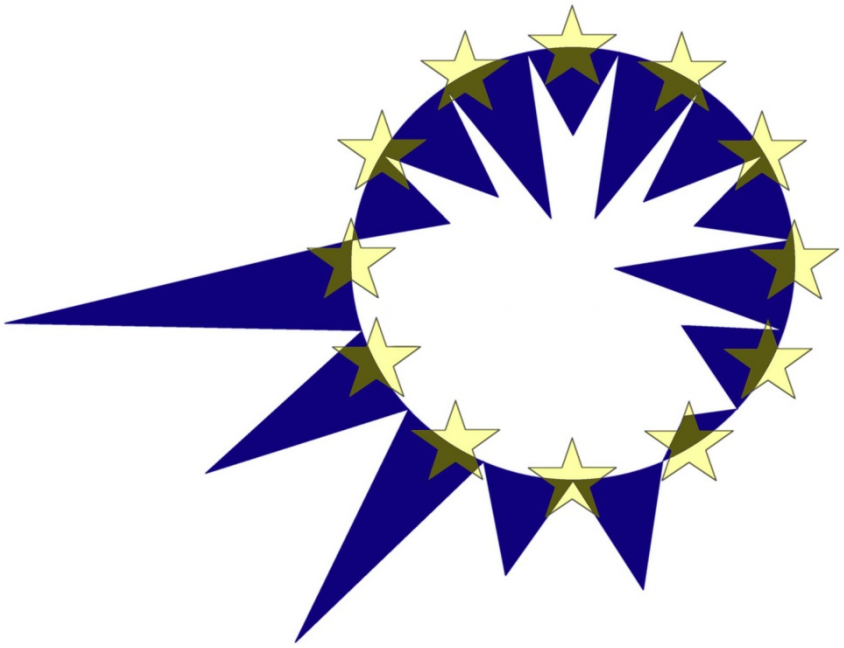
EUROMOD

COUNTRY REPORT



LATVIA (LV)

2009-2012

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EUROMOD version F6.36

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

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

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

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The results presented in this report are derived using EUROMOD version F6.36 EUROMOD is continually being improved and the results presented here may not match those that would be obtained with later versions of EUROMOD.

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

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

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

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

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

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

* We are grateful to Central Statistical Bureau of Latvia for providing access to the national EU-SILC data, which was helpful for imputing some of the model variables, and to Viktors Veretjanovs, the head of the Income and Living Conditions Statistics Section, for his valuable comments and explanations related to the Latvian EU-SILC survey.

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1. BASIC INFORMATION

1.1 Basic figures

Table 1. Basic figures

	Pop. (m.)	Pop. < 18 (%)	Pop. ≥ 65 (%)	Life expect. (years)	Fertility rate	Unemp. rate	GDP per head (PPP, EU27=100)	Currency	
								Name	exch. rate [a]
2009	2.16	18.0	17.8	73.3	1.31	18.2	54.0	LVL	0.7036
2010	2.12	17.7	18.1	73.7	1.17	19.8	53.9[b]	LVL	0.7093
2011	2.07	17.4	18.4	73.9	1.34[b]	16.2	58.3[b]	LVL	0.7093
2012	2.04	17.2	18.6	n/a	n/a	14.9	n/a	LVL	0.6967

[a] Euro exchange rate on 30th of June. As of 1stJanuary 2005 the Latvian lat has been pegged to the Euro at the rate 1 EUR = 0.7028 LVL with normal fluctuations around the fixed peg of +/-1%. The exchange rates shown in the table represent the exchange rates published by ECB and are based on a regular daily concertation procedure between central banks across Europe and worldwide.
[b] Break in series
Source: Eurostat (2013), Central Statistical Bureau of Latvia (2013)

1.2 The tax-benefit system

Table 2. Tax-benefit system and government budget

	Total general government revenue % of GDP	Total tax receipts % of GDP[a]	Total general government expenditure % of GDP	Social protection % of GDP[b]
2009	34.0	26.8	43.7	14.1
2010	35.3	27.2	43.4	13.7
2011	34.9	27.5	38.4	12.1
2012	35.2	n/a	36.5	n/a

[a] Total receipts from taxes and social contributions (including imputed social contributions) after deduction of amounts assessed but unlikely to be collected.
[b] General government expenditures on social protection (according to COFOG classification).
Source: Eurostat (2013)

Table 3. Social protection expenditure by function according to COFOG classification (as % of total social protection expenditure)

	Sickness/ disability	Old age	Survivors	Family/ children	Unemployment	Housing	Social exclusion
2009	20.0	59.3	0.0	6.9	7.7	0.3	2.8
2010	17.3	63.9	0.0	6.6	6.1	0.4	3.4
2011	15.8	66.6	0.0	6.0	3.5	0.6	4.2
2012	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Eurostat (2013), Central Statistical Bureau of Latvia (2013)

Table 4. Social protection expenditure by function according to ESSPROS classification (as % of total social protection expenditure)

	Sickness/ health care	Disability	Old age	Survivors	Family/ children	Unemployment	Housing	Social exclusion
2009	23.2	7.7	44.8	1.8	10.3	9.4	0.8	0.9
2010	20.5	7.5	51.1	1.7	8.4	7.3	0.8	1.3
2011[p]	21.0	8.6	52.3	1.7	7.3	4.7	1.0	1.7
2012	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: [p] – provisional data
Source: Central Statistical Bureau of Latvia (2013)

Table 5. Taxation (as % of total tax receipts)

	Personal income tax	Corporate income tax	Social security contributions		Taxes on goods and services	Other taxes
			Employees*	Employers		
2009	20.6	5.9	8.9	23.3	37.6	3.6
2010	22.7	3.6	8.6	22.4	38.3	4.4
2011	20.5	5.1	8.2	23.1	37.8	5.3
2012	n/a	n/a	n/a	n/a	n/a	n/a

* Includes self-employed
Source: Eurostat (2013)

1.2.1 Basic information about the tax-benefit system

- Latvian tax-benefit system is unified across regions and local governments have little fiscal autonomy. Municipalities have the right to impose special municipal duties and decide on their rates (e.g., a duty on issuing local municipal documents, a duty on trade at public places). However, the special duties represent a minor source of local governments' budget revenues, the main source being revenues from personal income tax, which are partially transferred from the central government budget to local governments' budgets. On the expenditure side, municipalities may decide on the level of social assistance benefits to its residents (e.g., Riga municipality has a higher Guaranteed Minimum Income level for certain population groups).
- Fiscal year runs from 1st January to 31st December.
- Over the period from 2009 to 2012, retirement age for both men and women was 62.

- Minimum school leaving age in Latvia is 15 years. For tax allowance purposes, a dependent child is defined as a child below 18 years and a child who continues secondary, professional, special or higher education until he/she reaches age of 24. The definition of a dependent child for benefit purposes can be different for different types of benefits.
- Persons/households with low income represent socially protected category in Latvia. To be eligible for Guaranteed Minimum Income benefit, a person/household has to have per person income below the determined threshold.
- Income is taxed on individual basis, spouses' or household members' income being assessed separately.
- Until 2010, capital gains were not subject to personal income tax. As of 2010, income from capital is taxed at a reduced rate of 10% or 15%.
- Generally the income tax system works to match tax withholdings with the exact amount due in the end of the financial year. However, there are certain groups of economic agents who have to file annual tax returns: e.g., self-employed, people receiving income from abroad, people who receive income subject to a lowered tax rate (e.g., people receiving royalties). Also, people who are eligible for tax refund (e.g., for deductible expenditures on education or health care) have to file annual tax return.
- There is a statutory indexing regime for the state pensions (old-age, disability and survivors pensions), which takes account of consumer price index (CPI) growth, however, as of 2009, as part of budget austerity measures, state pensions were temporarily frozen. Also, there is an indexation regime for compensation for the loss of capacity for work due to a work accident or occupational disease, and compensation for the loss of breadwinner
- For the means-tested benefits, monthly income over the previous three months is assessed.

1.3 Social Benefits

1.3.1 Unemployment benefits

Unemployment benefit (*bezdarbnieka pabalsts*): A contributory benefit paid to registered unemployed, given that the person is actively looking for a job. Persons above the retirement age, disabled, self-employed, persons working while incarcerated are not eligible for unemployment benefit. There is a minimum length of service which makes a person eligible for the unemployment benefit. The benefit is not taxable.

Unemployment allowance during occupational training, retraining and raising of qualification and during obtaining of informal education (*bezdarbnieka stipendija profesionālās apmācības, pārkvalifikācijas un kvalifikācijas paaugstināšanas laikā un neformālās izglītības iegūšanas laikā*): The training allowance is paid to registered unemployed, who participates in a training programme. The allowance amounts to a fixed amount per month, or, if training takes less than one month, the allowance is paid proportionally to the time spent on training. Not taxable.

Public works programme – workplaces with stipends in municipalities (*Darba praktizēšana ar stipendiju pašvaldībās – "simtlatnieku programma"*). Since September 2009 until mid-2011, the Latvian government with support from the European Social Fund and the World Bank implemented a public works programme to mitigate the negative consequences of the crisis. Those unemployed who were not eligible for the unemployment benefit could participate in public works programme in municipalities, which involved up to 6 months of low-skilled work

and was rewarded with a monthly stipend. The stipends are not taxable. As of 2012, a new programme "Paid Temporary Public Works" *(Algotie pagaidu sabiedriskie darbi pašvaldībās)* was launched, which is also aimed at long-term unemployed not receiving the unemployment benefit and covers up to four months of paid work in local governments. The remuneration received by the unemployed under the latter programme is subject to social insurance contributions (old-age pension part).

1.3.2 Old-age benefits

Old-age pension (*vecuma pensija*): Latvian pension system consists of three tiers: (i) mandatory state non-funded tier, (ii) mandatory state funded scheme and (iii) voluntary private pension scheme. The first tier is financed on the basis of pay-as-you-go. The second tier was created in 2001 and is obligatory for those who are born after 1st July 1971. Those who are born between 2nd July 1951 and 30th June 1971 can voluntarily participate in the second tier. Participation in the second tier does not require any additional contributions, as the amount contributed is split between the first and the second tiers. The third tier is voluntary. Old-age pensions are subject to personal income tax.

Service pension (*izdienas pensija*): Service pensions are provided to representatives of certain professions (e.g., certain occupations in transport industry, certain artistic professions) before the official retirement age if a person has been employed in a given profession for not less than ¾ of the period which makes the person eligible for the service pension. The size of the service pension depends on the length of service and on the average contribution wage. The service pensions are subject to personal income tax.

State social security benefit in case of old-age (*valsts sociālā nodrošinājuma pabalsts sakarā ar noteiktā vecuma sasniegšanu*): A benefit paid to the elderly in case they are not entitled to the state old-age pension. The benefit is a fixed amount per month. Not taxable.

1.3.3 Survivor's benefits

Survivor's pension (*apgādnieka zaudējuma pensija*): Survivor's pension is paid to the children of the deceased person (except if the death is caused by an occupational disease or a work accident, see "compensation for the loss of breadwinner" below), irrespective of the fact whether they were dependent on the deceased person. Children below the age of 18 or children of any age if they are disabled from childhood are eligible for the survivor's pension. The size of the pension depends on the prospective size of the deceased person's old-age pension and on the number of dependents, but its size shouldn't be lower than 65% of state social security benefit. The pension is subject to personal income tax.

Compensation for the loss of breadwinner due to accident at work or occupational disease (*atlīdzība par apgādnieka zaudējumu sakarā ar nelaimes gadījumu darbā vai arodslimību*): The compensation is paid to family members of a person who died because of a work accident or an occupational disease, if the person had been insured, and if the family members are unable to work and were fully or partially supported by the person. The size of the benefit depends on the deceased person's previous wage, on the degree of kinship and on the number of dependents. The benefit is not taxable.

State social security benefit in case of a loss of a breadwinner (*valsts sociālā nodrošinājuma pabalsts apgādnieka zaudējuma gadījumā*): A benefit paid to the survivors in case they are not entitled to the state survivor's pension. The benefit is a fixed amount per month. Not taxable.

1.3.4 Sickness benefits

Sickness benefit (*slimības pabalsts*): sickness benefit is a contributory benefit paid to employees and socially insured self-employed. The benefit is also paid to a parent taking care of a sick child under age 14. During the first 10 days the benefit is paid by the employer, but starting from the 11th day, the benefit is paid by State Social Security Agency. The benefit is subject to personal income tax.

Sickness benefit in case of a work accident or an occupational disease (*slimības pabalsts sakarā ar nelaimes gadījumu darbā vai arodslimību*): The benefit is paid to a socially insured person who has temporarily lost capacity for fork due to a work accident or an occupational disease. The benefit amounts to a certain percentage of the previous average wage. The benefit is subject to personal income tax.

Health service benefit provided by municipalities (*pašvaldības pabalsts medicīnas pakalpojumiem*): This benefit can be provided by municipalities to low income individuals/households. The size and eligibility conditions of the benefit are determined by municipal regulations. The benefit is not taxable.

1.3.5 Disability benefits

Disability pension (*invaliditātes pensija*): A person is eligible for disability pension if she/he has a disability status, is below the retirement age, has social contribution history of at least three years and if disability is not caused by an accident at work or occupational disease. The amount of the benefit depends on the previous average social contribution wage, on the length of social security history and on the degree of disability. The disability pension is subject to personal income tax.

