

# **EUROMOD**

## **COUNTRY REPORT**



## **DENMARK (DK)**

### **2011 - 2016**

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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 Denmark. 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 G4.0. 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: <http://www.euromod.ac.uk>

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The information contained in this publication does not necessarily reflect the position or opinion of the European Commission.

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### 1. BASIC INFORMATION

#### 1.1 Basic information

- + Overall policies are uniform across regions and municipalities, with a few differences arising from some discretionary benefits within the social assistance area. There can be differences in access to services, but the user charges are in principle the same for all, except in the case of day care for children where they can vary among municipalities. Municipalities, but not regions, have a possibility of setting the local income and property tax. Property tax within boundaries set by the state.
- + The Fiscal Year follows the calendar year, e.g. from the 1st of January to the 31st of December.
- + The right to state pension is at the age of 65, but will gradually be increased in the years to come. It is possible to postpone the age of retirement and then acquire a higher level of state pension.
- + There is no minimum school leaving age, however children are obliged to 10 years of schooling (at a public school or at an equivalent level at home, private schools etc.), typically starting in August the (calendar) year the child turns 6 years.
- + Both adults and children are taxed individually, as a starting point. However, minor incomes for children from e.g. help at home or at parents' company are disregarded. Child benefits are typically paid to the mother.
- + The tax system is mainly based on individual personal taxation, although there are a few possibilities for married spouses to, for instance, transfer redundant deductions in the different tax bases.
- + A lone parent is defined as a person living alone (neither with a spouse nor with a partner) taking care of a child below the age of 18. The borderlines are although not always very clear. Children is always defined as being below the age of 18.
- + Denmark to some degree has a dual tax system, where private capital incomes are taxed at a different rate than labour and transfer incomes. Both labour, transfer and capital incomes however are part of a comprehensive personal income tax system and enter alongside into various tax bases. Share income is taxed fully separately.
- + Taxes on labour and transfer incomes are withheld at source, through third-party reporting and payment by employers etc. The tax assessment is based on a preliminary assessment of income, which can also be changed by the tax payer. After the end of an income year a final tax return has to be filled in and/or confirmed by all tax payers using a web-based solution, but most items are filled already through the third-party reporting system. Payment of taxes might now be changed during the year in order to increase the likelihood that what people actually are paying in income taxes reflects what they should pay during the year.
- + Both benefits and deductions in the tax system are indexed automatically through an adjustment of rates signed into law, according to which the indexation follows wage inflation (slightly less so for benefits). However, if the average wage increase is above 2 % up to 0.3 % will be deducted to a specific pool of resources that can be used for initiatives for weaker groups within social, health and labour market policy areas. For 2017 it will be 0.4 % and for 2018 to 2023 it will be 0.75 %.
- + Means-tested benefits are typically held up against incomes from the most recent tax annual statement. However, there is an obligation to inform the authorities if there are substantial changes in income in order to change the benefit during the year.

### 1.2 Social Benefits

**Social assistance (*Kontanthjælp*):** Social Assistance is the basic income maintenance instrument in the event of unemployment, long-term illness etc. Benefit level varies with age, provider status, by whether recipient is living with parents and whether or not having a formal education. This is means-tested against both own and spouses' income and wealth. There will from 1<sup>st</sup> of October, 2016 be a new ceiling of benefits including social assistance so that a number of benefits together will have maximum, albeit never so that the level of social assistance will be reduced, see more details in Section 2.3.1.

**Integration benefit (*Integrationsydelse*).** People who have not lived in Denmark in 7 out of the last 8 years will be given an integration benefit. The size at the level of the educational benefit with possible activity support. However, in so far as EU-citizens has the rights to benefits according to EU rules on free movement they will be given social assistance, and will thus not be influenced by the change.

**Unemployment benefits (*Dagpenge*):** UB are insurance-based, but subsidized. Set at 90 % of previous labour income, but with an upper threshold. This is restricted to 2 out of 3 years in a running 3 years period since 2013. The full right can be re-established by 52 weeks of full-time work within a 3 years running time. The employer pays the first three days of unemployment. In 2013 unemployed not fulfilling the 3 years rule can get a specific educational grant at 60% of unemployment benefit for singles and 80% when having responsibility for a child under the condition that they participate in some kind of education. In 2014 and 2015 there is a temporary labour market benefit at 60 % of highest unemployment benefit for long term unemployed whose eligibility to the standard benefit expired (80 % when having a child). The total length can though not exceed four years. From 2017 a new system will be implemented especially with regard to how to re-establish the right to benefit, but also including three days within a year without benefit, and, lowering of the benefits for newly educated without children.

**Sickness benefits (*Sygedagpenge*):** After two weeks of illness the municipality ascertains the ability to work and eligibility for sickness benefits. Benefit levels vary by number of pre-illness working hours (full time/part time), but also the option of working a reduced number of hours and receiving sickness benefits for other remaining hours. In principle benefits are available for a maximum of 52 weeks within 18 months. From 1<sup>st</sup> of July, 2014 sickness benefits can at maximum be 22 weeks after which a benefit at the level of social assistance, however in contrast to social assistance it is not dependent on spouse or cohabitant persons income and wealth, will be available and an increased effort to try to find out how to get back to the labour market will be included. If a person has a life-threatening disease sickness benefit can be prolonged.

**Education grant (*Statens Uddannelsesstøtte, SU*):** Given to students in validated branches of study. Benefit levels vary by age, type of education and by whether living with parents or by oneself. Furthermore, students have to prove that they are active students by passing exams.

**Child family grant (*Børnefamilieydelse*):** Families with children below 18 are paid a tax-free child family grant, with benefit size varying with the age of the child. The grant is automatically paid to the mother if the father has not the sole custody for the child.

**Child benefits (*Børnetilskud*):** A number of different tax-free child benefits are paid, typically to the mother, to families/children in special circumstances, such as single parents/providers, pensioners or student parents, twins etc.

**Child support (*Børnebidrag*):** After divorce, separation or out-of-wedlock birth, parents are obliged to pay child support/alimony to the child (that is, in practice to the upbringing parent). The size depends on the income of the person who has to pay within certain brackets.

**Housing benefit (*Boligsikring*):** Tax-free benefits for tenants who are not old-age pensioners. Given as a function of the rent, excl. costs for heating etc. Phased out, based on household income and wealth.

**Housing grant (*Boligydelse*):** Tax-free benefits for tenants who are old-age pensioners. Given as a function of the rent, excl. costs for heating etc. Phased out, based on household income and wealth.

**Disability pension (*Førtidspension*):** Given to persons below retirement age with permanently reduced ability to work after all other possibilities to be or become self-supporting have discarded. The benefit is taxable. Benefit level varies with marital status. Phased out against own and spouse's income.

**Early retirement pension (*Efterløn*):** Full or partial retirement by choice from the age of 60 until the standard retirement age of 65. Conditional upon previous unemployment insurance and pension contributions. Higher benefit if retirement is postponed 2 years. The early retirement pension scheme will gradually, fully implemented in 2023, be reduced to three years and eligibility become dependent on the year of birth. All born before 1954 can get the benefit from the age of 60, whereas those born in the second half of 1954, for example, can get the benefit when becoming 61.<sup>1</sup>

**Old-age pension (*Folkepension*):** Given from age 65. Benefit level varies with marital status. The benefit is phased out against own labour income. However a change in the pension age will gradually be phased in

**Old-age pension supplement (*Pensionstillæg*):** Given from age 65. Benefit level varies with marital status. The benefit is phased out against both own and a spouse's income.

**Heating subsidy (*Varmetillæg*):** Old-age and disability pensioners can apply for a heating subsidy to cover parts of their costs for heating fuel. Phased-out against income and wealth.

**Survivors' benefits (*Efterlevelsespension*):** Old-age or disability pensioners can for a period of 3 month receive a survivors' benefit when the partner dies. The monthly benefit is equal to the couple's combined pension payment.

**Survivors' help (*Efterlevelseshjælp*):** A person, whose partner (married or cohabitant) dies, can receive a lump-sum taxable benefit.

**Old-age supplementary benefit (*Ældrecheck*):** Annual taxable benefit paid out to all old-age pensioners with liquid financial assets below a certain threshold.

**Green check (*Grøn check*):** Introduced in 2010 as a tax-free lump sum benefit to compensate for the increase in environmental and energy taxes, with rates varying between adults and children.

**Resource activity benefit (*Ressourceforløbsydelse*):** Introduced from 1st of January, 2013 is a benefit at the level of social assistance, albeit with no means test for spouse income and wealth. It is for those where one tests if there is a work-ability left, and, then they might be liable to disability pension.

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<sup>1</sup> The increase in early retirement pension age is currently not taken into account by EUROMOD simulation, as a relatively small amount of people is expected to be affected by the policy change in 2014 and 15.

- *Not strictly benefits*

**Flex-job (*Fleksjob*):** May be granted to employees with permanent disabilities below 40 years of age for a time of 5 years (removable). The recipient works an agreed number of hours which is paid by the employer. This will be supplemented with a benefit at the level of unemployment benefit for hours up to 37 hours per week. Also possible for unemployed having had a flex-job is a kind of unemployment benefit (*ledighedsydelse*) and for early retirees (*fleksydelse*).

### 1.3 Social contributions

Denmark has a number of payments which contribute to the accrual of unemployment benefits and old-age pensions. However, the major part of transfer benefits is financed through the general tax system.

**Supplementary labour market pension (*Arbejdsmarkedets tillægspension, ATP*):** Mandatory old-age pension contribution, paid with a fixed rate that varies with the length of employment contract (e.g. month) and the extent of work (full-/part-time). Paid by employee (one-third of rate) and employer (two-third of rate). There can be slightly different levels among sectors.

**Unemployment benefit contribution (*A-kasse-bidrag*):** Required for eligibility to unemployment benefits (see above). Rates vary across unemployment insurance funds especially due to difference in the cost of administration as the payment otherwise reflect the level of unemployment benefit. Deductible in taxable income.

**Early retirement pension scheme contribution (*Efterlønsbidrag*):** Required for eligibility for early retirement pension scheme (see above). Conditional upon unemployment insurance membership in a number of years. Deductible in taxable income.

### 1.4 Taxes

**Labour market contribution (*Arbejdsmarkedsbidrag*):** A tax of 8 % levied upon gross labour income, with deduction of only the employee-paid part of the supplementary labour market pension contributions.

**Earned income tax credit (*Beskæftigelsesfradrag*):** Negative marginal tax rate on labour income of 8.3 % in 2016, with a maximum allowance of 28,000 DKK in 2016.

**Municipality tax (*Kommuneskat*):** The tax rate is determined individually by the 98 municipalities, but collected through the state's tax system and levied upon the taxable income base after a personal allowance.

**Church tax (*Kirkeskate*):** A voluntary contribution collected through the tax system, if the individual tax payer does not opt out. The rate is determined individually based upon budget from the church by the 98 municipalities on average 0.9 per cent (with a span of 0.41-1.50 % and levied upon the taxable income base after subtracting the general personal allowance.

**Health contribution (*Sundhedsbidrag*):** A tax of 3 per cent in 2016, levied upon the taxable income base after subtracting the general personal allowance.

**Bottom-bracket tax (*Bundskate*):** The lowest of the three progressive state taxes. Tax rate is 9.08 % in 2016. Levied upon the sum of the personal income tax base and net capital income, with the general personal allowance subtracted. Spouses can transfer negative net capital income and any unused personal allowance between them for the calculation of the bottom-bracket tax.



**Top-bracket tax (*Topskat*):** The highest-level of the three progressive state taxes. Tax rate of 15%. Levied upon the sum of the personal income tax base, positive net capital income and contribution to capital pension schemes, with the top-bracket tax allowance of 467.300 in 2016 subtracted. From the tax year 2010, a basic yearly allowance in 2016 of 41,900 DKK for the inclusion of positive net capital income is introduced.

**Tax ceiling (*Skatteloft*):** A ceiling at the level of 51.95% in 2016 on the aggregate (nominal) tax rate is implemented by reducing the tax rate on the top-bracket tax by the difference between the tax ceiling and the sum of the municipal and state taxes, excluding the church tax.

**Free telephone:** All tax payers, who have an employer-provided telephone at their disposal, are taxed for 2,700 DKK in the personal income tax base in 2016.

**Shares tax (*Aktieskat*):** Net income from shares (share profits, dividends and premiums, minus losses) is taxed progressively below/above 50,600 DKK in 2016) with 27/42 %.

**Property value tax (*Ejendomsværdiskat*):** A progressive state tax on the overall value of property, based on the official/public property value estimate. Both this tax base and the threshold for the progressivity have been frozen nominally since 2002.

**Land value tax (*Grundskyld*):** A municipal tax on the land value of residential property, with tax rates set by the municipalities varying between 1.6% and 3.4%.

**Value-added tax (*Moms*):** Tax rate of 25%. It is levied uniformly upon all transactions with exceptions of those areas identified by the EU directives.

**Excise duties (*Punktafgifter*):** Various excise taxes with varying tax rates or duties are levied upon goods such as cigarettes, energy use, and environmentally hazardous goods.

**Inheritance tax (*Boafgift*):** The estate is taxed with 0%, 15% or 36.25% for a spouse, near relatives or more distant relatives as heirs above a threshold of 276,600 DKK in 2016 .

**Gift tax (*Gaveafgift*):** Gifts are taxed with 0%, 15% or 36.25% for a spouse, near relatives or more distant relatives as recipients. With a threshold for near relatives of 61.500 DKK In 2016.

## 2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

### 2.1 Scope of simulation

Tables 2.1 and 2.2 present an overview over the simulated benefits and taxes and social contributions, respectively.

