EUROMOD

COUNTRY REPORT

CZECH REPUBLIC (CZ)

2014 – 2017

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EUROMOD version H1.0

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 28 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 Czech Republic. 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 H1.0 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: https://www.euromod.ac.uk

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1. BASIC INFORMATION

1.1 Basic information about the tax-benefit system

- The tax-benefit system is unified. There are no exceptions.
- The tax system can be generally changed in January each year. Main benefit changes happen at the same time, but may also be implemented in June.
- Retirement age is different depending on age of the person, for women it also depends on the number of raised children. The pension age has been increasing by two months for men and four months for women for each year since 1996 until the end of 2012 when it reached the maximum of 68 years for all persons born in 1983. The retirement age for persons born after 1983 will be further increased by 2 months per year of birth.
- Minimum school leaving age is 15; a dependent child is classified as a child that has not yet finished compulsory schooling and until 26 if he or she is training for future employment; or, alternatively, if the child cannot train for future employment because of injury, long-term illness or if the child is not able to work.
- The income tax system is an individual system; however (in 2005-2007) married couples with at least one child all living in the same household could choose to fill out a joint tax return.
- The means-tested benefit system assesses entitlement according to benefit unit income. The benefit unit is the nuclear family - the couple (cohabiting or married) or single adult plus any dependent children.

1.2 Social Benefits

Social benefits can be broken down into the following categories:

1.2.1 Social insurance benefits

Unemployment benefit is short term benefit, which is available for unemployed individuals actively searching for a job.

Pension system contains five types of pensions: old-age pensions, full invalidity pensions, part-invalidity pensions, widow or widower pensions, and orphan pensions.

Sickness benefits create the sickness insurance system which is intended for people in remunerative work, for whom it provides security through financial sickness insurance benefits in cases of so-called short-term social events (temporary inability to work due to an illness, injury or quarantine, caring for a family member, pregnancy and maternity or caring for a child). The system includes four types of benefits.

- **Disablement Benefit (*nemocenské dávky*):** this benefit is paid for all days that a person is disabled, but not more than for one year (or at most two years if the person is disabled due to work injury). The amount of the benefit is calculated from the daily benefit base.
- **Benefit for Treatment of a Family Member (*ošetřovné*)**: this benefit is for treatment of a family member for a person caring for an ill child under ten, or caring for a person over ten if required. The person undergoing treatment must live in the same household as the benefit recipient. The benefit is paid for at most nine days, or at most 16 days if

the person caring for a child younger than 10 lives alone with the child in the household.

- **Maternity and Pregnancy Benefit (*vyrovnávací příspěvek v těhotenství a v mateřství*):** is paid to women working at a less well-paid position because of her pregnancy or maternity. The benefit is provided from the day she leaves a better-paid position until at most nine months after the birth of her child. The net benefit base is the same as that of disablement benefit for the period after two weeks of illness. The amount of the benefit is calculated as the difference between the net benefit base before and after moving to a less well-paid position.

- **Maternity Allowance (*peněžitá pomoci v mateřství*):** is available for women who give birth to children and who have paid health insurance for at least 270 days in the prior two years. Eligible entrepreneurs must have paid sickness insurance for at least 270 days in the last year before the birth. The woman must not have a paid position and may not run her own business. The maternity allowance is paid for maximum of 28 weeks.

Social insurance benefits are not simulated in Euromod because of lack of relevant data, the exception is unemployment benefit that can be partially simulated under a number of assumptions.

1.2.2 State social support

- Means-tested
  - **Child allowance:** is basic long-term benefit provided to families with dependent children.
  - **Social allowance:** aims to help families with low incomes to cover the costs of their children's needs. Social allowance only available for families with disabled children since 2011 and abandoned since 2012.
  - **Housing benefit:** should help households to cover the costs of housing.
- Non-means tested
  - **Parental allowance:** aimed at parents who care in person and on a daily basis for a child up to four years old.
  - **Foster care benefits:** for dependent children placed in foster care. The child continues to be entitled to this allowance even after reaching adulthood, up to a maximum of 26 years of age, provided that they remain a dependent child and live under the same roof as their former foster parent(s).
  - **Funeral grant:** is available to a person arranging a funeral for dependent child.
  - **Birth grant:** is available to any mother who gives birth to one or more children.

1.2.3 Social assistance

Social necessity benefits: serve as a last resort. When a net household income including any state social support benefits is less than the family-level MLS, the household is entitled to social necessity benefit.

The system is organized around a key parameter — the so-called minimum living standard (MLS).

1.2.4 Social care

Social care benefits are monthly allowances paid to disabled people. The amount of care allowance corresponds to the degree of "dependence on care" which is based upon an assessment of ability to manage the above mentioned 10 basic living needs.
There are 4 levels of dependence:

- Grade I (slight dependence);
- Grade II (medium-heavy dependence);
- Grade III (heavy dependence);
- Grade IV (total dependence).

- ***Not strictly benefits***

There are no benefits of this type in the Czech Republic.

1.3 Social contributions

The social contributions in the Czech Republic can be divided into two parts:

Social insurance and state employment policy contributions consist of pension insurance, contributions for the state employment policy and sickness insurance. The participation in this system is compulsory for all persons, who have income from work and business (in this case is sickness insurance voluntary).

Contribution for public health insurance is administrated by special public bodies – health insurance companies. The participation in this system is compulsory for all persons. The contribution of persons, who cannot have income from work and business, is paid by the state budget.

1.4 Taxes

The current Czech taxation system was introduced in 1992. While direct taxes include income tax and real estate tax, indirect taxation consists of value added tax (VAT), excise taxes, road tax, estate tax, beneficiary tax and the tax on the transfer of real estate.

Income Tax (*daň z příjmu*) is paid by corporations and individuals. The corporate income tax is 19% of gross profit. Personal income tax is paid by any person who has residence or lives in the Czech Republic for at least 183 days in a year. Taxable income includes all income earned in the Czech Republic and abroad. The tax rate is flat and equal to 15%. The second tax bracket with the additional tax rate (+ 7 %) was introduced since 2013, but it is relevant just for the income, which is taxed by social security contribution.

Real Estate Tax (*daň z nemovitých věcí*) has two parts: Land tax and Building tax. The tax is paid by the owner of land or building but the rates are very low.

Value Added Tax - *VAT* (*daň z přidané hodnoty*) is levied on the supply of goods, real estate transfers, services provided in the Czech Republic and imported goods. A typical VAT taxpayer is an entrepreneur or a company with headquarters or outlet in the Czech Republic if their turnover was higher than 1,000,000 CZK in the last 12 months or if they are registered as a voluntary taxpayer. VAT taxpayers may claim a return on the tax paid to other VAT taxpayers if the goods are used as inputs for production. The difference between VAT on sold goods and services and VAT on inputs is termed VAT tax duty. If the tax duty is negative, VAT taxpayers receive a refund. The standard VAT rate is 21% with, first preferential rate of 15% and second preferential rate of 10 %.[1] The last is levied on books, medical goods and food for small children.

Excise Tax *(spotřební daň)* is levied on mineral oil, alcohol, beer, wine, tobacco and tobacco goods. The tax is levied on goods made in or imported to the EU.

[1] The VAT rates (standard / preferential) increased in the last years a lot, the rates were 19% / 5% till 2007, 19% / 9% in 2008 and 2009, 20% / 10% in 2010 and 2011, 20% / 14% in 2012 and 2013, 21%/15 % in 2014 and 21%/15%/10% since 2015.

Road Tax (*silniční daň*) is paid by entrepreneurs for each vehicle used for business purposes and for all vehicles above 12 tons irrespective of use, except vehicles designated for agricultural purposes.

2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

2.1 Scope of simulation

Simulation of benefits in EUROMOD

	Variable name(s)	Treatment in Euromod 2013	2014	2015	2016	2017	Why not fully simulated?
Sickness Benefits	bhl	I	I	I	I	I	The amount of benefit depends on the previous income and length of sickness.
Passive employment policy benefits	bun_s	PS	PS	PS	PS	PS	The amount of benefit depends on the previous earning stream for a period of time, and on time spent in previous employment, and on length of past periods of unemployment.
Child Allowance	bch00_s	S	S	S	S	S	
Social Allowance	bchmt_s	-	-	-	-	-	Not simulated in 2011 due to lack of information on disability status among children. Benefit cancelled in 2012.
Foster Care benefits	bfafp	I	I	I	I	I	
Housing Benefit	bho_s	S	S	S	S	S	
Parental Allowance	bfapl_s	PS	PS	PS	PS	PS	Eligibility taken from data
Birth grant	bchba_s	S	S	S	S	S	
Allowance for Living	bsa00_s	S	S	S	S	S	
Supplement for Housing	bsaho_s	S	S	S	S	S	
Total social assistance	bsa_s	S	S	S	S	S	
Income tax bonus	tinrf_s	S	S	S	S	S	
Education related allowances	bed	I	I	I	I	I	Sources and amount may vary
Other Social Benefits	bfaot	I	I	I	I	I	Sources and amount may vary
Old age pension	poa	I	I	I	I	I	Amount depends on unobserved working histories
Disability pension	pdi	I	I	I	I	I	Amount depends on unobserved working histories and disability level
Survivors pension	psu	I	I	I	I	I	Amount depends on unobserved working histories

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; "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.

Simulation of taxes and social contributions in EUROMOD

	Variable name(s)	Treatment in Euromod					Why not fully simulated?
		2013	2014	2015	2016	2017	
Income tax final liability	tin00_s	S	S	S	S	S	
Separate tax scheme liability	tinpx_s	S	S	S	S	S	
Propety tax	tpr	I	I	I	I	I	Information on property value unobserved
Employees ssc	tscee_s	S	S	S	S	S	Includes all components of ils_sicee
Employer's ssc	tscer_s	S	S	S	S	S	Includes all components of ils_sicer
Entrepreneurs ssc	tscse_s	S	S	S	S	S	Includes all components of ils_sicse
State funded public health insurance contributions	tschlgv_s	S	S	S	S	S	

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; "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.

- ***Structural changes between 2012 and 2013***

  No changes.

- ***Structural changes between 2013 and 2014***

  No changes.

- ***Structural changes between 2014 and 2015***

  No changes.

- ***Structural changes between 2015 and 2016***

  No changes.

- ***Structural changes between 2016 and 2017***

  No changes.

2.2 Order of simulation and interdependencies

Employee and employer social and health contributions as well as income tax are simulated first. Social benefits are simulated after income tax as they are tax exempt and, when means-tested, the income tests are based on net income. The order of simulate of benefits takes into account the "cumulative nature" of their income tests. The income test of Housing

Benefit is the same as the Child Allowance plus this benefit. As for Social Assistance, its income test is the same as the previous one plus Housing Benefit.

Simulated policies & order of simulation

Policy	Grp/No	cz_2014	cz_2015	cz_2016	cz_2017	Comment
SetDefault_cz		on	on	on	on	DEF: DEFAULT VALUES
uprate_cz		on	on	on	on	DEF: UPRATING FACTORS
DefCons_cz		on	on	on	on	DEF: define constants
ilsdef_cz		on	on	on	on	DEF: STANDARD INCOME CONCEPTS
ildef_cz		on	on	on	on	DEF: NON-STANDARD INCOME CONCEPTS
tudef_cz		on	on	on	on	DEF: ASSESSMENT UNITS
InitVars_cz		on	on	on	on	DEF: Initialization of variables
yem_cz		off	off	off	off	SWITCH: minimum wage
neg_cz		on	on	on	on	SWITCH: recode negative income to zero
cer_cz		on	on	on	on	SIC: employer social and health insurance contributions
cee_cz		on	on	on	on	SIC: employee social and health insurance contributions
cse_cz		on	on	on	on	SIC: self employed social and health insurance contributions
tin_cz		on	on	on	on	TAX: income tax
bun_cz		on	on	on	on	BEN: unemployment benefit: PART SIMULATED (to fully simulate switch currently "toggle" functions to "on")"
cot_cz		on	on	on	on	"SIC: state funded public health insurance contributions (students, pensioners, children, etc.)"
bfapl_cz		on	on	on	on	BEN: parental allowance
bch00_cz		on	on	on	on	BEN: child allowance
bchmt_cz		n/a	n/a	n/a	n/a	BEN: social allowance
bchba_cz		on	on	on	on	BEN: birth grant
bho_cz		on	on	on	on	BEN: housing benefit
bsa_cz		on	on	on	on	BEN: social assistance (social necessity benefit / Allowance for Living)
output_std_cz		on	on	on	on	DEF: STANDARD OUTPUT INDIVIDUAL LEVEL
output_std_hh_cz		off	off	off	off	DEF: STANDARD OUTPUT HOUSEHOLD LEVEL

2.3 Policy switches

There are two standard switches included into the spine (see above):

- **neg_cz**: switched ON by default
  - recodes negative income to zero; currently this policy only recodes negative self-employment income to zero, initial value stored in i_yse0
- **yem_cz**: switched OFF by default
  - if hourly wage is lower than hourly minimum wage recalculate in accordance to the minimum wage, leaving hours of work as recorded in the data; if ON overwrites *yem.*

2.4 Social benefits

Main reference amounts used for calculating social benefits or income testing are discussed below.

- **Minimum Living Standard (MLS)**

The system is organized around a key parameter — the so-called minimum living standard (MLS). This amount is calculated at the personal level, and is intended to reflect the cost of living. Most types of benefits are then defined as given percentages of the family-level MLS.