State social security benefit in case of disability (*valsts sociālā nodrošinājuma pabalsts invaliditātes gadījumā*): A benefit paid to people with disablity in case they are not entitled to the state disability pension. The benefit is a fixed amount per month. Not taxable.

Compensation for the loss of capacity for work due to a work accident or occupational disease (*atlīdzība par darbspējas zaudējumu*): Compensation is provided to persons who have permanently lost capacity for work due to a work accident or an occupational disease. The amount of compensation depends on the average social insurance contribution wage and the proportion of loss of work capacity.

Allowance to compensate transport expenses of persons with mobility disabilities (*pabalsts transporta izdevumu kompensācijai invalīdiem, kuriem ir apgrūtināta pārvietošanās*): The benefit is a fixed amount paid once per six months period to persons certified as needing a specialized care. Not taxable.

Benefit to disabled with special care need (*pabalsts invalīdam, kuram nepieciešama kopšana*): The benefit is assigned to a person above 18 years old, who has a disability status and certified by the Health and Capacity for Work Expert Physicians' Commission as needing special care. The benefit has been introduced as of January 1, 2008. Not taxable.

1.3.6 Family and children-related allowances

Family state benefit *(ģimenes valsts pabalsts)*: Non-contributory. The benefit is paid to one of a child's parents or a person who actually takes care of a child according to a court's decision, or to the child himself after 18 years age, if he/she was previously under guardianship. The benefit is a fixed sum per month, with the amount being larger for the second and each subsequent child. From mid-2009 the amount for each child is the same irrespective of the number of children. The benefit is granted until the child reaches 15 years of age or, if he/she

continues with education, until he/she is 20 years old (starting from 1st July 2009 – 19 years old) as long as he/she does not receive local government scholarships or gets married. The benefit is not taxable.

Child birth benefit (*bērna piedzimšanas pabalsts*): Non-contributory benefit. The benefit is a lump-sum, paid to one of the child's parents or a legal guardian. The benefit is not taxable.

Child care benefit (*bērna kopšanas pabalsts*): The benefit is provided on the monthly basis to one of the child's parents, or to a legal guardian or a person who actually takes care of the child following the court's decision. The benefit is paid during the first year of a child's life if the person is not socially insured. During the second year of child's life the benefit is paid to parents regardless social insurance history The benefit is not taxable.

Parental benefit (*vecāku pabalsts*): This is a contributory benefit and it is equal to a percentage of the average contribution wage. The benefit cannot be lower than a minimum threshold, but it has no ceiling (a temporary sliding ceiling was introduced for the period from 2009 until 2014 as part of budget austerity measures). The benefit is paid to one of the child's parents or to a person who actually takes care of the child in accordance with a court decision. A person is eligible for the parental benefit starting from the moment when maternity benefit is over and until the child is one year old. The benefit is not taxable.

Maternity benefit (*maternitātes pabalsts*): A contributory benefit paid to a woman during pregnancy and after the child birth. Socially insured employees and self-employed persons are eligible for this benefit. The benefit is paid in two payments. Generally the first payment is made for last 70 days of pregnancy. And the second payment is made after the child birth and covers 54 days. The size of the benefit is equal to a percentage of the previous average wage. The benefit is not taxable.

Paternity benefit (*paternitātes pabalsts*): A contributory benefit paid to socially insured father of a newborn child. The father can claim a ten days paternity leave in the first two months of a child's life. The benefit amounts to a certain percentage of the father's average social insurance wage. The benefit is not taxable.

Disabled child care benefit (*bērna invalīda kopšanas pabalsts*): Non-contributory benefit. The benefit is a monthly lump-sum payment to one of the disabled child's parents or to a person who actually takes care of the child following the court decision. The benefit is paid until the child loses disability status or reaches the age of 18. The benefit is not taxable.

State support to the children suffering from celiac disease without formally stated disability (*valsts atbalsts ar celiakiju slimiem bērniem, kuriem nav noteikta invaliditāte*): Non-contributory benefit. This support is provided to children who have a diagnosis of celiac disease, but who are not certified as disabled. The benefit is not taxable.

Benefit to guardian for supporting a child (*pabalsts aizbildnim par berna uzturesanu*): Non-contributory benefit. This is a fixed monthly benefit paid to a legal guardian of a child. The benefit is not taxable.

Remuneration for the fulfillment of foster family duties (*atlīdzība par audžuģimenes pienākumu pildīšanu*): The remuneration is paid to the family or a person, who has obtained the status of a foster family. Not taxable.

Remuneration for the adoption of a child (*atlīdzība par bērna adopciju*): The remuneration is a lump-sum payment to one of the stepparents of the adopted child, paid upon the court decision on the adoption of the child. Not taxable.

Remuneration for the care of an adopted child (*atlīdzība par adoptējamā bērna aprūpi*): Remuneration for the care of an adopted child is granted to an adopter who takes care of a child. Not taxable.

1.3.7 Social exclusion benefits

Guaranteed minimum income benefit (*garantētā minimālā ienākuma pabalsts (GMI)*): A separately living person or a household living below the determined income level can receive this benefit to ensure basic subsistence needs. The minimum level of guaranteed income is set by the Cabinet of Ministers, but municipalities have the right to set a higher level. The benefit is calculated as the difference between the determined minimum income and a person's income (excluding some income sources). The benefit is not taxable.

Municipal benefit in an extraordinary situation (*pašvaldības pabalsti ārkārtas situācijās*): Municipalities can provide support to individuals in extraordinary situations. The benefit is lump-sum payment and can be provided regardless of the beneficiary's income level. The benefit is not taxable.

Other special purpose benefits provided by municipalities *(citi pašvaldību piešķirtie mērķa pabalsti):* Other municipality benefits include subsidized provision of lunches at schools and food in general, benefits for raising and educating children, allowances to cover transport expenses, benefits for foster families, benefits for orphans and people released from prison to start life, and benefits for other purposes.

Funeral benefit (*apbēdīšanas pabalsts*): Funeral benefit is a lump-sum payment paid to the family members of the deceased. The benefit is not taxable.

1.3.8 Housing benefits

Housing benefit *(dzīvokļa pabalsts)*: This benefit is provided by local governments to low-income households. Eligibility rules and benefit amounts are slightly different across municipalities. The benefit is not taxable.

- ***Not strictly benefits***

Severance pay (*atlaišanas pabalsts*): is compensation paid by an employer to an employee if a labour contract is terminated on the employer's initiative for reasons other than breaking terms of the contract by the employee or, on the employee's initiative in case the employee has a good cause for being unable to continue employment relationships. The amount of the compensation depends on the length of service. The compensation is subject to personal income tax.

Pension from private pension fund (*pensija no privātā pensiju fonda*). A person making voluntary contributions to a private pension fund or having his/her employer making contributions on his/her behalf is entitled to additional old-age pension capital. Private pensions are subject to personal income tax.

State child support (alimony) (*valsts uztūrlīdzekļi bērniem (alimenti)*): state child support is provided to substitute for the child support payments that have to be paid by a child's parent in accordance with the court decision. The state support is provided in case the collection of the payments from the parent is declared impossible by law enforcement officer or in case the parent's provided support is below the minimum stipulated by the Civil Law. The amount of the state support is equal to the minimum level stipulated by the Civil Law to a child aged 7 to 18 years.

1.4 Social insurance contributions

Social insurance contributions (*sociālās apdrošināšanas iemaksas*) are used to finance contributory benefits, such as pensions, unemployment benefits etc. There are two major social insurance regimes in Latvia: (i) general regime for **employees**, who are insured against all insurance cases and (ii) social insurance regime for **self-employed**, who are insured against all

insurance cases except unemployment and work accidents or occupational disease. Apart from the above two categories of economic agents, for whom social insurance is mandatory, there are certain categories of agents who can make voluntary contributions for pensions, disability, maternity, sickness and parents' insurance.

For employees, the base for social security contributions is all income received as remuneration for the work before any deductions. Self-employed can choose the level of income from which to make social security contributions, however, the base for the contributions may not be lower than a certain threshold set by the Cabinet of Ministers. There is also a maximum level of income from which social contributions can be made, which is binding for both employees and self-employed, but the ceiling was temporarily abolished in 2009-2013 as part of anti-crisis budget austerity measures.

- ***Scope and scale***

The following tables show social security contributors' proportion in total population and share of social security revenues in total general government revenues.

Table 6. Social contributions: contributors (as % of population[1])

Social contributions	2009	2010	2011	2012
Employees	40.3	33.9	35.1	36.8
Self-employed	1.5	0.7[2]	0.6	0.4

Notes: [1]Population on 1 January, number of employees and self-employed at the beginning of the year.
[2] Break in series. Before the 2nd quarter of 2009, self-employed had to submit quarterly reports on social contributions even if they did not have to pay social contributions, therefore, the number in 2009 includes also those self-employed who submitted the reports without actually paying social contributions.
Source: State Revenue Service (2013), Central Statistical Bureau (2013)

Table 7. Social contributions: revenue

	2009	2010	2011	2012*
Social contributions (LVL)	1113.6	1068.9	1293.0	1324.0
as % of total revenue[1]				
Employees	8.7	8.4	9.8	9.6
Employers	23.3	22.4	23.1	21.1
Self-employed[2]	0.2	0.2	0.2	0.2

Notes:
[1] General government revenues from taxes and social contributions after deduction of amounts assessed but unlikely to be collected
[2] Data includes contributions by non-employed persons
* Provisional, based on monthly reports of the State Treasury.
Source: Eurostat (2013), State Treasury (2013), own calculations.

1.5 Taxes

Personal income tax (*iedzīvotāju ienākuma nodoklis*): Personal income tax is paid on individual basis and up to 2009 was applied to income from regular employment and self-employment, as well as state pensions. As of 2010, dividends and other capital gains are also subject to the personal income tax and are taxed at a reduced rate. Personal income tax rate is flat, but some progressivity is ensured by non-taxable minimum income, applying to income from regular employment and self-employment. There are also fixed monthly allowances for dependents.

Corporate income tax (*uzņēmuma ienākuma nodoklis*): Since 2004, the corporate income tax rate in Latvia is 15%. The tax is levied on business income of resident companies and on non-

resident companies permanently located in Latvia. As of September 1, 2010, micro companies complying with a set of criteria (referring to e.g. the number of employees and annual turnover) can choose to pay a **micro enterprise tax** instead of the corporate income tax. The micro enterprise tax amounts to 9% of an enterprise's turnover and should be paid once a quarter.

Property tax (*nekustamā īpašuma nodoklis*): Property tax is levied on buildings, constructions and land. Up to 2009, land and buildings used for residential purposes were not subject to property tax. In 2010, as part of anti-crisis budget austerity measures, residential dwellings were included in the tax base, but the rate applied to non-residential dwellings and land was increased. In 2011 the rate on residential buildings was raised.

Value added tax *(pievienotās vērtības nodoklis)*: There are two different VAT rates in Latvia – a standard rate and a reduced rate applied to certain goods and services (e.g. medicines, energy, newspapers etc). Some goods and services are exempt from VAT. In 2009, as part of the government's implemented austerity measures, both the standard and the reduced rates were raised (from 18% to 21% and from 5% to 10%, respectively), and the range of goods which the reduced rate is applied to, has been narrowed. The rates were further raised in 2011 (to 22% and 12%, respectively), but as of mid-2012 the standard rate has been cut by 1 percentage point, being driven by the government's goal to contain inflationary pressures and to bring the rate more in line with the neighboring Baltic countries.

Excise tax *(akcīzes nodoklis)*: Excise tax is levied on alcoholic beverages, tobacco, oil products and some non-alcoholic beverages.

Tax on cars and motorcycles *(vieglo automobiļu un motociklu nodoklis)*: the tax is levied on cars and motorcycles which are registered in Latvia for the first time. The tax rate is dependent either on the amount of carbon dioxide emissions or age of a vehicle and engine capacity.

- ***Scope and scale***

Table 9 shows contribution of each of the above taxes to total tax revenues.

Table 8. Taxes: taxpayers (as % of population)

	2009	2010	2011	2012
Direct taxes	**n/a**	**n/a**	**n/a**	**n/a**
Personal income tax	n/a	n/a	n/a	n/a
Corporate income tax	n/a	n/a	n/a	n/a
Compulsory SIC	n/a	n/a	n/a	n/a
Property tax	n/a	n/a	n/a	n/a
Indirect taxes	**n/a**	**n/a**	**n/a**	**n/a**
Value added tax	n/a	n/a	n/a	n/a
Excise tax	n/a	n/a	n/a	n/a
Tax on cars and motorcycles	n/a	n/a	n/a	n/a

Table 9. Taxes: revenue*

	2009	2010	2011	2012***
Annual revenue (mln LVL)**	3483.2	3480.7	3933.0	4283.7
As % of total revenues				
Direct taxes	61.1	60.4	60.4	60.3
Personal income tax	20.4	22.5	20.3	20.4
Corporate income tax	5.9	3.5	5.1	5.7
Compulsory social security contributions	32.0	30.7	31.1	30.9
Property tax	2.1	2.6	2.5	2.7
Other direct taxes	0.7	1.0	1.4	0.6
Indirect taxes	38.9	39.6	39.6	39.7
Value added tax	22.5	24.3	24.6	26.1
Excise tax	13.9	12.9	12.3	11.5
Tax on cars and motorcycles	0.1	0.1	0.1	0.1
Other indirect taxes	2.5	2.3	2.6	1.9

Notes: * Total receipts from taxes and social contributions (imputed social contributions not included) after deduction of amounts assessed but unlikely to be collected
** General government sector (S.13)
*** Provisional, based on monthly reports of the State Treasury.
Source: Central Statistical Bureau of Latvia (2013), State Treasury (2013), own calculations

2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

2.1 Scope of simulation

Not all the taxes and benefits mentioned in the previous section are simulated by EUROMOD. Firstly, some are beyond its scope entirely and are neither included in the EUROMOD database nor in its output income variables. Secondly, some are not possible to simulate accurately with the available data. They are included in the database and may be chosen as components of output variables, but the rules governing them may not be changed by the model. Here we distinguish benefits/taxes which are included as a separate variable and benefits/taxes which are included as a component of aggregated variable (in case it is not possible to make a split). Thirdly, other benefits contain complicated rules and/or available data does not provide enough information to be able to simulate benefit in all detail. Table 10 and Table 11 classify each of the tax-benefit instruments into one of these four groups and provide a brief explanation as to why the instrument is not fully simulated if this is the case.

