

FINAL REPORT PROJECT AG/01/116  
VALORISATION OF THE MICROSIMULATION MODEL FOR SOCIAL  
SECURITY MIMOSIS

Part 1

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## INTRODUCTION

This report is part of the output of the project AG/01/116. The main objectives of project AG/01/116 were to further refine and validate the microsimulation model for social security, MIMOSIS, both by extending the data coverage and refining the modules as through a comparative study of how MIMOSIS is positioned in an international perspective and also by use of MIMOSIS for evaluation of (hypothetical) policy reforms.

The following text contains section 2 of the overall report of the project AG/01/116. This section will describe MIMOSIS both in terms of the underlying dataset as in terms of the programmatic building blocks - modules - that together make MIMOSIS to what it is: a microsimulation model for social security and personal income taxation. In the description of the data we will focus on the nature of the data as well as give an overview of the main variables that are available in MIMOSIS either by observation, by construction or both. We will also point out the main variables that are missing in MIMOSIS but may nonetheless be of importance for some policy reforms in the domains covered by MIMOSIS. The different building blocks of MIMOSIS will be described by providing a general overview of the legislation modeled in MIMOSIS - the legislation of 2001 - and by listing the most important parameters that can be changed by the user of the model. It are the latter that determine the flexibility and scope, and hence the applicability, of MIMOSIS. Some validation results will also be provided for each policy domain to give the reader an idea of how aggregate results produced by MIMOSIS compare to the same numbers published by external sources. This note also devotes some attention to what extent and how MIMOSIS can be used to evaluate progress in attaining the goals set forth in the National Action Plans on Social Inclusion. The level of detail provided by MIMOSIS allows for a thorough analysis and evaluation of such programs.

## 2 MIMOSIS: A DESCRIPTION

The use of microsimulation models has become standard practice for ex-ante analysis of policy changes (see Bourguignon and Spadaro, 2005 for an overview and for two recent examples Bargain, 2004; and Immervol et al., 2007). In general one distinguishes between arithmetical and behavioural models. An arithmetical model consists of two elements: 1) a micro dataset covering all the relevant variables for a representative sample of the population, and 2) rules constituting the economic environment of individual agents. A behavioural model adds to that a third element, namely behavioural responses of agents to changes in the economic environment.

In arithmetical models the possible change in behaviour following changes in the economic environment is not modelled. Yet when policy changes are marginal this assumption might be justified. Indeed, since each individual is assumed to be at his or her optimum, *marginal* changes in the economic environment might not lead to changes in behaviour. In that case even arithmetic models allow estimating budgetary costs of a policy reform by aggregating over all individuals (Bourguignon and Spadaro, 2005).

It is clear that defining the economic environment as in arithmetic models, is a necessary condition for modelling behavioural responses. Building an arithmetic model is thus a necessary first step towards a more comprehensive behavioural model that allows to fully analyze policy changes, i.e. also taking into account second-order effects as a result of changes in (optimal) behaviour by economic agents.

MIMOSIS is such an arithmetic microsimulation model for social security and personal income taxes. It is thus a static model without behavioural responses and incorporates several domains related to social security and personal income taxation and the interlinkages between them. It is based on a detailed administrative dataset combining data provided by several different administrative agencies. The legislation applicable to the different policy domains is programmed in different *modules* and allows for the (re)calculation of benefits received and taxes paid for each individual and/or household in the dataset. Both the nature of the data and the scope of MIMOSIS, i.e. covering several different social security domains and including personal income taxes, set it apart from other Belgian microsimulation models such as MODÉTÉ that is based on survey data and acts as the Belgian component of EUROMOD (Joyeux, 1998); MISIM which, as MIMOSIS, covers social security benefits and contributions and personal income taxation but is based on survey data (Verbist, 2002); and SIRE, a microsimulation model developed by the Ministry of Finance based on administrative data but only covering personal income taxation (Standaert and Valenduc, 1996). In section 3 we will discuss in more detail the positioning of MIMOSIS with respect to other models, both nationally and internationally.

As MIMOSIS is an arithmetic model, in the remainder of this section we will discuss the two elements that constitute such a model in more detail for the Belgian social security and tax benefit legislation. In what follows we will first describe in broad the kind of data that have been collected and used. These are administrative data provided by several different administrative agencies and collected by a central Datawarehouse Labour Market and Social Protection (DWH). It is the DWH

that distributes the data to researchers. Secondly we will discuss in more detail the different policy domains that have been incorporated and modelled in MIMOSIS and validation results for each policy domain are provided.

## 2.1 CONSTRUCTION OF THE INPUT DATASET

When constructing a microsimulation model one of the first decisions to be made concerns the type of dataset that will be used to run the model. A microsimulation model can run on data stemming from registers (administrative data) or it can be run on data collected through a survey (survey data). Administrative data have the advantage that they are in general more detailed and accurate than survey data. A potential disadvantage of administrative data, however, is that they are not collected for research purposes, so it is possible that not all information required is available. In this respect, survey data can be more comprehensive.

In MIMOSIS the underlying data are *quarterly* administrative data collected by the Datawarehouse Labour Market and Social Protection from different administrative agencies and made available for the construction of MIMOSIS.<sup>1</sup> In MIMOSIS disposable income for individuals (and their households) is calculated taking into account the different rules –and exceptions to those rules– that “transform” gross income into disposable income. The implementation hereof demands, in broad, the following information:

- gross labour income for actives: preferably decomposed in gross hourly wage and hours worked,
- for (part-time) actives and non-actives alike we need to determine their entitlement to and the amount of replacement incomes,
- contributions and taxes paid on these incomes.

Two important sources of income that are not available in the MIMOSIS dataset are incomes from real estate and financial assets.

The flexibility of MIMOSIS lies in the extensive parameterization of policy rules, i.e. the calculation rules of the tax-benefit system to arrive at disposable income.<sup>2</sup> In order to assure this flexibility, a maximum of the external variables has been endogenized, i.e. internally reconstructed by MIMOSIS. Variables from the external sources that could not be reconstructed –due to a lack of information on intermediate variables needed for their calculation– are read in directly from the external data sources.<sup>3</sup> If needed, variables, reconstructed or otherwise, are passed on between modules, reflecting the interactions between the different policy domains.

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<sup>1</sup> For more information on the Datawarehouse Labour Market and Social Protection, the constructed database and the variables in it: [http://www.ksz.fgov.be/nl/statistiques/stats\\_home.htm](http://www.ksz.fgov.be/nl/statistiques/stats_home.htm) (in Dutch).

<sup>2</sup> The base year of MIMOSIS is the year 2001.

<sup>3</sup> Directly observed variables, i.e. variables read in from the external data, cannot be manipulated by the user. The use of observed variables has been restricted to a minimum.

Administrative data have the advantage that they are in general more detailed and accurate than survey data. A potential disadvantage of administrative data, however, is that they are not collected for research purposes, so it is possible that not all information required is available for the research question(s) one is interested in. In this respect, survey data can be more comprehensive. Table 2-1 gives a broad overview of the variables used in MIMOSIS and whether they are observed and/or constructed or reconstructed. This table is not exhaustive, but lists the most important variables currently available and/or constructed in MIMOSIS. Variables that are more specific to a certain policy domain have not (always) been listed but will be discussed in section 2.2 where the different modules are described. The same applies for many of the model parameters.

For a microsimulation model to be useful it is important that the underlying data are representative of the population most likely to be affected by the legislation modeled. The next subsection therefore briefly describes the procedure used to sample from the population.

TABLE 2-1 OVERVIEW OF IMPORTANT VARIABLES IN MIMOSIS

Variable*	Observed?*	Modelled?*
age	yes	no
sex	yes	no
population weight	no	yes
family ties	yes	yes
family type	yes	yes
type of couple (married, living together, ...)	yes	yes
number of dependent children in tax unit	no	yes
number of dependent children below the age of 3	no	yes
number of dependent others	no	yes
household size	yes	no
worker type (blue/white collar)	yes	yes
type of profession	yes	no
socio-economic position	yes	yes
gross hourly income	no	yes
gross quarterly income	yes	yes
gross income earned as wage earner on the private labour market (labour income + holiday earnings + other supplements)	yes	yes
gross income earned as wage earner on the public labour market (labour income + holiday earnings + other supplements)	yes	yes
gross income self-employed	yes	yes
social security contributions paid on gross income	yes	yes
gross retirement pensions	yes	yes
gross survival pensions	yes	yes
guaranteed income	no	yes
gross family allowances	no	yes
gross benefits for industrial accidents and occupational disease	no	yes
gross sickness and disability benefits (other than the above)	yes	yes
gross unemployment benefits	yes	yes
early retirement benefits paid by unemployment agency	yes	yes
early retirement benefits paid by previous employer	yes	yes
premiums received as employee	yes	no
compensation in case of job loss	yes	no
net income as wage earner	no	yes
net income as self-employed	no	yes
net own professional income	no	yes
costs deductible from employment or self-employment income	no	yes
gross taxable income per year	no	yes
net taxable income per year	no	yes
net taxable occupation income	no	yes
net taxable income from pensions	no	yes
net taxable income from sickness and disability benefits	no	yes
net taxable income from unemployment benefits	no	yes
net taxable income from early retirement benefits	no	yes
prepayments per year	no	yes

TABLE 2-1 OVERVIEW OF IMPORTANT VARIABLES IN MIMOSIS

Variable*	Observed?*	Modelled?*
gross amount of personal income taxes	no	yes
tax reductions	no	yes
net personal income taxes	no	yes
unemployment status	yes	yes
duration of unemployment	yes	yes
number of years worked as wage earner	yes	no
last daily wage earned before entering unemployment	no	yes
type of job left (in case of unemployment)	yes	no
level of unemployment in region of unemployed	yes	no
number of days per quarter unemployment benefits are received	yes	no
type of health hazard in health insurance legislation (sickness, maternity, occupational disease, industrial accidents, etc.)	no	yes
disabled (yes/no)	yes	no
start date disablement	yes	no
probable end date disablement	yes	no
individual giving right to child benefits	yes	yes
individual receiving child benefits	yes	yes
years of pension	yes	yes

\*unless otherwise stated, all (replacement) income and benefit variables are on a quarterly basis

\*\*"observed" means that the variable is available in the external data; "modelled" means that the variable is either constructed or reconstructed in MIMOSIS

### SAMPLE

The population consists of all individuals that are registered in the National Register. We sampled among all individuals with main place of residence in Belgium on January 1<sup>st</sup> 2002. The complete household of the individuals thus selected are reconstructed using information in the National Register. Remark that also individuals living in collective households are included in the sample.<sup>4</sup> Since microsimulation models often apply to certain policy domains aimed at specific subgroups of the population, in the sampling stage it is often advised to oversample the target (sub)population(s). MIMOSIS is a microsimulation model on social security and personal income taxes and thus focuses on different types of income sources. In the National Register, however, information on income sources is not available and therefore there is no oversampling of certain subgroups (according to income source) in the construction of the dataset. The sample size is taken large enough such that a sufficient amount of variation is observed within certain subgroups in the final sample. This resulted in a preliminary sampling of 100 000 individuals. After including all other household members, the final sample consists of 305 019 individuals. For each individual a population weight has been determined to make the sample representative of the population

<sup>4</sup> If an individual from a collective household is sampled, the other "household" members are not added to the sample, in contrast to what is done when a member of private household is sampled.

present in the National Register and with place of residence in Belgium. Once we have drawn the sample and constructed the input dataset the next step is to program the policy rules that apply to the different policy domains. This is done in modules, each representing a policy domain, and discussed in the next section. But before doing so, in Table 2-2 we give an overview of the incomes and income concepts found in the Belgian panel of the European Union Statistics on Income and Living Conditions survey (EU-SILC) and currently covered in MIMOSIS. It is clear that some incomes that could be of importance for policy analysis are currently not covered in MIMOSIS, e.g. income from property such as imputed rents and income from capital in general. Also mortgage interest payments and housing allowances are not covered in MIMOSIS. Still, a majority of policy relevant income concepts *are* covered and modelled in detail in MIMOSIS.

