EUROMOD
COUNTRY REPORT

LUXEMBOURG (LU)
2018-2021

Nizamul Islam, Anne-Sophie Genevois, Anasse El Maslohi

December 2021

EUROMOD version I4.0

EUROMOD is the tax-benefit microsimulation model for the European Union (EU). It 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 covers the 27 Member States and is yearly updated to cover the most recent changes in countries' policy systems. It uses input databases which are also updated on a yearly basis, coming mainly from the European Union Statistics on Income and Living Conditions (EU-SILC). The model yearly update is supported by the following Directorate-Generals of the European Commission: DG EMPL, DG ECFIN, DG TAXUD, DG REFORM, DG JRC, DG ESTAT.

Originally maintained, developed and managed by the Institute for Social and Economic Research (ISER), since 2021 these responsibilities are taken over by the Joint Research Centre (JRC) of the European Commission, in collaboration with Eurostat and 27 national teams from the EU countries.

The EUROMOD governance structure consists of a Steering Committee, allowing partner DGs to monitor the process of the EUROMOD update, and a Scientific Advisory Board to monitor and guide the scientific development of the model.

This report documents the work done in the most recent annual update for Luxembourg. This work was carried out by the EUROMOD core development team, based at the JRC in Seville, in collaboration with the national team.

JRC B2 head of unit: Salvador Barrios
EUROMOD project leader: Alberto Tumino/Fidel Picos
EUROMOD coordination assistant: Daniela Hupteva/Marta Jędrych
EUROMOD software developer: Estefanía Vázquez Torres
EUROMOD developer responsible for Luxembourg: Sofia Maier
National team for Luxembourg: Nizamul Islam, Anne-Sophie Genevois, Anasse El Maslohi

The results presented in this report are derived using EUROMOD version I4.0. EUROMOD is continually being improved and the results presented here may not match those that would be obtained with earlier or later versions of EUROMOD.

For more information see https://euromod-web.jrc.ec.europa.eu/

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

CONTENTS

1. BASIC INFORMATION 4
1.1 Basic information about the tax-benefit system 4
1.2 Social Benefits 6
1.3 Social contributions 17
1.4 Taxes 20
2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD 23
2.1 Scope of simulation 23
2.2 Main policy changes 26
2.3 Order of simulation and interdependencies 27
2.4 Policy switches 28
2.5 Social benefits 28
Child benefit (*Allocations familiales*) (*bfauc_lu*) 28
Tax bonus for children (*Boni pour enfant*) (*bch00_lu*) 29
Higher education grant and/or loan *(Bourse et/ou prêt d'études pour enseignement supérieur)* (*bedsim_lu*) 29
New school year allowance (*Allocation de rentrée scolaire*) (*bched01_lu*) 30
Social assistance (Revenu Minimum Garanti & Revenu d'inclusion sociale) (*bsacm_lu*) 31
Expensive life allowance (*Allocation de vie chère*) (*bsaht_lu*) 34
New rent allowance (*Subvention de loyer*), since 2016 (*bho_lu*) 35
Unemployment benefit (*Indemnité de chômage*) (*bunss_lu*) 37
2.6 Social contributions 39
Employee social contributions *(tscee_s)* 39
Employer social contributions *(tscer_s)* 41
(https://aaa.public.lu/fr/prestations-cotisations/cotisations/bonusmalus.html) 42
Self-employed social contributions *(tscse_s)* 42
Social contributions on social assistance *(tsceebeot_s)* 44
Credited social contributions *(tscct_s)* 44
Credited social contributions for social assistance *(tsccts_s)* 44
2.7 Personal income tax 44
Tax unit 44
Exemptions 45
Tax allowances 46
Tax base48
Tax schedule 49
Tax credits 50
2.8 (Social) Minimum wage 52
2.9 Labour Market Transition (TransLMA): 52

3. DATA 54
3.1 General description 54
The underlying data base 54
Sample quality and weights 55
3.2 Data adjustment 55
3.3 Imputations and assumptions 56
Time period 56
Gross incomes 56
Disaggregation of harmonized variables 56
3.4 Updating 56
4. VALIDATION 57
4.1 Aggregate Validation 57
Components of disposable income 58
Validation of incomes inputted into the simulation 58
Validation of output (simulated) incomes 59
4.2 Income distribution 60
Income inequality 60
Poverty rates 60
4.3 Summary of "health warnings" 60
REFERENCES 62
ANNEX 1. UPRATING FACTORS 63
ANNEX 2. POLICY EFFECTS IN 2020-2021 65
ANNEX 3. VALIDATION TABLES 67
ANNEX 4. (COVID19) WAGE COMPENSATION/SHORT TIME WORKING SCHEME 77

1. BASIC INFORMATION

General remark:

All amounts and qualitative information mentioned below correspond to the year 2017 (as on June 30th, when relevant), unless otherwise stipulated.

1.1 Basic information about the tax-benefit system

Table 1. Basic figures

	Pop. (m.)	Pop. < 15 (%)	Pop. ≥ 65 (%)	Life expect. (years) M / F	Fertility rate	Unemp Rate (not seasonally adjusted data)	GDP per head (PPS, EU27 =100)	Currency
2018	0.602	16.1	14.3	80.1 / 84.6	1.38	5.5	263	Euro
2019	0.614	16.1	14.4	80.2 / 85.2	1.34	5.6	260	Euro
2020	0.626	16.0	14.5	79.4 / 84.2	n/a	6.8	n/a	Euro
2021	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Euro

Source: Eurostat (2021), http://ec.europa.eu/eurostat/data/database

Table 2. Tax-benefit system and government budget

	Total general government revenue[1] % of GDP	Total tax receipts[1] % of GDP	Total general government expenditure[1] % of GDP	Social protection [2] % of GDP
2018	45.3	39.7	42.2	21.5
2019	44.6	39.2	42.2	n/a
2020	n/a	n/a	n/a	n/a
2021	n/a	n/a	n/a	n/a

