that there is a discrepancy between

"Allocations Familiales" (AF) / Family Allowance (polsben_alf_fr)

This is the most important element of the Family Benefit system in France : in 1998, it represents 66,3 billions of FF allocated to families. It is allowed to households with 2 or more dependent children and varies according to the number of children.

We consider in the simulation that the AF are means-tested all the year 1998 long whereas it starts only the 1st of March. It is then logical that the aggregated validation gives a total amount slightly lower than the official figure.

"Allocation Pour Jeunes Enfants" (APJE) / Mean-tested Young Children Allowance (polsben_apje_cf_FR)

This allowance is targeted to family with at least one child aged strictly under 3. It represents 16,8 billions of FF in 1998.

There exist a first APJE, called "short APJE" and targeted to women from the 3rd month of pregnancy until the 3rd month of the child. The simulated APJE, called "long APJE", is given to family for each child strictly under 3 years old. We only simulate the second one here but as the condition we impose is simply age < 3 years old, we take implicitly into account the children below 3 months and then a part of the "short APJE"; not all them, however, as we do not know anything about pregnant women.

The aggregated validation confirms this as we find a total amount of simulated APJE bigger than the pure "long APJE" (11.9 billions of FF) and smaller than the sum of the two APJE (16.8 billions of FF).

"Complément Familial" (CF) / Family Complement (polsben_apje_cf_FR)

This allowance is targeted to family with at least 3 children aged 3 or over. It represents 9,68 billions of FF in 1998

The difference may come from a slight underestimation of the number of children in the data. Further analysis on the basis of a demographic study should be carried on.

"Allocation de rentrée scolaire" (ARS) / Mean-tested education related Family Benefits (polsben_ars_FR)

The ARS is an annual lump-sum allowance given to households under income threshold for each dependent children age of age 6-18. This allowance has been created to help the family to face the cost of school materials when the school resumes in September.

As for CF, the difference with national statistics comes mainly from a slight underestimation of the number of children in the data.

"Revenu Minimum d'Insertion" (RMI) / Means-tested minimum income (PoISBEN_RMI_FR)

This Minimum Income was created in 1998 to prevent social exclusion for workers trying to reenter the labour market and can be claimed by anyone over 25 and having insufficient means to survive.

Unemployed who have exhausted their entitlement to the (earnings related) unemployment insurance benefit are entitled to a social assistance benefit called *Allocation de Solidarité Spécifique* (ASS) (Long term Unemployment Assistance Allocation) if they have a work record of at least 5 years out of the ten years prior to unemployment, if they are not full pensioner, if they look for a job and if they pass the means-test. This allowance is not simulated in the national model due to the lack of individual record in the data.

"Allocation de parent isolé" (API) / Mean-tested lone parents benefit (PoISBEN_LP_FR)

The API grants the lone parents raising one or more children aged below 20 (the youngest must be under 3) with a Minimum Income based on the computation of the RMI.

The difference with national statistics may come from an underestimation of the number of children under 3 in the data; it also comes from the fact that we miss in our simulation the lone pregnant women (no record of this information), entitled as such to API.

"Minimum Vieillesse" / Minimum pension for elderly (PoSBEN_MIV_FR)

This minimum pension scheme is not one allocation but rather a generic term, including several allocations which are difficult to distinguish (allocations aux mères de famille, secours viager, majoration L-814-2). The simulation of all these instruments depict an overestimation.

"Allocation aux adultes handicapés" (AAH) / Disabled benefit (polsben_aah_fr)

This allowance is targeted to adults with serious disability (more than 80% or between 50% and 80% but not able to work) if they are not eligible for old age minimum or invalidity.

We have no record of the level of disability of people and the detection is based on the input AAH which leads to an underestimation as the input is not very reliable and itself underestimated.

Housing benefits (polsben_logement_FR & polsben_logement_virt_FR)

Having no information on the nature of the housing, of the loan ...etc for each household, we simulate a priori only the ALF and ALS and not the APL. However, as mentioned above, the formula to compute the amount of Housing Benefits is the same for most of them and we include implicitly most of the APL receivers in our simulation. The total number of recipient is consequently satisfying.

The underestimation of total housing benefits rather comes from the differences between the tables used for APL and AL (we systematically use the AL tables).

3. Results and comments for Social insurance contributions and Taxes

Table 3 compares total amounts of social insurance contributions and income taxation with the amounts simulated.