TABLE 2-2 GROSS INCOME VARIABLES AND THEIR COMPONENT IN EU-SILC AND MIMOSIS

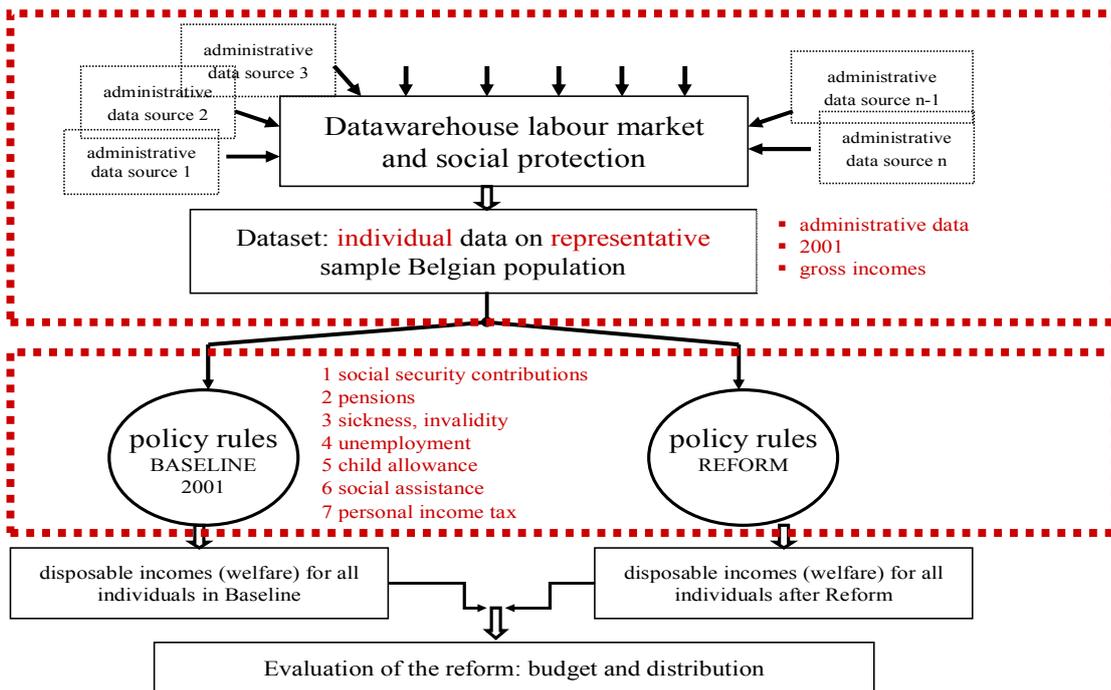
Income categories	Income components in EU-SILC	Covered in MIMOSIS?
Gross employee income	Gross cash or near-cash employee income	Yes
	Gross non-cash employee income	No
	Employers' social insurance contributions	Yes
Self-employment income	Gross cash profits or losses from self-employment (including royalties)	Yes
	Value of goods produced for own consumption	No
Imputed rent	Imputed rent	No
Property income	Interest, dividends, profit from capital investments in unincorporated business	No
	Income from rental of property or land	No
Current transfer received	Social benefits	Yes
	Family/children-related allowances	Yes
	Social exclusion not elsewhere classified	No
	Housing allowances	No
	Unemployment benefits	Yes
	Old-age benefits	Yes
	Survivors' benefits	Yes
	Sickness benefits	yes
	Disability benefits	Yes
	Education-related allowances	No
	Regular inter-household cash transfers received	No
Other income received	Income received by people aged under 16	???
Interest payments	Interest paid on mortgage	No
Current transfers paid	Tax on income and social insurance contributions	No
	Regular taxes on wealth	No
	Employers' social insurance contributions	Yes
	Regular inter-household cash transfers paid	no

## 2.2 MODULES: BUILDING BLOCKS OF MIMOSIS

The different modules are at the heart of MIMOSIS. The programming language Fortran is used to translate the policy rules applicable to the different domains of social security and personal income taxation into computer code. One module, the FAMREL-module, is of an auxiliary nature and determines the relations between household members. Family relations, and especially the incomes of family members, often determine the amount of benefits received and contributions paid. It serves as input to every other module. We will, however, not devote a separate section to the description of the FAMREL-module. Where family relations are important it should be borne in

mind that they are provided by FAMREL. In Figure 2-1 we show a schematic representation of MIMOSIS where the first dotted rectangle represents the creation of the input dataset and the second dotted rectangle is a schematic representation of the core of MIMOSIS where the policy rules of 2001 in the different policy domains have been translated into variables, parameters and calculation rules, ultimately determining for each individual the disposable income. The disposable income in the reform situation is obtained by changing the policy parameters that have been programmed in the different modules.

FIGURE 2-1 SCHEMATIC REPRESENTATION OF MIMOSIS



The policy domains MIMOSIS is built around are listed in Table 2-3, each of which constitutes a separate module and also shown in Figure 2-1:

TABLE 2-3 POLICY DOMAINS COVERED BY MIMOSIS

module/policy domain	Does what?
CONTRIB	calculates social security contributions
FAMAL	calculates family allowances
SICK	calculates sickness and disability benefits
UNEM	calculates unemployment benefits
PENSWELF	calculates pensions <sup>5</sup>
PIT	calculates personal income taxes
SOCBEN	calculates social assistance benefits
EVAL	assesses budgetary and distributional impact of reforms

The modules are not independent of each other. They are interlinked and provide information and feedback to one another. Income concepts that are calculated in one module are passed on to subsequent modules. This allows assessing the *global* impact of a policy reform. Raising benefits in some domain, e.g. unemployment or pensions, can and often will change the amounts of benefits received in other domains and/or the amount of personal income taxes due. In the remainder of this section we will describe each module, i.e. policy domain, in more detail focusing for each on the most important variables and parameters that can be manipulated by the user. For a more detailed description of the different modules we refer the reader to the technical module notes that can be found on the website of the FPS Social Security.<sup>6</sup> For each policy domain we will also present validation results, i.e. to what extent the results of the module calculations correspond to external statistics for the policy domain in question. Where possible we will also briefly describe the changes in the legislation that have taken place since 2001.

### 2.2.1 family allowances (FAMAL-module)

#### A BRIEF OVERVIEW OF THE LEGISLATION

Under the heading of family allowances we consider child allowances, birth allowance, orphan allowances and guaranteed family allowances. Family allowances depend on the number of children, their birth rank and age. There are different persons that intervene in the right to child allowances. First, there is the person that initiates the right to child allowances (the beneficiary). In most cases this will be the father. Second is the person that is the beneficiary of the child allowances (child-beneficiary). And third is the person that actually receives the child allowances – in principle the mother.

The monthly amount of child allowance progressively increases with the number of children up to rank three, whereafter they are fixed for any additional children. In principle child allowances

<sup>5</sup> Currently the module for pensions is restricted to observed pensions only. Simulation possibilities are therefore restricted to evaluating e.g. welfare adaptations of current pensions. A more elaborate module for calculating pensions based on past career information – the PENSALC module – is currently being developed and shall be integrated in a next version of MIMOSIS.

<sup>6</sup> See [http://socialsecurity.fgov.be/nl/nieuws\\_publicaties/publicaties/mimosis/domeinen.htm](http://socialsecurity.fgov.be/nl/nieuws_publicaties/publicaties/mimosis/domeinen.htm)

are paid until the age of 18. This can be extended to the age of 25 if the child is either a student, trainee or apprentice and has no net own means that surpass a certain ceiling. Before the age of 18 the right to basic child allowances is not means-tested, neither on the income of the recipient and/or beneficiary, nor on the net own means of the child itself. The monthly basic amounts are listed in Table 2-4.

The legislation provides for monthly age supplements that –obviously– depend on age and also on rank.<sup>7</sup> For children of long-term unemployed (>6months), retirees and beneficiaries of survival pensions, a social supplement, the amount of which depends on the rank of the child, can be added to the monthly amount. These social supplements are subjected to a means-test on the income of the beneficiary and his or her partner however. This also applies to social supplements provided for beneficiaries that are disabled. Handicapped children less than 21 years old are entitled to social supplements that are not means-tested but that are dependent on the rank of the child.<sup>8</sup>

TABLE 2-4 BASIC MONTHLY CHILD ALLOWANCES IN EURO PER MONTH

Rank of child	Basic allowance in Euro per month
<b>Wage earners and civil servants</b>	
1 <sup>st</sup> rank	71.18
2 <sup>nd</sup> rank	131.71
3 <sup>rd</sup> rank	196.66
<b>Active self-employed</b>	
1 <sup>st</sup> rank	36.21
2 <sup>nd</sup> rank	131.71
3 <sup>rd</sup> rank	196.66
<b>Retired self-employed</b>	
1 <sup>st</sup> rank	57.41
2 <sup>nd</sup> rank	154.17
3 <sup>rd</sup> rank	200.60

At the birth of a child parents are entitled to a birth premium that depends on the birth rank of the child. In case of a firstborn the premium will be higher than for later births, i.e. €964.40 for a firstborn compared to €725.60 for second, third, etc. A firstborn is defined as the first child of one of the parents. It is thus perfectly possible to have two firstborns in the same household. For following births –for the same parents– premiums are constant.

Orphan allowances do not depend on the child’s rank, have a different base allowance than is applied for child allowance and can be supplemented according to the age of the child. If there is a

<sup>7</sup> Remark that it is possible for a child to change rank. This happens for example if the oldest one (child of rank 1) leaves home or does no longer give right to a child allowance. The second oldest then becomes of rank 1. There are at most 3 ranks. All children after the third have rank 3.

<sup>8</sup> In the current version of MIMOSIS we cannot identify handicapped children. All children are assumed to be physically and mentally able.

surviving parent he or she must not be remarried or form a new household with a person who is not a relative up to the 3<sup>rd</sup> degree.

Guaranteed family allowances are provided for the most destitute families based on a means-test on the household's income. The quarterly income ceiling is increased by 20% for each dependent child other than the first. The amount of the allowances also depends on whether or not the child already gives right to child allowances in another scheme. If the latter is true and the means-test passed, the amounts of guaranteed family allowance are the same as those for active self-employed. Otherwise they are the same as in the wage earner and civil servant schemes.

#### *WHAT CAN THE USER CHANGE?*

In the following list we give an overview of the policy parameters the user can change for the FAMAL-module:

- the (monthly) income ceiling to determine the eligibility of the child beyond the age of 18,
- the ceilings on income of beneficiary and partner to determine eligibility for social supplements,
- the ceiling on household income for guaranteed family allowance,
- the percentage used to increase the ceiling for the guaranteed family allowances,
- the monthly basic amounts for the different schemes and ranks of the children,
- the monthly amounts for supplements – both age and social – according to rank and age if applicable.
- the monthly amounts for supplements for handicapped children.

#### *WHAT IS NOT POSSIBLE?*

MIMOSIS offers the possibility to change the policy parameters of the current legislation. Changes in the legislation beyond changes in parameter values, e.g. a whole new way of calculation social security benefits, cannot be simulated without changing the source code. For example, in the FAMAL-module it is not possible to make basic child allowances means-tested.

#### *VALIDATION*

The performance of the current version of the module is summarized in Table 2-5. The aggregates for employees and self-employed correspond quite well to figures from external sources. The public sector and especially guaranteed family allowances are considerably off the mark. One of the reasons is the faulty classification of the number of right-giving children that is overestimated by 999.29% – a difference of 160 875 individuals – for the category of guaranteed family allowance.

TABLE 2-5 EXPENSES FOR FAMILY ALLOWANCES IN 2001 IN MILLION EURO

	Reference year (1)	MIMOSIS: baseline (2)	Diff. (2)-(1)	Diff. (2)-(1) as % of (1)
Employees	3186.4	3212.4	26.0	0.82
Self-Employed	354.9	347.4	-7.5	-2.11
Public Sector	1060.0	577.4	-482.6	-45.53
Guaranteed Family Allowance	33.2	286.3	253.1	762.35

**CHANGES IN THE LEGISLATION SINCE 2001**

- Introduction of a back-to-school premium for wage earners' children in 2007. For the year 2007, the amounts are 50 euros for children between 6 and 11 and 70 euros for children between 12 and 17.
- age supplements  
Some changes on the calculation of age supplements have come into effect in 2003. The most important changes are listed below in Table 2-6.