Table 10. Simulation of benefits in EUROMOD

Benefit name	Output variable	Treatment in Euromod 2009	2010	2011	2012	Why not fully simulated?
Unemployment benefits						
Unemployment benefit	bun00_s	PS	PS	PS	PS	No precise information on relevant social contribution history, average pre-unemployment wage, duration of unemployment benefit.
Old-age benefits						
Old-age pension	poatx	I	I	I	I	No data on full social contribution history.
State social security benefit (in case of old age)	poass_s	PS	PS	PS	PS	Eligibility is taken from the input data.
Survivor's benefits						
Survivor's pension	psutx	I	I	I	I	No information on deceased persons.
State social security benefit (in case of a loss of a breadwinner)	psuss_s	PS	PS	PS	PS	Eligibility is taken from the input data.
Sickness benefits						
Sickness benefit	bhl	IA	IA	IA	IA	No data on sickness duration.
Sickness benefit in case of a work accident or an occupational disease	bhl	IA	IA	IA	IA	No data on sickness cause and duration.
Health service benefit provided by municipalities	bhl	IA	IA	IA	IA	No data on eligibility for benefit and municipality which rules apply.
Disability benefits						
Disability pension	pditx	I	I	I	I	No data on degree of disability and social contribution history.
State social security benefit (in case of disability)	pdiss_s	PS	PS	PS	PS	Eligibility is taken from the input data.
Compensation for the loss of capacity for work due to a work accident or occupational disease	pdint	I	I	I	I	No data on the cause of disability.
Family and children related allowances						
Family state benefit	bfana_s	S	S	S	S	-
Child birth benefit	bfaba_s	S	S	S	S	-
Child care benefit	bfacc_s	S	S	S	S	-
Parental benefit	bfawk_s	S	S	S	S	Average contribution wage before a child's birth is imputed based on information from national data.
Maternity benefit	bfama_s	S	S	S	S	Average contribution wage before a child's birth is imputed based on information from national data.
Paternity benefit	bfapl_s	S	S	S	S	Average contribution wage before a child's birth is imputed based on information from national data.

Continued..						
Social exclusion benefits						
Benefit for ensuring the guaranteed minimum income level	bsamm_s	PS	PS	PS	PS	Specific municipality rules can not be simulated. Only standard rules and rules for Riga municipality are simulated. Residents of Riga are imputed based on information from national data.
Municipal benefit in an extraordinary situation	bsa	IA	IA	IA	IA	Eligibility rules can not be simulated.
Other special purpose benefits provided by municipalities	bsa	IA	IA	IA	IA	Eligibility rules can not be simulated.
Funeral benefit	bsa	IA	IA	IA	IA	No information on deceased members of household.
Housing allowances						
Housing benefit	bho_s	PS	PS	PS	PS	Specific municipality rules can not be simulated. The rules of the largest municipality (Riga) are applied.

Notes: "-": policy did not exist in that year; "E": excluded from the model as it is neither included in the micro-data nor simulated; "I": included in the micro-data but not simulated "IA": included in the micro-data in an aggregated variable but not simulated; "PS" partially simulated as some of its relevant rules are not simulated; "S" simulated although some minor or very specific rules may not be simulated.

Table 11. Simulation of taxes and social contributions in EUROMOD

Tax name	Output variable	Treatment in EUROMOD 2009	2010	2011	2012	Why not fully simulated?
Social Insurance Contributions						
Employees	tscee_s	S	S	S	S	Impossible to simulate special rules for persons with disability and recipients of service pension.
Employers	tscer_s	S	S	S	S	Impossible to simulate special rules for persons with disability and recipients of service pension.
Self-employed	tscse_s	PS	PS	PS	PS	Assume that self-employed pay only mandatory part of social insurance contributions.
Direct taxes						
Personal income tax	tin_s	S	S	S	S	Some exemptions and types of income are impossible to identify and simulate.
Corporate income tax	-	E	E	E	E	Out of scope of the model.
Property tax	tpr	I	I	I	I	Rules cannot be simulated.
Indirect taxes						
Value added tax	-	E	E	E	E	No information available, out of scope of the model
Excise tax	-	E	E	E	E	No information available, out of scope of the model
Tax on cars and motorcycles	-	E	E	E	E	No information available, out of scope of the model

Notes: "-" policy did not exist in that year; "E" policy is *excluded* from the model's scope as it is neither included in the microdata nor simulated by EUROMOD; "I": included in the micro-data but not simulated; "IA": included in the micro-data in an aggregated variable but not simulated; "PS" policy is *partially simulated* as some of its relevant rules are not simulated; "S" policy is *simulated* although some minor or very specific rules may not be simulated.

Table 12 demonstrates policies that are simulated in 2009-2012.

Table 12. Simulated policies

Section	Policy	Description	Year			
			2009	2010	2011	2012
2.3.1	yse_lv	Recode negative self-employment income	X	X	X	X
2.3.2	yem_lv	Minimum wage (switched off in the baseline)	X	X	X	X
2.3.3	bun00_lv	Unemployment benefit	X	X	X	X
2.3.4	bfana_lv	Family state benefit	X	X	X	X
2.3.5	bfaba_lv	Child birth benefit	X	X	X	X
2.3.6	bfacc_lv	Child care benefit	X	X	X	X
2.3.7	bfawk_lv	Parental benefit	X	X	X	X
2.3.8	bfama_lv	Maternity benefit	X	X	X	X
2.3.9	bfapl_lv	Paternity benefit	X	X	X	X
2.3.10	bsamm_lv	Guaranteed minimum income benefit	X	X	X	X
2.3.11	bho_lv	Housing benefit	X	X	X	X
2.3.12	pss_lv	State social security benefit (for old-age, survivors, and disabled)	X	X	X	X
2.4.1	tscee_lv	Employee social insurance contributions	X	X	X	X
2.4.2	tscer_lv	Employer social insurance contributions	X	X	X	X
2.4.3	tscse_lv	Self-employed social insurance contribution	X	X	X	X
2.5	tin_lv	Personal income tax	X	X	X	X

2.2 Order of simulation and interdependencies

Order of simulation is the same in all policy years, since no structural changes took place over this period. We start by recoding negative self-employment income to zero. Then minimum wage is simulated (as an optional policy which is switched off in the baseline). After that social insurance contributions are simulated as they are deducted from income before income tax is calculated. Next non-means tested benefits are simulated (state social security benefits, unemployment benefit, family benefits). Then, we simulate income tax. Finally, means-tested benefits are simulated: first, GMI benefit (as it depends on net income after taxation); second, housing allowance (as it depends on all net income including GMI).

Table 13. EUROMOD Spine: order of simulation, 2009-2012

Policy	Description	Main output
yse_lv	Negative self-employment income recoded to zero	yse (overwrite)
yem_lv	Minimum wage (switched off in the baseline)	yem (overwrite)
tscee_lv	Employee social insurance contribution	tscee_s
tscer_lv	Employer social insurance contribution	tscer_s
tscse_lv	Self-employed social insurance contribution	tscse_s
pss_lv	State social security benefit (for old age, survivors, disabled)	poass_s, psuss_s, pdiss_s
bun00_lv	Unemployment benefit	bun00_s
bfana_lv	Family state benefit	bfana_s
bfapl_lv	Paternity benefit	bfapl_s
bfama_lv	Maternity benefit	bfama_s
bfaba_lv	Child birth benefit	bfaba_s
bfacc_lv	Child care benefit	bfacc_s
bfawk_lv	Parental benefit	bfawk_s
tin_lv	Income tax	tin_s
bsamm_lv	Guaranteed Minimum Income benefit	bsamm_s
bho_lv	Housing benefit	bho_s

2.3 Social benefits

2.3.1 Recoding negative self-employment income to zero

The first policy which is run before simulation of social benefits is recoding of negative self-employment income into zeros. This is done in order to prevent incorrect calculation of taxes, social contributions and means-tested benefits for self-employed persons with losses in the income reference period. There are 12 individuals with negative self-employment income in the Latvian input data (based on UDB EU-SILC 2010).

2.3.2 Minimum wage

In Latvia minimum monthly wage is set every year by the Cabinet of Ministers. The minimum wage rule covers employees in all sectors. It is not differentiated between the types of employees. The level of minimum (gross) monthly wage in 2009 and 2010 was 180 LVL, and 200 LVL in 2011 and 2012. The simulation of the minimum wage is switched off in the baseline.

2.3.3 Unemployment benefit (bun00_s)

The benefit is provided to a previously employed and socially insured person in case of unemployment. The maximum duration of unemployment benefit in 2009 and 2012 was 4 to 9 months, depending on the working experience, but in 2010 and 2011, to alleviate the negative consequences of the crisis, the maximum duration was temporarily raised to 9 months for all unemployed. The full benefit amount depends on working experience (i.e. the length of social contribution history). The benefit amount per month gradually decreases with time in order to provide incentives to look for a new job.

- ***Definitions***

The unit of analysis is an individual.

- ***Eligibility conditions***

(1) First of all, a person must register as unemployed in the State Employment Agency (SEA). There is no information on registration at the SEA in the input data. We assume that all people who report unemployment are registered.

(2) Second, there are some restrictions on age. Only people above 15 years old are eligible for unemployment benefits. Until 2012, people above the retirement age were not eligible for the unemployment benefit, but as of 2012 also early retirees receiving old-age pension are not eligible.

(3) Finally, a person must have paid social insurance contributions for no less than a certain number of months in total (liwwh). It is also checked that social contributions are paid in the period preceding unemployment. In 2009, an individual had to make social contributions for at least 12 months in the 18 months preceding unemployment. As of 2010, the period over which the social contributions had to be paid was shortened to 9 months and the contributions had to be made during 12 months before an individual receives the unemployment status.

EUROMOD notes

For people who are currently unemployed and receive unemployment benefits we assume that the eligibility criteria (1) and (3) are met.

For those who are currently unemployed but do not receive unemployment benefits we assume that the eligibility criteria are not met.

Finally, for calculation of replacement rates or implementation of labour market adjustments, we assess eligibility of currently employed individuals based on the number of months currently in work (liwmy). If assessment period is larger than one year (e.g. 18 months in 2009), we assume that in the previous year the number of months in work is the same as in the current year (but the total number of working months is not more than working history).

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

The full amount of the benefit is a percentage of the gross average wage and it depends on working experience:

1) If working experience is 1 to 9 years the full benefit equals 50% of the gross average wage from which social contributions were made;

2) If working experience is 10 to 19 years the full benefit equals 55% of the gross average wage;

3) If working experience is 20 to 29 years the full benefit equals 60% of the gross average wage;

4) If working experience is above 30 years the full benefit equals 65% of the gross average wage.

EUROMOD notes

The gross average wage is calculated over a six months period which ends two months before the person obtains unemployment status. For those who are currently unemployed and receive unemployment benefit accurate information on the gross average wage cannot be obtained from the data. Therefore, we reverse the rules for benefit calculations, and impute the gross average wage before unemployment (yempv) based on the total amount of unemployment benefit, approximate duration of unemployment, and working history.

In 2009 the maximal duration of the benefit was nine months for those with work experience 20 years and more, 6 months for those with work experience 10 to 19 years and 4 months for those with work experience 1 to 9 years. The size of the benefit gradually decreased over time as shown in Table 14.

Table 14. Calculation of the unemployment benefit, effective as of June 30 2009

Work experience	Max duration	Proportion of the full benefit received		
		100%	75%	50%
1-9 years	4 months	1st, 2nd month	3rd, 4th month	-
10-19 years	6 months	1st, 2nd month	3rd, 4th month	5th, 6th month
More than 20 years	9 months	1st, 2nd, 3rd month	4th, 5th, 6th month	7th, 8th, 9th month

The scheme was changed on July 1, 2009. The changes are modelled in EUROMOD in policy year 2010. The maximum duration of the benefit was prolonged to 9 months for all unemployed The new scheme is shown in Table 14.a below.