Table 1. Simulation of benefits in EUROMOD

	Variable name	Treatment in EUROMOD						Why not fully simulated?
		2011	2012	2013	2014	2015	2016	
Unemployment benefits	bunct_s	PS	PS	PS	PS	PS	PS	No data on unemployment history; Previous earnings inferred from unemployment benefit received.
Sickness benefits	bhl	I	I	I	I	I	I	No data on health status.
Social Assistance	bsa_s	S	S	S	S	S	S	No data on length of stay in Denmark. No data on background for reduced rates for youth (<25).
Integration benefit	-	E	E	E	E	E	E	No data on length of stay in Denmark.
Resource activity benefit	-	E	E	E	E	E	E	No information on level of work ability.
Education grant	bed	I	I	I	I	I	I	
Child Family Grant	bfachnm_s	S	S	S	S	S	S	
Ordinary Child Benefit & supplement	bfach00_s	S	S	S	S	S	S	
Child benefit for student parents	bfached_s	S	S	S	S	S	S	
Child benefits for twins etc. & adoptions	-	I	I	I	I	I	I	Rare benefit.
Child support	-	E	E	E	E	E	E	No information on parents outside household.
Disability pension	pdi	I	I	I	I	I	I	No impartial information on ability to work.
Housing benefit	bho01_s	S	S	S	S	S	S	
Housing grant	bho02_s	S	S	S	S	S	S	
Heating benefit	-	E	E	E	E	E	E	No information on heating costs and benefit application.
Early retirement pension	-	E	E	E	E	E	E	
Old-age pension	poa00_s	S	S	S	S	S	S	
Old-age pension supplement	poa01_s	S	S	S	S	S	S	
Old-age supplementary benefit	poa02_s	S	S	S	S	S	S	
Survivors' benefits	-	I	I	I	I	I	I	No information on death of partner.
Green check	bhtuc_s	S	S	S	S	S	S	

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.

Table 2. Simulation of taxes and social contributions in EUROMOD

	Variable name	Treatment in EUROMOD						Why not fully simulated?
		2011	2012	2013	2014	2015	2016	
Labour market contribution	tscee_s, tsese_s	S	S	S	S	S	S	-
Supplementary labour market contribution	tscpi_s	PS	PS	PS	PS	PS	PS	No information on length of employment contract => monthly assumed.
Contributions to unemployment insurance scheme & early retirement pension scheme	tyrui_s	PS	PS	PS	PS	PS	PS	No individual data on contribution => randomly assigned from population data.
Earned Income Tax Credit	tintc_s	S	S	S	S	S	S	-
Municipality tax	tmu_s	S	S	S	S	S	S	-
Church tax	tcr_s	PS	PS	PS	PS	PS	PS	No data on tax payment => randomly assigned from population data; No data on municipality of residence => average municipal tax rate.
Health contribution	thl_s	S	S	S	S	S	S	-
Bottom-bracket tax	tinbt_s	S	S	S	S	S	S	-
Top-bracket tax	tinto_s	S	S	S	S	S	S	-
Multimedia tax(now tax on free telephone)	-	E	E	E	E	E	E	No information on the tax base.
Shares tax	-	E	E	E	E	E	E	No isolated data on share income
Property value tax	tpr_s	PS	PS	PS	PS	PS	PS	Tax base derived from tax payment.
Land value tax	-	I	I	I	I	I	I	No isolated data on the tax payment or on the land value.
Inheritance tax	-	E	E	E	E	E	E	No information on inheritance
Gift tax	-	E	E	E	E	E	E	No information on gifts
Added-value tax	-	E	E	E	E	E	E	No information on total consumption expenditures

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.

## 2.2 Order of simulation and interdependencies

The following table shows the order in which the main elements of the Danish system in 2011-2015 are simulated.

The labour market contribution and the supplementary labour market pension contribution are the first instruments to be simulated, as both are functions of only gross employment incomes.

Taxable benefits such as the unemployment benefit and social assistance are simulated before the simulation of taxes, as they enter the tax bases. Likewise for the earned income tax credit, which is a function of gross employment income and both the labour market contribution and the supplementary labour market pension contribution.

Table 3. EUROMOD Spine: order of simulation, 2011-2016

<b>Policy</b>	<b>Description</b>	<b>Main output</b>
tsc_dk	Labour Market Contribution, a gross tax on all employment income	tscee_s, tscse_s, tsc_s
tscpi_dk	Supplementary labour market pension contribution, a mandatory pension contribution	tscpiee_s, tscpier_s
tyrui_dk	Unemployment benefit contribution and early retirement pension contribution, voluntary contribution to individual unemployment benefit insurance/early retirement accounts	tyrui_s
bunct_dk	Unemployment benefits and similar benefits	bunct_s
tintc_dk	Earned Income Tax Credit	tintc_s
poa_dk	Old age pension benefits(basic amount) supplement pension and old-age supplementary benefit	poa00_s, poa01_s, poa02_s
bsa_dk	Social Assistance	bsa_s
tmu_dk	Municipality Tax	tmu_s
tcr_dk	Church Tax	tcr_s
thl_dk	Health Contribution, a tax	thl_s
tinbt_dk	Bottom Bracket Tax	tinbt_s
tinmd_dk	Medium Bracket Tax	tinmd_s
tinto_dk	Top-bracket tax	tinto_s
tpr_dk	Property Tax	tpr_s
bfachnm_dk	Child Family Grant	bfachnm_s
bfach00_dk	Ordinary child benefit & Supplementary child benefit &	bfach00_s
bfached_dk	Child benefit for student parents	bfached_s
bho01_dk	Housing Benefit	bho1_s
bho02_dk	Housing Grant	bho2_s
bhtuc_dk	Green check	bhtuc_s

## 2.3 Social benefits

### 2.3.1. Unemployment benefit (Arbejdsløshedsdagpenge og andre Akasseydelser, *bunct\_s*)

- *Definitions*

The unit of analysis is the individual (tu\_individual\_dk).

- *Eligibility conditions*

Member of an unemployment insurance fund for at least one year and experiencing an unemployment spell. Benefit can at maximum be paid for 2 years within a three years' time-period, e.g. it is constantly required that there shall be a minimum of 1924 hours' work during the last three years. Having been conscript as well as having had an education of at least 18 months also gives right to be member of an unemployment insurance fund and without a one year membership.

- *Income test*

Upper limit on the received benefit, see below.

- *Benefit amount*

90 per cent of the previous employment income (yempv), with an upper limit of 215,020 DKr per year in 2015. The upper limit varied across years according to the table below:

Table 4. Upper limits for unemployment benefits (DKK)

	2011	2012	2013	2014	2015	2016
Upper limit	199,160	204,880	208,260	211,900	215,020	217,360

**EUROMOD Notes:** 1) Membership of an unemployment fund (lrg=1) is simulated through a discrete model based on national register data. 2) According to the law, the maximum amount of benefit that can be received varies according to the insurance status of the recipient, e.g. part-time insured vs. full time insured. Only full time insurance is assumed in the EUROMOD simulation. The maximum amount for part time insured people is equal to 2/3 of the full time maximum. 3) Previous employment income is not recorded by EU-SILC. For this reason, starting from the benefit amount, the previous employment income is calculated for those receiving the benefit by reversing the benefit rule. The unemployment benefit is then simulated using the simulated previous earnings.

### 2.3.2. Social assistance (Kontanthjælp; Aktivering af kontanthjælpsmodtagere og flygtninge; Integrationsydelse til flygtninge, *bsa\_s*)

- *Definitions*

The unit of analysis is the individual (tu\_individual\_dk), although married partner's income and wealth and the presence of dependent children enter in the simulation (tu\_bsa\_dk). Children are those younger than 18 years.

- *Eligibility conditions*

Eligibility is conditional upon:

- + The person has experienced a change (e.g unemployment, divorce, etc.) and the person is not able to maintain a living
- + Economic needs cannot be fulfilled by other means, including wealth
- + The person is an EU citizen or has stayed in Denmark for 7 of the previous 8 years
- + No other incomes (il\_bsa=0).

- **Income test**

The income test is satisfied if the recipients do not have any income and any financial wealth left. Financial assets less than 10,000 DKK (<20,000 DKK) for single (married) recipients are disregarded from the asset test. Moreover, a certain amount of income from work is disregarded. If benefit receivers have income from work, a total amount of DKK 25.74 per working hour (2016) for both partners is disregarded. A maximum number of 160 hours per month and person can be taken into account.

Table 5. Deduction of employment income, amount per working hour (Danish Kroner)

	2011	2012	2013	2014	2015	2016
Hourly income	14.57	14.99	15.23	25.00	25.38	25.74

Married persons are obliged to support each other. For this reason incomes of the married partner are withdrawn from the amount received by the person entitled. The benefit withdrawal starts when the income (il\_bsa) of the partner reaches the benefit entitlement.

Income included in the income test:

- + (Self-)Employment income
- + Pension related benefits
- + Disability benefits
- + Unemployment related benefits
- + Net capital income
- + Wealth (above the threshold)

- **Benefit amount**

The table below describes the benefit amount for entitled individuals between 2011 and 2013. Differences in amounts arise with respect to the age of the claimant, her/his provider status, whether she/he leaves with her parents. The provider status is simulated in EUROMOD by controlling for the presence of children in the family. Until January 2015, a benefit reduction of 674 DKK (in 2014) was applied if received for more than 6 months. Starting from 2011, such reduction was substituted for recipients below age 25 by a further reduced benefit. Both reductions have been abolished on the 1<sup>st</sup> of January 2015.

Table 6. Social assistance benefits, 2011-2013, per. month for a single person

	2011		2012		2013	
	Full Amount	Reduced amount (reduction) after 6 months	Full Amount	Reduced Amount after 6 months	Full Amount	Reduced Amount after 6 months
Provider (No age conditions)	13,345	(-634)	13,732	(-652)	13,952	(-662)
Non provider with age>=25	10,044	(-634)	10,335	(-652)	10,500	(-662)
Non-provider younger than 25						

- living by oneself	6,472	5,486	6,660	5,662	6,767	5,753
- living with parents	3,123	2,728	3,214	2,815	3,265	2,860

In 2014 social assistance was in principle abolished for those below the age of 30 who do not provide for a child and whose highest education is primary or lower. The benefit is substitute by an education grant if they participate to a vocational training course and, under certain condition, by an activity grant. The table below illustrates benefit entitlement for the years 2014 and 2015

**Table 7. Social assistance benefits, 2014-2016, per. month for a single person**

	2014		2015	2016
	Full amount	Reduced benefit (reduction) after 6 months	Full amount (reductions abolished)	Full amount
Provider (over 30 or under 30 and not married)	14,203	(-674)	14,416	14,575
Provider (under 30 and married)	9498	(-674)	9,640	9,746
Non provider over 30 or over 25 with more than primary education	10,689	(-674)	10,849	10,968
Non provider between 25 and 30 with primary education or less	5887	No reduction	5903	6,010
Non-provider younger than 25 with more than primary education				
- living by oneself	6,889	5857	6,992	7,062
- living with parents	3,324	2911	3,374	3,411
Non-provider younger than 25 with primary education or less (education grant)				
- living by oneself	5,887	No reduction	5,903	6,010
- living with parents	2,524	No reduction	2,544	2,590

Source: Lovbekendtgørelse nr. 190 af 24. februar 2012 om aktiv socialpolitik <http://www.retsinformation.dk/print.aspx?id=140126>; <http://bm.dk/da/Tal%20og%20tendenser/Satser%20for%202014/Kontanthjaelp.aspx> - accessed 13. august, 2014 and 2nd July, 2015, [www.su.dk](http://www.su.dk) (accessed on the 2nd of July, 2015). Vejledning om satser (vej.nr. 11145 of 01/12/2015)

Benefit amounts received by providers are subject to a reduction if the child is not living in Denmark. This rule does not apply if the child lives in an EU/EEA country or in other countries where specific agreements are in place.

The social assistance ceiling, with a law having effect from 1st of April, 2016 (although with impact on benefits first from 1st October, 2016), includes social assistance, integration benefit, educational allowance and means tested specific benefits, housing benefit, support for payment of day-care, family allowances and child-benefits after tax. It cannot be reduced to be below the level of social assistance and not reduced with more than the sum of specific support and housing benefit. The reform only impacts on the benefit amount from 1<sup>st</sup> October 2016 onwards as the government decided to give a preparation period to those affected by the changes.

It depends on whether the person is single or married/co-habiting and the number of children, and age as already, see Table 2.6. In the proposal to the parliament the figures is as shown in the table below.

**Table 8. Ceiling per month before tax (Danish Kroner)**

	2016
Single without children	13,265
Single provider with one child	15,196
Single providers with two or more children	15,554

Married/Cohabiting without children	10,968
Married/Cohabiting with 1 child	14,575
Married/Cohabiting with 2 children or more	14,575

In the proposal (Lovforslag L113 (Forslag til Lov om Ændring af lov om aktiv socialpolitik, lov om individual boligstøtte, integrationsloven og andre love) is also included a demand for at least 225 hours of ordinary unsupported work within a timeperiod of 12 months. If this is not the case then there will be a reduction of the benefit. This will also come into force from the 1st of October, 2016, however will thus not having any real impact in 2016. Furthermore, persons with disabilities living in some housing types will not be affected.

**EUROMOD Notes:** 1) The conditions regarding having experienced an exogenous shock and citizenship are not simulated. 2) The income test is performed using the income list *il\_bsa*. Its components are: Earnings, Old age pensions, Disability Pensions, Survivor Pensions, Early Retirement Pensions, Private Pensions, and Unemployment Benefits. Plus wealth above a certain threshold. 3) We assume that all the individuals below age 30 qualify for the education grant if they have achieved primary education or less. We do not simulate the activation grant because of relatively small number of recipients (around 6,000 people in the whole country)

### 2.3.2 Child family grant (*Børnefamilieydelse, bfachnm\_s*)

- *Definitions*

The unit of analysis is a family formed by parents and dependent children (*tu\_bfa\_dk*).

- *Eligibility conditions*

Having child(ren) aged 0-17 years. For migrants from outside the EU there has since 1<sup>st</sup> of September 2015 been a rule that they should have had lived in Denmark at least two out of the last 10 years. After 6 months with permanent residence or work they will have the right to 25 %, 1 year 50 % and 1½ year 75 %.

- *Income test*

An income test has been introduced in 2014. The concept of income used for the test is the one used for the calculation of the top-income tax (see section 2.5.7). Withdrawal rate is 2% for parental income above a threshold of 732,900 in 2016 (723.100 in 2015 and 712,600 in 2014). The income test follows the following rules:

- a) If parents are non-married, then the mother's income is used. In absence of the mother, then the father's income is used.
- b) If parents are married, and only one parent has income above the threshold, then the income of the mother is used for the tests, while the income of any other cohabiting partner is not taken into account.
- c) If parents are married and both have income above the threshold, the withdrawal rate is applied to the sum of the income of each partner which is above the threshold.

- *Benefit amount*

The benefit varies for 0-2 year olds, 3-6 year olds and 7-17 year old children, with annual benefits in 2016 of DKK 17,880, 14,148 DKK and 11m136 DKK, respectively, see table 2.7. The amount is paid out quarterly, although for those between 15-17 years it is a monthly payment.