TABLE 2-6 AGE SUPPLEMENTS FOR CHILDREN BORN BEFORE JANUARY 1<sup>ST</sup> 1991 OR AFTER DECEMBER 31<sup>ST</sup> 1990

Age category	Amount
Age supplements for children with supplement for handicap; with orphan supplement; with a social supplement; having guaranteed family allowances; being 2 <sup>nd</sup> or more rank of an "ordinary" family; being 1 <sup>st</sup> rank of a monoparental family.	
6-12 years old	€ 27,85
12-18 years old	€ 42,56
18 years old or more	€ 54,11
Age supplements for children born after December 31 <sup>st</sup> 1990 being 1 <sup>st</sup> rank of a "ordinary" family	
6-12 years old	€ 13,97
12-18 years old	€ 21,27
18 years old or more	€ 27,85
Exceptions:	
1. Children born between the 1 <sup>st</sup> of January 1991 and the 31 <sup>st</sup> of December 1996 that become 1 <sup>st</sup> rank are entitled to a fixed supplement from the age of 6	€ 27,85
2. Children who already received an age supplement on the 1 <sup>st</sup> of January 1997 and born between:	
The 1 <sup>st</sup> of January 1985 and the 31 <sup>st</sup> of December 1990 who are less than 18	€ 27,85
The 1 <sup>st</sup> of January 1985 and the 31 <sup>st</sup> of December 1990 who are at least 18	€ 29,91
The 1 <sup>st</sup> of January 1981 and the 31 <sup>st</sup> of December 1984	€ 44,62

## 2.2.2 sickness and disability benefits (sick-module)

### *A BRIEF OVERVIEW OF THE LEGISLATION*

The module for calculating sickness and disability benefits focuses on three major areas of application: benefits in case of primary disablement (sickness and maternity leave), benefits in case of disability, and benefits in case of industrial accidents and occupational diseases. For each of these areas a distinction is made for employees, self-employed and civil servants.

#### **SICKNESS**

During the first thirty days of sickness employees are entitled to a guaranteed income paid by the employer. This guaranteed income is different for white- and blue-collar workers and is determined as follows:

- white collar workers receive their normal wages for the full thirty days,
- blue collar workers receive an amount depending where they are in the thirty day period:
  - first week : normal wages,
  - second week : 60% of lost wages (limited to daily maximum amount of €116.74<sup>9</sup>) + supplements<sup>10</sup>, all paid by employer,
  - third week onward : same as second week but 60% now paid by health insurance,

After the first thirty days and for the next eleven months the amounts received depend on the family situation as follows:

- 60% of lost wages (limited to daily maximum amount) for employees with dependent family or who have lost their sole source of income,
- 55% of lost wages (limited to a daily maximum amount) for employees without dependent family and who have not lost their sole source of income.

Self-employed are not compensated during the first month of sickness. The following eleven months they receive a payment that depends on the family situation. If the self-employed has dependent family the amount is set at €18.62 per day, otherwise it is €15.12 per day. These amounts are payable each day of the week except on Sundays.

Civil servants have a maximum number of 21 working days of sick leave per 12 months of seniority. During the sick leave civil servants receive 100% of their wages. If the period of official sick leave is exceeded, the benefits are limited to 60% of lost wages irrespective of family situation. In case the sickness is deemed to be serious and long term, the benefits remain at 100% however.

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<sup>9</sup> This maximum is reduced to €97.28 daily if the worker has a six-day working week.

<sup>10</sup> The supplement a blue-collar worker receives amounts to: (25.88% of part normal wages that does not exceed the daily maximum) + (85.88% of part of normal wages that exceeds the daily maximum)-

## MATERNITY

Maternity leave for employees and civil servants usually extends to a period of 15 weeks. Civil servants receive 100% of their wages during that period. For employees a distinction has to be made between active employees, unemployed and employees in a period of disablement as follows:

- maternity benefits for active employees:
  - 82% of lost wages (unlimited) during first 30 days,
  - 75% of lost wages (limited to daily maximum of €116.74) after the first 30 days,
  - 60% of lost wages (limited to daily maximum of €116.74) if the maternity leave is extended beyond 15 weeks,
- maternity benefits for unemployed:
  - basic indemnity of 60% of lost wages (limited to €116.74 daily) + supplement of 19.5% of lost wages (limited to €116.74 daily) for the first 30 days,
  - basic indemnity of 60% of lost wages (limited to €116.74 daily) + supplement of 15% of lost wages (limited to €116.74 daily) after the first 30 days,
  - 60% of lost wages (limited to daily maximum of €116.74) if the maternity leave is extended beyond 15 weeks,
- maternity benefits for employees in a period of disablement:
  - 79.5% of lost wages (limited to €116.74 daily) for the first 30 days,
  - 75% of lost wages (limited to €116.74 daily) after the first 30 days,
  - 60% of lost wages (limited to daily maximum of €116.74) if the maternity leave is extended beyond 15 weeks.

Self-employed receive a fixed amount of €943.14 for the entire period of their maternity leave which, in 2001, was only three weeks. Civil servants receive 100% of their wages during the 15-week maternity leave.

## DISABILITY

The period of disability starts after one year in primary disablement and also here the benefits are a function of the family situation. For employees the percentages are as follows:

- 65% of lost wages (limited to daily amount of €116.74) for employees with dependent family,
- 40% of lost wages (limited to daily amount of €116.74) for employees without dependent family and who have not lost their sole source of income,

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(prepayments on taxes by the employer on total taxable wages the blue-collar worker would have normally received).

- 45% of lost wages (limited to daily amount of €116.74) for employees without dependent family and who have lost their sole source of income.

For self-employed the amounts are dependent also on whether or not the self-employed has to close shop because of the disability. The daily fixed amounts are as follows:

- €29.55 for self-employed with dependent family who do not have to close the business,
- €22.16 for self-employed without dependent family and who do not have to close the business,
- €31.31 for self-employed with dependent family and who have to close the business,
- €23.48 for self-employed without dependent family and who have to close their business.

#### **INDUSTRIAL ACCIDENTS AND OCCUPATIONAL DISEASES**

Employees are entitled to a guaranteed income paid by the employer in case of industrial accidents or occupational diseases that lead to a temporary full disablement. Blue-collar workers receive an amount equal to their usual wages for the first seven days of disablement and white-collar workers receive their usual wages during the first month. Once the period of guaranteed income is exceeded the employee receives a replacement income equal to 90% of average daily wages that, as of January 1, 2001, is limited to a maximum daily amount of €68.19.<sup>11</sup>

In the case an accident or disease leads to temporary partial disablement, i.e. the employee continues working according to his or her ability, the benefit is calculated as the difference between the previous wage and the wage (temporarily) received in the new “function”.

Permanent disablement gives rise to an annual allowance based on the previous wage and the degree of disability and limited to an annual amount of €24 888.70 as of January 1, 2001. After three years of disablement the annual allowance is replaced by a life annuity, possibly supplemented if the disabled needs help from a third person to perform normal activities if life.

In the scheme of the self-employed there is no special arrangement for industrial accidents or occupational diseases. The replacement income is the same as in the case of primary disablement. Civil servants, on the contrary, receive their usual wage during the whole period of temporary disablement without time restrictions and an annuity calculated on the basis of the wage in case of permanent disablement. The annuity cannot exceed €21 047.40.

#### **WHAT CAN THE USER CHANGE?**

Following is a list of parameters that can be adjusted by the user:

- income ceilings used to limit daily benefits for sickness, industrial accidents and occupational disease,

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<sup>11</sup> For occupational diseases a supplementary condition is that the period of disablement is at least 15 days.

- percentages and thresholds used to calculate actual sickness and disability benefits and benefits in case of industrial accident and or occupational disease,
- percentages used to determine the supplements for blue-collar workers in case of sickness,
- percentages used to determine daily maternity benefit,
- lump sum benefits for sickness and disability and maternity leave for self-employed,
- percentages and thresholds in case of supplement for help of a third person,
- percentage of social security contributions on gross incomes and tax parameters needed to calculate prepayment amounts where applicable.

#### *WHAT IS NOT POSSIBLE?*

It is not possible to adapt periods for which benefits are applicable. One of the main political parties proposed to increase the legal period for maternity leave in the most recent federal elections of June 2007. This, however, is not possible to simulate with MIMOSIS without changing the source code.

Since MIMOSIS is a static model transitions in and out of “states” are not modeled. For the SICK-module this implies that maternity benefits are assumed to have no effect on fertility, although this might be an implicit policy goal in societies with a rapidly ageing population.

#### *VALIDATION*

Table 2-7 shows the model estimations of the amounts paid for the different types in the different schemes.

TABLE 2-7 BENEFITS PAID FOR SICKNESS AND DISABILITY IN 2001 IN MILLION EURO

	Reference year (1)	MIMOSIS: baseline (2)	Diff. (2)-(1)	Diff. (2)-(1) as % of (1)
<b>Primary disablement</b>				
Employees, blue collar	534.40	890.01	355.6	66.54
Employees, white collar	207.13	169.78	-37.3	-18.03
Self-employed	19.97	-	-	-
<b>Invalidity</b>				
Employees, blue collar	1350.33	1143.44	-206.9	-15.32
Employees, white collar	422.76	447.78	25.0	5.92
Self-employed	128.03	95.52	-32.5	-25.39
<b>Maternity</b>				
Employees, primary period	339.65	536.13	196.5	57.85
Self-employed	4.67	-	-	-
Benefits temporary disablement	-	154.39	-	-
Benefits permanent disablement	40.77	38.22	-2.6	-6.27
Benefits temporary occupational disease	4.96	1.60	-3.4	-67.80
Benefits permanent occupational disease	226.94	244.73	17.8	7.84

**CHANGES IN THE LEGISLATION SINCE 2001**

- paternity leave

Since July 1<sup>st</sup> 2002 every employee has the right to paternity leave of 10 days after the birth of his child. The employee has to take this leave within a period of 30 days starting the day of the birth. The first three days of his paternity leave the employee is entitled to his full wages paid by his employer. For the days after the first three days the employee is entitled to paternity benefits paid by the health insurance. The paternity benefits amount to 82% of the lost but limited wages of the employee. On January 1<sup>st</sup> 2007 the wages per day are limited to € 132.7860 if the employee is working in a five-day working week, and limited to € 110.6550 if the employee is working in a six-day working week. Prior to July 1<sup>st</sup> 2002 the employee was entitled to a paternity leave of only 3 days, for which he received his full wages.

- adoption leave

Also since July 1<sup>st</sup> 2002 every employee has the right to adoption leave of maximum 6 weeks if the adopted child is younger than 3 years; 4 weeks if the adopted child is older than 3 but younger than 8 years. The first three days of this leave the employee is entitled to his full wages paid by his employer. For the days after the first three days the employee is entitled to benefits paid by the health insurance. The benefits amount to 82% of the lost but limited wages of the employee.

Since January 1<sup>st</sup> 2007 also self employed have the right to adoption leave of 6 weeks if the adopted child is younger than 3 years; 4 weeks if the adopted child is older than 3 but younger than 8 years. During this time the self employed receives a fixed amount per week that is set to € 347.11.

- breast-feeding breaks

Since July 1<sup>st</sup> 2002 an employee has the right to suspend her activities to nurse her baby or to express milk. The break lasts half an hour. An employee working 4 hours a day or more is entitled to one break for that day. An employee working at least 7 hours and half is entitled to 2 breaks that day. During these breaks the employee is entitled to benefits in accordance to the maternity benefits (82% of the lost and unlimited wages).

- introduction of a minimum right for employees in primary disablement

Since January 1<sup>st</sup> 2003 there are minimum benefits for employees in primary disablement from the 7<sup>th</sup> month of primary disablement on. Before there were no minimum benefits, and for part-time employees or employees with low income this usually meant that they received very low benefits when they got ill.