Table 14.a. Calculation of the unemployment benefit in 2010 (effective as of July 1, 2009)

Work experience	Max duration	Proportion of the full benefit received			
		100%	75%	50%	45 LVL
1-9 years	9 months	1st, 2nd month	3rd, 4th month	-	5th - 9th month
10-19 years	9 months	1st, 2nd month	3rd, 4th month	5th, 6th month	7th - 9th month
More than 20 years	9 months	1st, 2nd, 3rd month	4th, 5th, 6th month	7th - 9th month	-

In 2011, for those with work experience less than 20 years a restriction on the amount of the benefit was introduced for the last months when the benefit is received (see Table 14.b)

Table 14.b. Calculation of the unemployment benefit in 2011

Work experience	Max duration	Proportion of the full benefit received		
		100%	75%	50%
1-9 years	9 months	1st, 2nd month	3rd - 6th month, but in 5th and 6th months not more than 45 LVL	7th – 9th month, but not exceeding 45 LVL
10-19 years	9 months	1st, 2nd month	3rd, 4th month	5th - 9th month, but in 7th – 9th month not exceeding 45 LVL
More than 20 years	9 months	1st, 2nd, 3rd month	4th, 5th, 6th month	7th - 9th month

As of 2012, the scheme was again amended and made the same as in 2009 (see Table 16).

Since January 1, 2010, the daily amount of the unemployment benefit was cut. In case amount of the assigned benefit per calendar day exceeds 11.51 LVL, a person is eligible for receiving 11.51 LVL daily plus 50% of the difference between 11.51 LVL and the assigned daily amount.

EUROMOD notes

For identification of work experience we use variable *liwwh*. As a proxy of unemployment duration we use *lunmy*.

2.3.4 Family state benefit (bfana_s)

The benefit is a lump sum granted to one of the parents of a dependent child.

- ***Definitions***

The unit of analysis is a family with a dependent child.

In 2009 the child was considered to be dependent if

a) a child is below 15 years old *(dag<15)*;
b) a child is below 19 years old *(dag<19)* and continues secondary/professional education, is not married, and does not receive any education related stipends.

Since July 1, 2009, the definition of dependent child has been slightly changed. The new definition is applied in the model since 2010.

The child is considered to be dependent if

a) a child is between 1-15 years old *(dag>=1 & dag<15)*;
b) a child is between 1-19 years old *(dag>=1 & dag<19)* and continues secondary/professional education, is not married, and does not receive any education related stipends.

- ***Eligibility conditions***

The benefit is assigned to one of the parents of a dependent child in a family. Usually a mother applies for the benefit. In the model we assign the benefit to the mother. If there is no mother, then a father is eligible.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

In 2009 the standard amount of the benefit (for the first child) is 8 LVL per month. The amount of the benefit for the second child equals the standard amount multiplied by the coefficient of 1.2. For the third child the coefficient is 1.6, and for each next - 1.8.

Since July 1, 2009, the standard amount of 8 LVL is paid for every child (i.e. the coefficients are abolished). This change is implemented in the model in 2010.

2.3.5 Child birth benefit (bfaba_s)

The benefit is a lump sum granted to one of the parents of a new born child.

- ***Definitions***

The unit of analysis is a family with a new born child.

- ***Eligibility conditions***

The benefit is granted to one of the parents of a child. Usually a mother applies for the benefit. In the model we assign the benefit to the mother. If there is no mother, then a father is eligible. A parent can apply for the benefit starting from the child's eighth day of life.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

The amount of the benefit for a newly born child is 296 LVL. In 2009, in addition for the first child there was a supplementary payment of 100 LVL, for the 2nd child - 150 LVL, and for the 3rd and each next - 200 LVL.

In 2010 supplementary payments for a newly born child were abolished. The changes are applied to children born after April 4, 2010.

EUROMOD notes

The order of birth is determined considering all children who live together with their parents (regardless of their age). The order might be determined incorrectly if one of children lives separately from the family.

2.3.6 Child care benefit (bfacc_s)

The benefit is provided on a monthly basis to one of a child's parents during the first two years of a child's life. During the first year of a child's life the benefit is provided to parents who are not socially insured (socially insured parents are eligible for parental benefit; see description of the parental benefit below). During the second year of a child's life, the child care benefit is provided both to socially insured and socially uninsured parents.

- ***Definitions***

The unit of analysis is a family with a child of 1 year old or less.

- ***Eligibility conditions***

One of a child's parents is eligible for the benefit (usually mother). In the model the benefit is assigned to the mother, if there is no mother, then to the father.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

The amount of the benefit in the first and in the second year of a child's life is different.

A. <u>During the 1st year of a child's life (only for socially uninsured parents):</u>

The amount of the benefit is 50 LVL per month. The benefit is paid from the first month of a child's life.

B. During the 2nd year of a child's life (for all parents):

The amount of the benefit is 30 LVL per month.

2.3.7 Parental benefit (bfawk_s)

The benefit was introduced in 2008, and substituted child care benefit for socially insured parents during the 1st year of child's life.

- ***Definitions***

The unit of analysis is a family with a newborn child.

- ***Eligibility conditions***

A socially insured parent is eligible for the benefit during the first year of a child's life. Only one of parents can receive the benefit. We assume that a parent with a higher (previous) wage applies for the benefit.

This assumption is changed in the policy year 2010. Since 2010 we assume that a mother applies for the benefit. Since 2010 parents working during parental leave are not eligible for the benefit. Therefore, it becomes common that a parent staying at home with a child applies for the benefit (usually it is mother).

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

For employees: the benefit equals 70% of a gross average wage calculated over a twelve months (6 months in 2009) period which ends two months before a child's birth.

For self-employed: the benefit equals 70% of an average amount from which social contributions have been paid. The average is calculated over a twelve months period which ends three months before a quarter when a child is born.

If a person's income is a mixture of employment and self-employment income, then a weighted average is taken. The total sum of the income from which the benefit is calculated should not exceed the maximal object for obligatory social insurance contributions.

The amount of the benefit should not be less than 70% of a double amount of State social security benefit, i.e. 63 LVL.

The benefit is paid only for those months when a parent does not receive maternity or child care benefit.

For children born after November 3, 2010, the daily amount of the parental benefit was cut. In case amount of the assigned benefit per calendar day exceeds 11.51 LVL, a parent is eligible for receiving 11.51 LVL daily plus 50% of the difference between 11.51 LVL and the assigned daily amount. The rule is modeled in the policy years 2011 and 2012.

EUROMOD notes

Simulations are based on previous wage, imputed based on information from the national data.

2.3.8 Maternity benefit (bfama_s)

The benefit is paid in two installments. The first part is a pregnancy benefit which is given for the last 70 days of pregnancy (56 days if a mother registered pregnancy later than after 12 weeks). The second part is a maternity benefit which is generally given for a period of 56 days after a child's birth. In case two or more children were born or if a mother have health problems related to a child's birth, then 70 days after birth are covered by the benefit.

- ***Definitions***

The unit of analysis is a family with a newborn child.

- ***Eligibility conditions***

A mother is eligible for the benefit in case she has registered the pregnancy and is socially insured. In case of mother's death a farther (or a person who actually cares about a baby) is eligible for the second part of maternity benefit.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

The benefit is calculated as a share of the previous income. For employees, in 2009 the relevant income was average income received over the six month period ending two months before a person is entitled to the benefit, but as of 2010 – average income received over twelve months ending two months before the person is entitled to the benefit. For self-employed, the relevant income is calculated over the period of 12 months ending three months before the quarter in which the person is entitled to the benefit. If a person's income is a mixture of employment and self-employment income, then a weighted average is taken. The total sum of the income from which the benefit is calculated in 2009 could not exceed the maximal object for obligatory social insurance contributions, but as of 2010 the ceiling was abolished as part of anti-crisis budget austerity measures.

The size of the benefit in 2009 and 2010 was 100% of the relevant previous income. For children born after November 3, 2010, the benefit equals 80% of the relevant average income. In addition the daily amount of the parental benefit is cut. In case amount of the assigned benefit per calendar day exceeds 11.51 LVL, a parent is eligible for receiving 11.51 LVL daily plus 50% of the difference between 11.51 LVL and the assigned daily amount. The rule is modeled starting from the policy year 2011.

EUROMOD notes

Since there is no information on registration of pregnancy or health status of a mother, we assume benefit duration of 70+56 days (i.e. 126 days in total). If more than one child is born, then benefit duration is assumed to be 70+70 days (140 in total).

A person is considered to be socially ensured for maternity if she has a positive working history.

We can identify recipients of maternity benefit by selecting households which have children below one year old. However, we cannot identify all recipients of pregnancy benefit, because we do not observe children if they have not yet been born.

Simulations are based on previous wage, imputed based on information from the national data.

2.3.9 Paternity benefit (bfapl_s)

The benefit is paid to a child's father during 10 days of a paternity leave.

- ***Definitions***

The unit of analysis is a family with a newborn child.

- ***Eligibility conditions***

A father of a newborn child is eligible for the benefit in case he is socially insured. The benefit can be claimed during the first two months of a child's life.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

Relevant income which is used to calculate the paternity benefit is calculated similar to that for maternity benefit (see the previous section).

Similar to maternity benefit, the size of the benefit in 2009 and 2010 was 100% of the relevant previous income, but for children born after November 3, 2010, the share was reduced to 80% of the relevant average income. Also, the sliding daily ceiling was applied to the paternity benefit: in case amount of the assigned benefit per calendar day exceeds 11.51 LVL, a parent is eligible for receiving 11.51 LVL daily plus 50% of the difference between 11.51 LVL and the assigned daily amount. These changes in the benefit amount are modeled starting from the policy year 2011.

EUROMOD notes

We assume that a father is socially ensured for paternity leave if he is employed (or self-employed) for at least 6 months (liwmy>=6), and has a positive employment or self-employment income (yem>0 or yse>0). We identify eligible fathers by selecting the households with children below 1 year old, and check if a child has a father.

Simulations are based on previous wage, imputed based on information from the national data.

Many fathers do not apply for paternity benefit. In the model we account for non-take-up of the benefit in policy years 2009-2010. We model non take-up based on the imputed paternity benefit in SILC 2010 data. For other datasets the non-take-up is not modeled.

2.3.10 Guaranteed minimum income benefit (bsamm_s)

The benefit is provided to households with low income to ensure primary needs and survival.

- ***Definitions***

The unit of analysis is a household or a separately living person with low income level per household member.

- ***Eligibility conditions***

In order to be eligible for GMI benefit a separately living person or a household have to be classified as 'being in need'. In 2009, this implied that income per family member in the previous three months must not exceed 50% of the minimum wage. A person must have no

deposits or other financial assets, private property from which it could get income. A person must not had given any loans to anybody or had loan commitment itself *(we can identify income from property rent or land (ypr) and also interest payments (xhcmomi)).*

Since 2010 the condition about not having or giving loans was abolished.

Since 2011 income per family member in the last three months must not exceed 90 LVL per month (which is a bit lower that previously used 50% of the minimum wage).

The eligibility for the benefit is reassessed every three months. Since this is not possible in EUROMOD, the assessment is made on annual basis.

- ***Income test***

The benefit is means-tested. A person or a household can receive the benefit if net income per household member is below the GMI level. In 2009, the income test included all net income excluding income from municipal social benefits, the state family benefit, the child birth benefit, the child care benefit, the funeral benefit and the first 100LVL of the parental benefit.

In 2010, the state family benefit was included in the income test and the amount of the parental benefit which is not tested was reduced from 100LVL to 50LVL. As of 2012, full amount of parental benefit is tested.

- ***Benefit amount***

A) Standard rules

The benefit amount is calculated as the difference between the GMI level and all relevant net income.

In case the household consists of several individuals the following formula applies:

P = GMI x n - I , where n is the number of household members and I is monthly net income calculated as an average for three months of a given household.

The standard level of GMI is set by the Cabinet of Ministers, but municipalities have the right to set a higher level. The standard level of GMI is presented in the table below:

Table 15. Standard GMI level in 2009- 2012, LVL per month

	2009	2010	2011	2012
Standard GMI level per person	37	40	40	40

In 2009, the maximum amount of the GMI benefit per one family per month amounted to the state social security benefit multiplied by a factor of 3 (i.e.135 LVL). The maximum length of receiving the benefit was 9 months in 2009, but this restriction was abolished as of July 1, 2009 (implemented in policy year 2010).

Since October 2009 (policy year 2010) the maximum limit on the amount of the benefit was abolished. A higher level of GMI was granted to all children below 18 years old: 45 LVL per month. Municipalities were free to set higher levels for disability or old-age pensioners.

B) Rules of Riga municipality

We cannot account for all municipality differences in the model, because there is no detailed information on people's residence in the input dataset. Besides, variation in the rules of each

municipality would make implementation really difficult. However, we try to model the rules of Riga municipality separately (as they are more generous).

Riga municipality sets a higher GMI levels for certain population groups (see Table 16). In case a person belongs to several categories the highest GMI level is applied (but GMI levels cannot be added up).

Table 16. GMI levels for certain population groups in Riga municipality (LVL per month)

	Definition	Amount (LVL)	Definition	Amount (LVL)
Target group	**2009**	**2009**	**2010-2012**	**2010-2012**
Children	Children below 18 or children below 20 years old who continue secondary or professional education:	48	Children below 18 years old	45
Parents	One of the parents	48	-	-
Pensioners	Disability (id variables: pdiss_s, pditx)	90	Disability (id variables: pdiss_s, pditx)	90
	Old-age (id variables: poass_s, poatx + conditions on pension age)	90	Recipients of old-age pensions: (id variables: poass_s, poatx)	90

In addition since 2010 families with children (where all children are below 18 years old) are eligible for a supplement to GMI. The supplement is 50 LVL per month for every child who is between 1.5 and 6 years old (dag>=1.5 & dag <= 6).

EUROMOD notes

To receive the GMI benefit a person has to be a resident of Latvia at the moment of applying for the benefit and declare his/her address in a certain municipality. However we are not able to obtain the residence information from the data available.