Table 9. Child family grant, per child per year, 2011-2016 (Danish Kroner).

Age of the child	2011	2012	2013	2014	2015	2016
0-2 years	16,992	17,064	17,196	17,616	17,772	17,880
3-6 years	13,452	13,500	13,608	13,944	14,076	14,148
7-17 years	10,584	10,632	10,716	10,980	11,076	11,136

Source: Lovbekendtgørelse nr. 964 af 19. september 2011 om en børne- og ungefamilieydelse. <http://www.magnus.dk/Home/Satser/B%C3%B8rnefamilieydelse.aspx?satsID={CA1A31F3-A2C9-4B74-B79D-BA589F6EC5A9}> and <http://www.skm.dk/skattetal/satser/satser-og-beloebsgraenser/boerne-og-ungeydelsesloven/>, hentet 13. august, 2014, Skatteministeriet, Børne- og Ungeydelse i 2015 og 2016, www.skm.dk

**EUROMOD Notes:** The benefit is assigned to the mother if any. We assume that children with migration background have lived at least two out of the last 10 years in Denmark and thus, are eligible to the full amount of the benefit.

### 2.3.3 Ordinary child benefit and supplement (Ordinært børnetilskud and ekstra børnetilskud, *bfach00\_s*)

- *Definitions*

The unit of analysis is a family formed by parents and own dependent children (tu\_bfa\_dk).

- *Eligibility conditions*

Lone parent, or both parents are old-age pensioners, or both parents are disability pensioners.

- *Income test*

None.

- *Benefit amount*

5,432 DKK per child in ordinary child benefit plus a supplement of 5,536 DKK per benefit unit for lone providers, see table 2.8, in 2016.

Table 10. Ordinary child benefit rates, pr. year, 2011-2016 (Danish Kroner)

	Basic (per child)	Supplement (per unit)
2011	4.960	5.052
2012	5.104	5.200
2013	5.184	5.284
2014	5.276	5.380
2015	5.356	5.460
2016	5.432	5.536

Source: Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vejledning nr. 9805 af 24/10/2014.

**EUROMOD Notes:** From 1 Jan 2012 full child benefits will only be paid out in cases where at least one parent/guardian have worked or had residence in Denmark for at least two years within the preceding ten years. From six months and up to the two year period, child benefits can be increased in increments of 25% to the full amount. Since it is not possible to control for this condition, this bit of the rule is not implemented in EUROMOD. It was further abolished in 2014 due to the possible conflict with EU-regulation.

### 2.3.4 Child benefit for student parents (Særligt børnetilskud til uddannelsessøgende forældre, *bfached\_s*)

- *Definitions*

The unit of analysis is a family formed by parent and own dependent children (tu\_bfa\_dk).

- *Eligibility conditions*

Being in tertiary education and having child(ren) and being

- + lone parent not receiving education grant (benefit for all children), or
- + living with partner, but only one receives education grant (benefit for all children), or
- + living with partner, and both receive education grant (benefit for children beyond the first)

- *Income test*

An income test was introduced in 2014. If a single person has an income above 142.800 DKK in 2016 (138,700 in 2014, 140,800 in 2015) and a couple above 214,000 DKK in 2016 (208,000 in 2014, 211,100 in 2015), 10% of the income above the threshold is subtracted from the benefit amount.

Income included in the income test:

- + (Self-)Employment income
- + Disability related benefits
- + Unemployment related benefits
- + Net capital income

- *Benefit amount*

7,132 DKK per child per year in 2016 (beyond the first if living with partner and both receive education grant). Between 2011 and 2014 the yearly benefit amount increased from 6,508 DKK, 6,696 DDK, 6,804DK, 7008 and in 2015 7,032 DKK.

### 2.3.5 Green check (Grøn check, *bhtuc\_s*)

- *Definitions*

The unit of analysis is the adult individual, but the number of dependent children is relevant for the simulation (tu\_bhtuc\_dk). A child is considered as dependant if younger than 18 years.

- *Eligibility conditions*

All persons liable to pay taxes aged 18 or older.

- *Income and wealth test*

The green check is phased out with 7.5 per cent against incomes above a threshold of 379,900 in 2016, where the relevant income is the tax base for the top bracket tax (without taking account the deduction of contributions to capital pension schemes).

Income included in the income test:

- + (Self-)Employment income and non-cash employee income
- + Unemployment related benefits
- + Social assistance related benefit
- + Education related allowances
- + Pension related benefits
- + Sickness and disability related benefits
- + Regular inter-household cash transfer
- + Positive net capital income
- Employee/self-employed/supplementary labour market contribution

- **Benefit amount**

The annual benefit amounts to 950 DKK for adults in 2016, (>18 years of age) and 220 DKK for children (for at most two children per family). Benefits for children are given to the mother. From 2013 an extra amount of 280 DKK per person for low income earners was decided and it is in 2016 220 DKK and will be reduced by 7.5 % if the income exceeds 222,000 DKK in 2016.

Table 11. Green check compensations scheme

	2011	2012	2013	2014	2015	2016
Per person	1300	1300	1300	1300	955	950
Pr. child (max two children)	300	300	300	300	220	220
Reduction if income is	362.300	362.300	362.300	369.400	374.800	379.900
% reduction per 1000	7,5	7,5	7,5	7,5	7,5	7,5

Source: www.skm.dk

### 2.3.6 Housing Allowance

Housing allowance is the comprehensive term for the housing benefit for tenants and the housing grant for pensioners. Both forms of housing allowances are tax-free. The following only deals with the most important rules, as the housing allowance even according to official documentation is very complex.

A common term for the housing allowance is the housing cost, which is defined as the pure rent for the tenancy, excluding costs for heating, electricity etc. However, under some circumstances related both to characteristics of the dwelling and of the tenancy, the housing cost is augmented. The impossibility to fully simulate these circumstances obliged us to derive the housing cost reversing the rule for the calculation of the housing allowance. Then a regression analysis has been performed at the household level to impute a plausible value of housing cost of households not receiving housing allowances. The derived variable is called xivhc.

#### 2.3.6.1 Housing Benefit (Boligsikring, *bho01\_s*)

- **Definitions**

The unit of analysis is the household (tu\_bho\_dk)

- *Eligibility conditions*

Tenants who are not pensioners (poa00=0 at the household level).

- *Income and wealth test*

The benefit is phased-out against the total incomes of all household members, and wealth. Personal income base (il\_PersIncome) is taken into account. Incomes from children living with their parents are included in the relevant household income, but only after deducting 19,800 DKK in 2014, see table 2.10.

Income of all household members (income from children after deduction) included in the income test:

- + (Self-)Employment income and non-cash employee income
- + Unemployment related benefits
- + Social assistance related benefit
- + Education related allowances
- + Pension related benefits
- + Sickness und disability benefits
- Contributions to private pension plans that can be deducted from personal income
- Employee/self-employed labour market contribution
- + Wealth

Table 12. Deductions in childrens incomes before deduction, 2011-2016 (Danish kroner)

2011	18,400
2012	18,800
2013	19,300
2014	19,800
2015	19,900
2016	20,000

Source: Lovbekendtgørelse nr. 663 af 14. juni 2011 om individuel boligstøtte <http://www.magnus.dk/Home/Satser/Boligst%C3%B8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}>, VEJ Nr. 81 af 12711/2012: Vejledning om regulering pr. 1. Januar 2013 af satser på Social og Integrationsministeriets område and Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vejledning nr. 9805 af 24/10/2014 (2015 level). LBK nr. 1000 af 30. August, 2015 (2016 level).

The household income is augmented to take account of financial wealth (see table below).

Table 13. Income augmentation with wealth for calculation of housing benefit, 2011-2016 (Danish kroner).

Year	Per cent	Wealth thresholds
2011	0	< 686,900
	10	686,900 – 1,373,900
	20	> 1,373,900
2012	0	< 702,700
	10	702,700 – 1,405,500
	20	> 1,405,500
2013	0	< 722,000
	10	722,000 – 1,444.800
	20	> 1,444.800
2014	0	<739,700
	10	739,700 – 1,479,500
	20	> 1,479,500
2015	0	< 745.600
	10	745.600 – 1,491.400
	20	> 1,491.400
2016	0	< 750.100
	10	750.100 – 1,500,300
	20	> 1,500,300

Source: Lovbekendtgørelse nr. 663 af 14. juni 2011 om individuel boligstøtte <http://www.magnus.dk/Home/Satser/Boligst%C3%B8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}>, VEJ Nr. 81 af 12711/2012: Vejledning om regulering pr. 1. Januar 2013 af satser på Social og Integrationsministeriets område, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 2014and Vejledning nr. 9805 af 24/10/2014 (2015 level). LBK nr. 1000 af 30. August, 2015 (2016 level).

Benefit amount to 60 per cent of the housing costs. From this 18 per cent of the income that exceeds 142,500 DKK (in 2016) is subtracted. This income threshold is augmented by 37,500 DKK (in 2016) for each child beyond the first in the household, to a maximum of 4 children, see table 2.12 below. For households without children the housing benefit can at most constitute 15 per cent of the housing cost. Regardless of the income correction etc. the recipient of the housing benefit always has to pay minimum 24,000 DKK in rents him/herself. Households with up to 3 children (with 4 children or more) can at most receive a housing grant of 42,180 DKK (65,510DKK) per year.

Table 14. Various limits etc. for housing benefit, per year, 2011-2016. Max benefit for 4 or more is 25% higher than the standard max limit (§23).

Age of the child	2011	2012	2013	2014	2015	2016
Lower income deduction	130,500	133,500	137,200	140,500	141,600	142,500
Deduction increase per child	34,400	35,200	36,100	37,000	37,300	37,500
Own minimum payment	22,000	22,500	23100	23,700	23,900	24,000
Maximum benefit, hhd.s						
With up to 3 children	38,628	39,516	40,620	41,592	41,928	42,180
With 4 or more children (25% higher level)	48,285	49,395	50,775	51,990	52,410	65,510

Source: Lovbekendtgørelse nr. 663 af 14. juni 2011 om individuel boligstøtte <http://www.magnus.dk/Home/Satser/Boligst%c3%b8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}>, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 2014and Vejledning nr. 9805 af 24/10/2014 (2015 level). LBK nr. 1000 af 30. August, 2015 (2016 level).

2.3.6.2 Housing grant (Boligydelse, *bho02\_s*)

- *Definitions*

The unit of analysis is the household (tu\_bho\_dk)

- *Eligibility conditions*

Tenants who are pensioners (poa00>0 at the household level).

- *Income and wealth test*

The benefit is phased-out against total household income and wealth. The relevant incomes are the same as the one defined in the housing benefit section. The relevant differences are: only the part of incomes from children above 21,600 DKK per year in 2016 is included in the relevant household income (table 2.13 below).

Table 15. Deductions in childrens incomes before deduction, 2011-2016.

Year	DKK Per year
2011	19,700
2012	20,300
2013	20,600
2014	21,000
2015	21.300
2016	21.600

Source: Lovbekendtgørelse nr. 663 af 14. juni 2011 om individuel boligstøtte <http://www.magnus.dk/Home/Satser/Boligst%C3%B8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}>, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vejledning nr. 9805 af 24/10/2014 (2015 level). LBK nr. 1000 af 30. August, 2015 (2016 level).

The household income for the calculation of the housing grant is augmented to take account of financial wealth (see table below).

Table 16. Income augmentation with wealth for calculation of housing grant, 2011-2016

Year	Per cent	Wealth thresholds
2011	0	< 736,200
	10	736,200 – 1,472,500
	20	> 1,472,500
2012	0	< 759,800
	10	759,800 – 1,519,600
	20	> 1,519,600
2013	0	< 771,900
	10	771,900-1.543,900
	20	> 1,543,900
2014	0	<785.800
	10	785.800-1.571.700
	20	>1.571.700
2015	0	<797.600
	10	797.600-1.593.300
	20	>1.593.300
2016	0	<808.800
	10	808.800-1.617.000
	20	> 1.617.000

Source: Lovbekendtgørelse nr. 663 af 14. juni 2011 om individuel boligstøtte  
<http://www.magnus.dk/Home/Satser/Boligst%C3%B8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}>. LBK nr. 1000 af 30. August, 2015 (2016 level).

- **Benefit amount**

The housing grant corresponds as a rule to 75 per cent of the housing with a supplement of 6,500 DKK (in 2016). From this 22.5 per cent of the income that exceeds 153,000 DKK (in 2016) is subtracted. This income threshold is augmented by 40,500 DKK (in 2016) for each child in the household, up to a maximum of 4 children. The recipient of the housing benefit has to pay minimum 11 per cent of the income herself, or at least 16,200 DKK (in 2016). Households with up to 3 children (with 4 children or more) can at most receive a housing grant of 45,480 DKK (56,850 DKK) per year.

Table 17. Various limits etc. for housing grant, per year, 2011-2016 (Danish kroner).

Age of the child	2011	2012	2013	2014	2015	2016
Supplement	5,900	6,100	6,200	6,300	6,400	6,500
Lower income deduction	139,800	144,300	146,600	149,300	151,500	153,000
Deduction increase per child	36,800	38,000	38,600	39,300	39,900	40,500
Own minimum payment	14,800	15,300	15,500	15,800	16,000	16,200
Maximum benefit, hhd.s						
With up to 3 children	41,400	42,720	43,404	44,184	44,844	45,480
With 4 or more children	51,750	53,400	54,255	55,230	56,055	56,850

Source: <https://www.retsinformation.dk/Forms/r0710.aspx?id=141709>,  
<http://www.magnus.dk/Home/Satser/Boligst%C3%B8tte.aspx?satsID={0AB5B436-2FD4-4A4A-807A-A6D8EEBEB113}> and Vejledninger No. 9805, 2014, 9594 2013. LBK nr. 1000 af 30. August, 2015 (2016 level).

### 2.3.7 Basic old-age pension (Folkepension, *poa00\_s*)

- **Definitions**

The unit of analysis is the individual (tu\_individual\_dk)

- **Eligibility conditions**

All persons from the age of 65 conditional on citizenship and time of residence in Denmark.

- **Income test**

Above a threshold of 310.000 DKK per year in her/his own earnings income, the benefit is withdrawn with 30 per cent, see table 2.16 below.