The construction of MLS has one element. Amounts of MLS are different for single person, first adult in family, another adult in family and for children (three categories according to age).

MLS (in CZK per month)	*2013-2017*
Single	3,410
First person in household	3,140
Second and other persons who are not a dependent child	2,830
Subsistence Minimum (CZK)	2,200
Dependent child aged	
o under 6 years	1,740
o 6 - 15 years	2,140
o 15 - 26 years	2,450

- **Minimum self-employment income for income test of social benefits**

If person in the family has the income from business as the main income, its contribution to the income for the purpose of testing eligibility for social benefits cannot be lower than 50 % of average wage in previous year.

- **Average & minimum wage**

	2013	2014	2015	2016	2017
Average wage:					
in previous year	25,067	25,035	25,768	26,467	27,589
in Q1-3of previous year	24,408	24,622	25,179	25,903	27,000
Minimum wage:	8,000/8,500*	8,500	9,200	9,900	11,000

* Since 1 august 2013

** Economy-wide average wage in the first three quarters of the preceding year

2.4.1 Social Insurance

2.4.1.1 Unemployment Benefits (bun_cz)

Unemployment benefits are available for individuals actively searching for a job who were employed for at least 12 months in the previous two years and who are not receiving an old-age pension, full invalidity pension or sickness benefits. The employment record required to be eligible for unemployment benefits includes the time taken preparing a partially disabled person for a job, military or civil service, custody of a child less than three years old or a disabled child up to the age of 18, custody of disabled person above 80 or partially disabled relatives above 80, and the time of receiving disablement benefit.

The benefit entitlement for people less than 50 years is 5 months; from 50 to 55 years are 8 months and over 55 years, 11 months. *Note: duration of the benefit is taken from the data in simulations due to incomplete information.*

The basis for calculating unemployment benefit includes income net of social insurance contributions and income tax, i.e. the average net monthly wage in the previous job, or the net profit from previous entrepreneurial activity. The amount of benefit is in the first 2 months equal 65% of the average net wage in the last employment, next 2 months it is 50%

and for the remaining time it is 45%. The maximum amount of unemployment benefit is 58% of the economy-wide average wage in the first three quarters of the preceding year (see table above). If a person is involved in the retraining program, the maximum value would be increased to 65% of the economy-wide average wage in the first three quarters of the preceding year. The minimum amount (which is applied, if it is not possible to prove the amount of previous income) is for the first two months 15% of the average wage in the first three quarters of the preceding year, for next two months it is 12 % and for the rest of the period it is 11 %. *Note: minimum threshold is not implemented in EUROMOD due to data constraints.*

In case of voluntary withdrawal from the work, entitlement to unemployment benefit begins after 6 months and the coefficient for calculation of unemployment benefit is reduced to 45%. *Note: This element is not simulated in EUROMOD due to lack of information on reasons for withdrawal from work and incidence.*

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

No changes.

2.4.2 State Social Support

All benefits provided through the state social support are not taxable and may be divided between means-tested and non-means-tested benefits. General net household income for the purpose of testing eligibility for the state social support is defined as taxable income for the purpose of income taxation, stipends, housing supplements from employers, bonuses, alimony, sickness benefits, unemployment benefits, income from abroad and pensions. Net profit from entrepreneurial activity is included if it is greater than zero and its contribution to the income for the purpose of testing eligibility for social benefits cannot be lower than 50 % of average wage in previous year. On the other hand, general net household income does not include any debts.

A family is defined for the purpose of state social support (except housing benefit for which all persons of the same domicile address are considered in the same unit of assessment) as a person, dependent children, parents of dependent children, spouses or partners, dependent children of dependent children (if they are not married, widowed or divorced) if they live with the person in the same household and meet the cost of living together. If a dependent child is under 18, the condition of meeting the costs of living together is not required. If a dependent child is over 18 and under 26 and is training for future employment, the condition of meeting the costs together is not required if the child has the same domicile address as her parents. A spouse is considered to be a unit member.

A dependent child for the purpose of state social support is classified as a child that has not yet finished compulsory schooling and until 26 if he or she is training for future employment (i.e., is in education); or, alternatively, if the child cannot train for future employment because of injury, long-term illness or if the child is not able to work. A child between the end of compulsory schooling and 18 is also dependent if registered at a district labour office and not receiving unemployment benefit. A child receiving a full invalidity pension is not considered a dependent child.

2.4.2.1 Child Allowance (bch00_s)

Child allowance is a benefit provided to families with dependent children with an income of less than 2.4 times the family's living minimum. The net household income which is tested for the purpose of child allowance is the general net household income plus foster care benefit and parental allowance. The relevant period for the income test is the calendar year prior to the year when the income is tested.

The allowance, per child, is provided on three levels, depending on the age of the child:

Age of the dependent child	Amount of monthly child allowance per child in CZK
Up to 6 years of age	500
From 6 – 15 years	610
From 15 – 26 years	700

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

No changes.

2.4.2.2 Housing Benefit (bho_cz)

The household is entitled to this benefit if its housing costs are higher than 30% (35% in Prague) of the net household income, while the housing costs are at most the normative costs. The normative costs are declared by the Ministry of Labour and Social Affairs, reflecting the number of persons in the household, the number of inhabitants in the municipality, and the type of housing (rental and other). The amount of the housing benefit is equal to the difference between the normative costs and 30% (35% in Prague) of the net household income.

If the net household income is lower than the MLS, the household is entitled to the benefit if its housing costs are higher than 30% (35% in Prague) of the MLS. The amount of the benefit is 30% (35% in Prague) of the MLS.

Monthly normative costs (CZK) in 2013.

Normative costs of housing in rental housing (CZK / month)					
Number of persons in family		Number of persons in family			
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	7,489	5,964	5,687	4,858	4,665
2	10,750	8,663	8,284	7,150	6,886

Normative costs of housing in rental housing (CZK / month)					
		Number of persons in family			
Number of persons in family	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
3	14,637	11,908	11,412	9,929	9,584
4 and more	18,307	15,017	14,419	12,631	12,214

Normative costs of co-operative housing and owner housing					
		Number of inhabitants in the municipality			
Number of persons in family	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	4,396	4,396	4,396	4,396	4,396
2	6,557	6,557	6,557	6,557	6,557
3	9,131	9,131	9,131	9,131	9,131
4 and more	11,615	11,615	11,615	11,615	11,615

- ***Changes in 2014***

New monthly normative costs (CZK)

Normative costs of housing in rental housing (CZK / month)					
		Number of persons in family			
Number of persons in family	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	7,711	6,156	5,873	5,028	4,809
2	11,081	8,952	8,566	7,409	7,110
3	15,096	12,312	11,807	10,294	9,903
4 and more	18,899	15,542	14,932	13,108	12,636

Normative costs of co-operative housing and owner housing					
		Number of inhabitants in the municipality			
Number of persons in family	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	4,448	4,448	4,448	4,448	4,448
2	6,644	6,644	6,644	6,644	6,644
3	9,263	9,263	9,263	9,263	9,263
4 and more	11,792	11,792	11,792	11,792	11,792

- ***Changes in 2015***

New monthly normative costs (CZK)

Normative costs of housing in rental housing (CZK / month)					
Number of persons in family	Number of persons in family				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	7,623	6,052	5,767	4,913	4,730
2	10,957	8,807	8,417	7,249	6,998
3	14,903	12,092	11,581	10,053	9,726
4 and more	18,674	15,283	14,668	12,825	12,430

Normative costs of co-operative housing and owner housing					
Number of persons in family	Number of inhabitants in the municipality				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	4,409	4,409	4,409	4,409	4,409
2	6,588	6,588	6,588	6,588	6,588
3	9,159	9,159	9,159	9,159	9,159
4 and more	11,676	11,676	11,676	11,676	11,676

- ***Changes in 2016***

The new definition of jointly assessed persons has been introduced. Now it is all persons who have permanent residence in the flat, in previous years it was household.

Moreover, in case of rental flats the housing costs are defined as payment for rents plus costs of heating, costs of water etc. In other cases, instead of payment for rents the calculation works with the amounts presented in the following table in column 1 plus costs of heating, costs of water etc. In both cases (rental and non-rental) the costs of heating in case of using coal are set out in the following table in column 2.

Number of persons in family	The amount relevant in case of non-rental housing (1)	Costs of heating in case of using coal (2)
1	1,923	706
2	2,632	966
3	3,441	1,263
4 and more	4,150	1,561

New monthly normative costs (CZK).

Normative costs of housing in rental housing (CZK / month)					
Number of persons in family	Number of persons in family				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	7,731	6,146	5,858	4,996	4,811
2	11,114	8,945	8,551	7,372	7,119
3	15,114	12,277	11,762	10,220	9,890
4 and more	18,947	15,526	14,905	13,046	12,648

Normative costs of co-operative housing and owner housing					
Number of persons in family	Number of inhabitants in the municipality				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	4,484	4,484	4,484	4,484	4,484
2	6,703	6,703	6,703	6,703	6,703
3	9,316	9,316	9,316	9,316	9,316
4 and more	11,887	11,887	11,887	11,887	11,887

The following calculation is the same as in previous years; for the purposes of calculating the benefit it is necessary to compare the costs of housing and the normative costs and to use the smaller amount.

- ***Changes in 2017***

New amount of costs in case of non-rental housing and costs of heating in case of using coal.

Number of persons in family	The amount relevant in case of non-rental housing (1)	Costs of heating in case of using coal (2)
1	1,944	711
2	2,660	973
3	3,478	1,272
4 and more	4,194	1,572

New monthly normative costs (CZK).

Normative costs of housing in rental housing (CZK / month)					
Number of persons in family	Number of persons in family				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	7,720	6,114	5,822	4,950	4,763
2	11,004	8,806	8,407	7,213	6,957
3	14,897	12,022	11,500	9,939	9,604
4 and more	18,577	15,112	14,482	12,599	12,195

Normative costs of co-operative housing and owner housing					
Number of persons in family	Number of inhabitants in the municipality				
	Prague	Above 100,000	50,000 – 99,999	10,000 – 49,999	below 10,000
1	4,357	4,357	4,357	4,357	4,357
2	6,429	6,429	6,429	6,429	6,429
3	8,880	8,880	8,880	8,880	8,880
4 and more	11,244	11,244	11,244	11,244	11,244

2.4.2.3 Parental Allowance (bfapl_cz)

Parental allowance is available for a parent who cares in person and on a daily basis for a child up to four years old (or up to seven years old when the child is disabled). If the person receives maternity benefit or sickness benefit associated with childbearing, the amount of these benefits is subtracted from the parental allowance. It is a non-means-tested benefit.

Note: due to lack of information in the data about parents who care in person for children, EUROMOD simulations take eligibility from the data (i.e., only those reporting parental allowance in the data are eligible for this benefit).

A parent is entitled to parental allowance provided:

- a child under the age of 2 years attends a creche or other facility for pre-school children for a maximum of 46 hours in a month;
- the child attends a remedial care centre, creche, kindergarten or similar facility for disabled pre-school children for no more than 4 hours a day;
- a child of a disabled parent attends a creche, kindergarten or similar facility for pre-school children for no more than 4 hours a day;
- a child diagnosed as a child suffering from a long-term disability or a severe long-term disability attends a creche, kindergarten or similar facility for pre-school children for no more than 6 hours a day or performs compulsory education.

The parent's income is not tested; the parent may carry out an occupational activity without losing their entitlement to parental allowance. However, during the period of this occupational activity, the parent must ensure that the child is in the care of another adult.

Parental allowance is provided until the total amount of 220,000 CZK is drawn, maximum up to 4 years of child's age.

A parent may select the amount of parental allowance and thus the period of its drawing under the condition that at least one parent in a family is a person participating in sickness insurance. The maximum value of the allowance is 11,500 CZK per month for a period of 19 months; the minimum value is 7,600 CZK per month for the first 9 months and then 4,600 CZK until the fourth year of the child.

Note: Most people in the Czech Republic fulfil the conditions for selecting way (duration) of receiving benefit. Due to limitation of data we assume that everyone chooses to receive benefits for 36 months, which means a monthly benefit in the amount of 6.111 CZK.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

No changes.

2.4.2.4 Birth Grant (bchba_cz)

Families are entitled to the birth grant provided the family income (defined in the same way as net household income for child allowance) in the calendar quarter prior to the birth of the child did not exceed 2.4 times the family's living minimum. The birth grant amounts to 13,000 CZK for the first live-born child. If another live-born child/children is/are born together with this live-born child the total birth grant is 19,500 CZK. The benefit was paid only in the case of the birth of the first child until 2015.

Note: Income test modelled using income for the current year. Means-tested incomes are defined in the same way as in case of child allowance, but parental allowances are excluded from the income test (as income should refer to the calendar quarter before the birth of the first child). The assumption is made that children in the family are all siblings.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

The eligibility for the birth grant is extended for the second born child as well. In this case the amount is 10,000 CZK. Families are entitled to the birth grant provided the family income (defined in the same way as net household income for child allowance) in the calendar quarter prior to the birth of the child does not exceed 2.7 times the family's living minimum. If another live-born child/children is/are born together with this live-born child the total birth grant is 23,000 CZK.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

No changes.