One of the components of sickness benefits (bhl) is health service benefit provided by municipality. It should not be included in the income test. However, it is not possible to separate this component from the aggregate benefit. This should not create big distortions in the income test, because health service benefit provided by municipality is a rather small benefit.

There is a special rule for persons who receive GMI benefit, and during this period find paid employment. These persons are allowed to receive a certain part of GMI benefit for three months after finding paid employment (even if they do not meet the benefit eligibility rules any more). However, it is impossible to identify such persons in the microdata, so we cannot simulate this rule.

2.3.11 Housing benefit (bho_s)

The benefit is provided to families with low income to support their primary needs for living space. Each municipality can determine own rules on eligibility and amount of this benefit.

- ***Definitions***

The unit of analysis is a household or a separately living individual.

- ***Eligibility conditions***

In order to be eligible for household allowance a separately living person or a household has to be classified as a 'low-income household'. In addition a person must have no deposits or other financial assets, private property from which it can get income. In 2009, there was an additional restriction that a person must not have given any loans to anybody or have loan commitment itself, but it was abolished in 2010.

The income per household member must not exceed 200 LVL per month (or must not exceed 250 LVL for a separately living person).

The eligibility for the benefit is reassessed every three months. This is not possible to simulate in EUROMOD, so the assessment is made on an annual basis.

- ***Income test***

The benefit is means-tested. The income test is the same as in case of the GMI benefit. The only difference is that the GMI benefit itself (bsamm_s) is also taken into account.

- ***Benefit amount***

The benefit is calculated according to the following formula:

$$P = GMI + K - I$$

Where K are normative expenses for rent and utilities and I is a total net monthly income (including an average amount of GMI benefit for the last three months).

Each municipality has its own rules for determining normative housing expenses (K). In many cases normative housing expenses will not cover all the housing expenses that households have. To determine normative housing expenses we use a proxy variable xhc, which shows actual housing expenses. However, since actual expenses in some cases are quite high we introduce an upper bound. It is equal to average housing expenditure calculated based on Household Budget Survey data separately in urban and rural areas and in households of different size (see Table 17).

Table 17. Average household housing expenditure by number of persons in the household (LVL per month), 2009 - 2012

Year	All households	URBAN Households per number of household members				RURAL Households per number of household members			
		1	2	3	>3	1	2	3	>3
2009	25.2	50.7	33.7	26.1	19.1	34.8	21.6	16.4	14.8
2010	24.6	48.7	32.4	26.0	19.1	30.4	22.2	18.0	11.8
2011	26.3	52.9	34.2	26.7	19.9	34.7	22.3	19.2	13.4
2012	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: The numbers show total expenditure on housing, water, electricity, gas, and other fuels (excluding expenditure on maintenance and repair of the dwelling). The data for 2012 is not available. In the model we uprate the expenditures using consumer price index for actual rentals for housing
Source: Central Statistical Bureau of Latvia, Household Budget Surveys.

EUROMOD notes

Since rules of municipalities differ, and we have no detailed information on the residence of people, we model only rules applied by the largest municipality of Latvia: Riga municipality. We apply these rules to all population of Latvia. Since the rules of Riga municipality are more generous than elsewhere, the simulated benefit is likely to be overestimated.

To receive housing allowance a person has to reside and declare his/her address in a certain municipality at least one year before applying for the benefit, however we are not able to check this information from the data available.

2.3.12 State social security benefit (poass_s, psuss_s, pdiss_s)

The benefit is aimed to ensure minimum income for old-age people who are not eligible for old-age pension, dependent children of a deceased person in case they are not entitled to the survivor's pension, and disabled people who do not have right for a disability pension.

- ***Definitions***

The unit of analysis is an individual.

- ***Eligibility conditions***

A. Old age

In case of old age, a person is eligible for the benefit if his or her age exceeds pension age by more than five years, and if the person is not eligible for old-age pension (i.e. working experience is less than 10 years). Also a person should not receive any compensation related to the accident at work or occupational disease (including compensation for the death of a spouse).

In order to be eligible for the benefit a person has to reside in Latvia at least 5 years of his/her life and last 12 months in a row before receiving the benefit. However, we are not able to check this information from the data available.

EUROMOD notes

Since eligibility conditions cannot be simulated accurately enough, the eligibility is taken from the data.

B. Survivors

Children of age below 18 or below 24 if they continue secondary, professional or higher full-time education and are not married are eligible for the state social security benefit in case they are not eligible for survivor's pension. The benefit amount is the same independently whether there are one or two dependent children.

EUROMOD notes

From the structure of a household we cannot identify the cases when a breadwinner was lost. And we do not have information on whether a breadwinner was socially insured or not (therefore we don't know if children are eligible for survivor's pension or state social security benefit). So we take eligibility for the benefit from the data.

C. Disabled

A person has to be classified as disabled but should not receive disability pension or compensation related to the accident at work or occupational disease (including compensation for the death of a spouse).

In order to be eligible for the benefit a person has to reside in Latvia for at least five years and for the last 12 months in a row before receiving the benefit. However we are not able to check this information from the data.

EUROMOD notes

Since it is not possible to simulate eligibility criteria, eligibility is assigned from the data.

- ***Income test***

The benefit is not means-tested.

- ***Benefit amount***

The benefit amount equals 45 LVL monthly for old-age people and for survivors. In case of disability the benefit is 45 LVL in a general case, and 75 LVL for people disabled from childhood.

2.4 Social contributions

Social contributions are mandatory for all employees and self-employed persons. The contribution rate is flat and in case of private/public employment it is split between an employee and an employer.

Total contribution rate may vary, depending on the insured person's employment status, age and disability status: e.g., in general, employees are insured against all insurance cases, but employees above the retirement age are not insured against unemployment and disability.

2.4.1 Employee social contributions (tscee_s)

A person below the retirement age (*id variable - dag*), who is employed in public/private sector in 2009-2010 faced a social security contributions rate of 9% of gross wage, but as of 2011 the rate was increased to 11%. After the person reaches the pension age, he/she is not insured against the risk of unemployment and disability and his/her wage becomes subject to a lower contributions rate. An employee receiving service pension or persons with the 3rd degree of disability are not insured against unemployment. Table 20 summarizes the rates of social

security contributions faced by employees in 2009 – 2012 and the distribution of the rate across different insurance cases.

- ***EUROMOD notes***

It is impossible to simulate special social insurance rules for persons with disability and recipients of service pension, because there is no information on disability level and service pensions.

2.4.2 Employer social contributions (tscer_s)

An employer in a public/private sector pays social security contributions on behalf of an employee below the pension age) in the amount of 24.09% of the gross wage. The rate is lower if the insured employee has reached the retirement age, receives a service pension or is qualified as disabled of the 3rd degree (see Table 18).

- ***EUROMOD notes***

It is impossible to simulate special social insurance rules for persons with disability and recipients of service pension, because there is no information on disability level and service pensions.

Table 18. Social security contributions rate faced by employee and employer, effective on June 30, 2009-2012

	30/06/2009	30/06/2010	30/06/2011	30/06/2012
Employee under the retirement age: Total rate/Employee rate/Employer rate, %	**33.09/9.00/24.09**	**33.09/9.00/24.09**	**35.09/11.00/24.09**	**35.09/11.00/24.09**
of which:				
Pension social insurance	22.86	21.66	25.56	26.74
Unemployment social insurance	1.70	3.81	2.56	1.50
Insurance against work accidents and occupational diseases	0.26	0.29	0.31	0.41
Disability social insurance	2.95	3.18	3.02	3.16
Maternity and sickness social insurance	3.47	2.47	2.27	2.28
Parents' social insurance	1.85	1.68	1.37	1.00
Employee above the retirement age: Total rate/Employee rate/Employer rate, %	**28.3/7.70/20.60**	**25.94/7.06/18.88**	**29.36/9.20/20.16**	**30.30/9.50/20.80**
of which:				
Pension social insurance	22.86	21.66	25.56	26.74
Insurance against work accidents and occupational diseases	0.26	0.29	0.31	0.41
Maternity and sickness social insurance	3.33	2.31	2.12	2.15
Parents' social insurance	1.85	1.68	1.37	1.00
Employee receiving service pension or qualified as disabled of 3rd degree: Total rate/Employee rate/Employer rate, %	**30.68/8.34/22.34**	**28.41/7.73/20.68**	**31.78/9.96/21.82**	**32.82/10.29/22.53**
of which:				
Pension social insurance	22.86	21.66	25.56	26.74
Insurance against work accidents and occupational diseases	0.26	0.29	0.31	0.41
Disability social insurance	2.38	2.47	2.42	2.52
Maternity and sickness social insurance	3.33	2.31	2.12	2.15
Parents' social insurance	1.85	1.68	1.37	1.00

Source: LatvijasVēstnesis (2013)

2.4.3 Self-employed social contributions (tscse_s)

A self-employed person below the retirement age has to make obligatory social security contributions against all insurance cases except unemployment, work accidents and occupational diseases, thus, a self-employed person faces a lower contributions rate than the total rate borne by an employee and an employer. When a self-employed person reaches the retirement age, he or she is also not insured against the risk of disability (see Table 19).

Table 19. Social security contributions rate faced by self-employed, effective on June 30, 2009-2012

	30/06/2009	30/06/2010	30/06/2011	30/06/2012
Self-employed under the retirement age: Total rate, %	**30.48**	**28.17**	**31.52**	**32.46**
of which:				
Pension social insurance	22.86	21.66	25.56	26.74
Disability social insurance	2.38	2.47	2.42	2.52
Maternity and sickness social insurance	3.39	2.36	2.17	2.20
Parents' social insurance	1.85	1.68	1.37	1.00
Self-employed above the retirement age: Total rate, %	**28.04**	**25.65**	**29.05**	**29.89**
of which:				
Pension social insurance	22.86	21.66	25.56	26.74
Maternity and sickness social insurance	3.33	2.31	2.12	2.15
Parents' social insurance	1.85	1.68	1.37	1.00

Source: LatvijasVēstnesis (2013)

A self-employed person can choose the level of income from which to make social security contributions, but there is a minimum level of income from which contributions have to be made. This boundary is linked to the minimum monthly wage (see Table 20). If self-employment income is beyond the boundary paying social insurance contributions is not mandatory.

Table 20. Minimum income from which self-employed can make social security contributions in 2009-2012, LVL per year

	2009	2010	2011	2012
Minimum	2,160	2,160	2,400	2,400

Source: LatvijasVēstnesis (2013)

- ***EUROMOD notes***

A self-employed person can pay social insurance contribution from any amount of income above the minimum threshold. It is assumed that if income of a self-employed exceeds this level, he/she makes contributions only from the mandatory part, this being the most common practice observed in Latvia. If annual income of a self-employed person is below the threshold, the person doesn't make any social contributions.

2.5 Personal income tax (tin_s)

2.5.1 Tax unit

Taxation in Latvia is on the individual level. However, for tax allowance purposes an extended family unit is defined. It includes a partner, dependent children and dependent parents.

2.5.2 Exemptions

The following income is exempted from taxation and can be identified in the data:

- Income from deposits from Latvian/the EU financial institutions (up to 2009). As of 2010, income from deposits is subject to personal income tax;
- compensation for the loss of capacity to work or the loss of breadwinner due to the occupational diseases/injury (pdint);

2.5.3 Tax allowances

The following tax allowances are simulated in EUROMOD:

- Non-taxable minimum income allowance

There is a standard non-taxable income allowance which is applied to employees or self-employed persons who do not receive old-age or disability pensions. Persons who receive pensions are eligible for a higher non-taxable minimum income allowance.

- Allowance for a dependent child, spouse or parent

For tax allowance purposes a child, a spouse or a parent can be considered dependents of a tax payer only if they do not work, do not receive unemployment benefit (or unemployment stipend), old-age or disability pension, do not receive taxable income above the allowance amount, and are not dependents of any other person. In addition a child is considered dependent if she is below 18 years old or below 24 years old and continues secondary, professional, special or higher education. Tax allowance for a dependent child is assigned to one of the parents (the one with the highest taxable income).

- Social insurance contribution by employees and self-employed.

If a person is dependent she or he is not eligible for non-taxable minimum allowance. The income of dependents is declared in the income declaration of a person responsible for them (i.e. the person who receives tax allowance for these dependents)

The following tax allowances are not simulated in EUROMOD because of lack of information:

- for a grandchild or a child taken for raising
- for siblings until the age of 18, if they don't have parents capable of working;
- for a person benefiting from alimony;
- for a person under guardianship or trusteeship of the payer.
- for politically repressed persons
- additional allowances for disabled persons

Table 21 summarizes the size of tax allowances that are applicable in the cases listed above:

Table 21. Personal income tax allowances (LVL per month), effective on June 30, 2009-2012

Allowances	2009	2010	2011	2012
Standard non-taxable minimum income	90	35	45	45
Non-taxable minimum for pensioners	165	165	165	165
Allowance for a dependant	63	63	70	70
Additional allowance for the disabled of 1st and 2nd degree [a]	108	108	108	108
Additional allowance for the disabled of 3rd degree [a]	84	84	84	84
Additional allowance for a politically repressed person (receiving pension) [a]	108	108	108	108
Additional allowance for a politically repressed person (not receiving pension) [a]	108	108	108	108

Notes: [a] Not simulated in the model.
Source: LatvijasVēstnesis (2013)

2.5.4 Tax base

Income from the following sources is included in the taxable income:

- income from employment including wage premiums, systematic or one time compensations and other work-related income (yem and yot);
- income from individual work or enterprise if it is not subject to enterprise tax (yse);
- income from renting private property (ypr);
- state pensions (poatx, pditx, psutx);
- taxable benefits (sickness benefit – bhl)
- dividends and interests (yiy) – since 2010

The tax base is defined as the taxable income minus tax allowances and deductible expenditures (see section 2.5.6).