**Income included in the income test:**

- + (Self-)Employment income and non-cash employee income
- Contributions to private pension plans that can be deducted from personal income
- Employee/self-employed labour market contribution

- **Benefit amount**

72756 DKK per year in 2016, see also table 2.16 below.

Table 18. Income threshold and benefit amount for basic old-age pension, per year, 2011-2016

	2011	2012	2013	2014	2015	2016
Benefit	66,624	68,556	69,648	70,896	71,964	72,756
Income	283,000	291,200	295,900	301,200	305,700	310,000

Source: Lovbekendtgørelse nr. 1005 af 19. august 2010 om social pension.

<http://www.magnus.dk/Home/Satser/Folkepension.aspx?satsID={03A62931-7087-4D51-8DE8-A8F250DDC8D9}>  
 Sociale Ydelser 2011, Forlaget Forsikring, Hellerup, DK, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vej. Nr.9805, 24/10/2014, LBK nr. 1000 af 30. August, 2015 (2016 level).

**EUROMOD Notes:** The citizenship and length of residence rules are not implemented in EUROMOD. The increase in pensionable age will be effective from 2019, when those born in 1954 will turn 65.

### 2.3.8 Old-age pension supplement (Pensionstillæg, *poa01\_s*)

- *Definitions*

The unit of analysis is the individual (tu\_individual\_dk)

- *Eligibility conditions*

All persons from the age of 65 conditional on citizenship and time of residence in Denmark.

- *Income test*

The relevant income concept for both own and spouse's income is earnings minus the labour market contribution. The rules differentiate between singles and couples and for the latter whether one or both partners are old-age pensioners. The rules do not distinguish between married and cohabitating couples.

Income included in the income test:

- + (Self-)Employment income
- Employee/self-employed labour market contribution



For a single pensioner in 2016 the pension supplement is phased out against own (labour) income (after deduction of the labour market contribution, 8%) with 30.9 per cent, once the income surpasses a basic deduction of 68,400 DKK. See also table below for other years.

For couples the incomes of both partners are taken into account. The relevant income measure for own income is again labour income after labour market contribution. For the partner's (labour) income, half of the income up to 214,100 DKK is deducted beforehand.

For couples, income above a combined basic deduction of 137,300 DKK (2016) is set off against the pension supplement with 16 per cent for two pensioner-couples and with 32 percent for one-pensioner couples.

Table 19. Income dependence parameters for old-age pension supplement, per year, 2011-2016

	2011	2012	2013	2014	2015	2016
<b>Singles</b>						
Deduction, own income (DKK)	62,500	64,300	65,300	66,500	67,500	68,400
Phase-out rate (%)	30,9	30,9	30,9	30,9	30,9	30,9
<b>Couples</b>						
Limit for calc. of spouse-income (DKK)	195,40	201,10	204,30	208,00	211,10	214,10
Deduction, spouse' income (DKK)	125,30	128,90	131,00	133,40	135,40	137,30
Phase-out rate (per cent)						
<i>Couples, 1 old- age pensioner</i>	32	32	32	32	32	32
<i>Couples, 2 old- age pensioner</i>	16	16	16	16	16	16

Source: Lovbekendtgørelse nr. 1005 af 19. august 2010 om social pension.  
<http://www.magnus.dk/Home/Satser/Folkepension.aspx?satsID=%7b03A62931-7087-4D51-8DE8-A8F250DDC8D9%7d>, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vej. Nr.9805, 24/10/2014. LBK nr. 1000 af 30. August, 2015 (2016 level)

- **Benefit amount**

37,632 DKK for married/cohabitants and 76,788 DKK for singles (in 2016).

Table 20. Benefits for old-age pension supplement, per year, 2011-2016 (Danish Kroner).

	2011	2012	2013	2014	2015	2016
Married/cohabitants	33,444	34,416	34,968	35,592	36,516	37,632
Singles	69,192	71,196	72,336	73,644	75,132	76,788

Source: Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014

### 2.3.9 Supplementary pension (ældrecheck/ supplerende pensionsydelse, *poa02\_s*)

- **Definitions**

The unit of analysis is the individual (tu\_individual\_dk)

- **Eligibility conditions**

All old-age pensioners (age  $\geq 65$ ).

- **Income test**

The benefit is reserved for pensioners with liquid financial assets of less than 82,600DKK (see table below) and is phased-out against labour income above a basic deduction (see personal supplement rate).

Income included in the income test:

+ Wealth

- **Benefit amount**

16,600 DKK per year (see table below).

Table 21. Benefit and asset test for supplementary pension, per year, 2011-2016.

	2011	2012	2013	2014	2015	2016
			DKK			
Benefit	10,900	11,200	15,900	16,200	16,400	16,600
Asset threshold	75,500	77,700	78,900	80,300	81,500	82,600

Source: Lovbekendtgørelse nr. 1005 af 19. august 2010 om social pension.

<http://www.magnus.dk/Home/Satser/Folkepension.aspx?satsID=%7b03A62931-7087-4D51-8DE8-A8F250DDC8D9%7d>, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og

Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014 and Vej. Nr.9805, 24/10/2014. LBK nr. 1000 af 30. August, 2015 (2016 level).

### 2.3.10 Personal Supplement rate (Tillægsprocent, *poa02\_s*)

The supplementary pension is also phased-out against incomes other than old-age incomes, such as labour income, using the personal supplement rate, which is calculated for all old-age pensioners based on their own and a possible spouse's income beyond the old-age pension. For own employment income a basic deduction per first of January 2016 of 39.000 DKK applies.

Income included in the income test:

- + (Self-)Employment income above the threshold and non-cash employee income
- + Pension from the labour market contribution scheme
- + Early retirement, private, sickness and disability pension
- + Net capital income

As a default the supplement rate is 100 per cent (e.g. 100% of the benefit is paid), which is reduced for incomes above 19.700 DKK (in 2016) for singles and above 39.000 DKK for married cohabitant couples by 1 percentage point for every 487 DKK (983 DKK for couples) of other income. See also table below.

Table 22. Benefit and asset test for personal supplement rate, per year, 2011-2016.

	2011	2012	2013	2014	2015	2016
Income deduction	30,000	30,000	30,000	36,000	36,000	36,000
Basic deduction threshold						
Singles	18,000	18,500	18,800	19,100	19,400	19,700
Couples	35,600	36,600	37,200	37,900	38,500	39,000
Phase-out						
Singles	445	458	465	474	481	487
Couples	897	923	938	955	969	983

Source: Vej. Nr. 81 af 12/11/2012. Vejledning om regulering pr. 1.januar 2013 af satser på Social og Integrationsministeriets område, Vejledning om regulering pr. 1. januar 2014 af satser på Social, Børne og Integrationsministeriets område. VEJ nr. 9017 af 14/01/2014. LBK nr. 1000 af 30. August, 2015 (2016 level).

## 2.4 Social contributions

Most Danish transfers are financed through either the tax system, or through fully privately organized schemes. Below the three partly public social security schemes are described.

### 2.4.2 Supplementary labour market pension (ATP-bidrag, *tscpier\_s*, *tscpiee\_s*)

All employees and employers pay contributions to a supplementary labour market pension scheme (ATP), with fixed contributions that vary by type of employment contract – monthly, fortnightly, weekly or hourly – and number of hours worked – full-time, part-time or less, see table 2.21 below. Employers pay two-thirds of the contribution (*tscpier\_s*), while employees pay one-third (*tscpiee\_s*). Self-employed can opt to pay the supplementary labour market pension as well.

Table 23. Supplementary labour market pension contributions, 2011-2016

	2011--2015	2016
<b>Monthly contract</b>		
Full time (117h-)	270	284
Part time (78-116h)	180	189,35
Part time (39-77h)	90	94,65
< 39 hours	0	0
<b>Fortnightly contract</b>		
Full time (54h-)	142,20	149,40
Part time (36-53h)	94,80	99,60
Part time (18-36h)	47,40	49,80
< 39 hours	0	0
<b>Weekly contract</b>		
Full time (27h-)	71,10	74,4
Part time (18-26h)	47,50	49,8
Part time (9-17h)	23,70	24,90
< 39 hours	0	0
<b>Hourly paid</b>		
Per hour	1,92	2,01

Source:

[https://www.atp.dk/X5/wps/wcm/connect/atp/atp.dk/erhverv/pens/ATP/Privat\\_virksomhed/Hvad\\_koster\\_det/Satser\\_for\\_2009](https://www.atp.dk/X5/wps/wcm/connect/atp/atp.dk/erhverv/pens/ATP/Privat_virksomhed/Hvad_koster_det/Satser_for_2009), and [www.atp.dk](http://www.atp.dk)

**EUROMOD note:** Only monthly contracts are simulated in Euromod, as the majority of contracts in Denmark are monthly.

### 2.4.3 Contribution to unemployment insurance scheme and early retirement scheme (A-kassebidrag and Efterlønsbidrag, *tyrui\_s*)

Unemployment insurance is voluntary and organised through typically trade-specific insurance schemes with monthly contributions, see table below. Early retirement is conditional upon long-term membership of an unemployment insurance scheme, and contribution to early retirement is therefore modelled alongside contributions to unemployment insurance schemes with a total contribution (*tyrui\_s*). It is possible only to be member of unemployment insurance and not early retirement benefit scheme. This is increasingly the case.

Table 24. Voluntary monthly contribution to unemployment insurance and early retirement schme, 2011-2016.

	2011	2012	2013	2014	2015	2016
Contribution to unemployment insurance	306	315	315	326	331	334
Contribution to early retirement scheme	447	460	460	475	482	488
Sum	753	775	775	801	813	822

Source: <http://ams.dk/da/Love-og-Regler/Satser/Aktuelle%20satser.aspx>, <http://www.star.dk/da/Love-og-regler/Satser.aspx>.

**EUROMOD note:** Participation to unemployment insurance scheme is imputed using national register data.

### 2.4.4 Labour Market Contributions (Arbejdsmarkedsbidrag, *tsc\_s*)

The labour market contribution (LMC) is a gross tax of 8 per cent levied upon gross labour income.

## 2.5 Personal income tax

The Danish tax system contains a gross flat tax levied on all labour income, municipal and county taxes levied on the taxable income base and a progressive tax rate at the national level levied on the personal income base. The tax system is mainly based on individual personal taxation, although there are a few possibilities for married couples to transfer redundant deductions in the different tax bases.

Two main income concepts used in this context are the Personal Income and Taxable Income, which are calculated as shown in the table below.

Table 25. Calculation of the Personal Income and Taxable Income tax bases

<p><b>(1) Gross labour income</b></p> <ul style="list-style-type: none"> <li>- Contributions to occupational based agreed obligatory supplementary pension scheme (<i>Arbejdsmarkedspension</i>)</li> <li>+ Transfers <ul style="list-style-type: none"> <li>Education grant (<i>Statens Uddannelsesstøtte</i>)</li> <li>Unemployment benefits (<i>Dagpenge</i>), Early retirement pensions (<i>Efterløn og Engangsydelse</i>), Social assistance (<i>Kontanthjælp og integrationsydelse</i>), Severance pay (<i>Fratrædelsesgodtgørelse</i>)</li> <li>Sickness benefits (<i>Sygedagpenge mv.</i>)</li> <li>Benefits to pensioners, including old-age pension (<i>Folkepension</i>); heating subsidy (<i>varmehjælp</i>); pensions from the labour market contribution scheme (<i>ATP-pensioner</i>); civil servant pensions, incl. pensions to wife and children (<i>tjenestemandspensioner</i>); pension payments from privately held pension plans in pension funds, banks or insurance companies with regular payments; capital pensions; pension payments from previous employers; foreign pensions</li> <li>Survivors' benefits (<i>Efterladtepension</i>)</li> <li>Disability pension (<i>Revalideringsydelse mv.</i>)</li> </ul> </li> <li>+ Other incomes</li> <li>+ Gifts</li> <li>+ Alimony received</li> <li>+ Life insurance premiums, fringe benefits</li> <li>+ Multi media tax base (2.700 in 2016)</li> <li>- Labour market contribution</li> <li>- Contribution to private pension schemes with a ceiling (100,000 in 2016)</li> </ul>
<p><b>(2) Personal income</b></p> <ul style="list-style-type: none"> <li>+ Net capital income</li> <li>- Work-related deductions <ul style="list-style-type: none"> <li>Earned income tax credit</li> <li>Transport allowance</li> <li>Payments to unemployment funds, unions &amp; early retirement scheme</li> <li>Alimony/payments to divorcee's children and ex-partner</li> <li>Special occupational deductions (fishermen, etc.)</li> <li>Deposit on (company) start-up account</li> <li>Gift deductions</li> <li>Other employee expenses (over 5.800 kr in 2016)</li> </ul> </li> </ul>
<p><b>(3) Taxable income</b></p>

**EUROMOD Note:** 1) It has not been possible to identify some of the components of these income concepts. Please have a look at the component of the income lists *il\_persinc* and *il\_taxinc* for more information. 2) The Danish tax system uses a concept of capital income, which incorporates interest payments on loans, mortgages etc. No fully comparable variable is found in the SILC-data, where the closest variable – investment income *yiy* – also includes a long range of positive incomes. There is an option in the model to only use negative investment income in the tax base which can be switched on. 3) For commuting distances (forth and back) above 24km, tax payers can deduct standardized expenses (per km and work day). This is not implemented.

Another important feature of the tax system is the General Personal Allowance (GenPersAllowance), used for the simulation of several of the instrument described below.

Table 26. General Personal Allowance, 2011-2016 (DKK).

	2011	2012	2013	2014	2015	2016
General personal allowance						
- For persons below 18 years	32.200	32.200	31.500	32.100	32.600	35,200
- For all other tax payers	42.900	42.900	42.000	42.800	43.400	44,000

Source: Lovbekendtgørelse nr. 143 af 8. februar 2011 om indkomstskat for personer mv. <http://www.skm.dk/skatteomraadet/talogstatistik/skatteberegning/9757.html>, [www.skm.dk](http://www.skm.dk)

**EUROMOD Notes:** Due to the scarce practical relevance, the distinction between younger and older than 18 years old is not implemented in the current version of EUROMOD.

### 2.5.2 Earned Income Tax Credit (Beskæftigelsesfradrag, tintc\_dk):

- *Tax unit*

Tax unit is the individual

- *Tax Allowances*

Contribution to private pension schemes and contribution to supplementary labour market pensions needs to be deducted from the tax base

- *Tax Base*

The tax base is the gross labour income after the deduction of the tax allowances

- *Tax Schedule*

In 2016 the earned income tax credit rate was 8,3 %. The maximum value of tax credit was of 28,000 DKK per year. In 2014 an extra earned income tax-credit for single providers has been introduced with a percentage of 5.6 & in 2016 and maximum value of 18.800. The definition of single provider is the same as the one used for the simulation of the child benefit supplement. Rate and maximum amount for supplementary earned income tax credit are reported in the table below.