2.4.3 Social Assistance

2.4.3.1 Social Assistance Benefits (Benefits of Material Needs – bsa_s)

Social necessity benefit serves as a last resort. A family and a dependent child are defined in the same way as for state social support, with the exception of housing benefit. The condition that the household must meet the costs of living together is always tested here. A temporary period spent outside the household for the purposes of work or training for future employment is allowed.

The net household income for the purpose of testing eligibility for the benefits is defined as 70% of work and other taxable income (net income) + 80 % of unemployment benefits and sickness benefits + 100 % of other income (e.g. pensions) but without tax bonus and housing benefit.

New benefits of social assistance are:

- Allowance for Living
- Supplement for Housing
- Extraordinary Immediate Assistance

Allowance for Living (bsa00_s)

Persons or families are entitled to an allowance for living if the income of these persons or families is less than the amount of living when "reasonable" housing costs have been deducted. Amount of living is equal (in "standard" situation) to the sum of MLS.

The amount of the allowance for living is set as the difference between the amount of living of a person or family and the income of that person or family, less reasonable housing costs. (Reasonable housing costs are the cost of housing to a maximum of 30%, in Prague 35%, of the income of the person or family).

Supplement for Housing (bsaho_s)

It is targeted at households whose net household income, including housing benefit and social assistance benefit and after paying housing costs (at most the normative costs), is still lower than the MLS. Their income is then topped up to the MLS on the assumption that the individual actively seeks a job.

Extraordinary immediate assistance

This is provided to persons who find themselves in situations that have to be resolved immediately. The Act addresses five situations that justify this benefit:

1. Where persons do not meet the conditions of material need but, due to a lack of funds, suffer from a serious threat to their health. The benefit tops up a person's income so that it is level with the existence minimum (or the subsistence minimum in cases of dependent children).
2. Where persons are victims of a serious extraordinary event (a natural disaster, storms and gales, ecological disaster, fire, etc.) The maximum amount of the benefit is fifteen times the individual's subsistence minimum.
3. Where persons do not have enough resources to cover essential one-off expenditure connected, in particular, with the payment of an administrative fee for duplicate copies of personal documents or in cases of monetary loss. The maximum amount of the benefit is the amount of this one-off expenditure.
4. Where persons do not have enough resources to acquire or repair basic furniture or durables or to cover justified costs relating to the education or special interests of dependent children. The amount of the benefit may be a maximum of the specific expense, but the sum of benefits granted must not exceed ten times the individual's subsistence minimum in one calendar year.
5. Where persons are at risk of social exclusion. This concerns, for example, the situation of persons who have been released from custody or from prison, who have left an orphanage or foster care on reaching adulthood, or who have completed treatment for an addiction. A benefit of up to 1,000 CZK may be granted. The

benefit may be awarded repeatedly, but the sum of benefits granted in one calendar year may not exceed four times the individual's subsistence minimum.

Note: due to lack of information in the data about this type of circumstances, EUROMOD simulations do not include Extraordinary immediate assistance.

Since 2009 a new element was added to calculation of Total minimum living standard for social assistance. If an adult person is without work more than 6 months, the minimum living standard for social assistance is just Subsistence minimum, instead of Subsistence minimum + 0.5*(minimum living standard - Subsistence minimum). This does not apply to pensioners, sick persons and people who are participating in public works.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

Two changes in the construction of Supplement for Housing have been implemented. Persons of the same domicile address are considered in the same unit of assessment, without having to be a member of one household. If the persons live in lodging house the maximum amount of housing costs is 75% of normative costs. Lodging houses are buildings mostly containing very poorly furnished rooms with shared bathrooms.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

The minimum living standard for social assistance is Subsistence minimum + 0.4*(minimum living standard - Subsistence minimum).

2.5 Social contributions

The social contributions in the Czech Republic can be divided into two parts:

- Social insurance and state employment policy contributions consist of pension insurance, contributions for the state employment policy and sickness insurance.
- Contributions for public health insurance

2.5.1 Employee social contributions

Social insurance and state employment policy contributions

The contributory base for employee is the gross wage plus any bonuses, standby-duty remuneration, etc. of the employee, but not income which is not subject to income taxation, income from occasional work, compensations, rewards for increased productivity, etc. A maximum contributory base was introduced in 2008.

Maximum contributory bases in 2013-2017 (in CZK per year):

Max base for:	*2013*	*2014*	*2015*	*2016*	*2017*
Soc. insurance and state employment policy contributions	1 242 432	1 245 216	1 277 238	1 296 288	1 355 136

* Applied for both for income from employment and business activities. If the person has both types of income (job and business), the contribution bases are summed.

Contributions for Public Health Insurance

The contributory base is the same as in Social insurance and state employment policy contributions. But there is a minimum contributory base, which is equal to minimum wage (it is not applied, if the person uses the minimum contributory base as self employed). For those who do not have permanent income such as students, pensioners, children, the state pay minimum insurance, therefore the minimum contributory base is not relevant in these cases. There is no maximum contributory base. Information on the contribution rates is provided below.

Contribution rates in 2013-2017:

	Employee	*Employer (per employee)*	Entrepreneur
Social Insurance	6.5%	25.0%	29.2%
Of which: Pension	6.5%	21.5%	28.0%
Unemployment	n/a	1.2%	1.2%
Sickness	n/a	2.3%	2.3%*
Health Insurance	4.5%	9.0%	13.5%
Total	11.0%	34.0%	44.1%

Note: * paid on a voluntary basis.

- ***Other changes in 2014***

No changes.

- ***Other changes in 2015***

No changes.

- ***Other changes in 2016***

No changes.

- ***Other changes in 2017***

No changes.

2.5.2 Employer social contributions

Social insurance and state employment policy contributions

Contributory base is the same as in the case of employee. Information on the contribution rates and maximum bases provided in section 3.1.1.

Contributions for Public Health Insurance

Contributory base is the same as in the case of employee. Information on the contribution rates and maximum bases provided in section 3.1.1.

New part of the pension insurance was introduced in 2013. The person can apply to the second pillar and start paying insurance for pension savings (pojistné na důchodové spoření). The rate is 5 %. If the person is registered to the second pillar, the rate of pension insurance (paid by employee or self-employed) reduced by 3 percentage points. *Note: the new part of pension not modelled in 2013 due to lack of information on enrolment and scope.*

- ***Changes in 2014***

New amount for Social insurance and state employment policy contribution base (see section 3.1.1).

- ***Changes in 2015***

New amount for Social insurance and state employment policy contribution base (see section 3.1.1).

- ***Changes in 2016***

New amount for Social insurance and state employment policy contribution base (see section 3.1.1). The second pillar (insurance for pension savings) was cancelled.

- ***Changes in 2017***

New amount for Social insurance and state employment policy contribution base (see section 3.1.1).

2.5.3 Self-employed social contributions

Social insurance and state employment policy contributions

Entrepreneurs pay pension insurance and contributions for the state employment policy, while sickness insurance is paid on a voluntary basis. For entrepreneurs it is important, if the business activity is the main source of income or not. Since 2012 the business activity is the main source of income, if the monthly income from wages and salaries is lower than 2,500 CZK. Income from business activity is minor source of income as well, if the person is student (and the age is lower or equal to 26) or pensioner. If the person has both types of income (job and business), the contribution bases are summed.

a) If income from business activity is the main source of income

- For entrepreneurs, the base is 50 % of net income (gross income minus costs) in the last year, but not more than the maximum contribution base (see table in section 3.1.1).
- There is an annual minimum contribution base of (in CZK per year):

2013	*2014*	*2015*	*2016*	*2017*
77 652	77 832	79 836	81 024	84 696

b) If income from business activity is the minor source of income

- If the year gross income minus costs is lower than 56,532 CZK, there is no obligation to pay social insurance. In other cases the participation in the social insurance is compulsory and the contribution base is 50% of net income in the last year, but not more than the maximum contribution base (see table in section 3.1.1).
- There is not obligation to pay social insurance if the annual gross income minus costs is lower than (in CZK per year):

2013	*2014*	*2015*	*2016*	*2017*
62 122	62 261	63 865	64 813	67 756

Contributions for public health insurance

For entrepreneurs, the base is 50% of net income in the last year, but not more than the maximum contribution base (see table in section 3.1.1).

If the income from business activity is the main source of income, the annual contribution base cannot be lower than (in CZK per year):

2013	*2014*	*2015*	*2016*	*2017*
155 304	155 652	159 666	162 036	169 392

If the person has both types of income (job and business), the contribution bases are summed.

The maximum contribution bases for both types of contributions are updated annually and are the same as in case of employees. See table in Section 3.1.1 for details.

- ***Other changes in 2014***

No changes.

- ***Other changes in 2015***

No changes.

- ***Other changes in 2016***

No changes.

- ***Other changes in 2017***

No changes.

2.5.4 Credited insurance contributions

For those who do not have permanent income such as students, pensioners, children, unemployed registered at the labour offices the state pays minimum insurance to health insurance companies. State minimum insurance is calculated as a multiple of the contributory base for state-insured and rate 13.5%. The value of the contributory base is determined by government decree. These amounts (per month) were: 2011-10/2013 CZK 5.355, 11/2013-6/2014 CZK 5.829, 7/2014-12/2015 CZK 6.259, since 2016 CZK 6.444, since 1/2017 CZK 6.814.

2.6 Personal income tax

2.6.1 Tax unit

Personal income tax is paid by any person who has residence or lives in the Czech Republic for at least 183 days in a year. Taxable income includes all income earned in the Czech Republic and abroad. If a person lives in the Czech Republic for the purpose of study or recuperation or less than 183 days in a year, the taxable income is only the income from the Czech Republic.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

No changes.

2.6.2 Exemptions

The tax base does not include income from selling one's own house or flat if a person has lived there for at least two years before the transfer, and if the house or flat was not used for business purposes, or if the time between buying and selling the house or flat was more than five years[2]. Nor does it include loans and drafts, income from property insurance, sickness benefits, state social support, social assistance, unemployment benefit, income from public health insurance, the amount of pensions lower than 36 * minimum wage per year, maintenance paid to soldiers, stipends, donations from the state budget, tax bonuses, benefactions, alimony, travel expenses paid by employers, meals or beverages provided by employers, complementary pension insurance with the state support paid by employers up to 5% of the gross wage, interest income from savings for building purposes or purchase of a house for which state support is provided, gift income not exceeding 500 CZK, winnings in state lotteries, income from appreciation of currency, and income taxed according to a separate tax scheme.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

The following changes have been introduced: if annual taxable income from employment, business and rental exceeds 840 000 CZK, the total value of pensions has to be taxed.

- ***Changes in 2016***

The change in the taxation of pensions implemented in the previous year was abolished.

- ***Changes in 2017***

No changes.

[2]Furthermore, the tax base does not include income from selling chattels with the exception of personal vehicles, ships and aeroplanes, provided that the time between buying and selling these items was less than one year.

2.6.3 Tax allowances

Taxpayers may deduct the following allowances from their tax base (in CZK per year):

- *Gifts to charitable organisations* may be deducted if the amount of the gift is at least 2% of the tax base or 1,000, and if the charity is recognised by the state. The taxpayer may deduct at most 10% of the tax base.
- *Interest* used for mortgage repayments.
- *Complementary pension insurance with state support*. The total deductible amount is the sum of all payments to complementary pension funds less 12,000. The amount deducted may not exceed 12,000.
- *Private life insurance*. The maximum total deductible amount is 12,000. The taxpayer must be insured for at least five years, and must be under 60. The minimum amount of insurance premium is 40,000 if the duration of insurance is between 5 and 15 years, and 70,000 if the duration is more than 15 years.
- *Labour union fees*. The taxpayer may deduct fees paid to labour unions. The maximum amount is either 1.5% of the taxable income or 3,000.

The taxpayer deducts 1/12 of the amount for each month during which the conditions listed above are met. In the case of personal exemption, the taxpayer deducts the whole amount if the conditions are met at least on the last day of the year.

- ***Changes in 2014***

Gifts to charitable organisations may be deducted if the amount of the gift is at least 2% of the tax base or 1,000, and if the charity is recognised by the state. The taxpayer may deduct at most 15% of the tax base.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

- ***Changes in 2017***

The maximum total deductible amount for the sum of the payment for *Complementary pension insurance with state support* and *Private life insurance* is 24,000. In case of *Complementary pension insurance with state support* is counted within this limit all payments less 12,000.

2.6.4 Tax base

The tax base for personal income tax is divided into five partial tax bases:

1. super gross wages and salaries (since 2008);
2. income from business activities including income from agriculture, forestry and fishery; income from copyright;
3. capital income including dividends, interest, revenues from expiration of contract of complementary pension insurance with state support; income from life insurance (minus premium paid); income from options and forwards;
4. rental income;
5. and other income.

Wages and Salaries

If the amount of wages and salaries is less than 5,000 CZK per month and the character of the job is occasional, it is taxed by a separate tax rate (15 %).

Since 2008 the social and health insurance contribution paid by employer is a part of the partial tax base of "Wages and salaries".

Note: due to lack of information in the data about occasional jobs, EUROMOD simulations don't include this special rate for low wages and salaries.

Income from business activities

Entrepreneurs may account for losses in order to reduce their profit, but only in the case of the same activity. For entrepreneurs, taxable income is also net of costs (social and health insurance contribution is not tax deductible item). Instead of deducting the amount of actual costs, a taxpayer may replace it by 80% of revenues from agriculture, forestry, fishery and craft, 60 % of revenues of non-craft activities, 40% of revenues of copyright or 30% of rental revenues.