Table 3 : Social insurance contributions and income taxation - comparison of Sysiff base line run with National Statistics

	Simulation	National Statistic	% error	Source
Gross earned income	3384,1	3208,4	9%	<i>compte nat 99</i>
EESICs	418.6	443,0	-6%	<i>DREES</i>
ERSICs	1193.7	1210,0	-1%	<i>DREES</i>
CSG special contribution	314.5	318,5	-12%	<i>DSS</i>

Net earned income	2800.6	2765,4	-11%	<i>compte nat 99</i>
Net pensions*	941	880,0	7%	estimation based on CNAV figures
Net taxable income	2861.2	2755,0	-5%	<i>DGI</i>
Income Tax (IR)	307.6	282,6	9%	<i>DP</i>

* include all pensions (invalidity, alimony,...) and not only old-age pension, contrary to the National statistic

Notes:

DREES : economic department of ministry of social affairs.

DSS : social security department

CNAV : pension fund

DGI : tax department

Compte nat : national accounts (INSEE)

DP : economic department at Ministry of Finance

Contributions are underestimated despite a base which is overestimated. This is due to the fact that we were not able to simulate all the instruments of the system. Some of the contributions depend on conditions on firms that we do not have.

Social insurance contributions

Apart from the usual social insurance contribution, new instruments have been created (since the beginning of the 90s). They have social goals but are considered as taxes in the french legislation :

"Contribution Sociale Généralisée" or CSG : to diversify the financing of Social Security

"Contribution au Remboursement de la Dette Sociale" : to reimburse the social debt.

They are flat taxes and the tax base is large, encompassing incomes from activity, unemployment, pension and capital. We present here the figures only for CSG as it is by far the most important.

Income Taxation (*pollT_cap_fr*) + (*polit_optimise_FR*) + (*polit_fr*)

We cannot simulate the tax optimization realized by the members of the household, especially concerning the fiscal dependency of children (on which spouse should they be dependent on ? if they have some earnings, should they decide to be fiscally independent ?). The simplification chosen (4 potential Tax Group, the 1st one being the richest spouse (if not married) plus the dependent children) may explain part of the difference with national figures.

4. Distributional output: Measures of poverty and income distribution

Table 4 compares the distribution of household disposable income obtained with Euromod and Sysiff. Euromod calculations are based on 1994 original gross income data grossed up by

a single factor so as to match the National Account increase in average household income between 1994 and 1998. The tax benefit system used to simulate 1998 disposable incomes is the 1998 system. Sysiff figures are based on the same 1994 original data and the 1994 tax-benefit system. The Sysiff figures are taken from F. Bourguignon, *Fiscalité et redistribution, Rapport au Conseil d'Analyse Economique, Documentation Française, Paris, 1999, table 3*. All figures refer to disposable income per adult equivalent, the number of adult equivalents being defined as the square root of the total number of members within the household.

The two distributions are very close to each other with Euromod being slightly less egalitarian than the Sysiff distribution. Sources of discrepancy have to be found in the unique grossing up rate used to expand 1994 gross income figures to 1998 as well as in the imperfect coverage of redistribution instruments in both Euromod and Sysiff 1994. In particular, the fact that several benefits are under-estimated in Euromod 1998 may explain that the share of the first quintile is slightly below that obtained with the 1994 version of Sysiff.

Comparison with recently published poverty rates based on the 1996 estimation of the distribution of disposable income (INSEE-DGI, enquête revenus fiscaux²⁵) show that both Sysiff 1994 tends to slightly under-estimate poverty. Poverty rates obtained with Sysiff 1994 using disposable income per adult equivalent is 6 per cent when the poverty limit is 50 per cent of the median and 13.3 per cent when the poverty line is 60 per cent of the median. In comparison with INSEE figures, the under-estimation is slightly above 1 per cent in the first case and around 2.5 per cent in the second case. The main source of discrepancy should be the fact that Sysiff (and EUROMOD) estimates are based on simulated disposable income where current gross income is used as the basis to compute benefits, whereas INSEE ... is based on reported incomes and benefits

Table 4. Distribution of household disposable income per adult equivalent

	Average income : Euromod 1998	Share of total disposable income : Euromod 1998	Average income: Sysiff 1994	Share of total disposable income: Sysiff 1994
Quintile 1	53.5	9.3	46.4	9.9
Quintile 2	75.3	13.1	61.8	13.2
Quintile 3	97.8	17.0	80.1	17.1
Quintile 4	128.2	22.3	102.1	21.8
Décile 9	167.9	14.6	138.7	14.8
Décile 10	272.6	23.7	217.4	23.2
Total (KF)	115	100	93.7	100

²⁵ in "Les travaux de l'observatoire Nationale de la Pauvreté et de l'exclusion sociale", Le documentation française, 2000.