- second ceiling for the income conditions of household members

To determine the household position of the sick and disabled we look at the income of the other household member(s) that has to satisfy certain conditions. To be classified as an employee with dependent family the other household member(s) of the sick and disabled can not have an income that amounts to more than € 758.63 per month. Since July 1<sup>st</sup> 2004 a second ceiling permits to be classified as an employee without dependent family but who has lost his sole source of income when the income of the other household member(s) is smaller or equal to € 1283.91 per month.

- social status of child minders

Since April 1<sup>st</sup> 2003 childminders<sup>12</sup> can be entitled to sickness and disability benefits, maternity benefits and benefits in case of industrial accident or occupational disease.

As for employees the amount of benefits depends on the household position and the lost “wages” of the childminder. Because child minders do not earn a wage as such, but receive remuneration, their lost wages per month are determined as follows:

$$\text{Fictitious wage} = (\text{the number of child care hours} * \text{the number of children in child care}) * \text{fictitious hourly wages}$$

The fictitious hourly wages are set to € 7.80. If the child minder takes care of one child during a whole day this is then equal to 1.9 hours.

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<sup>12</sup> The childminder must have joined a service that is recognized by the Flemish, Walloon or German-speaking Community.

### 2.2.3 unemployment benefits (UNEM-module)

#### A BRIEF OVERVIEW OF THE LEGISLATION

In the unemployment legislation three groups of unemployed are distinguished:

- unemployed in search of work that are entitled to benefits either after studies or after previous employment.
- unemployed not in search of work and that are entitled to a benefit: conventional early retirement, career break, older unemployed with seniority supplement, other exemptions.
- employees entitled to benefits: part-time early retirement, part-time career break, guaranteed income benefits, temporarily unemployed, individuals in social activation programs.

In Table 2-8 we list the daily unemployment benefits of the young unemployed, i.e. after leaving school.<sup>13</sup> To check whether or not family members are dependent, one has to determine their net own means. If the latter exceed what is legally set as maximum the person is no longer considered dependent. We do not mention those ceilings here but they are available as parameters in MIMOSIS.

TABLE 2-8 DAILY UNEMPLOYMENT BENEFITS FOR THE YOUNG UNEMPLOYED

	Benefits per day in Euro
<b>Unemployed with dependent family</b>	30.99
<b>Single unemployed</b>	
Younger than 18	8.63
18 or older and younger than 21	13.56
21 or older	21.19
<b>Cohabiting unemployed</b>	
Partner has low unemployment benefits (sole source of income and <= €917.80 a month)	
Younger than 18	7.99
18 or older and younger than 21	12.84
21 or older	12.84
Partner's (replacement) income exceeds €917.80 monthly	
Younger than 18	7.54
18 or older and younger than 21	12.02
21 or older	12.02

In case the unemployed worked before becoming unemployed the unemployment benefits depend on the average lost wages (based on last 4 weeks in employment), the family situation and the time already unemployed. The daily benefits are restricted: they cannot fall below a certain

<sup>13</sup> To be eligible for those benefits the young unemployed has to respect a "waiting period", i.e. during this period no unemployment benefits are received. The waiting period depends on the age and ranges from a minimum of 155 days to a maximum of 310 days.

threshold and cannot exceed a certain maximum. In Table 2-9 we list the percentages and minimum and maximum amounts for the unemployment benefits of the previously employed.

TABLE 2-9 CONDITIONS TO DETERMINE DAILY UNEMPLOYMENT BENEFITS AFTER EMPLOYMENT

Category	% of daily wages	Minimum daily amount (in euro)	Maximum daily amount (in euro)
Unemployed with dependent family			
Disabled	60%	-	-
Not disabled	60%	31.78	35.30
Single unemployed			
Disabled	50%	-	-
Not disabled			
First 12 months	60%	24.07	35.30
After 12 months	45%	24.07	26.48
Cohabiting unemployed			
Disabled	50%	-	-
Not disabled			
First 12 months	55%	17.70	32.35
13 <sup>th</sup> until 15 <sup>th</sup> month <sup>14</sup>	35%	17.70	20.58
After 15 months			
Worked for more than 20 years as wage earner	35%		
Permanently disabled	35%		
All other cases			
Partner has monthly unemployment benefits not exceeding €917.80 as sole source of income		13.21+4.41	
Partner has (replacement) income exceeding €917.80 monthly		13.21	

People in *conventional early retirement* receive 60% of their lost quarterly wages with a minimum of €2478.84 and a maximum of €2753.40. These amounts are supplemented by a benefit paid by the employer and equal to half the difference between net income and the unemployment benefit. The amount of gross quarterly wages taken into account to determine net income is limited to €8329.23. In the case of a *career break* benefits are different when leaving full time or part time employment. For the latter the benefit would be calculated in function of the hours worked proportional to a full time worker in the same job. No information on the hours worked by part time workers is available and the benefit for this group is not reconstructed but read in directly from external data. *Elderly unemployed with a seniority supplement* receive benefits that vary according to age, unemployment duration and family situation.

For individuals with part-time early retirement, part-time career break, temporary unemployment, etc. benefits are either a lump sum amount per day or per month, often

<sup>14</sup> This period is increased by three months for every additional year – after the first – worked as wage earner.

supplemented with an amount paid by the employer (part-time early retirement, part-time career break, ...) or depend on the hours worked (temporary unemployment).

#### *WHAT CAN THE USER CHANGE?*

Below we list some of the most important parameters that can be changed by the user in the UNEM-module.

- ceilings used to determine dependent family,
- maximum monthly amount of unemployment benefits of partner with unemployment benefits as sole source of income,
- daily lump sum benefits for young unemployed,
- percentages applied to average lost daily wages,
- ceilings applied to average lost daily wages,
- ceilings and percentages to compute early retirement benefits,
- monthly lump sum benefits in case of career break and part-time career break,
- daily lump sum amounts in case of part-time early retirement,
- tax parameters used to determine net income where necessary,
- period during which unemployment benefit amounts are applicable.

#### *WHAT IS NOT POSSIBLE?*

The unemployment status is read in from external data and is fixed within a run of MIMOSIS. It is thus not possible to model transitions in and out of unemployment.<sup>15</sup> For the group of part-time unemployed where the benefits depend on hours worked the benefits are not reconstructed but read in directly from external sources because of lack of information on hours worked. Simulations cannot be performed for this group. As mentioned before, MIMOSIS is a static arithmetic model. For the UNEM-module this implies that changes in unemployment benefits are assumed not to have any effect on labour supply.

#### *VALIDATION*

In Table 2-10 the reproduction of aggregate statistics is shown. In general the module estimates fairly accurately the aggregate statistics as published by external sources.

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<sup>15</sup> It is not possible to model this by changing a parameter. However, changing the input dataset is an alternative to model such transitions.

TABLE 2-10 UNEMPLOYMENT BENEFITS IN 2001 IN MILLION EURO

	Reference year (1)	MIMOSIS: baseline (2)	Diff. (2)-(1)	Diff. (2)-(1) as % of (1)
Full-time unemployed	4.23	3.97	-0.26	-6.17
Part-time unemployed	0.34	0.33	-0.01	-2.03
Early retirement	1.15	1.10	-0.06	-4.89
Career break and time credit	0.27	0.26	-0.01	-5.14
Total	6.00	5.66	-0.34	-5.64

#### CHANGES IN THE LEGISLATION SINCE 2001

- youth holiday

Since January 1<sup>st</sup> 2001 the system of youth holidays replaces the system of supplementary holidays for young employees. To be eligible for youth holidays a young employee has to meet not only the conditions to be permitted to the system of unemployment benefits on the basis of studies (see section 3.3 of the UNEM module note), but also the following conditions:

- the young employee did not meet the eligibility conditions for youth holidays or supplementary holidays during one of the previous years;
- the young employee has exhausted his normal days' holiday he is entitled to;
- the youth holiday benefits are requested for days that fall within a period the young employee is bounded by an employment contract;
- the young employee is during his vacation hours an unemployed without pay and without replacement benefit.

When eligible the young employee is entitled to 4 weeks of youth holidays, reduced by the number of normal paid days' holiday he is entitled to. The benefit the young employee receives is equal to 65% of the average daily wages he is normally entitled to when he takes up youth holiday for the first time.

- childminders

Since April 1<sup>st</sup> 2003 a social safety net came into effect for childminders. If the income of a child minder decreases because of the temporary absence of (some of) the children normally under her or his care, for reasons independent<sup>16</sup> of the child minder, she or he can be entitled to a child minder benefit paid by the RVA/ ONM. To be eligible the childminder has to meet the following conditions:

- she or he takes care of the children in a family context and the children are brought by their parents to the childminders home;
- she or he has joined a service that is recognized by the Flemish, Walloon or German-speaking Community;

<sup>16</sup> If the childminder e.g. takes a day off she or he will not be entitled to a childminder benefit for that day.

- she or he is not bounded to this service by an employment contract.

This regulation does not hold for child minders who are self-employed child minders or who work with an employment contract.

The daily amount of the child minder benefit amounts to €25.09 (since October 1<sup>st</sup> 2006). The total amount of the benefit is calculated per month with the following method:

- determination of the maximum number of child care days;
- determination of the number of missing paid child care days;
- determination of the number of days child minder benefits are paid:

$$(\text{the number of missing paid child care days} \times 1.9) / 6.33$$

The number of days that child minder benefits are paid can be reduced if the child minder performs another activity or receives an income that can not be cumulated with child minder benefits. However, if the other activity is secondary, if the child minder already performed the activity during three months prior to the start of the activity as child minder, the activity only is performed during the evening (between 6 pm and 7 am) during the week (from Monday till Friday), the activity does not belong to a non permitted area (e.g. catering industry, pedlar, insurance agent), the activity is declared on the form C220A when the child minder benefits are applied for, cumulation with child minder benefits is possible. The child minder benefits can also be cumulated with survivor pension for a period of 12 months and with benefits in case of career break (but not with unemployment benefits after studies or employment).

- time credit

Since January 1<sup>st</sup> 2002 time credit is the system of common career break for employees who are working in the **private sector**. Employees have a right to a full or partial interruption of their working hours for at most one year<sup>17</sup> during their entire career. The minimum length of a period of interruption is three months. To be entitled the employee must have worked 12 months for his employer during the 15 months prior to the request for time credit. In Table 2-11 the level of benefits in case of time

TABLE 2-11 LEVEL OF NET BENEFITS IN CASE OF TIME CREDIT (SINCE OCTOBER 1<sup>ST</sup> 2006)

Full interruption of a full-time job		Reduction of a full-time job to a half-time job	
< 5 years seniority	> 5 years seniority	< 5 years seniority	> 5 years seniority
€418.76	€558.35	€209.37	€279.17

For employees who fully interrupt a part-time job, the amount of benefits in case of time credit is reduced proportionally to the number of working hours in their part-time job. For

<sup>17</sup> Through a collective labour agreement the duration can be extended to a maximum of 5 years during the entire career.

employees who reduce their working hours in a part-time job (at least  $\frac{3}{4}$  of a full-time job) to a half-time job, the amount of benefits in case of time credit is reduced proportionally to the number of reduced working hours.

Employees working in a five-day working week or more also have the right to decrease their working days for:

- one day per week;
- or two half days per week;

during a maximum period of five years during their entire career. The minimum length of a period of this kind of interruption is six months. To be entitled the employee must have worked for his employer during the five years prior to his request and he must have worked full-time during the last 12 months of those five years. The net benefits the employees receives amount to €177.93 per month if he is single; and €137.88 per month for other employees (employees with dependent family and cohabitating employees).

Employees of 50 years and older also have the right to:

- reduce their working days with one day per week or two half days per week on the condition that they are working in a five-day working week or more (the minimum length of a period of this kind of interruption is also six months);
- reduce their full-time job to a part-time job.

There is no maximum length to this right. To be entitled the employee must be 50 years or older; he must have worked for his employer during the five years prior to his request; he must have a seniority of 20 years as a wage earner. The net benefits amount to €233.77 per month for a single employee in case of a decrease of  $\frac{1}{5}$  and €193.72 for other employees (employees with dependent family and cohabitating employees); and to €417.05 per month in case of a decrease to a part-time job. For employees who reduce their working hours in a part-time job (at least  $\frac{3}{4}$  of a full-time job) to a half-time job, the amount of benefits in case of time credit is reduced proportionally to the number of reduced working hours.