If the entrepreneur's spouse helps the entrepreneur with his or her business, the taxable income from this partnership is divided such that the partner may have taxable income of at most 50% or 540,000 CZK per year (or 45,000 CZK for each month of the business partnership) of the total taxable income of the married couple. If more persons live with an entrepreneur in the same household and help him or her with his business, the taxable income is then divided so that the entrepreneur's partners may have at most 30% or 180,000 CZK per year (or 15,000 per month) of total taxable income. If a child in the household is a business partner, the parents are not eligible for a tax allowance per child or for a tax bonus per child. Children in compulsory schooling may not be made partners.

Honorariums of less than 7,000 CZK per month are taxed at a separate tax rate (15 %).

Note: due to lack of information in the data we taxed this type of income as a part of the tax base that is taxed at a progressive rate.

Capital income

Almost all incomes are taxes by the separate tax rate (15 %).

Rental income

The taxable income is net of costs.

Other income

Other income includes income from occasional activities exceeding 20,000 CZK per year, income from the transfer of own real estate (with exemptions described below), nourishments, pensions exceeding 36 * minimum wage per year, winnings in lotteries exceeding 10,000 CZK.

The total tax base is the sum of the five partial tax bases mentioned above. The total tax base cannot be lower than the partial tax base "wages and salaries".

- ***Changes in 2014***

Honorariums of less than 10,000 CZK per month are taxed at a separate tax rate (15 %).

Income from occasional activities exceeding 30,000 CZK per year is not taxed.

- ***Changes in 2015***

The separate tax rate (15 %) for honorariums is applied just in case of income from newspaper articles.

- ***Changes in 2016***

No changes.

2.6.5 Tax schedule

There is one rate for all types of income – 15 %.

Moreover, if the income from Wages and Salaries and from business activities exceeds the maximum contributory base for social insurance and state employment policy contributions, the income, which is above this amount, is taxed by addition tax rate 7 %. If the income from business activities is below 0 (loss), for this purpose is calculated as 0.

- ***Changes in 2014***

No changes.

- ***Changes in 2015***

No changes.

- ***Changes in 2016***

No changes.

2.6.6 Tax credits

2.6.6.1 "Standard" tax credits:

- *Personal tax credit* for each taxpayer (in CZK per year):

2013	*2014*	*2015*	*2016*	*2017*
24,840	24,840	24,840	24,840	24,840

- *Spouse tax credit* (24,840 CZK) applies if a spouse lives with the taxpayer in the same household and does not have a yearly income higher than 68,000 CZK. The income of the spouse tested for this purpose is generally in gross terms. It does not include disability pension, state social support, social care benefits, state support for complementary pension insurance, state support for savings for building purposes, or stipends. The tax credit doubles (49,680 CZK) if the spouse is disabled.
- *Disability tax credit* is divided into 3 levels: 1) Disability 1st level – tax credit 2,510 CZK per year; 2) Disability 2nd level – tax credit 2,510 CZK per year and 3) disability 3rd level tax credit 5,040 CZK per year.
- *Student tax credit* (4,020 CZK) may be applied if the taxpayer is less than 26 and is an undergraduate student, or when he/she is a graduate student and is less than 28.

Note: When modelling Disability tax credit partial disability is assumed for all recipients due to lack of information on disability level.

- ***Other changes in 2014***

The tax credit compensating the cost of placing a child in kindergarten has been introduced. Its amount depends on the payment for kindergarten. Maximum amount of this credit is equal to minimum wage.

- ***Other changes in 2015***

No changes.

- ***Other changes in 2016***

No changes.

- ***Other changes in 2017***

No changes.

2.6.6.2 Refundable child tax credit

Persons, who care for dependent children, may deduct (after the use of standard credits) from their income tax a tax credit per child. A child or children must live in the same household as the parents (or may alternatively be temporarily placed in institutions for the purpose of study or preparation for future work). Persons are eligible for the credit each month in which the conditions are met. The amount of the tax credit is (in CZK per child per year):

2013	*2014*	*2015*	*2016*	*2017*
13,404	13,404	13,404 *	13,404 *	13,404 *
		15,804**	17,004**	19,004**
		17,004***	20,604***	24,204***

* first child, ** second child, *** third and other children

If the tax duty is lower than the tax credit, the difference is called a tax bonus and is paid to the taxpayer, while the taxpayer's tax duty is then zero. The tax bonus is paid just in the case that the taxable income of the person is higher than 6 times the minimum wage per year. The maximum amount of tax bonus is 60,300 CZK per year. If the tax duty is higher than the tax credit, the taxpayer pays the difference between the two. Only one parent can claim the refundable child tax credit.

A dependent child for the purposes of tax allowance or bonuses is defined as an own child, adopted child, child in foster care, children of one's spouse and grandchildren if they are younger than 18, or younger than 26 if not receiving full invalidity pension and currently preparing for future employment. A child who cannot prepare for future employment because of injury, long-term illness or disability that prevents work is also considered a dependent.

If taxpayer uses expenses, which are calculated as a % of income (possible in the case of income from business activities and rental income), and these types of income represent more than 50 % of the tax base, it is not possible to apply refundable child tax credit and spouse tax credit.

Note: It is not modelled in EUROMOD as no information available on the share of expenses applied to income from business activities and rental income.

- ***Other changes in 2014***

No changes.

- ***Other changes in 2015***

Higher tax credits for the second and third children were introduced (see table above).

- ***Other changes in 2016***

Higher tax credits for the second and third children were introduced (see table above).

- ***Other changes in 2017***

Higher tax credits for the second and third children were introduced (see table above).

3. DATA[3]

3.1 General description

EUROMOD database description

EUROMOD database	CZ_2015_a2
Original name	EU-SILC and Životní podmínky (SILC) 2015
Provider	Eurostat and Czech Statistical office
Year of collection	2015
Period of collection	February 21 to April 26 (PAPI) or to May 15 (CAPI) 2015
Income reference period	Year 2014
Sampling	Two stage random sampling
Unit of assessment	HH[1]
Coverage	Private households[2]
Sample size	20,238 IND 9 531 HH
Response rate	83,0%

Notes:
[1] One person living alone or a group of people living at the same apartment (address) **and** sharing expenditures (housekeeping concept). If more than one household was found in a dwelling unit, all HH in selected dwellings were included as eligible for the survey.
[2] households living at private residential addresses

SILC survey is a survey introduced in the Czech Republic following Eurostat guidelines and it added to already existing surveys, namely quarterly rotating panel of Labour Force Survey (VŠPS) and annual Household Budget Surveys. First survey was done in 2006 (SILC 2005).

The SILC survey is regarded as a multipurpose source. Data have been used for several official and unofficial income distribution analyses and for tax/benefit modelling. SILC is the only suitable survey available for EUROMOD purposes thanks to its annual frequency and information on both labour statuses and incomes.

The survey was carried out in all regions of the Czech Republic. The interviewers visited in 9,498 dwellings and 9,531 households.

The sample was obtained by applying a two-stage probability sampling scheme to each of the 14 administrative regions (NUTS3 regions) independently. The total number of dwellings selected in each region was proportional to the region's size. At the first sampling stage small geographical areas (CEUs - census enumeration units or districts) were selected by probability sampling. These CEUs served as a basis for the second-stage selection (a sample of 10 dwellings was drawn from each CEU).

[3] Information provided in this section has been provided by the CSO, accompanying the national version of the SILC 2012 database. Internet: https://www.czso.cz/csu/czso/household-income-and-living-conditions-2012-7t6rt98jse

Before selecting the sample of dwellings, the sampling frame had to be adjusted to enable incorporation of small census enumeration units into the sampling process to reach the required full geographical coverage of the national territory. Small CEUs (with less than 20 inhabited dwellings) were merged with adjacent CEUs and the resulting larger CEUs entered the first stage of sampling. Therefore, in some cases, the 10 chosen dwellings could belong to two or more (in exceptional cases) CEUs.

The CZSO's regional fieldwork units (each covering one of the 14 NUTS3 administrative regions) received the list of selected dwellings (addresses + identification numbers of flats in apartment buildings). Before the actual fieldwork, the regional fieldwork units' staff carried out the identification of the selected dwellings and filled in the contact names on the list of selected dwellings for interviewers.

The sampling unit is a dwelling. During the first-wave visit all households and all the persons who have the dwelling as their main place of residence are surveyed. This rule also applies to foreign nationals and subtenants. During the waves 2-4 only those households are surveyed which include a panel person (those surveyed in the 1st wave). Panel persons who moved from the original households are followed up. At their new address, all persons who are members of the same household as the panel person are surveyed.

Data acquisition was carried out by dual scheme. A part of the selected households was still interviewed using paper questionnaires (PAPI); a part was interviewed with an electronic questionnaire (CAPI).

Data collection lasted from February 21 to April 26 (PAPI) or to May 15 (CAPI) 2015. Collection of data was coordinated by workers from regional departments responsible for fieldwork. Workers from regional departments also conducted methodical training of fieldworkers.

The primary database used for the Euromod is the Eurostat UDB SILC for the Czech Republic. Since some variables are needed in greater disaggregation, these are added from the SILC database provided directly by the CSO (it contains variables defined differently from the Eurostat UDB). In particular, following variables are being used from the Czech SILC database (Czech acronyms in brackets)[4]:

- dmp (vel) – population size of residential unit to account for different housing allowance;
- bch00 (pbydl) – Housing Allowance (příspěvek na bydlení) – child allowances;
- bchmt (socp) – Social Allowance (sociální příplatek + zaopatřovací příspěvek till 2004) reported at household level;
- bfapl (rodp) - Parental Allowances (rodičovský příspěvek);
- bfafp (pestp) - Foster Care Benefits (dávky pěstounské péče);
- bfaot (ostdav) - Other Social Benefits including Birth and Funeral Grant (ostatní dávky SSP = porodné a pohřebné);
- tin (dan) – Income Tax at personal level (daň z příjmů fyzických osob);
- tsc (pojis) - Health and social insurance contribution of employee at individual level (zdravotní a sociální pojistné odvody zaměstnance);
- cz_pensiontype (dduch) - Czech system types of pensions (druh důchodu);
- cz_pensiont (duch) - Total amount received in pension benefits according to Czech types in cz_pensiontype (důchod).

[4] Variables are reported at household level if not stated otherwise.

Size of the household - the number of household members on the date of the interview, including persons temporarily away, if the period of actual or foreseen absence is shorter than 6 months and the person has no other private address. For persons studying away from home, the period of absence may be longer than 6 months, provided that the person has no private address and retains financial ties to other household members. Persons with a period of absence longer than 6 months, persons without financial ties to the household and persons temporarily present at the time of the interview who have their private address elsewhere are excluded.

Sample quality and weights

- ***Non-response***

The fieldwork revealed that among the total of 10,012 dwellings in the sample there were 514 (5,1 %) dwellings either unoccupied, or the address did not exist or the survey was not possible, e.g. because the households had moved. Since substitution for the ineligible units is not allowed, the survey was conducted in 9,498 dwellings and 9,531 households (there was more than one household in some of the dwellings). The overview of the survey response is presented in the following table:

	Households			**Response rate (%)**		
	Total	1st wave	2nd-4th wave	Total	1st wave	2nd-4th wave
Response, total	7 914	2 255	5 659	83,0	61,4	96,6
Non-response, total	1 617	1 419	198	17,0	38,6	3,4
refusals (unwillingness to give information)	1 285	1 142	143	79,5	80,5	72,2
household not contacted, temporarily absent	220	192	28	13,6	13,5	14,1
household unable to respond (health limitation)	80	62	18	4,9	4,4	9,1
other reasons (linguistic etc.)	32	23	9	2,0	1,6	4,5

Refusals also include situations when the household did not refuse the survey as such, but did not agree to provide the information on income to an extent that would qualify the household as successfully interviewed. The definition of successfully interviewed household allowed missing income data for only one person that is not the household's head.

The category comprising non-contacts or those temporarily absent covers situations when the interviewer was not able to contact the selected household, despite having made the prescribed minimum number of attempts at personal contact.

The overview of the survey response in the CR and its regions is showed in the following table:

Region (NUTS3)	Total			1st wave			2nd-4th wave		
	HHs in survey	response		HHs in survey	response		HHs in survey	response	
		count	%		count	%		count	%
Hl. m. Praha	1 213	986	81,3	513	306	59,6	700	680	97,1
Středočeský	1 083	901	83,2	416	250	60,1	667	651	97,6
Jihočeský	630	554	87,9	215	146	67,9	415	408	98,3
Plzeňský	556	481	86,5	203	133	65,5	353	348	98,6
Karlovarský	219	160	73,1	105	49	46,7	114	111	97,4
Ústecký	763	604	79,2	301	155	51,5	462	449	97,2
Liberecký	379	332	87,6	139	99	71,2	240	233	97,1
Královéhradecký	494	428	86,6	190	139	73,2	304	289	95,1
Pardubický	469	387	82,5	168	90	53,6	301	297	98,7
Vysočina	470	403	85,7	162	110	67,9	308	293	95,1
Jihomoravský	1 048	847	80,8	430	258	60,0	618	589	95,3
Olomoucký	590	484	82,0	210	129	61,4	380	355	93,4
Zlínský	526	446	84,8	196	127	64,8	330	319	96,7
Moravskoslezský	1 091	901	82,6	426	264	62,0	665	637	95,8
CZ total	9 531	7 914	83,0	3 674	2 255	61,4	5 857	5 659	96,6

Participation in the sample survey is voluntary; unlike the population census, households were not obliged to provide any information. A selected household has to be informed about the content of the survey and about the fact that their participation in the survey is voluntary. Whether to respond or not is left to the household's own deliberation. The main reasons for refusal are privacy reasons (objections against giving personal information and fear of abuse of personal data), fear of contact with interviewers as strangers. There is a considerable group of persons, who as a matter of principle strictly refuse to give any information.