Table 27. Earned income tax-credit, per year, 2011-2016 (Beskæftigelsesfradrag)

	2011	2012	2013	2014	2015	2016
Rate	4.25	4.40	6,95	7,65	8,05	8,3
Maximum	13,600	14,100	22.300	25,000	26,800	28,000
Sup. Rate				5.4	5.4	5,6
Sup. Max				17,700	17,900	18,800

Source: Forårspakke 2.0 <http://www.magnus.dk/Home/Satser/For%C3%A5rspakke%202.0.aspx?satsID={E8790D81-C617-408E-9702-C1052490623F}>, [www.skm.dk/skattetal/beregning](http://www.skm.dk/skattetal/beregning).

**2.5.3 Municipality Tax (Kommuneskat, tmu\_dk):**

- *Tax unit*

The tax unit is individual

- *Tax Base*

The tax base is the taxable income base after the deduction of the general personal allowance. Unused allowance can be transferred between spouses.

- *Tax Schedule*

Tax rates vary across municipalities, see table below.

Table 28. Distribution of municipality tax rates, 2011-2016 (kommuneskat)

	2011	2012	2013	2014	2015	2016
			Per cent			
Average	25.0	25.0	24.9	24,9	24,9	24,9
Minimum			22,7	22,5	22,5	22,5
Maximum			27,8	27,8	27,8	27,8

Source: Skatteministeriet. [http://www.skm.dk/tal\\_statistik/tidsserieoversigter/7794.html](http://www.skm.dk/tal_statistik/tidsserieoversigter/7794.html), <http://www.skm.dk/skattetal/satser/kommunal-beskatning/kommuneskatter-gennemsnitsprocenter-2007-2014/>. Accessed the 1<sup>st</sup> December, 2014 and 31<sup>st</sup> December, 2015.

**EUROMOD note:** Since it is not possible to distinguish among municipalities in the SILC, the average tax rate is applied

**2.5.4 Church Tax (Kirkeskat, tcr\_dk):**

- *Tax unit*

The tax unit is individual

- *Tax Base*

The tax base is the taxable income base after the deduction of the general personal allowance. Unused allowance can be transferred between spouses.

- *Tax Schedule*

Tax rates vary across counties, see table below.

Table 29. Distribution of church tax rates, 2011-2015 (%)

	2011	2012	2013	2014	2015	2016
Average	0.887	0.886	0.883	0.879	0.878	0.875

Source: Danish Ministry of Taxation [http://www.skm.dk/tal\\_statistik/tidsserieoversigter/7794.html](http://www.skm.dk/tal_statistik/tidsserieoversigter/7794.html), <http://www.skm.dk/skattetal/satser/kommunal-beskatning/kommuneskatter-gennemsnitsprocenter-2007-2014/>. Accessed the 31<sup>st</sup> of December , 2016.

**EUROMOD note:** The church tax is a voluntary contribution. In EUROMOD entitlement is randomly assigned to 80 % of the municipality tax payers. Since it is not possible to distinguish among municipalities in the SILC, the average tax rate is applied.

### 2.5.5 Health Contribution (Sundhedsbidrag, thl\_dk):

- *Tax unit*

The tax unit is individual

- *Tax Base*

The tax base is the taxable income base after the deduction of the general personal allowance. Unused allowance can be transferred between spouses.

- *Tax Schedule*

The tax rate was 8% in 2011, 7% for 2012, 6 % for 2013, 5 % for 2014. For 2015 it will be 4 % and in 2016 3 %.

### 2.5.6 Bottom Bracket Income Tax (Bundskat, tinbt\_dk):

- *Tax unit*

The tax unit is individual

- *Tax Base*

The tax base is the personal income base and net capital income, with the general personal allowance subtracted. Spouses can transfer negative net capital income and any unused personal allowance between them for the calculation of the bottom bracket tax.

- *Tax Schedule*

The tax rates in 2016 it is 9.08 per cent, see table 2.28.

Table 30. Bottom bracket tax rates, 2011-2015 (bundskat).

	2011	2012	2013	2014	2015	2016
			Per cent			
Bottom bracket tax	3.64	4.64	5.83	6.83	8.08	9.08

Source: Danish Ministry of Taxation [http://www.skm.dk/tal\\_statistik/tidsserieoversigter/7794.html](http://www.skm.dk/tal_statistik/tidsserieoversigter/7794.html)

### 2.5.7 Top Bracket Tax (Topskat, tinto\_dk):

- *Tax unit*

The tax unit is individual



- **Tax Base**

The top-bracket tax is the highest-level of the three progressive state taxes and is levied upon the sum of the personal income tax base, positive net capital income and contribution to capital pension schemes, with the top-bracket tax allowance subtracted.

The positive net capital income for spouses for the calculation of the top-bracket tax is computed jointly and taxed for the spouse with the highest basis of calculation, i.e. the spouse with the highest sum of the personal income base and the contributions to private capital pensions.

Income included in the income test:

- + (Self-)Employment income and non-cash employee income
- + Unemployment related benefits
- + Social assistance related benefit
- + Education related allowances
- + Pension related benefits
- + Sickness and disability related benefits
- + Regular inter-household cash transfer
- + Contributions to private pension plans
- + Positive net capital income
- Employee/self-employed/supplementary labour market contribution

From the tax year 2010, a basic yearly allowance of 40,000 dkr (41,900 in 2016). is introduced for the inclusion of positive net capital income in the tax base for the top-bracket tax. The allowance can be transferred between spouses. This means that for two spouses only positive capital incomes above 83.800 DKK (in 2016) are taxed with the top-bracket tax rate.

- **Tax Schedule**

Table 31. Top bracket tax rates and allowances, 2011-2016

	2011	2012	2013	2014	2015	2016
Top bracket tax rate	15.0	15.0	15.0	15,0	15,0	15,0
Top bracket tax allowance	409,100	409,100	421.000	449,100	459,200	467,300
Allowance in positive net capital income	40,000	40,000	40.000	40,800	41,400	41,900

Source: Danish Ministry of Taxation. <http://www.skm.dk/skatteomraadet/talogstatistik/skatteberegning/9796.html?rel>  
 Allowance in positive net is for unmarried (double for married couple)

The sum of municipal, health, bottom, middle and top tax could not exceed 51.5% 2011-2012. In 2013-2014 the level is 51.7 %. In 2015 and 2016 it is 51,95 %. If this happens, the top bracket income tax is reduced accordingly in the average municipality this is with 0.03 % to 14.97.

## 2.6 Property tax (tpr\_s)

- **Tax unit**

The tax unit is the household

- **Tax Base**

The Tax base is the property value

- *Tax Schedule*

The tax rate is 1% up to a property value of 3,040,000 DKK and a tax rate of 3 percent above that threshold. The threshold has been frozen nominally since 2002.

**EUROMOD Notes:** In order to simulate this instrument, the tax rule has been reversed and the property value derived. This has then been used in the simulation.

### 3. DATA

#### 3.1 General description

The Danish module of EUROMOD uses data from the European Union Statistics on Income and Living Conditions (EU-SILC) provided by Eurostat and contains almost 15,000 individuals from almost 6,000 households. The sampling is representative of all private households in Denmark.

Table 32. EUROMOD database description

EUROMOD database	
Original name	DK_2012_a4
Provider	Statistics Denmark
Year of collection	2012
Period of collection	March-July (interview part)
Income reference period	2011 (calendar year)
Sampling	Random probability sampling
Unit of assessment	Households
Coverage	Private households
Sample size	5,355 households (13,319 individuals)

The data sample is a representative sample of persons aged 16 years or older. From this sample the households are defined as persons who share expenses for daily living or share meals regularly. The data contains information on both the households and its members.

The data are compiled by Statistics Denmark. While information on the composition of the households, their living conditions, their view on their economic stance, their labour market status and their health status is collected through an interview survey (conducted between March and July), further information on income, education and housing are added from official registry data.

40.7 per cent of the interviews were conducted by telephone, so-called computer-assisted telephone interviewing (CATI), with the respondent her or himself. Another 59.3 per cent were conducted as self-administered interviews - 57.1 percentage points were web-interviews and 2.2 percentage points were paper interviews. The average interview duration (CATI) was 12 minutes.

The sampling is managed as a rotating panel, where 25 per cent of the sample is replaced each year. A given household is thus part of the sample for four consecutive years.

While incomes in the EU-SILC are recorded in EUR and yearly, the derived EUROMOD data are stated in Danish kroner (DKK) in (mostly) monthly terms.

#### 3.2 Sample quality and weights

##### 3.2.1 Non-response

There is a non-response rate of almost 48 per cent from the sampling of 11,000 private households to the final sample of 5,778 households in the Danish part of the UDB EU-SILC data. Statistics Denmark has not documented the reasons for non-response explicitly, but states that the general refusal of people to take part in interview surveys for research purposes poses a considerable problem. It is possible for citizen to register for this so-called ‘researcher protection’ with the registration office.

The non-response is counteracted through the modification of weights, see first bullet in the next section.

### 3.2.2 Weights

The dataset includes four types of cross-sectional survey weights, which all have been modified to reproduce population characteristics from the sample:

- The household cross-sectional weights (variable **DB090** in EU-SILC) form the background for the EUROMOD weight variable **dwt**. The weights have been corrected for household non-response in order to calibrate the sample to the population, taking account of the population distribution in the following categories:
  - + Sex
  - + Age (5 classes 0-15, 16-24, 25-49, 50-64, 65+)
  - + Family type.
  - + Income mass and income groups (12 intervals; 1, 5, 10, ... 90, 95, 99<sup>th</sup> percentile).
  - + Risk of poverty
  - + Equivalised disposable income
  - + The size of the household
  - + Education level of the person with the highest professional status in the household
  - + Socio-economic status of main income holder in the household.
- The personal cross-sectional weights for all household members of all ages (variable **RB050**) is used to draw inference on individual basic demographic variables for the population of all individuals living in private households. Because all the current members of any selected household (which has responded to the interview) are surveyed, the personal weights RB050 are equal to the household weights DB090.
- The personal cross-sectional weights (variable **PB040**) for all household members who were interviewed individually (aged 16 and over) is used to draw inference on the variables included in the personal questionnaire. These weights had to be corrected for individual non-response.
- The personal cross-sectional weights for the selected respondents (variable **PB060**) are equal to PB040 for the selected respondents.

Table 33. Descriptive Statistics of weights

	<b>DB090</b>	<b>RB050</b>	<b>PB040</b>	<b>PB060</b>
Number	13352	13352	10868	5342
Mean	417.18	417.18	416.28	846.89
Median	309.16	309.16	300.79	765.96
Maximum	4946.80	4946.80	4946.80	5050.91
Minimum	1.41	1.41	0	8.45
Max/Min	3513.15	3513.15	.	597.85
Decile 1	144.55	144.55	142.41	406.99
Decile 9	856.06	856.06	919.28	1293.44
Deci 9 / Deci 1	5.92	5.92	6.45	3.18

Notes: The weight **dwt** in the EUROMOD data is equal to DB090.

### 3.3 Data adjustment

To accommodate the modelling of tax and benefit rules using the EU-SILC data, a few variables had to be adjusted.

### 3.3.1 Labour market activities, months per year

EU-Silc UDB does not provide information on the number of months different incomes are paid during the year. By default, it is imputed based on the main economic status during the year. This affects the following variables (unit is months per year):

yemmy:	Employment
kfbmy	Fringe Benefits
ysemy	Self Employment
bunmy	Unemployment
pdimy	Pension, disability (invalidity)
poamy	Pension, old age
psumy	Pension, survivors.

### 3.3.2 Income Tax and SIC - *tis*

7964 observations were missing and all were recoded to 0 (zero).

## 3.4 Imputations and assumptions

### 3.4.1 Time period

The used EU-SILC data for 2012 is based on survey data from interviews conducted March-April 2012 combined with registry data from the calendar year 2011 on incomes, dwelling information and educational information.

The input registry data on incomes are aggregated annual numbers, but are for use in EUROMOD converted into monthly figures, thus implicitly assuming a regular flow of income throughout the year. However, a number of variables in the data that record the number of months with different income types, such as yemmy = “Months with employment (income)” or bunmy = “Months with unemployment benefit income”, do not exist in Eu-Silc and are therefore imputed see section 3.3.

### 3.4.2 Gross incomes

The income variables in the Danish SILC-data only contain gross incomes. Net-to-gross conversions have therefore not been necessary.

### 3.4.3 Disaggregation of harmonised variables

The aggregated construction of a number of especially income variables in the EU-SILC UDB-data have necessitated the splitting of UDB-variables and/or the imputation of individual benefits. Some key examples are given below.

Unemployment benefits, social assistance and early retirement benefits are recorded in the UDB-variable PY090G (bun):

- In order to disaggregate these three benefits we relied on external individual level register data from the national statistical bureau (Statistics Denmark) via the Researcher Scheme (Forskerordningen). In the registers we had access to almost comparable variables in the form of ‘qeftlona’ (retirement benefit), ‘arblhu’ (unemployment benefit) and ‘qbistyd’ (social assistance) for 2011. In addition, bun

contains severance payment, which we don't have access to in the specific registry. Total benefits were thus equal to  $bun_r = qeftlona + arblhu + qbistyd$ . since only about 2½ percent had two or all three benefits, we applied the following strategy to people who only received one of the three benefits during the calendar year.

- Using register data, a multinomial model was estimated for people aged 59-64 years with all three possible outcomes (retirement=1, unemployment=2 and 3=social assistance). For individuals aged 16-58 years a logit model was estimated modelling the outcome unemployment (1) and social assistance (0). In both models the RHS variables are gender, age (single year dummies in the multinomial version, and age intervals in the logit model), and  $bun_r$  fractile (and its square, cubic and quartic).
- The estimated coefficients from these regressions were applied to the EU-Silc data in order to predict the probability of a given state (three states for 59-64 years old and two states for 18-58 years old). The estimated coefficients based on 2011 data were applied both to 2007 and 2011 EU-Silc data.
- People with the greatest probabilities of a given state were assigned that state such that the number of recipients matched the number receiving the benefit in the external register.
- After deciding the final state the benefit level was assumed to equal  $bun$ .