In the years when different tax rates are applied to different taxable income components we assume that tax allowances are first subtracted from the income with the highest tax schedule.

Note: Income from property is taxed in the same way as self-employment income. Sickness benefit and pensions are taxed similar to employment income.

2.5.5 Tax schedule

In 2009 employment income (except self-employment income) was taxed at a flat rate of 23%. Income from self-employment was taxed at 15%. In 2010, the rates were made equal and raised to 26%. As of 2011, the rate was reduced to 25% (both for income from regular employment and self-employment).

As of 2010, a tax on income from capital was introduced. Income from capital is subject to personal income tax and is taxed at a reduced rate of 15% (capital increase) or 10% (other income from capital)

All tax schedules are demonstrated in Table 22.

Table 22. Personal income tax rate (%), 2009-2012

Income source	2009	2010	2011	2012
Regular rate	23	26	25	25
Income from capital:				
capital increase	-	15	15	15
other income from capital	-	10	10	10
Income from self-employment	15	26	25	25

Source: LatvijasVēstnesis (2013)

2.5.6 Deductible expenditure

Before calculating his/her tax obligations, a resident taxpayer is authorized to reduce his/her taxable income by the amount of the following expenditures:

- expenditures on education, health services and health insurance premiums (there is a maximum level of expenditures that can be deducted, being stipulated in the Cabinet of Ministers' regulations);
- gifts and donations to foundations and religious organisations registered in Latvia;

- expenditures on creation, publication, performance or other utilisation of works of arts, science or inventions, for which the authors receive royalty fees;
- contributions to private pension funds;
- life insurance premiums.

Except contributions to private pension funds, deductible expenditures are not possible to simulate in EUROMOD because of lack of data on expenditure in the input dataset.

2.5.7 Special taxation rules for pensioners

There are some special rules of taxation which are applied to pensioners.

- For non-working pensioners:
  Non-taxable minimum allowance is applicable to pensions.
- For working pensioners:
  Non-taxable minimum is applicable to the whole income (pension + other taxable income).
- For those who retired before 1996:
  If a pension is lower than non-taxable minimum, then the minimum is applied first to pension, then to other non-employment income.
  If a pension is higher than the non-taxable minimum, the pension is fully exempted from taxation, however other non-employment income is taxed from the first Lat.

  Note: The latter group of people can be identified by age and working experience. Minimum retirement age in 1996 was 56 for women and 61 for men. Minimum work experience: ten years.

3. DATA

3.1 General description

The Latvian database represents the Latvian part of the European Union Statistics on Income and Living Conditions (EU-SILC). The Latvian EU-SILC survey is an annual survey with a four-year rotational panel. The 2010 year survey took place in middle March – end of July of the year following the income reference year (i.e. 2009). The units of assessment are private households, excluding collective households, e.g., old people's homes, hotels, etc. Individuals aged 16 years and older were included in the survey. The database is provided by Eurostat.

The information contained in this section is based on Final Quality Report Relating to EU-SILC Operations 2007-2010 (Central Statistical Bureau of Latvia, 2012) and Intermediate Quality Report EU-SILC 2010 Operation in Latvia, by Central Statistical Bureau of Latvia (Central Statistical Bureau of Latvia, 2011).

Table 23. EUROMOD database description

EUROMOD database	LV_2010_a1
Original name	Kopienas statistika par ienākumiem un dzīves apstākļiem (EU-SILC) 2010
Provider	Eurostat
Year of collection	2010
Period of collection	March – July 2010
Income reference period	2009
Sampling	Stratified two-stage sampling
Unit of assessment	HH[1]
Coverage	Private households[2]
Sample size	6 255 households 15 313 individuals
Response rate	79.0%

Notes:[1] If more than one household was found to be residing in one address in urban area, all individuals and households that are living in one address were included in the survey in urban areas. In rural areas, only households formed by the people included in the household list (a document containing necessary information for tracing members of the household), were surveyed at a given address.
[2] Definition of private households corresponds to common definition used by the Eurostat. The surveyed households do not cover collective households, such as old people's homes, student dormitories, hotels, etc.

Latvian EU-SILC survey was carried out using stratified two-stage sampling. Stratification was based on degree of area urbanisation: the four strata were represented by (1) the capital city Riga, (2) six largest towns, (3) other urban areas and (4) rural areas. Primary selection units at the first stage were represented by counting areas from the Population Census 2000, selection being made by systematic sampling and inclusion probabilities being proportional to the number of households in the units. At the second stage, addresses were used as selection units and simple random sampling was used. The target sample size was set taking into account the non-response rates from previous year surveys. Also, since response rates differ across strata, the initial sample size in each stratum was adjusted by the respective response rate.

Latvian survey employs rotational panel with four sub-samples, where each sub-sample represents the whole population. Every year one sub-sample is dropped from the sample and a new group is added. The 2010 survey interviews were conducted using the CAPI (Computer-assisted personal interview) system and CATI (Computer-assisted telephone interview). Only households that were participating in the EU-SILC survey for the second, third or fourth time and had specified phone numbers in the previous waves, were used for CATI. Not all, but the majority of households with phone numbers were used for CATI. In cases when laptops could not be used during interviews, personal interviews were completed using paper questionnaires (2.8% of personal interviews).

Three types of questionnaires were developed for carrying out the survey: (i) Household register, which was intended for collecting demographic information on all members of households; (ii) Household Questionnaire, aimed at collecting household-related information, such as costs of the dwelling, income received at the household level, etc; and (iii) Personal Questionnaire, which was developed for collecting information on individual household members above age 16, including information on current or previous employment status, income from employment, etc. Additionally, a special document - Household List was developed with the aim of collecting information on all members of the household necessary for locating all members of the household or linking the data with administrative sources.

3.2 Sample quality and weights

3.2.1 Non-response

A total of 8 151 households were included in the initial sample, of which 7 654 households were contacted. Of 7 654 contacted households, interviews were completed with 6 256 households, of which 6 255 interviews were included in the database. Two major reasons for interviews not being completed were absence of the entire household during the interviewing process (27.3%) and refusal to cooperate (55.6%). Overall non-response rate amounted to 21.0%, of which for the 1st wave households – 35.5%.

3.2.2 Weights

The EU-SILC dataset provides the final cross-sectional survey weights (variable DB090). They are calculated based on the design weights (equal to inverse of inclusion probabilities of addresses), adjusted for non-response, and calibrated using the basic demographic statistics for the corresponding year's population (age, gender, degree of urbanization, and 6 regions of Latvia).

Latvian EU-SILC sample statistics has been projected to a reference population of 2,223,617 individuals in 864,695 households. Table 24 presents more basic descriptive statistics for the grossing-up individual weight RB050.

Table 24. Descriptive Statistics of the Grossing-up weight

Number	15,313
Mean	145.211
Median	132.237
Maximum	685.979
Minimum	9.651
Max/Min	71.081
Decile 1	61.807
Decile 9	240.403
Dec 9 / Dec1	3.890

3.2.3 Item non-response and under-reporting

According to Central Statistical Bureau's (CSB) data, which is based on enterprises' administrative reports, average net monthly wages of employees in 2009 amounted to 342 LVL (in 2008 – 350 LVL, 2007 - 286 LVL, in 2006 – 216 LVL). In the EU-SILC the average monthly employee cash or near cash income (PY010) in 2009 amounted to 387 LVL (in 2008 – 417 LVL, in 2007 – 375 LVL, in 2006 – 260 LVL) (Central Statistical Bureau of Latvia, 2012)[1], suggesting that the EU-SILC data on employees' income exceeds the official enterprise data on wages by approximately 13% in 2009, 19% in 2008, 31% in 2007 and 20% in 2006. One reason for the overestimation is the fact that in the EU-SILC statistics all income received

[1] "Data of the EU-SILC survey was calculated for a respondent, who had received employee cash or near cash income (PY010) and who had been working as an employee at least one month during the income reference period (PL210), using cross-sectional data files of the corresponding year". (Central Statistical Bureau of Latvia, 2012)

by an employed person is included in one variable, whereas in the CSB statistics employees' income is calculated per unit of employment; e.g., income of a person who has more than one job will be counted in one variable in the EU-SILC, whereas in CSB wage statistics the person's income from different jobs will be counted separately (Central Statistical Bureau of Latvia, 2012). Another reason for the overestimation is the fact that enterprises report only wages from which taxes are paid, thus the data does not account for wages from informal employment (Central Statistical Bureau of Latvia, 2012).

3.3 Data adjustment

Missing values of income components were imputed on the household and personal level, using Hot Deck method. Before performing the imputation, in EU-SILC 2010 households were grouped using variables HS050 (meat available), HS090 (possesses a computer), HS110 (possesses a car), HS060 (capacity to face unexpected financial expenses) and district.

EU-SILC data on benefits and pensions (both gross and net) was substituted with administrative data on pensions and benefits from the State Social Insurance Agency (SSIA). The SSIA's administrative data contains information on all major benefits and does not cover only minor benefits administered by municipalities (e.g., housing allowances) and pensions paid by other countries.

3.4 Imputations and assumptions

3.4.1 Time period

Socio-demographic characteristics of the respondents contained in EU-SILC 2010 refer to the time of data collection, i.e., March – July 2010. Most economic and labour variables also refer to the time of the interview, however, the database also contains some information referring to the income reference period (2009), e.g., employment status of the respondent in each month of 2009. Whenever possible, the corresponding demographic, labour and socio-economic information in the EUROMOD database was based on the EU-SILC variables referring to the income reference period. The EU-SILC UDB does not provide information on the number of periods a particular income was paid to a respondent. In some cases the number of periods was derived from non-monetary variables, e.g., the number of periods a respondent receives income from employment is based on the number of months spent at full-time or at part-time work, the number of months a respondent receives unemployment benefit is based on the number of months spent in unemployment.

3.4.2 Gross incomes

Starting from year 2007 database (referring to 2006 year income), net employee cash or near cash income (PY010N) is collected from the questionnaire, but gross employee cash or near cash income (PY010G) is imputed by counting up PY010N from EU-SILC and paid income taxes and social security contributions, obtained from State Revenue Service (SRS) data. Only in cases when information on net income is missing in the database or in cases where net income of a respondent obtained in the survey is lower than suggested by the SRS data, the survey data is substituted by information from the SRS.

3.4.3 Other imputed variables

Some information important for simulations was not available in the EU-SILC UDB dataset, therefore it was imputed. The following key variables were fully imputed:

- Detailed degree of urbanization: residents of Riga are imputed based on the national data.
- Unemployment benefit: UDB variable PY090 (unemployment benefits) includes all benefits "that replace in whole or in part income lost by a worker due to the loss of gainful employment" (European Commission, 2010). In the Latvian case it includes unemployment benefit, stipends for training courses of unemployed persons and compensation paid by employer for termination of work agreement. The unemployment benefit was imputed from aggregated PY090 variable using information from the national database.
- Social exclusion benefits: information from the national database is used to impute GMI benefit from the UDB variable HY060 (social exclusion not elsewhere classified).
- Previous employment income for people who receive unemployment benefits was imputed using the amount of unemployment benefit, approximate benefit duration, and the benefit calculation rules.
- Previous employment income for people receiving family benefits was imputed based on information from the national database.
- State social security benefit (for old-age, survivors or disabled): recipients imputed based on information from the national database and size of the benefit.
- Taxable part of disability benefit (disability pension) was obtained by comparing net and gross values of the aggregate disability benefits. The number of recipient was adjusted in accordance with the national statistics.
- Old-age pension, survivors' pension, and non-taxable part of disability benefit were calculated as residual components of aggregate variables.
- Taxable and non-taxable part of investment income (profits from capital shares in an enterprise and dividends, interests on money deposits) were imputed comparing net and gross values of investment income.

3.5 Updating

Table 25 below shows the updating factors that are used in the database to update the monetary variables from 2009 to 2012 (2009 = 1).