- ***Weights***

When compared with the data from other statistics and registers, selected characteristics of our sample showed that a phenomenon typical of household surveys had occurred - high level of non-response (in a rotational panel influenced by a prior response) had biased the proportions in the final data file from which results are obtained. The deformation of demographic characteristics and social structure of the sample did not allow us to use

simple techniques of grossing up (post-stratification). To reach a sufficient level of bias elimination, which is the necessary pre-condition for obtaining good estimates, it was necessary to use more sophisticated methods.

In practice, the well-tried iteration method of weight calibration was utilized, which minimizes the difference between the known and the grossed up values of selected characteristics. Although it is a panel survey comprising data of four practically independent samples (waves 1-4), a simple calibration method was utilized which did not distinguish the waves but worked with all households together.

At the same time and according to the Eurostat's recommendations the standard system of integrated weights was used in the survey, i.e. a single set of grossing-up coefficients that was subsequently used to produce results for both households and individuals.

As the basis for calculations the following calibration variables were used:

- Number of inhabited dwellings in each NUTS3 region, subdivided into family houses (detached and semi-detached houses) and apartments, based on the 2011 Census continuously updated from administrative sources of construction authorities
- Population characteristics:

  Population totals in each NUTS3 region (from demographic statistics)

  Economic activity characteristics for the Czech Republic

  Number of employees – derived from the number of employees in the economy based on the Labour Force Survey (LFS) results and company reporting
- Economic activity characteristics in each NUTS3 region:

  Number of pensioners (excl. pensions for orphans) - based on the administrative data from the Ministry of Labour, Social Affairs and the Czech Social Security Administration and reduced the pensioners living out of the dwellings based on the 2011 Census

  Number of unemployed - registered unemployment from the administrative source of the Ministry of Labour and Social Affairs, corrected for unregistered unemployment using the Labour Force Survey data and for unemployment of the homeless and persons living in institutions or collective accommodation establishments (based on the 2011 Census)

  Number of self-employed - estimate based on the Labour Force Survey and on the administrative data from the Czech Social Security Administration

  Number of children aged 0-15 - from demographic statistics
- Demographic characteristics at the national level (based on the demographic statistics):

  Age groups (0-15, 16-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+); Sex

  Municipality size (less than 2 000 inhabitants, 2 000-9 999, 10 000-49 999, 50 000 or more inhabitants)

The target population of the survey was persons living in private households, therefore the data from demographic statistics was adjusted by subtracting institutionalized population (from social security administrative data and Ministry of Justice) and the persons living outside dwellings as based on the 2011 Census.

As the sampling unit is the dwelling, all weight coefficients were calculated for dwellings and subsequently assigned to all persons and households in them (integrated weights).

The method described above deals with non-response successfully, i.e. it corrects the bias due to the specific composition of households that did not respond. First of all, it improves

demographic and social structure but, as a by-product, it also eliminates deformation of income indicators related to these structures.

Another source of bias, which needs to be taken into account, stems from the method of interviewing. Data on income and housing costs obtained during face-to-face interviews with household members has the tendency to underestimate or overestimated, certain income sources or data on some income components can be completely missing (item non-response). Not to reduce the size of the processed dataset the missing income was imputed using correct statistical methods.

In *Living Conditions 2015* the interviewer failed to obtain income information for one person in an otherwise successfully interviewed household only in 8 cases. The missing income of such individuals was replaced with income of another randomly selected person with the same characteristics, i.e. a simple hot-deck method was applied.

Underestimation of income is a natural consequence of the fact that respondents either tend to state lower than actual values or simply do not recall having had certain irregular or small incomes at all. It is, more or less, a non-sampling error, affected substantially by the incomes themselves and by their source. The possibilities to eliminate this underestimation are limited. In the presented survey, only such adjustments were made where there was a sufficiently reliable external statistical source or where the conjectures could be based on legislation.

If the respondent reports income from employment as net, the net income often shows a significant tendency to be distorted (either under- or overestimated) and the non-sampling error grows. This might occur when the employer deducts a certain amount from the employee's wage/salary (e.g. alimonies or pension scheme contributions). When calculating the gross income, this bias is usually adequately compensated for by using additional information from the survey. The level of gross income from employment was compared with the results of wage statistics and for persons who were revisited and stayed in their former jobs with data from the previous waves. Some respondents mistakenly reported gross income as net or vice versa and thus there were significant and inexplicable year-to-year differences. In such cases top-bottom coding was applied or the data were edited. With the self-employed no income corrections were necessary.

In the case of social benefits for which there is legal entitlement (parental leave, child birth benefit, death grant provided to families of the deceased, to some extent also maternity leave), a check on their receipt by eligible households was applied and amounts provided were corrected according to the amounts set by the legislation. With old age benefits (pensions from the social security system) the tendency to underestimation is negligible but as there were falls in this kind of income without any outward reason, the amounts were corrected according to the last year's values.

It was not possible to correct the underestimation of sickness benefits (omissions related to short-term illnesses could not be identified in the existing data), means-tested social benefits whose claims depend on the previous income (prior to the income reference period), capital income, or income in kind and inter-household transfers.

The comparison of the aggregated income from this survey with the household sector aggregates of the national accounts (even after subtraction of items which are not covered by household income surveys) is problematic. Concerning its aggregated value the income obtained by direct questioning in households will always be lower. More important fact for evaluation of their credibility is that the trend in the development of household income follows trends in the national accounts. From this viewpoint, the presented results of *Living Conditions 2015* are reliable and, as to their time series, consistent. They are fully comparable with similar statistics produced in the EU states.

Descriptive Statistics of the Grossing-up weight

Number	2005	2007	2008	2010	2012	2015
Mean	569.94	442.07	379.86	486.59	508.59	582.53
Median	520.55	396.13	337.54	446.56	469.51	532.76
Maximum	2600	3475	2875	1846	1695	2048
Minimum	100	100	100	129	144	164
Max/Min	26.00	34.75	28.75	14.3	11.77	12.49
Decile 1	312.38	243.51	204.16	143.06	289.65	333.85
Decile 9	874.80	683.29	599.44	755.93	758.36	872.40
Dec 9 / Dec1	2.80	2.81	2.94	5.28	2.61	2.61

- ***Item non-response and under-reporting***

Another source of bias, which needs to be taken into account, stems from the method of interviewing. Data on income and housing costs obtained during face-to-face interviews with household members has the tendency to underestimate or overestimated, certain income sources or data on some income components can be completely missing (item non-response). Not to reduce the size of the processed dataset the missing income was imputed using correct statistical methods.

In *Living Conditions 2015* the interviewer failed to obtain income information for one person in an otherwise successfully interviewed household only in 8 cases. The missing income of such individuals was replaced with income of another randomly selected person with the same characteristics, i.e. a simple hot-deck method was applied.
Underestimation of income is a natural consequence of the fact that respondents either tend to state lower than actual values or simply do not recall having had certain irregular or small incomes at all. It is, more or less, a non-sampling error, affected substantially by the incomes themselves and by their source. The possibilities to eliminate this underestimation are limited. In the presented survey, only such adjustments were made where there was a sufficiently reliable external statistical source or where the conjectures could be based on legislation.
If the respondent reports income from employment as net, the net income often shows a significant tendency to be distorted (either under- or overestimated) and the non-sampling error grows. This might occur when the employer deducts a certain amount from the employee's wage/salary (e.g. alimonies or pension scheme contributions). When calculating the gross income, this bias is usually adequately compensated for by using additional information from the survey. The level of gross income from employment was compared with the results of wage statistics and for persons who were revisited and stayed in their former jobs with data from the previous waves. Some respondents mistakenly reported gross income as net or vice versa and thus there were significant and inexplicable year-to-year differences. In such cases top-bottom coding was applied or the data were edited. With the self-employed no income corrections were necessary.

In the case of social benefits for which there is legal entitlement (parental leave, child birth benefit, death grant provided to families of the deceased, to some extent also maternity leave), a check on their receipt by eligible households was applied and amounts provided were corrected according to the amounts set by the legislation. With old age benefits (pensions from the social security system) the tendency to underestimation is negligible but as there were falls in this kind of income without any outward reason, the amounts were corrected according to the last year's values.

It was not possible to correct the underestimation of sickness benefits (omissions related to short-term illnesses could not be identified in the existing data), means-tested social benefits whose claims depend on the previous income (prior to the income reference period), capital income, or income in kind and inter-household transfers.

The comparison of the aggregated income from this survey with the household sector aggregates of the national accounts (even after subtraction of items which are not covered by household income surveys) is problematic. Concerning its aggregated value the income obtained by direct questioning in households will always be lower. More important fact for evaluation of their credibility is that the trend in the development of household income follows trends in the national accounts. From this viewpoint, the presented results of Living Conditions 2015 are reliable and, as to their time series, consistent. They are fully comparable with similar statistics produced in the EU states.

3.2 Data adjustment

The developing team did not adjust the original data obtained from the CSO since all the necessary adjustments were done already by the CSO and the developing team does not have information detailed enough to inspect or even revise adjustments by the CSO which are described above.

3.3 Imputations and assumptions

3.3.1 Time period

The data contains the results for households and individuals aged 16 and older. The definition of household is based on the sharing of expenditures concept, in line with the definition of Paragraph 115 of the Civil Code - based on the declaration of the persons in the dwelling that they permanently live together and pool their finances to cover their needs. As the 16 year old persons were regarded those who had reached this age by 31 December 2014.

- Reference periods:
- Demographic variables - age: 31 December 2014; marital status, education, housing, financial situation: the date of the interview.
- Work activity was collected for each month of 2014 as well as currently. Work activity figures are gathered by self-definition of the respondent (respondents themselves choose among different types of activity the one that fits them the most). Its value primarily depends on the respondent's main occupation and on the time spent in it. Subsequently, other data related to the respondent's work activity (status at work, profession) were collected as of the date of the interview. Parallel activities were surveyed (second job, study), together with data on receipt of pensions and parental benefits.
- Economic activity was not collected but derived from the monthly/yearly data (if monthly data was the basis, the activity with the highest incidence was coded as the yearly value). For those who completed their education in 2014 the latter half of the year was considered.
- Income data (both monetary and in kind): calendar year 2014.
- Subjective questions focused on housing and financial problems: the date of the interview.
- Health problems: last six or twelve months.
- Housing, consumer durables, financial and social situation of household: the date of the interview, unless the question specifically refers to some other period.
- Module questions: usual situation or last twelve months.

3.3.2 Gross incomes

Incomes related to household as a whole were collected at the household level. There were social benefits targeted at households, rental income and value of goods produced directly by the household through either private or professional activities.

Incomes collected at individual level: income from employment (main job, secondary jobs) incl. other income related to them (remunerations, shares, bonuses), income from contracts, income from self-employment, sickness benefits, old-age benefits, unemployment benefits, social benefits attributable at individual level (such as parental benefit or disability benefits) and other incomes (capital income, insurance claims).

Income from employment (both main job and possible secondary jobs) was collected both either gross of tax and social insurance or net, incomes from contracts only gross. Self-employed persons could choose from several ways to record the result of their enterprise. They could state the gross profit/loss according to their tax declaration, they could give the sum which served as the yearly basis for calculating their monthly health and social security contributions or could make their own estimate of their gross or net profit/loss. Family members co-operating in private enterprise run by another member of the family stated only proportionate part of the income from the business.

Rental income was collected either gross or net, based on what information respondents were able to provide. All other kinds of income were collected net and subsequently appropriate rules of the tax system were applied to estimate the gross amounts. In addition, the information was collected on claimed tax deductibles to enable calculation of taxes and social insurance contributions. Sum of individual net incomes then forms the main national indicator – net money income of the household.

Besides this national indicator of household income, it was necessary to construct an internationally comparable household income indicator, which is based on Eurostat methodology for EU-SILC surveys. This indicator is called disposable household income. The difference between these two definitions of the household income is in inclusion/exclusion of certain components of income (lump sum and irregular inter-household transfers, non-cash employment income, regular taxes on wealth).

Household income in kind consists of consumption of food, products and services originating from the household's own production activity (for example food or domestic animals from own farm, value of food from own restaurant, value of timber from own forest) and of perquisites provided by employers (company car, company-paid or co-financed meals and other non-cash paid services). The CZK value of own-production in kinds was calculated from reported amounts using the average price of the given commodity. The amount of CZK 3000 was added to income in kind of an employee for each month of using a company car. The financial contribution of the employer to the employee's meals was calculated using the number of meals, their actual price and the subsidized price that the employee paid for them.