Various forms of public pension transfers as well as income from private pension schemes are recorded in the UDB-variable PY100G.

- The basic old-age pension (poa00) is imputed from age, other incomes and numbers of years lived in Denmark.
- The pension supplement (poa01) is imputed from age and own as well as spouse income.
- The supplementary pension benefit (poa02) is imputed from income and wealth.
- The supplementary labour market pension (poa03) is imputed from external information on average incomes of this type and assumptions on lifetime work history.
- The remaining part of PY100G is recorded as payments from private pension schemes. It will however be an amalgam of a heating subsidy, civil servant pensions, income from private pension plans, pensions from previous employers, capital pension disbursements and foreign pensions.

A tax free child family grant varying by age of child (bfachnm) is imputed based on age of child and isolated from other child benefits (bfach00 and bfached) in the family/children related allowances (HY050G/bfa). Residual child-related benefits are saved in bfachot.

Housing allowances (HY070G) are split by the age of the recipient into a housing benefit (bho01) for recipient below the age of 65 and a housing grant (bho02) for pensioners.

The receipt of housing allowances is based on the concept of housing costs, including rent, but not heating etc. Under some circumstances related both to characteristics of the dwelling and of the tenancy that cannot be simulated, the housing cost is augmented. To establish this base for the computation of the housing allowances, the housing costs is imputed hence by reversing the rules for the housing allowances, creating the housing cost base for housing benefits (xhc01) and for housing grants (xhc02). The variable xivhc is then imputed for all the households in sample using predictions of xhc01 on and xhc02 on the basis of household characteristics and SILC reported housing cost.

To simulate the receipt of unemployment benefit (see also section 2.3.1), the participation in the unemployment insurance scheme is simulated as the binary 0/1-variable lrg, based on a discrete choice logit model established from Danish registry data. People with the highest probabilities of UI membership are selected such that their number matches the proportion of the population with UI membership.

As SILC does not contain information on the value of owned property, the value of property owned (aiv) is imputed from the paid property taxes.

The previous earnings (yempv) on which the level of unemployment benefit is based is calculated by reversing the rules for the unemployment benefit.

### 3.5 Updating factors

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 so as 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 updated 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. The list of updating factors as well as the sources used to derive them can be found in Annex 1.

## 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

Table 34. Components of disposable income

	EUROMOD	EU-SILC
	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	+	+
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 wealth1	-	-
Regular inter-household cash transfer paid	-	-
Tax on income and social contributions	-	-
Repayments/receipts for tax adjustment	+	+

Notes:1) Not applicable for Denmark; Contents of HY020 are based on EUROSTAT (2010).

#### 4.1.2 Validation of incomes inputted into the simulation

The number of employed as well as unemployed in the SILC-data compares quite well with external information, see table 4.2 in Annex 2, and is close to equal in 2015. Differences might be due to EM-figures being number of employed and unemployed based on months in employment/unemployment. Numbers are computed as averages of monthly data over the year. In contrast, the external figures are an inventory as of end of November. As employment typically spans over longer periods than unemployment, the inventory in



November of employed and unemployed will match the computation of month spend in employment/unemployment better for employment than for unemployment.

Tables 4.3 and 4.4 compare with external statistics the number of people and the aggregated amount of a number of market income components of market income. Employment income is well captured by SILC data both in terms of number of recipients and aggregated amount. Both the number of people receiving income from self-employment and the aggregated amount of self-employment income appear to be over-reported in SILC when compared with external statistics, although the amount matches the external statistics more precisely. A reason might be that people in principle can have several types of income (wages, benefits, self-employed income) and thus the numbers counting as self-employed will vary more than the precise income as this comes from income in the tax registers. Discrepancies arise also with respect to the aggregated amount of investment income, which is severely under-reported in SILC when compared to external statistics. Both under-reporting of investment income as well as a discrepancy in the concept of investment income used in SILC and in the external statistics are likely to be the main causes of poor matching.

The comparisons between the number of recipients of various types of non-simulated benefits/number of payers of non-simulated taxes in the input dataset and external statistics (see Table 4.5 in Annex 2) are generally satisfactory with the exception of support to survivors (heavily underestimated) and disability benefits (overestimated). In both cases EUROMOD counts as a recipient all the individuals receiving these benefits at least once during the year, while external statistics on disability benefits are full time equivalents. This, together with a relatively modest size of the benefit, might explain partly the overestimation. Similar to the case of the number of recipients, there are generally small differences between the aggregate yearly amounts of various types of non-simulated benefits/non-simulated taxes in the input dataset and external statistics (see Table 4.6 in Annex 2), albeit slight increasing for both disability and early retirement benefit.

### 4.1.3 Validation of outputted (simulated) incomes

For the benefits, taxes and social contributions that are simulated by EUROMOD, cf. Table 4.7 and 4.8 in Annex 2, there is a relatively good fit. The most important exceptions are listed below.

A change in the eligibility rules for housing benefit and grant may accommodate for the divergence between the external statistics and the EUROMOD simulations. According to the rules applicable in 2011-2015 – and thus in the EUROMOD simulations – the housing grant applies to old-age pensioner-tenants, while the housing benefit applies to tenants under 65 years of age. However, in the external statistics the housing grant also encompasses disability pensioners (i.e. non-pensioners) who are entitled to it. This means that the external numbers for the housing grant are inflated by these 'old' disability pensioners relative to the simulations based on the age-dependent imputation from the 2012-input data. Likewise, the external data for the housing benefit are 'deflated' by these 'old-rule' disability pensioners, compared to the simulations.

While the amount of people receiving unemployment benefit fit acceptably with external statistics, the aggregate amount of disbursed unemployment benefit is severely underestimated.

The overestimation both in the number of recipients and mainly in the aggregate amount of social assistance is likely to be driven both by limitations in our simulation, which cannot control for the requirement of experiencing particularly stressful events, as well as by issues such as benefit non take up. Furthermore, the criteria for receiving social assistance can imply a reduction in the amount, and thus if increasing number have the right to social assistance, but receives a lower amount this can help in explaining the differences.

## 4.2 Income distribution

All income distribution results presented here are computed for individuals according to their household disposable income (HDI) equalised by the “modified OECD” equivalence scale. HDI are calculated as the sum of incomes from all sources of all household members net of income tax and social insurance

contributions. The weights in the OECD equivalence are: first adult=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

### 4.2.1 Income inequality

A comparison of distributional indicators derived from EUROMOD-generated household disposable income with external statistics shows that overall the EUROMOD estimates fits rather well with the income distribution, and thus also the GINI and 80/20 ratio, although the fit for the first and tenth decile is less precise.

### 4.2.2 Poverty rates

A computation of poverty rates by gender and age using EUROMOD shows that EUROMOD estimates the incidence of poverty in Denmark according to EUROSTAT database rather well with a few exceptions (table 4.10). There is an underestimation especially for women using the 40 % median HDI and for 65+ years of age in the 60 % of median HDI. The discrepancy can be due to the relatively small amount of people falling in these categories. For those above the age of 65 a possible explanation might be that there has been an increase in the number of elderly having occupational based pension, which raises some old people just above the HDI 60 % poverty line. Quite a proportion of pensioners are located just below this poverty threshold.

## 4.3 Summary of “health warnings”

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

Take-up rates in Denmark are generally high so that the level of take-up should not have any specific impact on calculations. There is tax-evasion in Denmark, but this is also at a relatively low level compared to other countries, and, should therefore only marginally impact the overall level of calculation, however with a possible impact on distribution.

The land value tax is recorded as part of the total housing costs and not simulated as there is no information on the land value or the tax payment. The land value tax is recorded as a housing cost to make it comparable to tenants, who (indirectly) pay the land value tax as a part of their rent. Approximately 40 per cent of all potential tax payers paid the property tax in 2007, according to external statistics from Statistics Denmark. The tax rate is on average 0.25% of the land value – with a land value of, on average 300,000 (rough calculation from combination of various statistics), this makes a negligible amount of 750 DKK per year.

The transferability of tax allowances between spouses in various simulated taxes (i.e. health contribution, etc.) is implemented by reducing the tax base of the spouse whose taxable income is above the allowance by an amount equal to the unused allowance of the other spouse. As it is the case for the Danish tax-benefit system, reducing the tax base is equivalent to increase the tax allowance in case the applicable tax is flat (e.g. there is only one tax rate above the allowance). However, the user should be aware of the current behaviour of the model if s(he) want to introduce a reform which makes taxation (i.e. health contribution) progressive by adding a new tax band for incomes above a given threshold.

For simplicity, assume we have two spouses, one with no taxable income ( $Y_1=0$ ) and the other with taxable income above his/her allowance plus the unused personal allowance of the spouse ( $Y_2>A_2+A_1$ ). In a flat tax setting, the poorest spouse will pay no tax since s(he) has income below the allowance ( $T_1=0$ ). The richest spouse tax liability will be equal to  $(Y_2-A_2-A_1)*t_1$ , where  $t_1$  is the flat tax rate. In this setting, which is the

one currently in place in Denmark, reducing the tax base of the second spouse is equivalent to increase his/her tax allowance.

In case a reform would make the tax progressive by introducing a new tax rate  $t_2$  for income above a threshold  $C$  (for simplicity we assume  $C < Y_2 - A_1$ ), under the current implementation the “rich” spouse would pay  $(Y_2 - A_1 - C) * t_2 + (C - A_2) * t_1$ . Alternatively, the user might want to increase the personal allowance of the “rich” spouse instead of decreasing his/her tax base. In this case s(he) would pay  $(Y_2 - C) * t_2 + (C - A_1 - A_2) * t_1$ . In the first scenario the gain from the transfer of the unused allowance would hence be  $A_1 * t_2$ , while it would be equal to  $A_1 * t_1$  in the second scenario.

### 5. REFERENCES

EUROSTAT (2010): *EU-SILC 065 (2008-operation) - Description of Target Variables: Cross-sectional and Longitudinal*. Version January 2010.

StatBank (2015). *www.statistikbanken.dk*. StatistikBanken is the Danish National Statistical Office’s (Statistics Denmark) online statistical service.

- *Sources for tax-benefit descriptions/rules*

The description and the derived modeling of the Danish tax and benefit system build on various sources, mostly only in the Danish language:

- + The Ministry of Taxation, [www.skm.dk/foreign/](http://www.skm.dk/foreign/)
- + The central legal information: <https://www.retsinformation.dk/>
- + The Ministry of Social Affairs, Children and Integration: <http://www.sm.dk/Sider/Start.aspx>
- + The Ministry for Employment: <http://bm.dk/>
- + The citizens’ entry point for information on public benefits etc., [www.borger.dk](http://www.borger.dk)
- + Wolters Kluwer information gateway to Danish law statutes: [www.magnus.dk](http://www.magnus.dk).

**ANNEX 1: UPRATING FACTORS**

Table 35. Uprating factor values and sources, 2007-2016

Index	Reference	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Source
Harmonised CPI (2015=100)	\$HICP	88.0	91.2	92.1	94.1	96.6	98.9	99.4	99.8	100.0	100.0	Source: EUROSTAT - June values
Consumer Price Index (2015=100)	\$f_cpi	87.2	90.5	91.6	93.3	96.1	98.2	99.1	99.7	100.3	100.5	Source: STATBANK (PRIS111 - June values), 2016: May value
Indices of average earnings in Corporations and Organizations (2005=100)	\$f_earnings	106.2	110.8	115.4	118.2	120.4	122.5	124.1	125.4	127.1	129.4	Source: STATBANK (ILON12-Quarter 1, seasonally adjusted)
Lagged indices of average earnings in Corporations and Organizations (2005=100)	\$f_earningsLag	102.9	106.2	110.8	115.4	118.2	120.4	122.5	124.1	125.4	127.1	Source: STATBANK (ILON12-Quarter 1, seasonally adjusted), lagged by 1 year
Share index (at the end of period)	\$f_share	476	395	259	344	367	366	424	610	737	743	Source: STATBANK (MPK13-June values), 2016: April value
No uprating	\$f_none	1	1	1	1	1	1	1	1	1	1	
Adjustment of rates index (Satsreguleringsprocenten 2007=100)	\$f_index	100.0	102.9	106.0	109.7	111.6	114.5	116.1	117.9	119.4	120.8	Own calculation based on <a href="http://www.modst.dk/OEAV/2-Bevillingslove/25-Indeks/251-Fastprisberegninger">http://www.modst.dk/OEAV/2-Bevillingslove/25-Indeks/251-Fastprisberegninger</a> , Satsreguleringsprocenten (adjustment of rates index)
Rent Index from CPI (2015=100)	\$f_rent	82.4	84.7	87.2	89.5	92.2	94.5	96.6	98.3	100.2	101.5	Source: STATBANK (PRIS111, 4.1 Actual rentals for housing - June values), 2016: May value

### ANNEX 2: POLICY EFFECTS IN 2014-15 AND 2015-16

Table 1 and Figure 1 show the effect of 2015 policies on mean equivalised household disposable income by income component and income decile group. The effect is estimated as a difference between simulated household net income under the 2015 tax-benefit policies (deflating monetary parameters by Eurostat's Harmonized Index of Consumer Prices, HICP<sup>2</sup>) and net incomes simulated under 2014 policies, as a percentage of mean equivalised household disposable income in 2014.

In comparison to 2014 policies, (deflated) 2015 policies slightly increase mean household income by 0.07%, see Table 1. The decrease is relatively uniform across the top five deciles of household disposable income while disposable income increase for the bottom five income deciles (between 0.01 and 1.16%).

Gains in household disposable income are driven by increases in public pensions and to a minor extent by non-means-tested benefits, while reductions are mainly driven by direct taxes and to a lesser extent by means-tested benefits and direct taxes. For persons in the first decile change in means-tested benefit is large. The findings are likely to be driven by a reform in social assistance implemented in 2015, with the abolition of the rule which would reduce benefit entitlement after 6 months.

Table 2 and Figure 2 show the effect of 2016 policies on mean equivalised household disposable income by income component and income decile group. The effect is estimated as a difference between simulated household net income under the 2016 tax-benefit policies (deflating monetary parameters by Eurostat's Harmonized Index of Consumer Prices, HICP) and net incomes simulated under 2015 policies, as a percentage of mean equivalised household disposable income in 2015.