Table 25. Updating factors (base year 2009)

Index	Income Source/index type	2010	2011	2012
afc	ASSETS : Financial Capital	0.9878	1.0294	1.0558
bed	BENEFIT/PENSION : Education	0.9878	1.0294	1.0558
bfa	BENEFIT/PENSION: Family			
bfaba	BENEFIT/PENSION: Family – child birth benefit	0.7979	0.6869	0.6867
bfacc	BENEFIT/PENSION: Family – child care benefit	1.0051	1.0479	1.0577
bfama	BENEFIT/PENSION: Family – maternity benefit	0.7344	0.5652	0.5609
bfana	BENEFIT/PENSION: Family – state family benefit	0.9201	0.9201	0.9201
bfapl	BENEFIT/PENSION: Family – paternity benefit	0.9037	0.5299	0.5288
bfawk	BENEFIT/PENSION: Family – parental benefit	0.9954	0.7712	0.6646
bfaot	BENEFIT/PENSION: Family – other	0.9878	1.0294	1.0558
bhl	BENEFIT/PENSION : Health	0.7945	0.6215	0.4605
bho	BENEFIT/PENSION : Housing	0.8608	0.909	0.9323
bsa	BENEFIT/PENSION : Social Assistance			
bsafu	BENEFIT/PENSION : Social Assistance – funeral benefit	0.9657	0.9593	0.9839
bsamm	BENEFIT/PENSION : Social Assistance – GMI	1.3869	1.4454	1.4824
bsaot	BENEFIT/PENSION : Social Assistance – other	0.9878	1.0294	1.0558
bun	BENEFIT/PENSION : Unemployment			
bun00	BENEFIT/PENSION : Unemployment – unemployment benefit	0.6902	0.6031	0.5444
bunot	BENEFIT/PENSION : Unemployment – other	0.6902	0.6031	0.5444
kfb	IN KIND : Fringe benefit	0.9878	1.0294	1.0558
kivho	IN KIND : Imputed value : Housing	0.8608	0.909	0.9323
pdi	BENEFIT/PENSION : Disability			
pdint	BENEFIT/PENSION: Pension - Disability (Invalidity) - non-taxable part	1.1346	1.2368	1.2844
pdiss01	BENEFIT/PENSION: Pension - Disability (Invalidity) - State Social Security Benefit - for disabled from childhood	1.0000	1.0000	1.0000
pdiss02	BENEFIT/PENSION: Pension - Disability (Invalidity) - State Social Security Benefit - for other disabled	1.0000	1.0000	1.0000
pditx	BENEFIT/PENSION: Pension - Disability (Invalidity) - Taxable part	0.9813	0.9643	0.9449
poa	BENEFIT/PENSION : Old Age			
poass	BENEFIT/PENSION: Pension - Old age - State Social Security Benefit	1.0000	1.0000	1.0000
poatx	BENEFIT/PENSION : Old Age - Taxable part	1.0241	1.0374	1.0461
psu	BENEFIT/PENSION : Survivors			
psuss	BENEFIT/PENSION: Pension - Survivors - State Social Security Benefit	1.0000	1.0000	1.0000
psutx	BENEFIT/PENSION : Disability - Taxable part	0.9809	0.9633	1.0116
tad	TAX : Repayments/Receipts	0.9653	1.0065	1.0323
tis	TAX: Income Tax and SIC	0.9653	1.0065	1.0323
tpr	TAX : Property tax	1.2277	1.5084	1.5471
tscer	TAX: SIC - employer	0.9653	1.0065	1.0323
xhc	EXPENDITURE : Housing cost	0.8608	0.909	0.9323
xhcmomi	EXPENDITURE : Housing cost : Mortgage Payment (interest+capital) : Mortgage Interest	0.8608	0.909	0.9323
xhcot	EXPENDITURE : Housing cost : Other	0.8608	0.909	0.9323
xhcrt	EXPENDITURE : Housing cost : Rent	0.8608	0.909	0.9323
xmp	EXPENDITURE : Maintenance Payment	0.9878	1.0294	1.0558
xpp	EXPENDITURE : Private Pension (voluntary)	0.9878	1.0294	1.0558
yempv	INCOME: Income from previous employment	0.9624	0.929	0.9687
yem	INCOME: Income from employment (private sector)	0.9659	1.1528	1.1823
yem	INCOME: Income from employment (public sector)	0.9325	0.9762	1.0012
yivwg	INCOME : Imputed value : Wage/Salary	0.9421	1.0944	1.1225
*yivwg01**	INCOME: Imputed value: Wage/Salary for mothers of new born children (monthly)	0.8572	0.8076	0.9381
yivwg02	INCOME: Imputed value: Wage/Salary for recipients of parental, maternity and paternity benefit	0.8572	0.8076	0.9381
yiy	INCOME: Investment			
yiynt	INCOME: Non-taxable investment income	0.9878	1.0294	1.0558
yiytx	INCOME: Taxable investment income	0.9878	1.0294	1.0558
yot	INCOME : other	0.9878	1.0294	1.0558
ypp	INCOME : Private Pension	0.9878	1.0294	1.0558
ypr	INCOME : Property	0.8608	0.909	0.9323
ypt	INCOME : Private Transfers	0.9878	1.0294	1.0558
yse	INCOME : Self Employment	0.9659	1.1528	1.1823

Source: Eurostat, Central Statistical Bureau of Latvia, State Social Security Agency, State Treasury, State Land Service, own calculations.
* This variable is imputed based on wage equation (for the details see the previous Latvian Country Report for 2007-2010). It is not used for simulations based on 2010 data, however, it is included in the uprating function for consistency with the previous years.

4. VALIDATION

4.1 Aggregate Validation

4.1.1 Non simulated incomes

Latvia is a country with a high proportion of employment in the shadow sector. Informal employment may take a form of unregistered employment/self-employment or registered employment/self-employment with tax evasion (e.g. a part of wage is paid informally and is not subject to taxes and social contributions).

The 2010 EU-SILC data partly covers employment in the shadow sector. Table 26 shows the number of employed and unemployed in the EUROMOD input data and in the external statistics. The external statistics are based on the Labour Force Survey. EUROMOD dataset contains more employees and unemployed people than the official statistics in 2009. In particular, the number of employees in the EUROMOD dataset is 7-27% higher than in the Labour Force Survey (the extent of overrepresentation depends on how we compute aggregate number of employed in the input data, see notes to Table 26). Overrepresentation of the number of employees is especially strong in 2011 and 2012, since external data for these years is adjusted for census which was held in 2011. Number of self-employed persons is underestimated, which probably result from people wrongly classifying themselves as employees. The discrepancy between the number of employees in the input data and in external statistics leads to over-simulation of income tax and social insurance contributions.

Latvian EUROMOD input data is not adjusted for the changes in the labour market characteristics of individuals which occurred over the period 2009 – 2012. In 2009, unemployment rate amounted to 16.9% and in 2010 it increased further to 18.7%, but in 2011 it declined to 16.2% and in 2012 – to 14.9%. It should be kept in mind that EUROMOD simulations for 2010-2012 are based on the population as of 2009 and are not adjusted for labour market changes.

Table 26. EUROMOD validation: number of employed and unemployed, 2009–2012 (thousands)

Number	EUROMOD 2009	External Statistics				EUROMOD (A) / External Statistics			
	(A) average	2009	2010	2011*	2012**	2009	2010	2011	2012
Employed	971	983	941	862	886	0.988	1.032	1.126	1.096
Employees	935	871	833	764	785	1.073	1.122	1.224	1.191
Self-employed	71	98	95	88	93	0.724	0.747	0.807	0.763
Unemployed	267	203	216	167	156	1.315	1.236	1.599	1.712
	(B) total					**EUROMOD (B) / External Statistics**			
Employed	1152					1.172	1.224	1.336	1.301
Employees	1108					1.272	1.330	1.450	1.411
Self-employed	82					0.837	0.863	0.932	0.882
Unemployed	398					1.961	1.843	2.383	2.551

Notes: Two approaches are used to estimate the number of employed and unemployed in EUROMOD: (A) Average number is computed based on the number of months in employment/unemployment; (B) Total number is calculated as a stock of all persons employed/unemployed during the reference year regardless number of months in employment/unemployment. Employment status is based on information on source of income in the reference period.
* Break in series; data until 2011 is not adjusted for 2011 population census.
** Preliminary; based on quarterly data.
Source: External statistics is based on the Labour Force Surveys (EUROSTAT).

Average gross wages in the EUROMOD input dataset in 2009-2010 are about 3-4% higher than the official wages reported in the enterprise reports (see Table 27). As mentioned earlier, the main reasons for the overestimation are (i) the fact that in the EU-SILC data all income received by an individual is recorded in one variable, whereas in enterprise reports average wages are computed per job, and (ii) the fact that the EU-SILC data to some extent covers shadow wages.

Table 27. EUROMOD validation: average gross monthly wages, 2009–2012 (LVL)

Average gross wage	2009	2010	2011	2012
EUROMOD	478	457	525	538
External Statistics	461	445	464	481
EUROMOD / External statistics	1.037	1.027	1.131	1.119

Notes: Average gross wage in EUROMOD is estimated taken into account number of months a person is in work, expressed in full-time units. This definition is likely to correspond better to external statistics based on enterprise reports.
Source: External statistics is based on the enterprise reports (Central Statistical Bureau of Latvia).

In the baseline year aggregate employment income in the EUROMOD input dataset somewhat underestimates the external statistics from the national accounts in the baseline year (see Table 28). This is likely to be due to the fact that the national account data is adjusted for the Central Statistical Bureau's estimate of the shadow economy, while the extent to which the shadow income is represented in EU-SILC can be smaller. Starting from 2010 employment income is overrepresented, partly because no labour market adjustments are made in the input data.

Table 28. EUROMOD validation: aggregate employment income, 2009–2012 (LVL, millions)

Aggregate employment income	2009	2010	2011	2012
EUROMOD	4,970	4,747	5,448	5,588
External Statistics	5,185	4,577	4,890	5,302
EUROMOD / External statistics	0.959	1.037	1.114	1.054

Source: External statistics is based on the national accounts (Eurostat, Central Statistical Bureau of Latvia).

In the EU-SILC information on state benefits comes from the administrative records (State Social Insurance Agency), while information on municipality benefits is based on the survey. Therefore, most state benefits included in the EUROMOD data correspond quite well to external statistics, while municipality benefits (main components of social exclusion benefits) are slightly underreported (see Table 29 and Table 30).

The main discrepancies are:

Number of recipients of compensation for the loss of work capacity is underestimated. However, this is a minor benefit, which is imputed in the data as a residual component after splitting disability benefits.

Family and children related benefits are overrepresented in the EUROMOD data. One of the reasons for this is a relatively high number of children in the EU-SILC data as compared to external statistics. The other reason is big changes in the composition of the population (due to high emigration) which are not accounted for in the EU-SILC 2010. Latest Latvian Census for 2011 showed that the population of Latvia is significantly smaller than it was expected to be. For example, the number of children below 20 years old in 2011 is 5% less than it was expected[2]. External statistics on family benefits show a lot of variation in the number of recipients and total expenditure over years. This is explained by important changes in the eligibility rules and amounts, as well as decrease in the number of newly born babies. Aggregate non-simulated variable for family benefits does not account for these changes.

Social exclusion benefits include municipality benefits (such as GMI benefit, benefit paid in extraordinary situations, and other special purpose benefits) and funeral benefit paid by the state. The amount of municipality benefits tends to be underrepresented in the data, because they are collected directly from respondents during the survey. Hence, aggregate social exclusion benefits are underestimated.

[2] Based on population statistics of the Central Statistical Bureau of Latvia and own calculations.

Table 29. EUROMOD validation: benefits included but not simulated, number of recipients, 2009 – 2012 (thousands)

	EUROMOD				External statistics				Ratio (EUROMOD/External)			
	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
Old-age pensions	470	470	470	470	472	477	490	480	1.00	0.99	0.96	0.98
Survivor's pensions	25	25	25	25	24	23	22	21	1.05	1.08	1.13	1.21
Disability pensions	67	67	67	67	67	69	69	70	1.00	0.97	0.97	0.96
Compensation for the loss of work capacity	22	22	22	22	30	33	35	37	0.74	0.66	0.62	0.59
Sickness Benefits	187	187	187	187	197	179	185	n/a	0.95	1.05	1.01	n/a
Family and children related benefits [a]	296	271	271	271	259	247	229	n/a	1.14	1.10	1.18	n/a
Social exclusion benefits [b]	188	188	188	188	170	184	185	n/a	1.11	1.02	1.02	n/a

Notes on external statistics: [a] Approximation based on the number of recipients of State family benefit which is likely to cover most children eligible for other family benefits. [b] Social exclusion benefits included funeral benefit paid by the State and several municipality benefits: GMI benefit, benefit paid in extraordinary situations, and other special purpose benefits. Total number of recipients of social exclusion benefits is calculated as a sum of recipients of the components.

Sources: External statistics on state benefits is based on the data from the State Social Insurance Agency. External statistics on municipality benefits is based on the Reports on social services and social assistance published by the Ministry of Welfare of Latvia.

Table 30. EUROMOD validation: benefits included but not simulated, aggregate expenditure, 2009 – 2012 (LVL, millions)

	EUROMOD				External statistics				Ratio (EUROMOD/External)			
	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
Old-age pensions	984	1,008	1,021	1,030	1,009	1,044	1,089	1,118	0.98	0.97	0.94	0.92
Survivor's pensions	26	26	25	26	28	27	25	23	0.94	0.96	1.01	1.14
Disability pensions	94	92	91	89	102	102	102	100	0.92	0.90	0.89	0.89
Compensation for the loss of work capacity	23	26	28	29	30	34	37	40	0.771	0.754	0.756	0.732
Sickness Benefits	103	82	64	47	101	69	55	n/a	1.02	1.19	1.16	n/a
Family and children related benefits [a]	215	198	172	164	184	148	106	n/a	1.17	1.34	1.63	n/a
Social exclusion benefits [b]	17	18	18	19	24	32	36	n/a	0.71	0.55	0.50	n/a

Notes on external statistics: [a] External statistics on family benefits does not include some relatively uncommon benefits (e.g. for disabled child or for child adoption. [b] Social exclusion benefits included funeral benefit paid by the State and several municipality benefits: GMI benefit, benefit paid in extraordinary situations, and other special purpose benefits. Total aggregate expenditure is calculated as a sum of the components.

Sources: External statistics on state benefits is based on the data from the State Social Insurance Agency. External statistics on municipality benefits is based on the Reports on social services and social assistance published by the Ministry of Welfare of Latvia.

4.1.2 Simulated taxes and benefits

Table 31 and Table 32 provide comparison of the benefits and taxes simulated in the model to external statistics.