- guaranteed income benefits

Since July 5<sup>th</sup>, 2005 guaranteed income benefits are computed as:

*guaranteed income benefit = reference monthly benefit - the net monthly wages obtained as part-time + a monthly lump sum amount of the hourly bonus*

*monthly lump sum amount of the hourly bonus = (hours >  $\frac{1}{3}$  of the number of hours full-time) \* hourly bonus*

*hours >  $\frac{1}{3}$  of the number of hours full-time = only the hours that exceed  $\frac{1}{3}$  of a full-time job give raise to the hourly bonus (55 hours per month in case of employment in a job of which the number of full-time hours is equal to 38 hours per week)*

TABLE 2-12 LEVEL OF THE HOURLY BONUS (SINCE OCTOBER 1<sup>ST</sup> 2006)

	Situation	Hourly bonus
1	Unemployed with dependent family	€ 2.65
2	Single unemployed	€ 1.86
3	Cohabiting unemployed	€ 1.06

The two systems are used simultaneously. If the unemployed was already working part-time in the old system before July 2005, the highest result of both systems is allocated to the unemployed.

- activation benefits

Measures were taken to activate unemployment benefits, such as the Activa job scheme. Within this job scheme part of the wages is paid by the RVA/ONEM when long-term unemployed are employed. The part of the wages that is paid is then called “employment benefit”.

Generally the “employment benefit” equals € 500 per month. This amount is reduced proportionally in case of part-time employment, and the amount is limited to the net monthly wages the unemployed receives.

If the unemployed is employed by local authorities in the scope of the safety and prevention policy (stadswacht / assistant de prévention et de sécurité) the “employment benefit” is increased to € 900 per month or to € 1100 per month.

If the unemployed is working in an interim job the amount of the “employment benefit” is multiplied with the following fraction:

$$500 * [q / (s * 4.33)]$$

- the denominator is equal to the number of hours a full-time employee normally works per week (factor s) multiplied with 4.33;
- the numerator is equal to the number of hours wages that are paid per month to the unemployed (factor q)

If the unemployed is working with a short term job contract the same calculation rules apply as for unemployed working in an interim job.

If a young unemployed who is not entitled to waiting benefits follows an individual education plan he is then entitled to waiting benefits during the period of education. For the calculation of these waiting benefits we refer to section 3.3 of the UNEM module note.

If an older unemployed (aged 50 or older) resumes working as an employee or a self-employed (in main occupation) he is then entitled to a “resumption of work benefit”. The “resumption of work benefit” amounts to € 172.31 per month, and is payable for a maximum period of 24 months.

- particular benefits for the disabled

The rules concerning the particular unemployment benefits for the disabled were lifted (as a simplification of the unemployment legislation). Given the fact that the guaranteed minimum income also applies to the employment of disabled employees the deviating regulation had no longer *raison d'être*. Since April 1<sup>st</sup> 2003 the disabled unemployed are indemnified according to the rules of the general system.

#### **2.2.4 social security contributions (CONTRIB-module)**

##### *A BRIEF OVERVIEW OF THE LEGISLATION*

Social security contributions are paid quarterly on total gross earnings, without income ceiling and before any tax deductions. Earnings are any advantage in money – or that can be expressed in money – granted by the employer as compensation for labour. Social security contributions depend on the labour market status of the individual and are paid on a quarterly basis. In some instances social security contributions are also due on replacement incomes. This is the case for (early) retirement and survival pensions and disability benefits (except for primary disablement). The social security contributions due depend on the number of dependent family members. The calculation bases for determining contributions come from the different modules where the respective benefits are calculated, i.e. pensions module, unemployment module and sickness and disability module.

Contributions are levied to fund government expenditures on social security such as pensions, unemployment, but also wage moderation and funds in case of company closings. In Table 2-13 we list the percentages of general social security contributions on gross earnings, differentiated according to the purpose of funding, for employees and employers. Social security contributions for civil servants without statutory service are similar to those of wage earners on the private labour market.

TABLE 2-13 PERCENTAGES TO DETERMINE SOCIAL SECURITY CONTRIBUTIONS FOR WAGE EARNERS

	Blue-collar workers			White-collar workers		
	employee	employer	total	employee	employer	total
Pensions	7.50	8.86	16.36	7.50	8.86	16.36
Sickness and disability						
Medical care	3.55	3.80	7.35	3.55	3.80	7.35
Disability benefits	1.15	2.35	3.50	1.15	2.35	3.50
Unemployment	0.87	1.46	2.33	0.87	1.46	2.33
Family allowances	0.00	7.00	7.00	0.00	7.00	7.00
Work accidents	0.00	0.30	0.30	0.00	0.30	0.30
Occupational disease	0.00	1.10	1.10	0.00	1.10	1.10
Annual vacation	0.00	6.00	6.00	0.00	0.00	0.00
Paid educational leave	0.00	0.04	0.04	0.00	0.04	0.04
Work integration activities	0.00	0.10	0.10	0.00	0.10	0.10
Child care	0.00	0.05	0.05	0.00	0.05	0.05
Temporary unemployment and older unemployed	0.00	0.10	0.10	0.00	0.10	0.10
Wage moderation	0.00	7.48	7.48	0.00	7.48	7.48
Total <sup>18</sup>	13.07	38.64	51.71	13.07	32.64	45.71

Similar to Table 2-13, in Table 2-14 we list the percentages applicable to gross earnings of civil servants with statutory service working at either the local or federal level.

<sup>18</sup> Remark that we only list the general contributions here. If we take into account contributions for other purposes such as funds for company closings, the employer contributions total 40.82% for blue-collar workers and 34.82% for white-collar workers, while the employee contributions remain at 13.07%. This implies a total percentage of 53.89% for blue-collar workers and 47.89% for white-collar workers.

TABLE 2-14 PERCENTAGES TO DETERMINE SOCIAL SECURITY CONTRIBUTIONS FOR CIVIL SERVANTS

	Employee	Employer	Total
<b>Civil servants working at local level</b>			
pensions	7.50	20.00	27.50
Sickness and disability benefits	3.55	3.80	7.35
Family allowances	0.00	5.25	5.25
Occupational disease	0.00	0.17	0.17
Wage moderation	0.00	6.00	6.00
Children attendance	0.00	0.05	0.05
<b>Total</b>	<b>11.05</b>	<b>35.27</b>	<b>46.32</b>
<b>Civil servants at the federal level</b>			
Survival pensions	7.50	0.00	7.50
Health care	3.55	3.80	7.35
Family allowance	0.00	0.00	0.00
Occupational disease	0.00	0.00	0.00
Wage moderation	0.00	0.00	0.00
Children attendance	0.00	0.00	0.00
<b>Total</b>	<b>11.05</b>	<b>3.80</b>	<b>14.85</b>

Self-employed are subject to a quarterly lump sum amount of €32.50 if income is in the range €10 306.07-€49 993.26 and a lump sum amount of €64.50 if income exceeds €49 993.26. These lump sum amounts are supplemented by a variable contribution of 16.70% if income is between €10 306.07 and €49 993.26 and of 12.27% if net income exceeds that amount.

Depending on the characteristics of the employer and/or employee the tax benefit legislation also provides for deductions on employer social security contributions for a fixed gross wage. Those are either lump sum amounts or a percentage of remuneration and are either structural, i.e. applicable to all companies in an industry, or targeted, i.e. targeted toward specific worker categories such as job seekers, unemployed that are difficult to re-integrate in the labour market .... Deductions are also applicable on employee social security contributions, e.g. for workers with low wages.

Civil servants also can enjoy deductions on the social security contributions paid. Deductions on employers' contributions for civil servants typically only apply for civil servants at the local level. Currently there is not enough information available to reconstruct the 7 possible deductions on employers' social security contributions for civil servants.

Apart from the calculation of social security contributions for employers and employees in the different schemes the module on social security contributions also computes gross taxable income concepts that are important as input for the module on personal income taxation and for other modules where income conditions are needed (e.g. to determine dependent family). Gross taxable labour market income is defined as reconstructed gross income variables minus the social security contributions. Gross taxable replacement income is the sum of replacement incomes from the various modules minus the social security contributions due on some of those incomes.

#### *WHAT CAN THE USER CHANGE?*

We list some of the most important policy parameters of the CONTRIB-module.

- parameters used to determine single and double holiday earnings for blue- and white-collar workers and civil servants,
- percentages used to calculate social security contributions for wage earners and civil servants,
- percentages and amount used to determine deductions,
- quarterly lump sum amounts to be paid by all self-employed,
- percentages and income levels used to determine variable component of self-employed social security contributions,
- percentages, (lump sum) amounts and ceilings used to determine social security contributions on replacement income,
- parameter to indicate that labour income should be computed as the product of hours worked and a wage,
- parameter to increase the hourly wage earned, either on male or female income or both.

The latter two points allow the construction of complete individual budget constraints by looping over the hours worked.

#### *WHAT IS NOT POSSIBLE?*

Currently none of the replacement incomes in MIMOSIS are adapted conditional on income earned on the labour market. Such adaptation rules nevertheless do exist in the tax benefit legislation and are of importance in determining effective tax and participation rates for example.

All income concepts are based on the predefined and fixed labour market status and hence, it is currently not possible to perform simulations where individuals change labour market status.

In principle gross wages are fixed and changes in social security contributions, especially those of employers, will have no effect on them. Again, as for the other modules, labour supply responses are not modeled.

#### *VALIDATION*

Table 2-15 shows how well the contributions as calculated by the CONTRIB-module correspond with external statistics ("n.a." in either column means data were not (yet) available). The small total deviation conceals a wide range of deviations for the more detailed items. Some of the categories cannot be distinguished in the data, for example student jobs, for others data is lacking to reconstruct the contributions. For the contribution types for which data is available the estimation results are in general quite satisfactory except for salaried employees working for local authorities and civil servants.

TABLE 2-15 CONTRIBUTIONS AFTER DEDUCTION OF REDUCTIONS (YEARLY AMOUNTS IN MILLION EURO 2001)

	Reference year (1)	MIMOSIS: baseline (2)	Diff. (2)-(1)	Diff. (2)-(1) as % of (1)
Wage earners scheme, normal contributions (employee and employer)				
Social Security	24938.59	25967.40	1028.82	4.13
Social Security Local Authorities	896.41	272.84	-623.56	-69.56
Wage moderation	2914.60	3606.79	692.19	23.75
Wage earners scheme, specific contributions (employee and employer)				
On double holiday earnings	537.14	302.71	-234.43	-43.64
Wage moderation double holiday earnings	244.13	251.11	6.98	2.86
reduction child allowance	0.004	n.a.	-	-
premiums group insurance	144.73	n.a.	-	-
employer contribution part-time unempl. + seniority	58.41	59.66	1.25	2.14
employer contribution early retirement + elderly unempl.	63.36	153.88	90.51	142.85
compensating contribution employer for early retirement	4.06	n.a.	-	-
private use company car	70.77	n.a.	-	-
part-time employment	0.03	n.a.	-	-
profit sharing	n.a.	n.a.	-	-
Wage earner scheme, special funds (employee and employer)				
other than yearly vacation and closure of businesses-	1327.58	113.36	-1214.22	-91.46
yearly vacation	3322.67	3192.75	-129.92	-3.91
closure of businesses	159.15	171.82	12.67	7.96
	2116.88	2389.99	273.12	12.90
Self-employed, normal contributions	2.08	n.a.	-	-
Self-employed, consolidation contribution	99.34	n.a.	-	-
Self-employed, company contribution	6.63	n.a.	-	-
Self-employed, specific contributions	1327.58	113.36	-1214.22	-91.46
Contributions on replacement income				
(survival) pensions	528.37	665.35	136.98	25.93
benefits from occupational disease and accidents	n.a.	57.92	-	-
Pension contributions statutory civil servants (federal)	n.a.	1018.42	-	-
Pension contributions statutory civil servants local authorities	n.a.	0.00	-	-
Contributions statutory federal civil servants (other than pensions)	n.a.	951.70	-	-
Contributions statutory civil servants local authorities (other than pensions)	n.a.	189.30	-	-
<b>Total</b>	<b>37434.92</b>	<b>39365.01</b>	<b>1930.10</b>	<b>5.16</b>

### *CHANGES IN THE LEGISLATION SINCE 2001*

A new system has been implemented in 2004 in order to simplify and harmonize the different reductions of contributions. In this new system, all reductions are gathered under a global one that is composed of two parts: a general reduction which is the structural one and a target group reduction. In the new framework, the structural reduction can be combined with only one target group reduction. The five possible target group reductions are: first job, long term unemployed, old worker, young worker and collective reduction of the work time.