Selected income components:

- Income from employment was defined in line with the national tax law. It includes income from employment based on a contract or similar arrangement between employer and employee. It also includes incomes of owners of the incorporated business from work for their company, income of members of statutory boards and other governing bodies of corporations, remuneration based on holding of elected public posts, income of apprentices in vocational schooling for their work undertaken as a part of their practical training and income from flexible short-term contracts under special regime set in the Labour Code. Using company car for private purposes is also classified as income in kind from employment.
- Income from self-employment includes also income from farming activities, if these are conducted as a business activity, income from independent professional practices (lawyers, doctors) and income from intangible assets (copyrights, royalties).

- Income from main employment includes income of employees from their main job. For multiple coincident jobs, the declaration of the main job was left to the respondent.
- Income from secondary employment includes salaries from secondary jobs, conducted besides the main job or self-employment activity of the respondent and income from flexible short-term contracts under special regime set in the Labour Code.
- Income from secondary self-employment activity is analogous to the secondary employment income. It includes income from secondary self-employment activity undertaken in addition to the main job of the respondent (where respondent declared employment contract as his/her main job).

Social income is in principle net. Gross amounts were included for cases of pensions above the tax-exempt limit. In these cases, tax was applied to the amount above this limit (CZK 306 thousand). Gross amounts were included also for pensioner that their total gross income was above CZK 840 thousand. In these cases, whole pension was taxed.

- Sickness benefits include all sorts of benefits from the social sickness insurance, i.e. maternity leave benefit (note that the Czech system includes these into Sickness Benefits), reduced employment income compensation in pregnancy and motherhood, income support for persons caring for household member in need of short-term care (mostly care for children during their illness). Since 2009 sickness benefits include work inability compensation paid by the employer.
- Other social support benefits include social benefits for foster parents taking care of adopted children, birth and death grants.
- Other social benefits include certain benefits connected to the termination of employment in selected professions, various other social benefits like benefit for persons providing long-term homecare for their relative in need, support for care in spas and other social benefits for families with children, old and disabled citizens, which are mostly administered by the municipal authorities.
- Social exclusion allowances include regular and lump sum monetary benefits that help the household pay their food and housing bills, or contribute to satisfy their basic needs.
- Scholarships include all kinds of scholarship money income from schools and, furthermore, pocket money paid to apprentices by schools or future employers.
- Social income from abroad although the benefactor is not the government of the Czech Republic went under respective rubrics and was mixed with the Czech government's help (pensions and child benefits).

Other types of income

- Income from capital contains interest from savings, bonds and various forms of deposits, dividends from shares, profits from incorporated businesses, income from investments abroad.
- Other income includes income from occasional property rentals, life and material insurance, sale of own-produced goods, income from organisations not elsewhere classified (scholarships and pocket money of apprentices, grants from charity and non-governmental organisations), lottery winnings, prizes, pay for occasional not contracted jobs, regular inter-household transfers (alimonies and the like).

Housing costs: In the case of more than one household in one dwelling unit, the costs were divided according to their actual contribution to their financing. When the household

reported its housing costs only in one item as the rent paid for accommodation, the partial amounts were estimated based on the data from households, which provided the detailed information on their housing costs. Estimates were modelled by regression models taking into account the type of dwelling (family houses vs. other), type of rent (market rent vs. regulated rent contracts), number of household members and usual local level of housing costs (municipality, census enumeration unit).

3.3.3 Disaggregation of harmonized variables

Disaggregation is applied for family benefits *bfa* (derived from *hy050g*) where *hy050g* contains *Parental Allowances bfapl* (RODP as Rodicovsky prispevek) + *Foster Care Benefits bfafp* (PESTP as *Davky pestounske pece*) + a part of *bfaot* corresponding to the birth grant (OST_DAV *Other Social Benefits* which include Porodne a Pohrebne) + *Child Allowances bch00* (PRIDAV *Pridavky na deti*) + *Social Allowances* (SOCP *Socialni priplatek*) + the part of *Sickness Benefit* corresponding to maternity benefits (Materska as a part of NEMOC). Note that Social Allowances (*Socialni priplatek*) no longer existed in 2014 (SILC 2015) and is no longer part of the *bfa*.

Variable *cz_pensions* is derived from CZ SILC data variable *Pensions* (DUCH *Duchody*). Variable *cz_pensiontype* is added providing coded information on pension type.

Social insurance tscee is derived from CZ SILC variable (POJIS *Zdravotni a socialni pojisteni*) containing information on social and health insurance contributions paid by individuals (employees or self-employed) together. CZ SILC does not provide information on social and health insurance contributions paid by employers.

Personal Income Tax *tin* is obtained from the CZ SILC variable (DAN *Dan z prijmu*).

3.4 Updating

To account for any time inconsistencies between the input dataset and the policy year, updating factors are used. Each monetary variable (i.e. each income component) is updated to account for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax-benefit system. Updating factors are generally based on changes in the average value of an income component between the year of the data and the policy year. For detailed information about the construction of each updating factor as well as the sources that have been used, see Annex 1.

As a rule, updating factors are provided both for simulated and non-simulated income components present in the input dataset. Note, however, that in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the uprated original variables in the dataset. Updating factors for simulated variables are provided so as to facilitate the use of the model in cases when the user wishes to turn off the simulation of a particular variable.

4. VALIDATION

4.1 Aggregate Validation

EUROMOD results are validated against external benchmarks. Detailed comparisons of the number of people receiving a given income component and total yearly amounts are shown in Annex 2. Both market incomes and non-simulated taxes and benefits in the input dataset as well

as simulated taxes and benefits are validated against external official data. The main discrepancies between EUROMOD results and external benchmarks are discussed in the following subsections. Factors that may explain the observed differences are also discussed.

4.1.1 Components of disposable income

This subsection outlines the differences in the definition of disposable income in EUROMOD and EU-SILC 2015. The major components of disposable income are the same in both sources: original incomes (+); benefits (+), taxes (-), employee social insurance contributions (-); and self-employed social insurance contributions (-). However, at the level of individual components there are the following differences (see Table 4.1):

- EU-SILC 2015 includes (imputed) annual value of (using) a company car, while EUROMOD definition of disposable income excludes this type of income;
- pensions from individual private plans are included in the disposable income concept in EUROMOD, while they are excluded in EU-SILC 2015;
- Disposable income in EU-SILC 2015 includes repayments/receipts on tax adjustment, while EUROMOD does not.

Apart from differences in the definition, the size of disposable income in EU-SILC and EUROMOD may differ for a given household as simulated income components in EUROMOD may differ for a number of reasons from their observed counterparts in EU-SILC dataset.

Table 4.1 Components of disposable income

	EUROMOD	EU-SILC 2015
	ils_dispy	HY020
Employee cash or near cash income	+	+
Employer's social insurance contribution	0	0
Company car	0	+
Contributions to individual private pension plans	0	0
Cash benefits or losses from self-employment	+	+
Pension from individual private plans	+	0
Unemployment benefits	+	+
Old-age benefits	+	+
Survivor' benefits	+	+
Sickness benefits	+	+
Disability benefits	+	+
Education-related allowances	+	+
Income from rental of a property or land	+	+
Family/children related allowances	+[1]	+
Social exclusion not elsewhere classified	+	+
Housing allowances	+	+
Regular inter-household cash transfer received	+	+
Interests, dividends, etc.	+	+
Income received by people aged under 16	+	+
Regular taxes on wealth	-	-
Regular inter-household cash transfer paid	-[3]	-
Tax on income and social contributions	-	-
Repayments/receipts for tax adjustment	0	+

Notes: [1] includes income tax bonus; [2] Maintenance payments

4.1.2 Validation of incomes inputted into the simulation

4.1.2.1 Market income

The number of unemployed is much higher in EUROMOD than in external statistics which are taken from the Labor Force Survey data (see Table 4.2 in Annex 2). The number of employed is thus somewhat smaller in EUROMOD. However, Labor Force Survey data tend to underestimate the number of unemployed. When we compare EUROMOD data with the administrative data on *registered* unemployment, the numbers are much closer (490K unemployed in EUROMOD vs. 546K of registered unemployed in 2014[5]).

Tables 4.3 and 4.4 show, respectively, the number of recipients and the total amount of different sources of market income. These incomes are used by the model but are not simulated. The number of recipients of employment and self-employment incomes in EUROMOD matches very well the external statistics. The amount of employment income is slightly underestimated in EUROMOD, while the self-employment income is overestimated. This might be caused by the fact that the self-employed have the possibility to adjust their incomes for tax purposes, but they have no incentive to report lower incomes in surveys.

As commented in section 3, EUROMOD input data are adjusted for each policy year by updating factors that take into account average changes of each income source. Therefore, the number of recipients/payers of each income/benefit/tax is held constant in the EUROMOD input data.

4.1.2.2 Disability, old-age, survivor and sickness benefits

Tables 4.5 and 4.6 in Annex 2 show the number of recipients and total amount of pensions and benefits that are not simulated by EUROMOD, but which are used for the calculation of disposable income as they are reported in the input database.

- Pensions: in aggregate terms, pensions seem to be well represented in the EU-SILC and EUROMOD input data. Significant difference appears only in the number of disability pensioners, which is somewhat overestimated in the EUROMOD input data. However, the total amount of disability pensions paid seems to match the external statistics quite well. In terms of pension amounts, all aggregate amounts fit very well, the only problem is with survivor's pensions which are slightly underestimated (mainly in 2013, further years match external data better). The reason might be that the EUROMOD input data does not strictly distinguish what share of pension income comes from old-age pension and which from survivor’s pension when the two pensions are collected by the same person.

- Sickness benefits: sickness benefits depend on previous wages of the employee and they appear in the total monthly pay-check sum and are thus not well recognised and not remembered by employees. That explains why the amount of sickness benefits is largely underreported in the SILC data.

4.1.3 Validation of outputted (simulated) incomes

4.1.3.1 Unemployment, Family, Housing and Social assistance benefits

Tables 4.7 and 4.8 in Annex 2 show the number of recipients and the amount of tax-benefit instruments simulated by EUROMOD:

- Unemployment benefit: methods counting the number of recipients in EUROMOD and in external statistics are not strictly comparable. In particular, the number of recipients

[5] Source: Statistical yearbook of the labor market, 2014: https://portal.mpsv.cz/sz/stat/stro/mpsv_rocenka_2014.pdf

is largely overestimated in EUROMOD. There is more than twice as many unemployment benefit recipients in EUROMOD as compared to what external statistics report. The main reason is probably the fact that EUROMOD numbers are based on all individuals who reported receiving unemployment benefit sometime in the given year, while the external statistics show the number of individuals collecting unemployment benefits in a given month of a given year, averaged over all months. The comparison of total expenditures on unemployment benefits shows much better results - the aggregate amounts in EUROMOD are only slightly underestimated compared to the external statistics.

- Child allowance: EUROMOD slightly overestimates the number of recipients of child allowance compared to external statistics, because the data are not strictly comparable to the external sources. It is the same problem as with unemployment benefit – EUROMOD counts the number of people who collected child allowance sometime in a given year, but external data take the number of recipients in each month averaged over all months in a given year. Concerning the total amount, EUROMOD overestimates the aggregate amounts of child allowance quite substantially compared to external statistics (and also compared to the SILC reported values). One reason for that might be the non-take-up of child allowance. The problem of low take-up of social benefits is well known in the Czech Republic for quite some time[6] and a similar overestimation problem has been found using the Czech national tax-benefit microsimulation model.[7] Another reason for overestimation might lie in the way EUROMOD model simulates the child allowance. The model assigns the whole annual amount of the allowance to all eligible families assuming eligible families collected the benefit for the whole year. However, in reality the child allowance eligibility is based on a school year starting in September and ending in August. Therefore, some families might only start collecting the allowance in September (collecting it for 4 months in a given year only) and others might finish collecting it in August. This then implies lower annual amount of benefit that appears in external data.

- Parental allowances: results are stable and only slightly overestimated for the number of recipients. The aggregate amounts fit very well external data.

- Birth grant: both the number of recipients and overall amount is substantially underestimated in comparison to the external statistics mostly for the year 2014. This is a flat rate benefit for newborn children and the number of newborns is underestimated in the SILC data. In 2015, the benefit became available also for the second child in the family (before 2015, it was available only for the first child), that is why we see such a big jump in the simulated values in 2015. After this policy change, the simulated values started matching the external data much better, thus it seems that mostly families with first newborn children are underrepresented in the SILC data.

- Social assistance: simulations underestimate the number of recipients compared to the external data. This is probably due to the fact that families with lowest incomes, which collect social assistance benefits, are not that well represented in the SILC data. The aggregate amounts are much closer to external statistics, they are only slightly underestimated for 2014 and 2015. Nevertheless, EUROMOD is doing a much better job to match external statistics than the reported values of these benefits in the SILC data suggesting that people who collect these benefits are indeed underrepresented in the SILC data.

[6] See Mareš (2001). Problém nečerpání sociálních dávek [The problem of non-take-up of social benefits]. VÚPSV Praha v.v.i.

[7] See Dušek, L., Kalíšková, K., and Münich, D. (2013). Distribution of Average, Marginal, and Participation Tax Rates among Czech Taxpayers: Results from a TAXBEN Model. Czech Journal of Economics and Finance, 63(6), 474-504.