In 2009 unemployment benefit is simulated quite accurately. However, in following years the model significantly overestimates the number of recipients of unemployment benefit as well as aggregate expenditure. The model does not capture significant changes in the labour market characteristics of individuals that occurred in Latvia over 2009-2012[3]. In 2009 many people became unemployed[4] and therefore eligible for unemployment benefits. In 2010, despite a continuing growth in unemployment, many unemployed exhausted their unemployment benefits, but in 2011 the unemployment rate started to decline.

State social security benefit in case of old-age is underestimated in the model, but in case of disability and in case of a loss of a breadwinner is overestimated. The simulation of eligibility is based on eligibility from the data (and the number of eligible persons in the data is different from that in external statistics). This benefit covers a small group of people, so difference between the data and the external statistics can be a result of sample selection.

All major family benefits simulated in the model are oversimulated. As mentioned in the previous section, this is partly related to the composition of the sample (relatively high number of children as compared to external statistics); and distortions between survey data and registry data (due to lack of information on emigration). Over 2010-2011 accuracy of simulation of parental, maternity and paternity benefits deteriorates, because EUROMOD input data is not adjusted for demographic changes (e.g., the number of newly born babies). Paternity benefit is slightly underestimated, because adjustment for non-take up is implemented.

Municipality benefits (GMI benefit and housing benefit) are oversimulated by the model. First of all, the number of recipients is overestimated because it is likely that not all incomes are correctly declared in the data. Second, full take-up is assumed, while in reality some eligible persons do not apply for the benefits because benefits are rather small. Third, the eligibility rules and amounts of the benefits differ by municipality, and we cannot reproduce all municipality specific rules in the model. In case of GMI benefit we apply Riga rules to randomly selected individuals and standard rules to the rest of the population. In case of housing benefit we use Riga rules for all citizens of Latvia. This is likely to result in less precision and overestimation of the benefit amounts.

The number of tax payers and people who pay social insurance contributions is overestimated in the model because (1) the data is likely to include a part of people employed in the shadow economy, (2) the data contains more employed people than external statistic (e.g. Labour Force Survey), (3) some tax allowances and deductible expenses can not be simulated. Tax revenues are overestimated for the same reasons. The model especially poorly simulates social contributions of self-employed. However, this is a very small group of people. It is also likely that tax evasion is more spread among self-employed (because it is more difficult to control their income flows).

[3] Labour market adjustments are included in EUROMOD for Latvia as a part of a separate exercise on estimating current poverty indicators. More information about it is available in Navicke, J., O. Rastrigina and H. Sutherland (2013).

[4] LFS-based unemployment increased from 7.5% in 2008 to 16.9% in 2009 and further to 18.7% in 2010. In 2011, the unemployment rate declined to 16.2% and further declined to 14.9% in 2012.

Table 31. EUROMOD validation: taxes and benefits simulated, number of recipients/ payers, 2002 – 2012 (thousands)

	EUROMOD Simulation				External statistics				Ratio (EUROMOD/External)			
	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
Unemployment benefit	165	168	165	158	164	132	83	n/a	1.01	1.27	1.99	n/a
State social security benefit												
- in case of old age	0.52	0.52	0.52	0.52	0.79	0.72	0.63	n/a	0.66	0.73	0.84	n/a
- in case of a loss of a breadwinner	0.82	0.82	0.82	0.82	0.75	0.69	0.62	n/a	1.09	1.18	1.33	n/a
- in case of disability	17	17	17	17	14	14	15	n/a	1.21	1.16	1.10	n/a
Family state benefit	296	271	271	271	259	247	229	n/a	1.14	1.10	1.18	n/a
Child birth benefit	24	24	24	24	23	20	19	20	1.02	1.18	1.25	1.19
Child care benefit	33	33	33	33	29	29	27	26	1.13	1.13	1.21	1.28
Parental benefit	19	18	18	18	17	13	10	10	1.14	1.38	1.80	1.75
Maternity benefit	18	18	18	18	17	15	14	n/a	1.03	1.22	1.27	n/a
Paternity benefit	8	8	8	8	9	7	7	8	0.96	1.16	1.17	1.04
GMI benefit [a]	101	137	123	117	60	116	122	n/a	1.68	1.19	1.01	n/a
Housing benefit [a]	148	169	152	151	68	106	108	n/a	2.17	1.59	1.41	n/a
Personal income tax [b]	1,003	1,110	1,120	1,139	-	-	-	-	-	-	-	-
Employee SIC	1,108	1,108	1,108	1,108	796	736	748	771	1.39	1.51	1.48	1.44
Employer SIC	1,108	1,108	1,108	1,108	796	736	748	771	1.39	1.51	1.48	1.44
Self-employed SIC	41	40	42	42	21	15	14	10	1.95	2.62	3.05	4.37

Notes on external statistics: [a] Number of individual recipients. Include only benefits paid in cash.
[b] External statistics is not available.
Sources: External statistics on state benefits is based on the data from the State Social Insurance Agency. External statistics on municipality benefits (GMI and Hosing benefit) is based on the Reports on social services and social assistance published by the Ministry of Welfare of Latvia.

Table 32. EUROMOD validation: taxes and benefits simulated, expenditure/ revenue, 2009 – 2012 (LVL, millions)

	EUROMOD Simulation				External statistics				Ratio (EUROMOD/External)			
	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
Unemployment benefit	130	129	124	116	137	89	43	40	0.95	1.45	2.86	2.89
State social security benefit												
- in case of old age	0.3	0.3	0.3	0.3	0.4	0.4	0.3	n/a	0.66	0.74	0.83	n/a
- in case of a loss of a breadwinner	0.4	0.4	0.4	0.4	0.4	0.4	0.3	n/a	1.06	1.17	1.33	n/a
- in case of disability	13	13	13	13	11	11	12	n/a	1.16	1.13	1.06	n/a
Family state benefit	46	38	38	38	39	34	32	30	1.17	1.09	1.18	1.25
Child birth benefit	10	7	7	7	10	7	6	6	1.04	1.01	1.26	1.19
Child care benefit	12	12	12	12	12	12	11	11	1.04	1.03	1.06	1.11
Parental benefit	95	61	52	52	76	57	38	35	1.25	1.07	1.39	1.49
Maternity benefit	35	35	24	24	34	26	16	17	1.04	1.34	1.44	1.39
Paternity benefit	1.8	1.8	1.1	1.1	2.0	1.5	0.9	1.0	0.89	1.18	1.29	1.14
GMI benefit [a]	19.5	34.7	32.5	31.2	6.2	17.7	21.5	n/a	3.12	1.96	1.51	n/a
Housing benefit [a]	26.5	19.6	19.3	19.6	5.2	6.9	8.2	n/a	5.13	2.84	2.36	n/a
Personal income tax	809	1,016	1,077	1,107	710	785	799	867	1.14	1.29	1.35	1.28
Employee SIC	444	423	595	611	301	290	383	413	1.48	1.46	1.55	1.48
Employer SIC	1,189	1,132	1,302	1,337	805	773	903	904	1.48	1.46	1.44	1.48
Self-employed SIC	21	19	25	25	8	7	7	8	2.64	2.87	3.32	3.34

Notes on external statistics: [a] Include only benefits paid in cash.
Sources: External statistics on state benefits is based on the data from the State Social Insurance Agency and Central Statistical Bureau. External statistics on municipality benefits (GMI and Hosing benefit) is based on the Reports on social services and social assistance published by the Ministry of Welfare of Latvia.

4.2 Income distribution

All income distribution results presented here are computed for individuals according to their household disposable income (HDI) equivalised by the "modified OECD" equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions. The weights in the OECD equivalence are: first adult=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

4.2.1 Income inequality

Table 33 compares income distribution generated by the EUROMOD with external statistics from Eurostat and Central Statistical Bureau of Latvia. The mean and the median income are slightly underestimated in the model. The income quintile ratio and GINI coefficient are also lower than in the external statistics.

4.2.2 Poverty

Table 34 shows the poverty rates calculated by the model and compares them to external statistics from the Eurostat and Central Statistical Bureau of Latvia. The model slightly underestimates poverty rates for the cut-off points 40% and 50% in 2009, however, in the baseline for the cut-off points of 60% and 70% the estimates are very close to the external figures. The poverty rates for population below 49 are slightly overestimated in 2009, while poverty rate for the elderly is underestimated. There are several reasons for this. First, taxes and social contributions of employees and self-employed people are overestimated because we can not account for tax evasion and some tax deductions. This drags disposable income of working-age population down. Second, we model main means-tested benefits assuming full-take-up which results in oversimulation of these benefits. This pushes up disposable income of persons at the bottom of the income distribution. Third, the elderly people in Latvia are concentrated around the 60% median poverty threshold meaning that their risk of poverty is sensitive to small shifts in the threshold. The poverty threshold simulated in in EUROMOD is slightly lower than in external statistics, which might explain lower poverty risk among the elderly. .

Table 33. EUROMOD validation: income inequality, 2009 - 2011

	EUROMOD Simulation			External statistics			Ratio		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Mean income (equivalised)									
total	5,412	4,955	5,408	5,517	5,093[a]	5,456[a]	0.98	0.97	0.99
males	5,474	4,999	5,472	5,586	5,237		0.98	0.95	
females	5,359	4,918	5,354	5,459	5,045		0.98	0.97	
Median income (equivalised)									
total	4,443	4,119	4,474	4,537	4,194		0.98	0.98	
males	4,493	4,194	4,550	4,642	4,296		0.97	0.98	
females	4,390	4,084	4,392	4,451	4,093		0.99	1.00	
Income quintile ratio (S80/S20)	6.13	5.67	5.88	6.9	6.6[a]	6.5[a]	0.89	0.86	0.90
Gini Coefficient	34.90	33.60	34.20	36.1	35.4[a]	35.9[a]	0.97	0.95	0.95

[a].Data from Central Statistical Bureau of Latvia; population weights are adjusted for 2011 census results
Note: External statistics for 2012 is not available,
Sources: External statistics is based on EUROSTAT (EU-SILC), and Central Statistical Bureau of Latvia

Table 34. EUROMOD validation: poverty rates by gender and age, 2009 – 2011

	EUROMOD Simulation			External statistics			Ratio		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
40% median HDI									
Total	7.90	7.00	7.80	9.2	9.1		0.86	0.77	
Males	9.20	8.20	9.00	10.5	10.1		0.88	0.81	
Females	6.80	6.00	6.80	8.0	8.2		0.85	0.73	
50% median HDI									
Total	14.00	13.70	14.00	14.8	13.5		0.95	1.01	
Males	15.50	15.20	15.70	16.3	14.7		0.95	1.03	
Females	12.70	12.40	12.50	13.5	12.5		0.94	0.99	
60% median HDI									
Total	20.90	19.90	20.20	21.3	19.1 [a]	19.4 [a]	0.98	1.04	1.04
Males	21.70	21.20	21.10	21.7	20.0		1.00	1.06	
Females	20.20	18.80	19.40	21.0	18.7		0.96	1.01	
70% median HDI									
Total	28.50	27.40	28.60	29.3	27.0		0.97	1.01	
Males	28.00	27.60	28.10	28.4	26.8		0.99	1.03	
Females	29.00	27.20	29.00	30.0	27.1		0.97	1.00	
60% median HDI									
0-17 years	27.60	27.20	26.70	26.6	24.8		1.04	1.10	
18-24 years	22.30	23.20	22.60	21.2	22.4		1.05	1.04	
25-49 years	20.50	20.40	20.00	19.9	19.2		1.03	1.06	
50-64 years	21.00	20.60	20.80	21.1	21.0		1.00	0.98	
65+ years	13.10	7.80	11.30	18.8	9.5		0.70	0.82	

[a] Data from Central Statistical Bureau of Latvia; population weights are adjusted for 2011 census results
Note: External statistics for 2012 is not available,
Sources: External statistics is based on EUROSTAT (EU-SILC) and Central Statistical Bureau of Latvia

4.3 Summary of "health warnings"

This section summarizes particular aspects of the Latvian part of EUROMOD or its database that should be borne in mind when planning appropriate uses of the model and in interpreting results.

- The EUROMOD input data is not adjusted for any demographic or labour market changes taking place in the period from 2009 to 2012 (except for updating of monetary incomes).
- Tax evasion, undeclared work and wages in envelopes are widely spread in Latvia. However, the model does not account for it. This results in overestimation of simulated taxes and social insurance contributions.
- Full take up of benefits is assumed for simulation of GMI benefit and housing benefit. This results in overestimation of both number of recipients and aggregate expenditure on these benefits.
- Income test for GMI and housing benefit cannot be simulated precisely because some benefits (which must be included) in the income test cannot be separated from aggregate variables. This should not create big distortions in the income test, nevertheless a user of the model should be aware of this. Moreover, in the model income test in performed on annual income while in reality income of the previous three months is assed.
- Simulating municipality benefits (GMI benefit and housing benefit) we cannot reproduce all the rules of Latvia's municipalities because they are quite complicated and the data does not provide detailed regional information. Therefore we model only rules applied by the largest municipality of Latvia, Riga municipality (and in case of GMI we also model a standard GMI regime). In case of housing benefit we use Riga rules for all citizens of Latvia. Since the rules of Riga municipality are more generous than elsewhere, this is likely to result in less precision and overestimation of the benefit amounts

5. REFERENCES

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

On-line legislation (mainly in Latvian):

http://www.likumi.lv