On the other side, to be entitled to a reduction, the worker must work at least 27.5 % of the normal time in the considered quarter.

### **2.2.5 pensions (PENSWELF-module)**

#### *A BRIEF OVERVIEW OF THE LEGISLATION*

In this module we distinguish between retirement pension, survival pensions, minimum pensions and guaranteed income for wage earners and self-employed. The pension amount received depends on whether the individual is married and whether the spouse also receives a pension and/or income from professional activities or replacement income. In general, for married couples where the spouse has no other incomes the replacement rate is 75%, for singles and couples not in the situation above the replacement rate is 60%.<sup>19</sup> The minimum monthly pension amounts depend on the replacement rate and are also differentiated according to the coverage scheme, i.e. wage earner or self-employed. Survival pensions are differentiated only between coverage schemes. Minimum pension are further adjusted according to the "career fraction". A full career is 45 years and minimum pensions are proportional to the number of years worked relative to a full career.

#### *WHAT CAN THE USER CHANGE?*

This is a fairly simple module and its main purpose is to offer a possibility to adjust pensions to the overall evolution of welfare in society. Pensions that can be adapted include normal retirement, survival, and minimum pensions in the systems of employees and self-employed and guaranteed income. The pensions for civil servants have different rules, are in general higher, and have incorporated in them some sort of welfare adaptation already.

The adaptation can be differentiated along the following dimensions (and combinations thereof) by introducing either an absolute change or a percentage change:

- according to type: retirement pension, survival pension, minimum pension, guaranteed income,

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<sup>19</sup> If both partners in a couple have a pension and the highest pension calculated at 75% is higher than the sum of both pension calculated at 60%, the rate of 75% is applied. It is 60% for each partner in all other cases.

- according to scheme coverage: wage earner, self-employed
- according to replacement rate: at 75% or 60%
- according to years already receiving (pension) benefits: 0-4 years, 5-9 year, 10-15 years, or 15 years or more.

#### WHAT IS NOT POSSIBLE?

The PENSSELF-module does not recalculate pensions. It therefore does not allow changing replacement rates for example. A more elaborate pension module is currently being developed that recalculates pensions based on career information for wage earners on the private and public labour market and that allows greater flexibility and potential for policy simulations.

#### VALIDATION

The validation of the module results thus far is summarized in Table 2-16. In aggregate the module reproduces quite well external statistics, except for the income guarantee for elderly where there is an underestimation of 82%.

TABLE 2-16 EXPENSES FOR PENSIONS IN 2001 IN MILLION EURO

	Reference year (1)	MIMOSIS: baseline (2)	Diff. (2)-(1)	Diff. (2)-(1) as % of (1)
Employees	12809.9	13221.0	411.1	3.21
Self-Employed	1875.6	1708.3	-167.3	-8.92
Public Sector	7254.8	7678.2	423.4	5.84
Income guarantee elderly	257.1	63.1	-194.0	-75.46

#### CHANGES IN THE LEGISLATION SINCE 2001

- **Generation Pact**  
The Generation Pact sets up a mechanism to adapt all social allowances to the evolution of welfare. The Belgian government has to agree every two years, and for the first time in 2006, upon the amount whereby social allowances are allowed to increase. This system is limited to the self-employed and wage earner schemes only.
- **minimum pension**  
From April 1<sup>st</sup> 2003, it is possible to cumulate years worked across schemes, i.e. wage earner and/or self-employed scheme, in order to increase the number of years used in the calculation of the minimum pension. When such accumulation is taken advantage of, the minimum pension calculated will be that of a self-employed.
- **Anticipated pension for self-employed**  
From April 1<sup>st</sup> 2003, it is possible to have an anticipated retirement pension in the self-employed scheme without any reduction in the retirement amount. The condition to benefit

from this rule is that the length of the individual's career must be equal to a full career in the wage earner scheme, i.e. 45 years of professional career for men and 43, 44 or 45 years for women according to year of the pension.

- **Income Guarantee Elderly**

The age eligibility criteria for the guaranteed income for the elderly have been increased from 62 in 2001 to 63 as of January 2003 and 64 starting January 2006. As of 2009 individuals have to be 65 or older to be eligible for the guaranteed income for the elderly. As from December 2006 the monthly guaranteed income amounts are also increased to 530.30€ (from 457.49€) per month for an elder person not living alone and to 795.46€ (from 686.24€) per month for a single elder individual.<sup>20</sup> As amounts are indexed, starting from January 2008 the indexed amounts will be 551.74€ per month for elderly not living alone and 827.61€ per month for single elderly.

- **women's retirement age**

From July 1997, there is a transition period for women's retirement age. After this period, the retirement age for men and women will be the same, i.e. 65 years. The transition period is detailed in Table 2-17.

TABLE 2-17 TRANSITION PERIOD FOR WOMEN'S RETIREMENT AGE

Starting pension data	Women's retirement age
Before July 1 <sup>st</sup> 1997	60
July 1 <sup>st</sup> 1997 – December 31 <sup>st</sup> 1999	61
January 1 <sup>st</sup> 2000 – December 31 <sup>st</sup> 2002	62
January 1 <sup>st</sup> 2003 – December 31 <sup>st</sup> 2005	63
January 1 <sup>st</sup> 2006 – December 31 <sup>st</sup> 2008	64
From January 1 <sup>st</sup> 2009	65

## 2.2.6 personal income taxes (PIT-module)

### A BRIEF OVERVIEW OF THE LEGISLATION

Taxes are calculated for each fiscal unit within the sociological household. A fiscal unit consists of the taxpayer (individual or married couple) and his or her dependents. To be considered as dependent one's net own means may not exceed certain threshold amounts. To determine net own means both taxable and non-taxable incomes are taken into account net of the costs (supposedly) made to obtain the income.

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<sup>20</sup> These increases are not merely indexations. The amounts in parentheses are the *indexed* amounts for December 2005, indexed from base amounts 393.88€ per month and 590.82€ per month respectively in 2001.

## BASIC TAX CALCULATION

Once tax units are determined personal income taxes due can be calculated using parameters from the tax legislation of 2001. From gross taxable income costs to obtain that income are subtracted to arrive at net taxable income. A fiscal unit can choose to deduct the real costs made or opt for a lump sum deduction. For employees the latter is determined according to the graduated percentages listed in Table 2-18. For self-employed the lump sum amount is determined as 5% of their gross taxable income and limited to €2880.

TABLE 2-18 RATES APPLIED ON GROSS TAXABLE INCOME OF EMPLOYEES TO DETERMINE LUMP SUM COSTS MADE TO OBTAIN THE INCOME

Gross taxable income brackets in Euro	Rate applied to bracket in %
>0 and <=4320	20.0
>4320 and <=8580	10.0
>8580 and <=14280	5.0
>14280 and <=57780	3.0
>57780	0.0

Net taxable income is obtained by subtracting the costs from gross taxable income. For married couples a marital quotient is applied if one of the spouses earns less than 30% of total net taxable occupational income. Income from the higher earning spouse is then transferred to the other spouse as if the latter earned 30% of total net taxable occupational income. The amount transferred is limited to €7710 however. Net taxable income can then be further reduced for tax units declaring expenses such as mortgage interest rate payments, charitable gifts, etc. To the net taxable income thus obtained, and of each spouse in the case of a married couple, a graduated rate structure is applied to determine the gross personal income taxes due.<sup>21</sup> In Table 2-19 we list the different income tax brackets and the rates that apply to them. The gross personal income taxes are then further reduced by various tax reductions.

TABLE 2-19 TAX RATES APPLICABLE ON NET TAXABLE INCOME IN 2001

Net taxable income brackets in Euro	Tax rates per income bracket in %
>0 and <=6570	25.0
>6570 and <=8710	30.0
>8710 and <=12420	40.0
>12420 and <=28540	45.0
>28540 and <=42810	50.0
>42810 and <=62790	52.5
>62790	55

<sup>21</sup> Net taxable income also includes income from other sources, e.g. real estate property.

## TAX REDUCTIONS

Tax reductions are a function of the size and composition of the tax unit, possible replacement income(s), expenses, and income earned abroad. It is possible that the total amount of tax reductions for a fiscal unit exceeds the amount of taxes due. In that case, taxes are set equal to zero, i.e. the Belgian tax system has no provision for tax refunds.

The most important tax reduction is the basic tax exempt amount, augmented for dependent children and other dependent persons. The amounts are listed in Table 2-20. These amounts are further increased for handicapped members of the tax unit. In case of a married couple only the basic tax exempt amount is applied to the income of the spouse with the lowest income. The other exemptions accrue to the spouse with the highest income. Tax reductions are calculated from the bottom-up, i.e. taxes on these amounts are calculated using the rate structure in Table 2-19. The tax amounts so calculated are then subtracted from the gross taxes calculated on net taxable income.

TABLE 2-20 TAX EXEMPT AMOUNTS APPLICABLE TO INCOME EARNED IN 2001

	tax exempt amount in Euro
<b>Basic tax exempt amount</b>	
single	5350
married couple (each partner)	4240
<b>Dependent children</b>	
first	1140 (+ 430)*
second	1780 (+ 430)*
third	3630 (+ 430)*
fourth and following	4050 (+ 430)*
<b>Dependent other persons (per person)</b>	1140

\* €430.00 is added for each dependent child under the age of three and wherefore no childcare costs are declared

Tax reductions for replacement income are calculated at the level of the tax unit and start from the maximum amounts listed in Table 2-21. These maxima are reduced in function of the share of replacement incomes in total income of the tax unit, i.e. the basic tax reduction is equal to the share of replacement income(s) in net taxable income multiplied by the maximum amount. This basic tax reduction is further reduced depending on the total amount of net taxable income and is limited to its share of taxes (share of replacement income in total net taxable income multiplied by the taxes due after application of tax reductions other than those for replacement incomes). In some cases taxes can be further reduced to zero if the sole source of income of the tax unit is a single type of replacement income and does not exceed a certain amount.

TABLE 2-21 MAXIMUM TAX REDUCTIONS FOR REPLACEMENT INCOMES IN 2001

Type of replacement income	Single (in Euro)	Married couple (in Euro)
pension benefits and early retirement benefits new type (starting as of January 1, 1987)	1550	1810
early retirement benefits old type (started before January 1, 1987)	2800	3060
unemployment benefits	1550	1810
unemployment benefits older unemployed (age 58 and above)	1550	1810
sickness and disability benefits	1990	2250
other replacement income	1550	1810

#### WHAT CAN THE USER CHANGE?

Below a list of the most important parameters that can be manipulated in the PIT-module:

- rates and brackets to determine lump sum (professional) costs for employees,
- cost percentages to determine net own means of family members,
- ceilings to determine dependent family members,
- marital quotient and maximal amount that can be transferred,
- income brackets and rate structure,
- basic exempted amount,
- tax exempted amounts for dependent children and dependent others,
- maximum tax reduction amounts for replacement incomes,
- rates and amounts used to reduce basic tax reduction for replacement incomes.

#### WHAT IS NOT POSSIBLE?

Because of privacy reasons there is no data available on the exact municipalities the fiscal units reside in and it is thus not possible to calculate the supplementary municipal taxes. We also have no information on interest and capital repayments of mortgages nor on the cadastral incomes (used to calculate property taxes). As such it is not possible to perform simulations in these areas, e.g. reduction in or complete abolishment of deductibility of mortgage repayments.