- Housing benefit: number of recipients is largely overestimated in EUROMOD compared to external statistics probably because of low take-up rate of this benefit. Note that a similar problem has been found using the Czech national tax-benefit microsimulation model[8] and some studies estimated the take-up of housing benefit to be less than 50%.[9] On the other hand, the aggregate amounts are slightly underestimated in EUROMOD. Most likely, those who do not take advantage of their eligibility are people with the lowest amounts of benefits, so the EUROMOD actually adds among recipients those with the lowest benefit amounts. Also, the housing benefit amount is derived from the housing costs, which are often underestimated in survey data, so that EUROMOD might underestimate the benefit amount due to low reported housing costs.

4.1.3.2 Taxes and Social insurance contributions

Tables 4.7 and 4.8 in Annex 2 show the number of payers and amounts of social insurance contributions and taxes simulated by EUROMOD:

- Employee and employer contributions: according to results, the number of people paying contributions and the overall amount of contributions simulated by EUROMOD fits external statistics very well.

- Self-employed contributions: EUROMOD overestimates the number of the self-employed paying social security contributions. This may be caused by a simple tax evasion where self-employed adjust their income so that they do not have to pay social security contribution, but in the SILC data they report their actual income and thus are perceived as taxpayers by the model. However, EUROMOD underestimates the total amount of contributions paid by the self-employed. This might be due to the fact that some self-employed can decide to pay higher than minimum contributions and the model cannot capture that.

- Income tax: Number of taxpayers paying income tax is underestimated by EUROMOD. The reason is that EUROMOD calculates the number of taxpayers as the number of individuals paying *positive* income tax, while in the external statistics the number of taxpayers is the number of employees or self-employed individuals, no matter whether they pay positive or zero taxes (there are no external statistics on the number of people paying positive income taxes). The number of taxpayers paying zero taxes is quite substantial because of generous tax credits and tax deductibles. The amount of income tax collected thus corresponds to external statistics much better.

- Property tax is underreported in EUROMOD for all years. Our interpretation is that individuals underreport their incomes and property taxes in SILC, which was confirmed by our previous research and by the results obtained using the national microsimulation model.

4.2 Income distribution

4.2.1 Income inequality

The income distribution indicators in EUROMOD are relatively close to the external statistics (See Annex 2, Table 4.9). Larger differences appear in case of households at the top of income distribution. Underestimation of top incomes might be due to incomplete reflection of all possible tax base deductions (caused by the lack of necessary information in the SILC data), but also because households with the highest and the lowest incomes are usually underrepresented in survey data.

[8] See Dušek, L., Kalíšková, K., and Münich, D. (2013). Distribution of Average, Marginal, and Participation Tax Rates among Czech Taxpayers: Results from a TAXBEN Model. Czech Journal of Economics and Finance, 63(6), 474-504.

[9] Mareš (2001). Problém nečerpání sociálních dávek [The problem of non-take-up of social benefits]. VÚPSV Praha v.v.i.

Table 4.9 also provides the following indicators of income distribution: mean and median equivalised income[10], income quintile ratio, and Gini coefficient. According to results, the mean and median equivalised disposable incomes in EUROMOD are very close to the external statistics. Income inequality is slightly lower in EUROMOD when measured by the income quintile ratio and the Gini coefficient. This is consistent with results obtained in other countries. In case of the Czech Republic, the higher number of recipients of housing benefit (which is mostly received by lower income families) is likely to be one of the factors reducing income inequality in EUROMOD simulations.

4.2.2 At-risk-of-poverty rates

Table 4.10 in Annex 2 provides the at-risk-of-poverty rates using poverty lines based on 40, 50, 60 and 70% of the median equivalised disposable income.[11] At-risk-of-poverty rates are slightly lower in EUROMOD (compared to external statistics from Eurostat) when using less generous poverty lines (40% of the median). For other poverty lines, the poverty rates in EUROMOD are very close to external statistics. As already suggested above, it is possible that the overestimation of housing benefits (given a very high non-take-up of this benefit in reality) contributes to the underestimation of poverty rates.

Table 4.10 also shows the at-risk-of-poverty rates (using 60% of the median equivalised disposable income as poverty line) by age groups. In line with previous results, the at-risk-of-poverty rates calculated using EUROMOD are lower than those in external statistics for all groups apart from the age group 50-64.

4.3 Summary of "health warnings"

This final section summarises the main findings concerning special aspects of the Czech part of EUROMOD or its database that should be borne in mind when planning appropriate uses of the model and when interpreting results.

- The SILC sample is relatively small. Care should be taken in interpreting results for small population sub-groups.
- The weights do not control for differential non-response according to any dimension.
- There is underreporting by people with very low incomes, but also those with higher incomes and with higher share of self-employment income and incomes from investment. Figures for incomes of the self-employed are in principle not very reliable since some portion of accounting expenditure made by the self-employed effectively covers common living expenditures.
- Sickness insurance benefits are substantially underreported in SILC since people do not recognize them easily in their pay checks. Information in SILC does not allow for well-informed simulations of these benefits.
- Some segments of the population are not sufficiently represented in the SILC sample (minorities, foreigners, homeless people).
- Some values of some observations have been imputed already by the Statistical Office and cannot be disentangled from the released data.

[10] Using the OECD modified equivalence scale.
[11] Using the OECD modified equivalence scale.

5. REFERENCES

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http://www.mpsv.cz/cs/3867 (Basic indicators of employment and social security in the Czech Republic – Základní ukazatele z oblasti práce a sociálního zabezpečení v ČR)

Czech statistical office

Macroeconomic indicators:

https://www.czso.cz/csu/czso/hmu_ts

Social Security

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Demographic yearbooks

https://www.czso.cz/csu/czso/czech-demographic-handbook-2015

Czech Social Security Administration (pension and sickness insurance)

CSSZ Yearbooks: http://www.cssz.cz/en/information/

Ministry of Labour and Social Affairs of the Czech Republic

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State Social Support: http://www.mpsv.cz/cs/2

Social Insurance: http://www.mpsv.cz/cs/1349

Social Need: http://www.mpsv.cz/cs/5

Pensions: http://www.mpsv.cz/cs/3

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ANNEX 1: UPRATING FACTORS

Index	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Comment
Main child benefit (pridavek na dite)	523	511	585	578	607	603	600	599	601	601	601	601	Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2015); 2016, 2017 - assume uprating factor of 1 (no change in policy rules, no indexation)
Means-tested child benefit (socialni priplatek)	1235	1594	1593	1681	1741	2537	3095	x	x	x	x		Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2012)
Foster parent benefit (pestounska pece celkem)	3430	3931	3968	4000	4012	4152	4980	7883	8231	8465	8465	8465	Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2015); 2016, 2017 - assume uprating factor of 1 (no change in policy rules, no indexation)
Other family benefits (porodne a pohrebne)	10036	11719	9429	9138	9139	9127	9021	8984	9001	8270	8270	8270	Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2015); 2016, 2017 - assume uprating factor of 1 (no change in policy rules, no indexation)
Parental leave benefit (rodicovsky prispevek)	3673	7054	6594	6578	6854	6608	6765	6866	6831	6754	6754	6754	Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2015); 2016, 2017 - assume uprating factor of 1 (no change in policy rules, no indexation)
Housing benefit (prispevek na bydleni)	813	1134	1573	2016	2456	2746	2946	3188	3353	3400	3400	3400	Czech Statistical Office (https://www.czso.cz/csu/czso/vybrane-udaje-o-socialnim-zabezpeceni-2015); 2016, 2017 - assume uprating factor of 1 (no change in policy rules, no indexation)
Unemploymen	4312	4940	5065	5739	5629	5476	5720	6136	5690	6002	6234	6267	Ministry of Labour and Social Affairs

t benefit													(http://portal.mpsv.cz/sz/stat/nz/qrt)
Harmonised CPI (index 2005=100)	102	105	112	112	114	116	120	122	122	123	124	127	Eurostat (http://ec.europa.eu/eurostat/data/database) ; 2017 - Ministry of Finance forecast (http://www.mfcr.cz/cs/verejny-sektor/prognozy/makroekonomicka-predikce)
Disability pension	6833	7251	8005	8251	8018	8152	8120	8094	8029	8114	8049	8265	Czech Social Security Administration (http://www.cssz.cz/cz/o-cssz/informace/statistiky/duchodova-statistika/); 2017 - annual indexation
Old-age pension	8187	8747	9638	10045	10123	10552	10778	10970	11075	11348	11460	11768	Czech Social Security Administration (http://www.cssz.cz/cz/o-cssz/informace/statistiky/duchodova-statistika/); 2017 - annual indexation
Survivor pension	4730	5071	5572	5796	5835	6093	6193	6299	6329	6454	6490	6664	Czech Social Security Administration (http://www.cssz.cz/cz/o-cssz/informace/statistiky/duchodova-statistika/); 2005-2010: values calculated based on the growth in pensions of widows and widowers and based on absolute values from 2011, 2011-2016: absolute values of widowers' pensions, 2017: annual indexation
Housing costs	20157	20652	22333	24623	25194	26326	26230	26874	26196	25848	26253	26883	Czech Statistical Office (https://www.czso.cz/csu/czso/vydani-a-spotreba-domacnosti-statistiky-rodinnych-uctu-2016); 2017: assume uprating factor equal to the harmonised CPI
Housing costs, rent	20157	20652	22333	24623	25194	26326	26230	26874	26196	25848	26253	26883	Czech Statistical Office (https://www.czso.cz/csu/czso/vydani-a-spotreba-domacnosti-statistiky-rodinnych-uctu-2016); 2017: assume uprating factor equal to the harmonised CPI
Employment income	19546	20957	22592	23344	23797	24436	25101	25128	25686	26467	27589	28850	Czech Statistical Office (https://www.czso.cz/csu/czso/cri/prumern

													e-mzdy-4-ctvrtleti-2016); 2017 - Ministry of Finance forecast (http://www.mfcr.cz/cs/verejny-sektor/prognozy/makroekonomicka-predikce)
Previous employment income	18344	19546	20957	22592	23344	23797	24436	25101	25128	25686	26467	27589	Calculated based on $upr_yem lagged by 1 year

ANNEX 2: VALIDATION TABLES

Table 4.3-Market income in EUROMOD -Number of recipients (in thousands)

	EUROMOD	External				Ratio			
	2014	2014	2015	2016	2017	2014	2015	2016	2017
Employment income	4264	4334	4418	4473	N/A	0.98	0.98	0.99	N/A
Self-employment income	959	775	764	775	N/A	1.24	1.02	0.99	N/A
Private pensions	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rent income	445	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Investment income	663	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4.4-Market income in EUROMOD -Annual amounts (in mil.)

	EUROMOD				External				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Average employment income	269638	277836	289614	302852	308232	317604	331068	N/A	0.87	0.87	0.87	N/A
Employment income	1149756	1184716	1234939	1291383	1320787	1384461	1464310	N/A	0.87	0.86	0.84	N/A
Self-employment income	250333	250947	252706	258760	128223	126999	131169	N/A	1.95	1.98	1.93	N/A
Private pensions	2612	2619	2637	2700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rent income	13949	13984	14082	14419	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Investment income	6476	6492	6537	6694	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4.5-Tax benefit instruments included but not simulated in EUROMOD - Number of recipients/ payers (in thousands)

	EUROMOD	External				Ratio			
	2014	2014	2015	2016	2017	2014	2015	2016	2017
Benefits									
Education related allowances	45.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Foster Care Benefits	11.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Social Benefits	8.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sickness benefits	463.9	1314.8	1563.5	N/A	N/A	0.353	0.297	N/A	N/A
Disability pension	546.4	428.3	421.7	425.0	N/A	1.276	1.296	1.286	N/A
Old age pension	2387.2	2355.1	2367.3	2395.0	N/A	1.014	1.008	0.997	N/A
Survivors pension	687.9	701.8	693.9	701.2	N/A	0.980	0.991	0.981	N/A
Taxes and Social Insurance contributions									
Property tax	3123.6	3743.9	3782.7	3847.1	N/A	0.834	0.990	0.983	N/A

Table 4.6-Tax benefit instruments included but not simulated in EUROMOD -Annual amounts (in mil.)