The total effect of (deflated) 2016 policies on mean income is relatively small (0.42%). No major reforms have taken place from 2015 to 2016. Thus, increases in income are mostly due to the annual increase of benefit and pension payments as well as tax allowances. Overall, only the increase in monthly amounts of the supplementary labour market contribution (ATP-bidrag) has led to a small decrease in overall income.

Changes by income groups show a progressive pattern with households at the bottom of the income distribution experiencing a higher increase in disposable income than households at the top. The increase in income of the bottom decile group is based on an increase in means-tested and non-means tested benefits, as well as increase in public pensions. The increase of all other income groups is mostly based on an increase in public pensions.

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<sup>2</sup> Annual average retrieved from Eurostat website, AMECO forecast for 2016 data.

Table 36. Policy effects in 2014-2015, using the HCPI-indexation, %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Direct taxes	Disposable income
1	0.00	0.33	1.31	0.35	-0.03	0.00	-0.80	1.16
2	0.00	0.82	0.14	0.12	-0.01	0.00	-0.54	0.53
3	0.00	0.74	-0.09	0.09	-0.02	0.00	-0.44	0.28
4	0.00	0.62	-0.09	0.07	-0.03	0.00	-0.40	0.18
5	0.00	0.34	-0.07	0.06	-0.03	0.00	-0.28	0.01
6	0.00	0.25	-0.10	0.06	-0.04	0.00	-0.23	-0.06
7	0.00	0.19	-0.06	0.05	-0.04	0.00	-0.19	-0.05
8	0.00	0.16	-0.06	0.04	-0.03	0.00	-0.15	-0.05
9	0.00	0.13	-0.05	0.02	-0.03	0.00	-0.10	-0.03
10	0.00	0.13	-0.01	0.01	-0.02	0.00	-0.15	-0.05
<b>Total</b>	<b>0.00</b>	<b>0.30</b>	<b>0.00</b>	<b>0.06</b>	<b>-0.03</b>	<b>0.00</b>	<b>-0.25</b>	<b>0.07</b>

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 2014, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2015 policies by Eurostat’s Harmonized Index of Consumer Prices (HICP).

Figure 1: Policy effects in 2014-2015, using the CPI-indexation, %

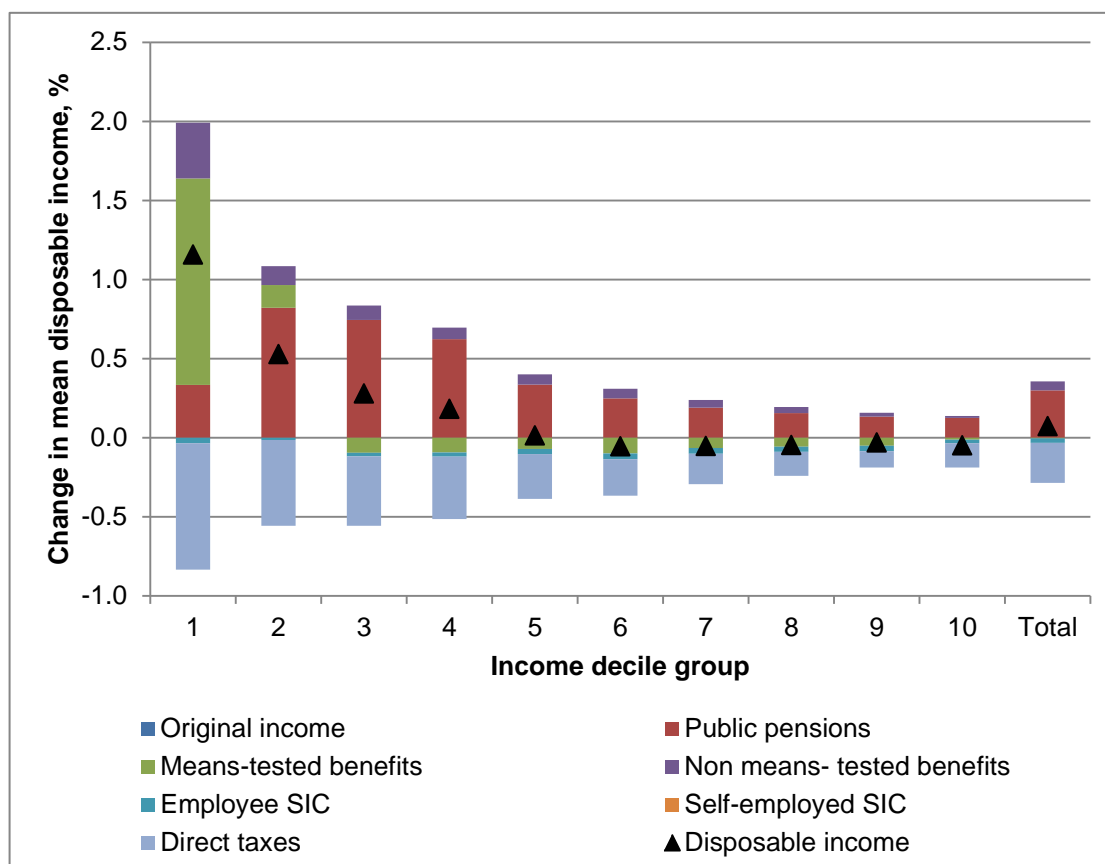
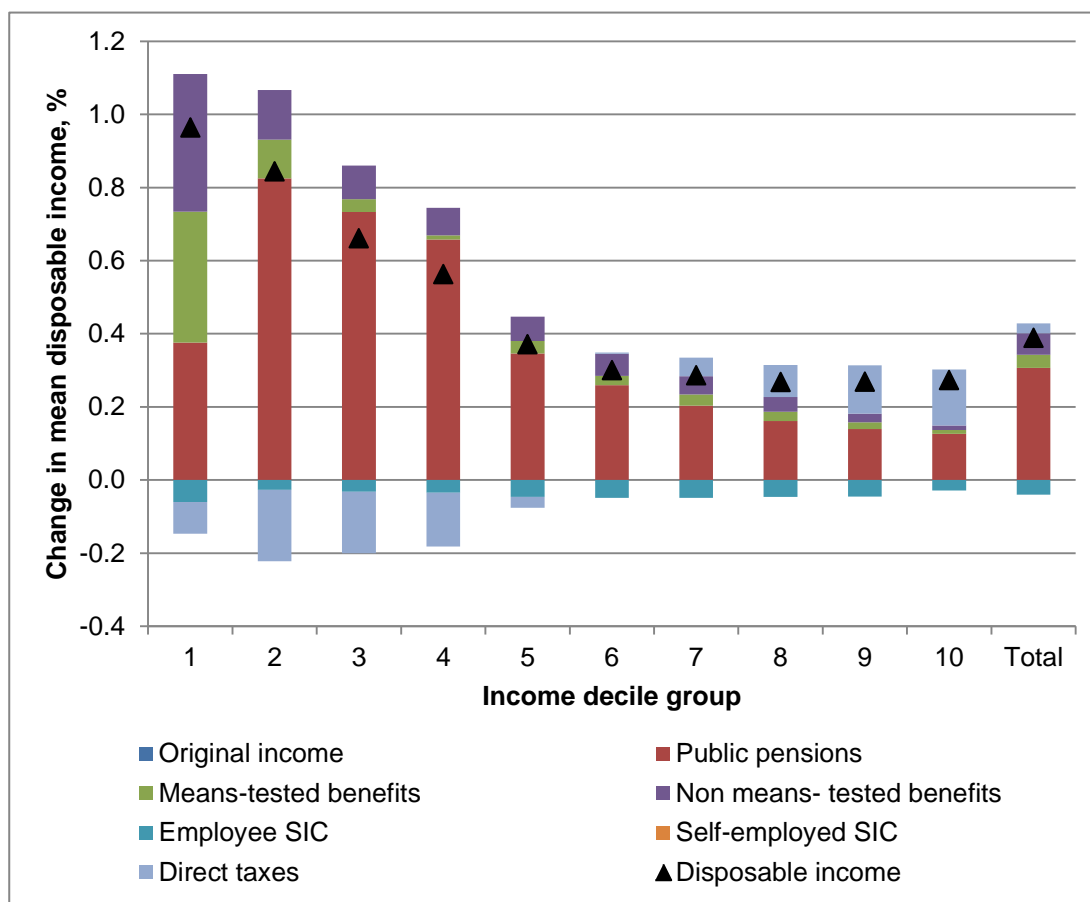


Table 37. Policy effects in 2015-2016, using the CPI-indexation, %

Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Direct taxes	Disposable income
1	0.00	0.40	0.40	0.41	-0.06	0.00	-0.09	1.05
2	0.00	0.87	0.12	0.15	-0.03	0.00	-0.21	0.90
3	0.00	0.78	0.04	0.10	-0.03	0.00	-0.18	0.71
4	0.00	0.70	0.02	0.08	-0.04	0.00	-0.15	0.61
5	0.00	0.37	0.04	0.07	-0.05	0.00	-0.03	0.40
6	0.00	0.28	0.03	0.06	-0.05	0.00	0.01	0.33
7	0.00	0.22	0.04	0.05	-0.05	0.00	0.06	0.31
8	0.00	0.17	0.03	0.04	-0.05	0.00	0.09	0.29
9	0.00	0.15	0.02	0.03	-0.05	0.00	0.14	0.29
10	0.00	0.14	0.01	0.01	-0.03	0.00	0.16	0.29
<b>Total</b>	<b>0.00</b>	<b>0.33</b>	<b>0.04</b>	<b>0.06</b>	<b>-0.04</b>	<b>0.00</b>	<b>0.03</b>	<b>0.42</b>

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 2015, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2016 policies by Eurostat’s Harmonized Index of Consumer Prices (HICP).

Figure 2: Policy effects in 2015-2016, using the CPI-indexation, %



**ANNEX 3: VALIDATION TABLES**



**Table 4.2-Number of employed and unemployed**

	<b>EUROMOD</b>	<b>External</b>						<b>Ratio</b>					
	<b>2011</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Number of employed	2,528	2,645	2,623	2,624	2,641	2680	N/A	0.96	0.96	0.96	0.96	0.94	N/A
Number of unemployed	190	221	218	202	191	180	N/A	0.86	0.87	0.94	1.00	1.06	N/A

Source: StatBank(AKU101)

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

	EUROMOD	External						Ratio					
	2011	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Employment income	2,954	2,893	2,888	2,914	2,924	N/A	N/A	1.02	1.02	1.01	1.01	N/A	N/A
Self-employment income	1,221	386	412	419	421	N/A	N/A	3.16	2.96	2.91	2.90	N/A	N/A
Investment income	3,999	3,262	3,195	3,159	3,024	N/A	N/A	1.23	1.25	1.27	1.32	N/A	N/A
Private Pensions	590	524	552	579	602	N/A	N/A	1.13	1.07	1.02	0.98	N/A	N/A
Rent income	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Incomes	161	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Privat Transfers	153	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: StatBank (INDKP101)

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

	EUROMOD						External						Ratio					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
Employment income	832,548	847,070	858,133	867,123	878,878	894,782	838,068	852,510	866,156	N/A	N/A	N/A	0.99	0.99	0.99	N/A	N/A	N/A
Self-employment income	69,689	70,904	71,830	72,583	73,567	74,898	49,229	56,229	61,783	N/A	N/A	N/A	1.42	1.26	1.16	N/A	N/A	N/A
Investment income	4,653	4,640	5,375	7,734	9,344	9,420	38,839	41,621	45,518	N/A	N/A	N/A	0.12	0.11	0.12	N/A	N/A	N/A
Private Pensions	55,787	57,006	57,529	57,877	58,225	58,341	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rent income	1,177	1,207	1,233	1,255	1,279	1,296	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Incomes	1,200	1,221	1,237	1,250	1,267	1,290	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Privat Transfers	3,061	3,114	3,155	3,188	3,231	3,290	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Average employment income	281,836	286,752	290,497	293,541	297,520	302,904	290,190	292,557	296,223	N/A	N/A	N/A	0.97	0.98	0.98	N/A	N/A	N/A

Source: StatBank (INDKP101)

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

	EUROMOD		External					Ratio					
	2011	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
<b>Benefits</b>													
Supplementary labour market pension	843	811	851	887	918	N/A	N/A	1.04	0.99	0.95	0.92	N/A	N/A
Disability pension	347	238	238	233	223	N/A	N/A	1.46	1.46	1.49	1.56	N/A	N/A
Education benefit	485	388	412	439	463	N/A	N/A	1.25	1.18	1.10	1.05	N/A	N/A
Survivors' help	47	383	271	N/A	N/A	N/A	N/A	0.12	0.17	N/A	N/A	N/A	N/A
Sickness benefit	382	445	413	398	N/A	N/A	N/A	0.86	0.93	0.96	N/A	N/A	N/A
Early retirement benefit	141	163	150	141	128	N/A	N/A	0.87	0.94	1.00	1.10	N/A	N/A

**Taxes and Social Insurance contributions**

Source: StatBank (INDKP101, AUH04, KONT4, SOCDAG1)

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

	EUROMOD						External						Ratio					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
<b>Benefits</b>																		
Supplementary labour market pension	9,813	10,068	10,209	10,367	10,499	10,622	9,804	10,653	11,445	12,327	N/A	N/A	1.00	0.95	0.89	0.84	N/A	N/A
Disability pension	55,946	57,400	58,202	59,104	59,856	60,558	42,418	43,130	42,794	42,050	N/A	N/A	1.32	1.33	1.36	1.41	N/A	N/A
Education benefit	19,891	20,408	20,693	21,014	21,281	21,531	14,940	16,542	18,026	19,456	N/A	N/A	1.33	1.23	1.15	1.08	N/A	N/A
Survivors' help	2,218	2,275	2,307	2,343	2,373	2,400	3,649	2,800	N/A	N/A	N/A	N/A	0.61	0.81	N/A	N/A	N/A	N/A
Sickness benefit	13,273	13,618	13,808	14,022	14,200	14,367	14,711	14,088	12,830	12,484	N/A	N/A	0.90	0.97	1.08	1.12	N/A	N/A
Early retirement benefit	22,718	23,309	23,634	24,001	24,306	24,591	19,825	18,705	17,818	16,971	N/A	N/A	1.15	1.25	1.33	1.41	N/A	N/A
<b>Taxes and Social Insurance contributions</b>																		

Source: StatBank (INDKP101, AUH04, KONT4, SOCDAG1)