#### VALIDATION

In Table 2-22 we show fiscal statistics per decile of total taxable net income, i.e. after deduction of costs made to earn the income. The quantile values of the distribution of taxable income are systematically underestimated by MIMOSIS. Except for the lowest decile this also holds for the total

taxable net income per decile.<sup>22</sup> The total amount of taxes is severely underestimated for the first three deciles and to a lesser extent also for the fourth. As for the other deciles, total taxes paid are somewhat overestimated except for the tenth decile where there is again an underestimation, albeit less severe compared to the first deciles. Average tax rates closely resemble those found in external statistics for deciles 4 through 10 and are underestimated considerably for the first three deciles. It should be noted that we do not have tax information on the municipal and/or provincial level, nor do we have data on items such as mortgage repayments, gifts, property taxes, etc.

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<sup>22</sup> Deciles are based on fiscal units.

TABLE 2-22 TAXABLE NET INCOME AND TOTAL TAXES IN 2001 (INCOME EARNED IN 2001)

Decile	Total taxable net income			Total taxes		Average tax rate (%)
	Upper limit (€)	Total amount (billion €)	% of total	Total amount (billion €)	% of total	
External data from fiscal statistics						
1	7536	1.88	1.6	0.02	0.1	1.09
2	10968	4.69	3.9	0.16	0.5	3.42
3	13433	5.97	4.9	0.50	1.5	8.30
4	16067	7.23	6.0	0.92	2.8	12.73
5	18957	8.59	7.1	1.55	4.8	18.02
6	22221	10.07	8.3	2.23	6.9	22.13
7	26891	11.96	9.9	3.03	9.3	25.32
8	34229	14.86	12.3	4.19	12.9	28.21
9	46763	19.51	16.1	6.11	18.8	31.31
10		36.37	30.0	13.82	42.5	38.00
Total		121.13	100.0	32.52	100.0	26.85
Data calculated by the MIMOSIS module on personal income taxes						
1	6997	2.12	1.8	0.01	0.0	0.48
2	10356	4.35	3.8	0.11	0.3	2.50
3	12695	5.67	4.9	0.34	1.1	6.01
4	15578	6.90	6.0	0.83	2.6	12.07
5	18624	8.37	7.3	1.62	5.1	19.32
6	21884	9.90	8.6	2.35	7.5	23.73
7	26476	11.80	10.2	3.14	10.0	26.64
8	33465	14.57	12.6	4.26	13.5	29.22
9	46451	19.24	16.7	6.20	19.7	32.25
10		32.49	28.1	12.60	40.0	38.79
Total		115.41	100.0	31.47	100.0	27.27
Differences between calculated and external data in % of external data						
1	-7.15	12.71	14.76	-50.29	-67.55	-55.79
2	-5.58	-7.16	-3.25	-32.08	-30.75	-26.84
3	-5.49	-5.15	0.19	-31.33	-27.86	-27.59
4	-3.05	-4.58	-0.34	-9.49	-5.44	-5.16
5	-1.76	-2.46	2.19	4.55	7.10	7.21
6	-1.52	-1.68	3.37	5.42	8.21	7.23
7	-1.54	-1.34	3.25	3.80	7.37	5.20
8	-2.23	-1.93	2.66	1.60	4.92	3.60
9	-0.67	-1.39	3.54	1.56	4.88	3.01
10		-10.68	-6.17	-8.83	-5.77	2.08
Total		-4.72	0.00	-3.25	0.00	1.55

#### CHANGES IN THE LEGISLATION SINCE 2001

- determining lump sum expenses

Throughout the tax years 2002-2005 the rate on the first bracket to determine lump sum expenses is increased in two steps: for the tax year 2003 it has increased from 20% (year 2001) to 23%; thereafter it further increased to 25% in the tax year 2004.

- treatment of couples

From the tax year 2005 the way couples are treated changed considerably. The marital rule will only be applied if it results in a tax advantage for the couple. Before the tax year 2005 all income sources, other than net taxable occupational income, were added to the net taxable occupational income of the highest earning spouse after application of the marital splitting rule. As from tax year 2005 such incomes will be added to the income of the spouse that earned them.

- tax brackets

There have been some changes in the statutory tax brackets since 2001. The highest two tax rates have been abolished. The 55%-rate has been abolished in the tax year 2003 while the rate of 52% has been abolished since the tax year 2004.

The nominal amounts of net taxable income determining the brackets have also been changed for certain tax brackets. An overview is given in

TABLE 2-23 RATES APPLIED ON NET TAXABLE INCOME OF EACH SPOUSE TO DETERMINE GROSS PERSONAL INCOME TAXES FOR DIFFERENT TAX YEARS

Rate applied on net taxable income	Non indexed amount of net taxable income on EUR Tax year 2003	Non indexed amount of net taxable income on EUR Tax year 2004	Non indexed amount of net taxable income on EUR Tax year 2005
25%	>0 and <=5 705	>0 and <=5 705	>0 and <=5 705
30%	>5 705 and <=7 565	>5 705 and <=8 120	>5 705 and <=8 120
40%	>7 565 and <=10 785	>8 120 and <=12 120	>8 120 and <=13 530
45%	>10 785 and <=24 800	>12 120 and <=24 800	>13 530 and <=24 800
50%	>24 800 and <=37 185	>24 800	>24 800
52%	>37 185	abolished	abolished
55%	abolished	abolished	abolished

- tax credits

The exemption for both partners of a tax couple will be increased to the level of that of a single in two steps: in the tax year 2004 the non-indexed amount for each partner is increased from 3 250 EUR to 3 390 EUR; in the tax year 2005 this is further increased to 4 095 EUR.

From the tax year 2006 the age of dependent children for which the taxpayer does not declare daycare costs and for which she enjoys an exemption is increased from 3 to 12 years.

From the tax year 2003 on, the exemption for singles with dependent children will be given a broader interpretation as before. Until the tax year 2002 only specific singles, such as non remarried widow(er)s with dependent children, could benefit from the tax exemption. This has broadened to all single taxpayers with dependent children. The exempted non-indexed amount is set at 870 EUR. Furthermore, the tax credit for children is made refundable.

From the tax year 2003 onwards a refundable tax credit for low labour income is introduced. To determine this credit one the legislator takes into account the total amount of net taxable labour income of each spouse before the marital splitting rule is applied.

From the tax year 2005 onwards taxpayers that enter early retirement are treated differently than those that entered it before. The maximal non-indexed amounts for the tax credits for the 'new' early retired are 1 344.57 EUR for single taxpayers and 1 569.96 EUR for couples (as compared to 2 434.66 EUR for singles and 2 660.07 EUR for couples in the case of early retirement of the 'old' type).

#### **2.2.7 minimum income/social assistance (SOCBEN-module)**

When income is insufficient to provide for basic needs, individuals are entitled to a minimum income. Eligibility is conditional on having exhausted all other possible sources of income, including transfers from social security institutions (e.g. pensions, unemployment benefits, ...) and/or rights to alimony. The transfer amount is determined as the difference between the minimum income level and the level of net own means (means-tested) and also depends on the family situation of the applicant. It is to be noted however that social assistance is not automatic and follows the (approved) application of the individual in need. The approval is by the social welfare agencies and at their discretion, i.e. a similar application might be rejected by one and approved by another. In MIMOSIS an automatic procedure is assumed, i.e. abstraction is made of issues of non take-up.

Some resources, such as child benefits, war pensions, alimony for children, etc., are excluded from the means-test. From the income sources that are included in the means-test the most important that are currently lacking in the model are (imputed) income from property (real estate) and income from capital along with private pensions (not funded by social security contributions) and alimony to adults. A part of net own means thus calculated is exempted: it is subtracted from net own means in the calculation of the social benefit. The amounts that are exempted depend on the family situation and are included in the model as parameters as is the maximum amount of transfer. Other income sources and social transfers are calculated and available from the other modules.

#### *CHANGES IN THE LEGISLATION SINCE 2001*

Sine 2002 the right to a minimum income has been replaced by a right to social integration. The most important change for the minimum income legislation is the individualization of the right to income assistance. The right to income assistance is henceforth assessed at the individual level and

the income transfer is in favour of the individual and not the household. The legislator also introduced a new household typology: that of a parent only living with his or her children for half of the time or who pays alimony in their favour.

### **2.2.8 evaluation module (EVAL-module)**

Whereas in the previous modules the main objective was to reconstruct different income concepts and to calculate personal income taxes, the evaluation module brings all of these together and determines net disposable incomes of individuals, i.e. gross incomes minus social security contribution and personal income taxes and plus social welfare. The net incomes thus obtained will then be used to judge the budgetary and distributional impacts of a reform. Broadly speaking this implies a comparison of net disposable incomes before and after a reform.

When evaluating distributional consequences of a reform a number of options are available to the user as to what poverty benchmarks, equivalence scales, units of analysis she wants to look at. Poverty lines can be 40%, 50% or 60% of median or mean income; the basic unit of analysis is the individual but also households can be used as unit of analysis; the choice of equivalence scale is restricted to the new OECD-scale, i.e. 0.5 for additional adults and 0.3 for children, the old OECD-scale, i.e. 0.7 for additional adults and 0.5 for children, and (square root of) household size. To measure poverty incidence measures of the Foster-Greer-Thorbecke (FGT) class are offered, which includes the headcount ratio, the mean deprivation gap and the mean of squared deprivation gaps. The Gini coefficient is used for inequality measurement. Apart from tables per decile of equivalized income of losers and gainers, poverty incidence, and income inequality, results are also produced for different socio-economic classifications and age groups to provide for a more detailed and informed look at the population groups most (likely to be) affected by the reform. The importance and breadth of the results produced by the evaluation module will become clearer in section 4 where we discuss some simulations using MIMOSIS.

As a further illustration of the possibilities of MIMOSIS and of the richness of its underlying database, in the next section we will briefly describe the National Action Plans on Social Inclusion and to what extent MIMOSIS can be used to evaluate them and hence the progress made toward their accomplishment.

### **2.2.9 National Action Plans on Social Inclusion: another look at the possibilities of MIMOSIS**

During the Lisbon Summit of March 2000 the European Council decided that the European Union should adopt the strategic goal for the next decade not only of becoming “the most competitive and dynamic knowledge-based economy”, but also of achieving “greater social cohesion”. At the Summit in Nice, later in 2000, it was agreed to advance social policy on the basis of an Open Method of Coordination (OMC), in order to “make a decisive impact on the eradication of poverty and social exclusion by 2010” (Atkinson, 2002). This OMC aims to organise a process of mutual learning between Member States through frequent reports and the exchange of good

practices (Carpentier e.a., 2006). It was decided that each Member State should implement a national two-year action plan for combating poverty and social exclusion, setting specific targets. Subsequently, the first NAPs/inclusion were submitted in June 2001.

After the reorientation of the Lisbon Strategy which put the emphasis on economic growth and employment (more and better jobs) and less on social inclusion, the NAPs/inclusion were streamlined in an OMC Social Protection and Social Inclusion from 2006 on. The NAPs on social inclusion, pensions and health care were brought together in a National three-year Report on Social Protection and Social Inclusion (Carpentier e.a., 2006).

The National Action Plans on Social Inclusion report on the social situation and list new and existing policy measures. The social situation is described on the basis of a set of indicators (Laeken indicators)<sup>23</sup>, that is supplemented with national indicators. The listed policy measures normally cover a wide range of policy domains (among others education, housing, health care and (un)employment) and are designed to aid in the achievement (of the targeted levels) of the indicators.

One of the central ideas of the OMC is the use of outcomes/indicators in policy analysis. This means that indicators are to be used in all the different stages of policy making (from preparation to evaluation). By using indicators policy becomes more transparent and more efficient (Carpentier e.a., 2006).

Policy making on the basis of indicators assumes the sequence of a number of steps and an adequate report on the steps undertaken. First, to describe the social situation data have to be gathered and indicators have to be set. The results of these indicators then have to be analysed and interpreted in order to detect groups and domains at risk. When the groups and domains at risk are detected targets have to be set. Next the existing policy measures and the potential alternative measures have to be listed. These policy measures then have to be evaluated both ex-post and ex-ante (see next paragraph) so that the most adequate mix of policy measures can be determined to reach the targets set a in a previous step. Policy measures that are carried out have to be followed through. Data have to be systematically gathered, analysed and reported to determine if the indicators evolve in the desired direction. Finally, on the basis of an ex-post evaluation of measures good practices can be determined.