	EUROMOD				External				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Benefits												
Education related allowances	752.3	754.2	759.5	777.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Foster Care Benefits	1866.0	1919.0	1919.0	1919.0	2804.1	3116.4	N/A	N/A	0.665	0.616	N/A	N/A
Other Social Benefits	105.3	96.8	96.8	96.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sickness benefits	8085.2	8105.1	8161.9	8357.4	22077.2	24109.9	26283.8	N/A	0.366	0.336	0.311	N/A
Disability pension	46136.5	46626.8	46252.4	47493.2	43694.8	44305.1	42488.4	N/A	1.056	1.052	1.089	N/A
Old age pension	311438.0	319114.9	322264.5	330925.7	305668.4	314872.2	316710.1	N/A	1.019	1.013	1.018	N/A
Survivors pension	21380.0	21801.0	21922.8	22510.8	27043.3	27342.3	26415.8	N/A	0.791	0.797	0.830	N/A
Taxes and Social Insurance contributions												
Property tax	3561.3	3570.0	3595.1	3681.2	9909.6	10313.4	10581.5	N/A	0.359	0.346	0.340	N/A

Table 4.7-Tax benefit instruments simulated in EUROMOD -Number of recipients/ payers (in thousands)

	EUROMOD				SILC	Ratio	External				Ratio			
	2014	2015	2016	2017	2014	2014	2014	2015	2016	2017	2014	2015	2016	2017
Benefits														
Child Allowances	493.69	476.69	457.96	439.39	260.49	1.90	443.60	424.00	N/A	N/A	1.11	1.12	N/A	N/A
Birth grant	6.06	19.31	19.31	15.87	0.00	N/A	10.80	21.60	N/A	N/A	0.56	0.89	N/A	N/A
Parental Allowances	311.65	311.65	311.65	311.65	311.65	1.00	278.52	277.30	N/A	N/A	1.12	1.12	N/A	N/A
Housing benefit	430.26	386.24	436.40	421.53	255.54	1.68	220.10	224.10	N/A	N/A	1.95	1.72	N/A	N/A
Social assistance benefits	183.47	180.74	174.34	169.53	127.44	1.44	240.80	223.50	N/A	N/A	0.76	0.81	N/A	N/A
Unemployment benefit	206.38	206.38	206.38	206.38	223.33	0.92	115.91	101.79	97.87	103.00	1.78	2.03	2.11	2.00
Taxes and Social Insurance contributions														
Income tax final liability	4034.97	4063.11	4111.60	4162.74	4212.16	0.96	4974.00	5042.00	5138.00	N/A	0.81	0.81	0.80	N/A
Employee social insurance contributions	4264.08	4264.08	4264.08	4264.08	4088.29	1.04	4328.56	4421.89	4488.30	N/A	0.99	0.96	0.95	N/A
Employer social insurance contributions	4264.08	4264.08	4264.08	4264.08	0.00	N/A	4328.56	4421.89	4488.30	N/A	0.99	0.96	0.95	N/A
Self-employed social insurance contributions	959.46	959.46	959.46	959.46	0.00	N/A	676.19	675.70	677.38	N/A	1.42	1.42	1.42	N/A

Table 4.8-Tax benefit instruments simulated in EUROMOD -Annual amounts (Mil.)

	EUROMOD				SILC				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Benefits												
Child Allowances	5726	5513	5222	4976	3467	3467	3467	3467	1.65	1.59	1.51	1.44
Birth grant	79	223	223	189	0	0	0	0	N/A	N/A	N/A	N/A
Parental Allowances	22854	22854	22854	22854	20135	19907	19907	19907	1.14	1.15	1.15	1.15
Housing benefit	7803	7101	7977	7895	7254	7355	7355	7355	1.08	0.97	1.08	1.07
Social assistance benefits	9623	9498	9522	9196	6511	6527	6573	6730	1.48	1.46	1.45	1.37
Unemployment benefit	8411	8583	8818	9186	9254	9761	10139	10192	0.91	0.88	0.87	0.90
Taxes and Social Insurance contributions												
Income tax final liability	126704	132172	140942	149717	146907	151374	157791	165003	0.86	0.87	0.89	0.91
Employee social insurance contributions	127628	131724	137383	144075	125018	128819	134280	140418	1.02	1.02	1.02	1.03
Employer social insurance contributions	387878	399633	416215	435369	0	0	0	0	N/A	N/A	N/A	N/A
Self-employed social insurance contributions	60983	61494	62064	63894	0	0	0	0	N/A	N/A	N/A	N/A

Table 4.8-Tax benefit instruments simulated in EUROMOD -Annual amounts (Mil.) - continued

	EUROMOD				External				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Benefits												
Child Allowances	5726	5513	5222	4976	3213	3064	2817	N/A	1.78	1.80	1.85	N/A
Birth grant	79	223	223	189	143	256	256	N/A	0.55	0.87	0.87	N/A
Parental Allowances	22854	22854	22854	22854	22958	22519	22625	N/A	1.00	1.01	1.01	N/A
Housing benefit	7803	7101	7977	7895	8862	9187	9262	N/A	0.88	0.77	0.86	N/A
Social assistance benefits	9623	9498	9522	9196	11352	10592	9255	N/A	0.85	0.90	1.03	N/A
Unemployment benefit	8411	8583	8818	9186	9280	8303	8220	N/A	0.91	1.03	1.07	N/A
Taxes and Social Insurance contributions												
Income tax final liability	126704	132172	140942	149717	131995	138623	156241	N/A	0.96	0.95	0.90	N/A
Employee social insurance contributions	127628	131724	137383	144075	126900	133900	N/A	N/A	1.01	0.98	N/A	N/A
Employer social insurance contributions	387878	399633	416215	435369	396000	417800	N/A	N/A	0.98	0.96	N/A	N/A
Self-employed social insurance contributions	60983	61494	62064	63894	102600	108100	N/A	N/A	0.59	0.57	N/A	N/A

Table 4.9-Distribution of equivalised disposable income

	EUROMOD				External				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
D1	4.27	4.22	4.21	4.14	4.2	4.1	N/A	N/A	1.02	1.03	N/A	N/A
D2	6.11	6.10	6.03	5.98	6.0	6.0	N/A	N/A	1.02	1.02	N/A	N/A
D2	6.11	6.10	6.03	5.98	6.0	6.0	N/A	N/A	1.02	1.02	N/A	N/A
D3	7.04	7.02	6.99	6.94	7.0	6.9	N/A	N/A	1.01	1.02	N/A	N/A
D4	7.80	7.81	7.76	7.73	7.7	7.7	N/A	N/A	1.01	1.01	N/A	N/A
D5	8.54	8.54	8.51	8.48	8.5	8.4	N/A	N/A	1.00	1.02	N/A	N/A
D6	9.38	9.40	9.38	9.38	9.3	9.3	N/A	N/A	1.01	1.01	N/A	N/A
D7	10.38	10.39	10.40	10.42	10.2	10.3	N/A	N/A	1.02	1.01	N/A	N/A
D8	11.73	11.75	11.77	11.80	11.5	11.7	N/A	N/A	1.02	1.00	N/A	N/A
D9	13.79	13.77	13.86	13.87	13.7	13.7	N/A	N/A	1.01	1.01	N/A	N/A
D10	20.95	21.00	21.09	21.26	22.0	21.7	N/A	N/A	0.95	0.97	N/A	N/A
Median	199139	203471	208967	215725	198028	204395	N/A	N/A	1.01	1.00	N/A	N/A
Mean	222833	227735	233743	241842	223423	229785	N/A	N/A	1.00	0.99	N/A	N/A
Gini	24.15	24.25	24.49	24.82	25.1	25.0	N/A	N/A	0.96	0.97	N/A	N/A
S80/S20	3.35	3.37	3.41	3.47	3.5	3.5	N/A	N/A	0.96	0.96	N/A	N/A

Table 4.10-Poverty rates by gender and age

	EUROMOD				External				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
40% median HDI												
Total	2.20	2.32	2.37	2.61	2.4	2.6	N/A	N/A	0.92	0.89	N/A	N/A
Males	2.25	2.33	2.50	2.73	2.3	2.7	N/A	N/A	0.98	0.86	N/A	N/A
Females	2.16	2.30	2.25	2.50	2.5	2.6	N/A	N/A	0.86	0.88	N/A	N/A
50% median HDI												
Total	4.83	4.97	5.13	5.29	5.2	5.3	N/A	N/A	0.93	0.94	N/A	N/A
Males	4.93	5.00	5.11	5.29	4.9	5.0	N/A	N/A	1.01	1.00	N/A	N/A
Females	4.73	4.93	5.15	5.29	5.4	5.5	N/A	N/A	0.88	0.90	N/A	N/A
60% median HDI												
Total	9.04	9.11	9.46	9.82	9.7	9.7	N/A	N/A	0.93	0.94	N/A	N/A
Males	8.10	8.17	8.38	8.72	8.9	8.5	N/A	N/A	0.91	0.96	N/A	N/A
Females	9.95	10.03	10.51	10.89	10.5	11.0	N/A	N/A	0.95	0.91	N/A	N/A
70% median HDI												
Total	16.47	16.63	17.11	17.31	17.0	17.1	N/A	N/A	0.97	0.97	N/A	N/A
Males	14.63	14.78	15.22	15.33	14.6	14.3	N/A	N/A	1.00	1.03	N/A	N/A
Females	18.24	18.40	18.94	19.22	19.3	19.7	N/A	N/A	0.94	0.93	N/A	N/A
60% median HDI												
0-15 years	12.62	12.64	12.95	13.64	14.5	14.7	N/A	N/A	0.87	0.86	N/A	N/A
16-24 years	10.47	10.73	11.16	11.68	11.8	11.9	N/A	N/A	0.89	0.90	N/A	N/A
25-49 years	8.37	8.44	8.63	9.02	8.7	8.7	N/A	N/A	0.96	0.97	N/A	N/A
50-64 years	9.18	9.30	9.68	9.82	9.0	8.7	N/A	N/A	1.02	1.07	N/A	N/A
65+ years	6.27	6.25	6.87	7.03	7.0	7.4	N/A	N/A	0.90	0.84	N/A	N/A

Table 4.10-Minimum wage validation

	Baseline				Min Wage Incl.				Ratio			
	2014	2015	2016	2017	2014	2015	2016	2017	2014	2015	2016	2017
Equivalised disposable income	1550775	1584706	1625651	1681571	1571766	1608291	1651844	1712535	0.99	0.99	0.98	0.98
Employment income	1149756	1184716	1234939	1291383	1174852	1213191	1266588	1328814	0.98	0.98	0.98	0.97
Total income tax	126704	132172	140942	149717	127262	132851	141774	151192	1.00	0.99	0.99	0.99
Total employee social insurance contributions	127628	131724	137383	144075	129014	133280	139102	146075	0.99	0.99	0.99	0.99
Total social assistance	9623	9498	9522	9196	8198	8055	8063	7759	1.17	1.18	1.18	1.19
Gini coeficient	24.15	24.25	24.49	24.82	23.81	23.88	24.11	24.39	1.01	1.02	1.02	1.02
Poverty rate (60% median HDI)	9.04	9.11	9.46	9.82	8.76	8.96	9.28	9.44	1.03	1.02	1.02	1.04

ANNEX 3: POLICY EFFECTS IN 2016-2017

Table A3.1 and Figure A3.1 show the effect of policy changes in 2016-2017 on the mean equivalised household disposable income by income component and income decile group, as a percentage of mean equivalised household disposable income in 2016. The effect is estimated as a difference between simulated household net income under the 2017 tax-benefit policies (deflating monetary parameters by *projected* Eurostat's Harmonized Index of Consumer Prices, HICP) and net incomes simulated under 2016 policies.

Overall, the real disposable income of the population has decreased by 0.22% between years 2016-2017. The bottom deciles lost much more than the top ones. The highest drop in disposable incomes has been observed for the 1st and 2nd deciles (by 1.1% and 0.43%, respectively). Higher deciles experienced lower drops ranging between 0.1 and 0.2% of disposable income. Therefore the policy changes have had a regressive character.

Incomes of the bottom deciles were greatly affected by a reduction in means-tested benefits. In particular, the maximum amounts of housing costs went down in 2017, even though they are usually increased a little bit every year. This resulted in a reduction in the amounts of housing benefit and thus negatively impacted the disposable incomes of the bottom deciles. Also, the amount of social assistance benefits was lower for long-term unemployed in 2017.[12]

The growth in the minimum wage increased the minimum health insurance contributions base and thus had a negative effect on disposable incomes of families at the bottom of income distribution who now pay higher SIC.

Households in the top deciles were negatively affected by changes in direct taxes, despite an increase in the amounts of tax credits for the second and third-parity children and higher tax credit compensating for kindergarten costs. The amount of the kindergarten tax credit grew thanks to the increase of minimum wage, because this tax credit is capped at the minimum wage amount.

A valorization of public pensions carried out in 2017 is the only policy measure that has had a positive impact on the incomes of all deciles, especially on the income of 2-4th deciles where most pensioners are concentrated.

Table A3.1: Policy effects in 2016-2017, using the CPI-indexation (CPI = 1.024), %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Direct taxes	Disposable income
1	0.00	0.07	-0.72	-0.13	-0.15	-0.14	-0.04	-1.10
2	0.00	0.10	-0.23	-0.07	-0.08	-0.05	-0.11	-0.43
3	0.00	0.11	-0.04	-0.08	-0.06	-0.04	-0.07	-0.19
4	0.00	0.11	-0.02	-0.06	-0.04	-0.02	-0.10	-0.13
5	0.00	0.08	-0.02	-0.07	-0.04	-0.02	-0.11	-0.18
6	0.00	0.06	-0.03	-0.05	-0.03	-0.02	-0.14	-0.22
7	0.00	0.04	0.00	-0.05	-0.03	-0.01	-0.14	-0.19
8	0.00	0.03	0.00	-0.04	-0.02	-0.01	-0.16	-0.20

[12] It is calculated based on subsistence minimum + 0.4*(minimum living standard - subsistence minimum), while in 2016 it was based on minimum living standard.

9	0.00	0.02	0.00	-0.03	-0.01	-0.01	-0.15	-0.18
10	0.00	0.01	0.00	-0.01	-0.03	0.00	-0.06	-0.10
Total	**0.00**	**0.05**	**-0.05**	**-0.05**	**-0.04**	**-0.02**	**-0.11**	**-0.22**

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2016, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2017 policies by Eurostat's Harmonized Index of Consumer Prices (HICP).

Figure A3.1: Policy effects in 2016-2017, using the CPI-indexation (CPI = 0.8103), %