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

	EUROMOD						SILC Ratio External									Ratio				
	2011	2012	2013	2014	2015	2016	2011	2011	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
<b>Benefits</b>																				
Ord. & suppl. child benefit	227	227	227	227	227	227	136	2	198	198	194	198	N/A	N/A	1.14	1.14	1.17	1.14	N/A	N/A
Benefit for student parents	6	6	6	4	4	4	1	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Child family grant	1,112	1,112	1,112	1,096	1,094	1,094	622	2	1,207	1,192	1,197	1,191	N/A	N/A	0.92	0.93	0.93	0.92	N/A	N/A
Housing benefit	728	731	729	721	703	695	371	2	208	217	222	238	N/A	N/A	3.50	3.37	3.28	3.03	N/A	N/A
Housing grant	242	242	240	229	223	222	214	1	295	292	288	285	N/A	N/A	0.82	0.83	0.83	0.80	N/A	N/A
Green check	3,686	3,646	3,605	3,612	3,577	3,566	0	N/A	3,562	3,551	3,590	3,602	N/A	N/A	1.03	1.03	1.00	1.00	N/A	N/A
Social assistance	298	300	300	307	307	307	388	1	227	233	244	235	N/A	N/A	1.31	1.29	1.23	1.31	N/A	N/A
Unemployment benefit	303	303	303	303	303	303	303	1	319	322	319	284	N/A	N/A	0.95	0.94	0.95	1.07	N/A	N/A
Old-age pension	963	963	963	963	963	963	959	1	953	989	1,021	1,047	N/A	N/A	1.01	0.97	0.94	0.92	N/A	N/A
Old age pension supplement	934	934	934	934	935	935	924	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Old age pension and supplement	963	963	963	963	963	963	959	1	953	989	1,021	1,047	N/A	N/A	1.01	0.97	0.94	0.92	N/A	N/A
Supplementary pension benefit	322	323	321	315	312	313	379	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Taxes and Social Insurance contributions</b>																				
Church tax	3,384	3,387	3,389	3,380	3,372	3,372	0	N/A	3,395	3,402	3,396	3,386	N/A	N/A	1.00	1.00	1.00	1.00	N/A	N/A
Health contribution	4,229	4,237	4,239	4,226	4,216	4,216	0	N/A	4,194	4,231	4,272	4,287	N/A	N/A	1.01	1.00	0.99	0.99	N/A	N/A
Earned income tax credit	3,162	3,162	3,163	3,163	3,163	3,164	0	N/A	2,645	2,623	2,624	N/A	N/A	N/A	1.20	1.21	1.21	N/A	N/A	N/A
Bottom-bracket tax	4,247	4,252	4,261	4,250	4,248	4,247	0	N/A	4,209	4,246	4,288	4,302	N/A	N/A	1.01	1.00	0.99	0.99	N/A	N/A
Top-bracket tax	622	658	629	534	527	525	0	N/A	682	732	570	497	N/A	N/A	0.91	0.90	1.10	1.07	N/A	N/A
Municipality tax	4,229	4,237	4,239	4,226	4,216	4,216	0	N/A	4,169	4,203	4,248	4,261	N/A	N/A	1.01	1.01	1.00	0.99	N/A	N/A
Property value tax	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1	2,080	2,083	2,086	2,082	N/A	N/A	0.77	0.77	0.76	0.77	N/A	N/A
Labour market contribution	3,187	3,187	3,187	3,187	3,187	3,187	0	N/A	3,014	3,010	3,018	3,042	N/A	N/A	1.06	1.06	1.06	1.05	N/A	N/A
Suppl. lab. market contrib.	2,681	2,681	2,681	2,681	2,681	2,681	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Contr. to unempl.insurance and early retirement scheme	1,869	1,869	1,869	1,868	1,868	1,868	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: StatBank (BTS66, BOSST22, BOST44, INDKP1, INDKP101, PSKAT1, PSKAT2, PSKAT3)

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

	EUROMOD						SILC	Ratio	External						Ratio					
	2011	2012	2013	2014	2015	2016			2011	2011	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014
<b>Benefits</b>																				
Ord. & suppl. child benefit	1,925	1,981	2,012	2,048	2,079	2,109	1,406	1.37	2,146	2,171	2,214	2,272	N/A	N/A	0.90	0.91	0.91	0.90	N/A	N/A
Benefit for student parents	41	42	43	3	4	4	0	154.91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Child family grant	13,563	13,621	13,728	13,691	13,805	13,877	12,763	1.06	14,376	14,392	14,492	14,489	N/A	N/A	0.94	0.95	0.95	0.94	N/A	N/A
Housing benefit	8,241	8,484	8,453	8,405	8,305	8,171	4,279	1.93	2,960	3,156	3,344	3,663	N/A	N/A	2.78	2.69	2.53	2.29	N/A	N/A
Housing grant	6,398	6,575	6,391	6,040	5,925	5,885	4,908	1.30	9,197	9,423	9,556	9,699	N/A	N/A	0.70	0.70	0.67	0.62	N/A	N/A
Green check	4,959	4,890	5,231	5,246	3,936	3,820	0	N/A	4,908	4,875	5,515	5,531	N/A	N/A	1.01	1.00	0.95	0.95	N/A	N/A
Social assistance	22,106	22,647	23,151	23,491	24,694	24,961	22,539	0.98	11,153	12,635	14,533	13,934	N/A	N/A	1.98	1.79	1.59	1.69	N/A	N/A
Unemployment benefit	11,325	11,536	11,737	11,890	12,015	12,178	12,104	0.94	20,263	20,510	19,731	18,651	N/A	N/A	0.56	0.56	0.59	0.64	N/A	N/A
Old-age pension	63,826	65,693	66,744	67,951	68,976	69,728	62,535	1.02	97,613	103,638	112,626	117,927	N/A	N/A	0.65	0.63	0.59	0.58	N/A	N/A
Old age pension supplement	45,422	46,769	47,526	48,402	49,493	50,740	44,031	1.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Old age pension and supplement	109,248	112,463	114,270	116,353	118,470	120,468	106,566	1.03	97,613	103,638	112,626	117,927	N/A	N/A	1.12	1.09	1.01	0.99	N/A	N/A
Supplementary pension benefit	3,095	3,188	4,505	4,526	4,567	4,629	3,389	0.91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Taxes and Social Insurance contributions</b>																				
Church tax	6,233	6,368	6,379	6,408	6,503	6,582	0	N/A	5,689	5,819	5,926	5,997	N/A	N/A	1.10	1.09	1.08	1.07	N/A	N/A
Health contribution	70,164	62,792	54,097	45,486	36,970	28,158	0	N/A	63,736	57,570	50,736	43,329	N/A	N/A	1.10	1.09	1.07	1.05	N/A	N/A
Earned income tax credit	29,162	30,431	48,356	55,960	59,761	62,569	0	N/A	29,056	30,124	48,039	55,433	N/A	N/A	1.00	1.01	1.01	1.01	N/A	N/A
Bottom-bracket tax	33,591	43,828	56,374	67,156	80,948	92,540	0	N/A	34,381	44,439	57,576	68,732	N/A	N/A	0.98	0.99	0.98	0.98	N/A	N/A
Top-bracket tax	21,198	22,229	22,524	22,420	23,560	23,856	0	N/A	16,575	17,781	15,915	15,063	N/A	N/A	1.28	1.25	1.42	1.49	N/A	N/A
Municipality tax	219,262	224,258	224,502	226,518	230,141	233,714	0	N/A	197,557	203,910	209,749	214,533	N/A	N/A	1.11	1.10	1.07	1.06	N/A	N/A
Property value tax	13,405	13,367	15,627	23,935	30,669	31,008	13,405	1.00	12,826	13,025	13,221	13,418	N/A	N/A	1.05	1.03	1.18	1.78	N/A	N/A
Labour market contribution	72,179	73,438	74,397	75,176	76,196	77,574	0	N/A	71,884	72,791	73,915	75,990	N/A	N/A	1.00	1.01	1.01	0.99	N/A	N/A
Suppl. lab. market contrib.	7,996	7,996	7,996	7,996	7,997	8,411	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Contr. to unempl.insurance and early retirement scheme	16,884	17,377	17,377	17,957	18,226	18,428	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: StatBank (BTS66, BOSST22, BOST44, INDKP1, INDKP101, PSKAT1, PSKAT2, PSKAT3)

**Table 4.9-Distribution of equivalised disposable income**

	EUROMOD						External						Ratio					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
D1	3.55	3.58	3.46	3.09	2.83	2.79	3.10	3.20	3.20	N/A	N/A	N/A	1.15	1.12	1.08	N/A	N/A	N/A
D2	6.03	6.05	6.06	6.05	6.00	6.04	5.90	5.70	5.70	N/A	N/A	N/A	1.02	1.06	1.06	N/A	N/A	N/A
D3	7.04	7.06	7.08	7.01	7.04	7.02	6.80	6.70	6.70	N/A	N/A	N/A	1.04	1.05	1.06	N/A	N/A	N/A
D4	7.89	7.90	7.87	7.88	7.84	7.84	7.80	7.60	7.60	N/A	N/A	N/A	1.01	1.04	1.04	N/A	N/A	N/A
D5	8.86	8.86	8.83	8.82	8.81	8.79	8.70	8.50	8.50	N/A	N/A	N/A	1.02	1.04	1.04	N/A	N/A	N/A
D6	9.74	9.76	9.75	9.70	9.68	9.67	9.60	9.50	9.50	N/A	N/A	N/A	1.02	1.03	1.03	N/A	N/A	N/A
D7	10.76	10.74	10.75	10.72	10.69	10.71	10.60	10.50	10.50	N/A	N/A	N/A	1.02	1.02	1.02	N/A	N/A	N/A
D8	11.96	11.96	11.96	11.96	11.96	11.96	11.90	11.80	11.80	N/A	N/A	N/A	1.00	1.01	1.01	N/A	N/A	N/A
D9	13.75	13.74	13.74	13.75	13.73	13.78	13.80	13.80	13.80	N/A	N/A	N/A	1.00	1.00	1.00	N/A	N/A	N/A
D10	20.41	20.35	20.50	21.04	21.42	21.40	22.00	22.90	22.60	N/A	N/A	N/A	0.93	0.89	0.91	N/A	N/A	N/A
Median	194,125	197,373	200,032	200,249	199,879	202,790	204,288	207,785	211,450	N/A	N/A	N/A	0.95	0.95	0.95	N/A	N/A	N/A
Mean	208,966	212,486	215,506	216,332	216,463	219,725	223,925	232,001	234,964	N/A	N/A	N/A	0.93	0.92	0.92	N/A	N/A	N/A
Gini	24.61	24.49	24.74	25.67	26.32	26.35	26.80	27.70	27.40	N/A	N/A	N/A	0.92	0.88	0.90	N/A	N/A	N/A
S80/S20	3.57	3.54	3.60	3.81	3.98	3.98	4.00	4.10	4.10	N/A	N/A	N/A	0.89	0.86	0.88	N/A	N/A	N/A

Source: Eurostat



**Table 4.10-Poverty rates by gender and age**

	EUROMOD						External						Ratio					
	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016	2011	2012	2013	2014	2015	2016
<b>40% median HDI</b>																		
Total	3.29	3.29	3.31	3.31	3.41	3.41	4.40	4.40	4.30	N/A	N/A	N/A	0.75	0.75	0.77	N/A	N/A	N/A
Males	3.73	3.73	3.76	3.70	3.78	3.78	4.70	5.20	4.70	N/A	N/A	N/A	0.79	0.72	0.80	N/A	N/A	N/A
Females	2.85	2.85	2.86	2.92	3.04	3.04	4.10	3.70	4.00	N/A	N/A	N/A	0.70	0.77	0.72	N/A	N/A	N/A
<b>50% median HDI</b>																		
Total	6.45	6.36	6.46	6.51	6.65	6.65	6.90	6.60	7.10	N/A	N/A	N/A	0.94	0.96	0.91	N/A	N/A	N/A
Males	6.98	6.85	7.00	7.05	7.28	7.28	7.70	7.20	7.80	N/A	N/A	N/A	0.91	0.95	0.90	N/A	N/A	N/A
Females	5.94	5.89	5.92	5.99	6.04	6.04	6.20	6.00	6.50	N/A	N/A	N/A	0.96	0.98	0.91	N/A	N/A	N/A
<b>60% median HDI</b>																		
Total	11.21	11.17	11.12	11.19	11.28	11.31	11.90	12.10	12.20	N/A	N/A	N/A	0.94	0.92	0.91	N/A	N/A	N/A
Males	11.43	11.40	11.37	11.56	11.78	11.81	12.00	12.40	12.50	N/A	N/A	N/A	0.95	0.92	0.91	N/A	N/A	N/A
Females	11.00	10.93	10.87	10.83	10.79	10.81	11.80	11.80	11.90	N/A	N/A	N/A	0.93	0.93	0.91	N/A	N/A	N/A
<b>70% median HDI</b>																		
Total	18.78	18.69	18.54	18.50	18.48	18.64	20.20	20.50	20.50	N/A	N/A	N/A	0.93	0.91	0.90	N/A	N/A	N/A
Males	18.67	18.52	18.39	18.54	18.73	18.85	19.80	20.20	20.00	N/A	N/A	N/A	0.94	0.92	0.92	N/A	N/A	N/A
Females	18.90	18.86	18.69	18.46	18.24	18.43	20.60	20.70	21.00	N/A	N/A	N/A	0.92	0.91	0.89	N/A	N/A	N/A
<b>60% median HDI</b>																		
0-15 years	7.98	7.98	8.25	8.32	8.85	8.90	9.30	9.50	9.90	N/A	N/A	N/A	0.86	0.84	0.83	N/A	N/A	N/A
16-24 years	29.38	29.38	29.03	29.01	28.56	28.60	32.00	32.40	31.70	N/A	N/A	N/A	0.92	0.91	0.92	N/A	N/A	N/A
25-49 years	11.71	11.71	11.94	12.18	12.53	12.56	11.30	11.90	12.40	N/A	N/A	N/A	1.04	0.98	0.96	N/A	N/A	N/A
50-64 years	5.78	5.78	5.89	6.18	6.13	6.14	4.90	4.80	5.30	N/A	N/A	N/A	1.18	1.20	1.11	N/A	N/A	N/A
65+ years	7.72	7.47	6.58	6.19	5.80	5.80	10.10	9.80	9.10	N/A	N/A	N/A	0.76	0.76	0.72	N/A	N/A	N/A

Source: Eurostat