Reporting on the evolution of achievements set in the NAPs/inclusion three steps can be distinguished. In a first step the social situation is described on the basis of the analysis of the results of the indicators. Secondly the targets are described that are set on the basis of the groups and domains at risk and the policy priorities. A third and final step is a description of the existing policy and the new policy. In this step an ex-post evaluation is made of the existing policy and an ex-ante evaluation of the new policy measures. The latter can be done using microsimulation models.

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<sup>23</sup> The Laeken indicators is a set of common European statistical indicators on poverty and social exclusion, established at the European Council of December 2001 in the Brussels suburb of Laeken Belgium. For more details, see Eurostat (2003).

The Belgian NAPS/inclusion cover policy measures taken by the federal government and the government of the regions. In this section we give an overview of the Laeken indicators and the national indicators of the Belgian NAPS/inclusion, and we will indicate whether or not it is possible to calculate the indicators on the basis of MIMOSIS. In the first column of Table 2-24 we list the Laeken indicators and the national indicators of the Belgian NAPS/inclusion. In the second column of the table we indicate whether the indicator is computable on the basis of MIMOSIS. In the third column we then name the concepts to be used in the calculation of the indicator.

TABLE 2-24 MIMOSIS AND THE LAEKEN AND NATIONAL INDICATORS FROM THE NAPS/INCLUSION

Laeken indicators	Computable in MIMOSIS	Concept(s) used in the calculation
1a: At-risk-of-poverty rate by age and gender	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual (= the household total net income divided by equivalised household size according to the modified OECD scale)</li> <li>- the 'at-risk-of-poverty threshold' (= 60% of national median equivalised income)</li> <li>- the 'at-risk-of-poverty rate' (= the percentage of persons with an equivalised net total income below the 'at-risk-of poverty threshold')</li> <li>- age (0-15 years, 16-24 years, 25-49 years, 50-64 years, and 65 years and more)</li> <li>- gender</li> </ul>
1b: At-risk-of-poverty rate by most frequent activity	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- the 'at-risk-of-poverty rate'</li> <li>- activity status: economically active (unemployed or in work: employed or self-employed) or economically inactive (retired or other economically inactive)</li> </ul>
1c: At-risk-of-poverty rate by household type	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- the 'at-risk-of-poverty rate'</li> <li>- household type<sup>24</sup></li> </ul>
1d: At-risk-of-poverty rate by tenure status	no	(no information on tenure status available)

<sup>24</sup> For the different household types that are distinguished see EUROSTAT DOC. E2/IPSE/2003 Working Group "Statistics on Income, Poverty & Social Exclusion".

1e: At-risk-of-poverty threshold (illustrative values)	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- illustrative value for a one person household (= threshold*1) and illustrative value for a household consisting of two adult and two children (= threshold*2.1)</li> <li>- the conversion of national currency values into euro and into PPS is done using official exchange rates and PPS values published by Eurostat: New Cronos, Theme 2, Domain "Price", Collection "PPP", Table "PPPSNA95"</li> </ul>
2: Inequality of income distribution S80/S20 quintile share ratio	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- S80/S20 = the quotient of the equivalised income available to the 5<sup>th</sup> quintile (richest) over the 1<sup>st</sup> quintile (poorest)</li> </ul>
3: At-persistent-risk-of-poverty rate by gender (60% median)	no	(no information on the risk-of-poverty threshold in at least two of the preceding three years)
4: Relative at-risk-of-poverty gap	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- identification of the 'at-risk-of-poverty' persons</li> <li>- the median equivalised total net income for the 'at-risk-of-poverty' persons</li> <li>- relative at-risk-of-poverty-gap (= 100 * ((at-risk-of-poverty threshold - median equivalised total net income for the 'at-risk-of-poverty' persons) / at-risk-of-poverty threshold))</li> </ul>
5: Regional cohesion (dispersion of regional employment rates)	yes	<ul style="list-style-type: none"> <li>- identification of persons in employment</li> <li>- identification of regional population (persons of working age: 15-64): figures at national level are broken down over individual regions by applying regional structures of most recent population census or result of regional labour force survey</li> <li>- regional employment rates</li> <li>- coefficient of variation of regional employment rates</li> </ul>
6: Long term unemployment rate	yes	<ul style="list-style-type: none"> <li>- identification of persons in employment</li> <li>- identification of persons who are unemployed</li> <li>- identification of the duration of unemployment</li> <li>- identification of the active population</li> <li>- long-term unemployment rate (= persons who have been unemployed for more than 12 months as a percentage of the total active population)</li> </ul>

7: Persons living in jobless households	yes	- the number of persons aged 0-65 who are living in eligible households where none of the members are working as a percentage (proportion) of the total population aged 0-65 who are living in eligible households <sup>25</sup>
8: Early school leavers not in education or training	no	(no information on educational level)
9: Life expectancy at birth	no	
10: Self defined health status by income level	no	(no information on self defined health status)
11: Dispersion around the at-risk-of-poverty threshold	yes	- equivalised total net income per individual - the 'at-risk-of-poverty threshold' (40%, 50% or 70% instead of 60%) - the 'at-risk-of-poverty rate'
12: At-risk-of-poverty rate anchored at a moment in time	no	for a given year <<t>> (e.g. 1999) the 'at-risk-of-poverty' rate anchored at a moment in time is the share of the population whose equivalised total net income in that given year is below a risk-of-poverty threshold calculated in the standard way for the earlier year <<t-3>> (e.g. 1996) and then up-rated for inflation
13: At-risk-of-poverty rate before social transfers	yes	- equivalised income before social transfers per household - the 'at-risk-of-poverty threshold' (computed on the basis of the distribution <b>after</b> transfers!) - the 'at-risk-of-poverty rate'
14: Inequality of income distribution Gini coefficient	yes	- equivalised total net income per individual - GINI = the relationship of cumulative shares of population arranged according to the level of income, to the cumulative share of the equivalised total net income received by them
15: At-persistent-risk-of-poverty rate by gender (50% median)	no	(no information on the risk-of-poverty threshold in at least two of the preceding three years)
16: Long term unemployment share	yes	- identification of persons who are unemployed - identification of the duration of unemployment - long-term unemployment share (= persons who have been unemployed for more than 12 months as a percentage of the total number of unemployed persons)

<sup>25</sup> Eligible households contain at least one member of the household who is either aged between 18 and 24 and not in education and inactive, or who is aged between 24 and 65.

17: Very long term unemployment rate	yes	<ul style="list-style-type: none"> <li>- identification of persons in employment</li> <li>- identification of persons who are unemployed</li> <li>- identification of the duration of unemployment</li> <li>- identification of the active population</li> <li>- very long-term unemployment rate (= persons who have been unemployed for more than 24 months as a percentage of the total active population)</li> </ul>
18: Persons with low educational attainment	no	(no information on educational level)
<b>National indicators</b>		
<i>inequality of income distribution</i>		
I.1: S80/S20 quintile share ratio by region	yes	<ul style="list-style-type: none"> <li>- See Indicator 2 of Laeken indicators</li> <li>- region</li> </ul>
I.2: Gini coefficient by region	yes	<ul style="list-style-type: none"> <li>- See Indicator 14 of Laeken indicators</li> <li>- region</li> </ul>
<i>at-risk-of-poverty</i>		
I.3: At-risk-of-poverty threshold (illustrative values)	yes	- See Indicator 1e of Laeken indicators
I.4-1: At-risk-of-poverty rate by age, gender and region	yes	<ul style="list-style-type: none"> <li>- See Indicator 1a of Laeken indicators</li> <li>- region</li> </ul>
I.4-2: At-risk-of-poverty rate by most frequent activity and region	yes	<ul style="list-style-type: none"> <li>- See Indicator 1b of Laeken indicators</li> <li>- region</li> </ul>
I.4-3: At-risk-of-poverty rate by household type and region	yes	<ul style="list-style-type: none"> <li>- See Indicator 1c of Laeken indicators</li> <li>- region</li> </ul>
I.4-4: At-risk-of-poverty rate by tenure status	no	(no information on tenure status available)
I.4-5: Percentage of persons with equivalised disposable income below 60% of median national equivalised income by work intensity	no	<p>work intensity of the household refers to the number of months that have been worked during the reference year by all the household members of working age as a proportion of the total number of months they theoretically could have worked</p> <p>(no information on the number of months worked during the reference year)</p>
I.4-6: Percentage of persons with equivalised disposable income below 60% of median national equivalised income by educational level	no	(no information on educational level)

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I.4-7: Composition of population at-risk-of-poverty by most frequent activity	yes	<ul style="list-style-type: none"> <li>- equivalised total net income per individual</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- the 'at-risk-of-poverty' population</li> <li>- activity status: unemployed, in work, retired or other economically inactive</li> </ul>
I.5: Dispersion around the at-risk-of-poverty threshold by region	yes	<ul style="list-style-type: none"> <li>- See Indicator 11 of Laeken indicators</li> <li>- region</li> </ul>
I.6: At-risk-of-poverty rate anchored at a moment in time	no	
I.7: At-persistent-risk-of-poverty rate by gender (60% median)	no	(no information on the risk-of-poverty threshold in at least two of the preceding three years)
I.8: At-persistent-risk-of-poverty rate by gender (50% median)	no	(no information on the risk-of-poverty threshold in at least two of the preceding three years)
I.9: Relative at-risk-of-poverty gap by region	yes	<ul style="list-style-type: none"> <li>- See Indicator 4 of Laeken indicators</li> <li>- region</li> </ul>
I.10: Total poverty gap as a percentage of total income by region	yes	- total at-risk-of-poverty-gap (= 100 * (the total poverty gap of all persons at-risk-of-poverty / total income of all persons))
I.11: Percentage of persons living in households that have difficulties to make ends meet according to the household respondents	no	
<i>social transfers</i>		
I.12-1 and I.12-2: At-risk-of-poverty rate before social transfers by region	yes	<ul style="list-style-type: none"> <li>- equivalised income before social transfers per household</li> <li>- the 'at-risk-of-poverty threshold' (computed on the basis of the distribution <b>after</b> transfers!)</li> <li>- the 'at-risk-of-poverty rate'</li> <li>- region</li> </ul>
I.13: Total poverty gap before social transfers by region	yes	<ul style="list-style-type: none"> <li>- equivalised income before social transfers per household</li> <li>- total poverty gap</li> <li>- region</li> </ul>
I.14: Net minimum benefit as a percentage of the 'at-risk-of-poverty threshold' (60% of median income) for a single person	yes	<ul style="list-style-type: none"> <li>- net minimum benefit (pensions, unemployment,...)</li> <li>- the 'at-risk-of-poverty threshold'</li> <li>- household type</li> </ul>
<i>minimum wages</i>		

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I.15: Net minimum wages as a percentage of the 'at-risk-of-poverty threshold' (60% of median income) for a single person	yes	- net minimum wages - the 'at-risk-of-poverty threshold' - household type
<i>people with credit problems</i>		
I.16: Number of persons with overdue credit payments known to the Central Credit Register for individuals of the National Bank of Belgium	no	
<i>unemployment</i>		
II.1: Long term unemployment rate by region	yes	- See Indicator 6 of Laeken indicators - gender - region
II.2: Long term unemployed share	yes	- See Indicator 16 of Laeken indicators - gender
II.3: Very long term unemployed rate	yes	- See Indicator 17 of Laeken indicators - gender
II.4: Access of certain groups in the population to the labour market	no	
II.5: Persons living in jobless households by region	yes	- see Indicator 7 - region
II.6: At-risk-of-poverty rate of people in work (employees and self-employed)	yes	- see Indicator 1b
II.7: Regional cohesion at NUTS 2 level	yes	- See Indicator 5 of Laeken indicators - gender - region
<i>housing</i>		
III.1 – III.8: indicators on housing	no	(no information on housing available)
<i>health</i>		
IV.1 – IV.12: indicators on health	no	(no information on health available)
<i>education</i>		
V.1 – V.8: indicators on education	no	(no information on education available)
<i>social integration and participation</i>		
VI.1 – VI.6: indicators on social integration and participation	no	(no information on social integration and participation available)

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