Sources: [1] OECD (2021) http://stats.oecd.org/Index.aspx ; [2] Eurostat (2021) http://ec.europa.eu/eurostat/data/database

Table 3. Social protection expenditure by function (as % of total social protection expenditure)

	Sickness/ health care	Disability	Old age	Survivors	Family/ children	Unemployment	Housing	Social exclusion
2018	25.1	10.2	32.1	7.4	15.3	5.6	1.9	2.3
2019	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2021	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Eurostat (2021) https://ec.europa.eu/eurostat/spr_exp_sum

Table 4. Taxation (as % of total tax receipts)

	Personal income tax	Corporate income tax	Social security contributions		Taxes on goods and services	Other taxes
			Employees*	Employers		
2018	23.5	15.9	15.8	11.3	23.7	9.8
2019	23.8	15.1	16.1	11.4	23.9	9.8
2020	n/a	n/a	n/a	n/a	n/a	n/a
2021	n/a	n/a	n/a	n/a	n/a	n/a

* Includes self-employed
Source: OECD (2021) http://stats.oecd.org/Index.aspx

- The tax-benefit system is largely a unified, national system. The main exception is property taxes *(impôt foncier)* which are levied at the local level *(commune)*.
- In Luxembourg, the "tax year" runs from 1 January to 31 December.
- State pension age in 2021 is 65. Early retirement pension *(pension de vieillesse anticipée)* from 60 years of age, on condition that 480 months of effective insurance can be proved or assimilated periods can be proved. From 57 years of age, on condition that 480 months of effective insurance can be proved.
- Minimum school leaving age in 2021 is 16. Since 2011, children in higher (tertiary) education are no longer eligible for child benefits. For income tax purposes, dependent children are defined as children aged under 21 on 1 January of the tax year or aged 21 years old and over who are still studying (entitled to family allowances).
- For benefit and tax purposes a lone parent is not legally married (single, divorced or widowed) to anyone and is a parent of a dependent child.
- Luxembourg has a system of compulsory joint taxation (income splitting) for married couples. Cohabiting couples under the "partenariat" law also have the possibility to be taxed jointly. However, from fiscal year 2018, these married taxpayers can choose either a pure individual taxation, either an individual taxation with reallocation of income, either a collective taxation.
- The different income sources (commercial profit, agricultural and forestry profit, liberal profession profit, employee income, pension income, capital income, rental income and miscellaneous income) are aggregated to compute the taxable income. Since 2006

Luxembourg has introduced a 10% withholding tax on income from certain savings products for residents of Luxembourg who are not tax residents in another state. This tax is in full discharge of a person's liability to tax on that income. The rate is 20% since 2017.

- Withholding taxes are levied on some forms of income: income from employment, pensions and some savings and investment incomes are subject to a pay-as-you-earn system. Other income must be declared in an annual tax return, submitted to the Luxembourg Tax Administration. In the case of couples with two earners, they have to fill a tax return.
- Wages and some benefits (pensions, minimum income…) are ordinarily indexed by 2.5% to price development. However, this system has been recently amended by periods to regulate indexation (e.g. postponing or implementing it once a year only).
- Social contributions and state benefits and pensions are usually assessed and delivered on a monthly basis.

About the minimum (social) wage

- Unless exceptional and specific agreements possible in some circumstances, wages are submitted to minimum rates in Luxembourg: € 1,998.59/month for non-qualified wage-earners in 2018 for a full time job (40 hours/week). (€ 11.5525/hour with a basis of 173 hours/month), € 2,071.10/month in 2019, € 2,141.99/month in 2020 and € 2,201.93/month in 2021.
- Those basic amounts are increased by 20% (€ 2,642.32/month in 2021) for qualified workers and also modulated based on the age of the wage-earner: 80% of the basic amount if aged 17 or 18, 75% of the basic amount if between 15- and 17-year-old.
- The basic amount is defined as the "Minimum Social Wage" (*salaire social minimum)*, hereafter "Minimum Wage" or "MW" and is also an important parameter for the tax-benefit system as a whole: several amounts are defined based on this MW: upper limit of the monthly old-age pension in the general scheme (5 times the MW), ceilings for social contributions, etc.

1.2 Social Benefits

Birth grant *(Allocation de naissance)* totalling € 1,740.09 is available to women resident in Luxembourg, on the condition that both mother and child have the required medical examinations. The grant is not subject to taxation or to social contributions. Since 2006, the amount of this allowance is no longer linked to changes in prices.

Child-raising allowance *(Allocation d'éducation)* is a benefit aimed at recognising financially the upbringing activity. So, for a parent who educates a child under 2 years and either does not have a regular (professional or replacement) income or whose income, cumulated with that of the husband/wife, does not exceed € 5,657.70/month when educating one child; € 7,543.60/month when educating two children; € 9,429.50/month when educating three or more. The amount of the allowance is € 485.01 per month. The amount is due from the first day that follows either the end of the maternity leave or the end of the eighth week after the birth. The allowance stops on the first day of the month that follows the month during which the child reaches the age of 2. By derogation, the allowance is maintained in favour of any beneficiary who has educated twins or at least 3 children until one of the children is less than 4 years old. By derogation, the age limit for the payment of the allowance in the case of multiple births of more than 2 children is up-rated

by 2 years per supplementary child. The allowance is not subject to taxation or to social contributions. Half the allowance is available in the case of part-time employment. Since 2006, the amount of this allowance is no longer linked to changes in prices.

This allocation was removed since 1st June 2015 but all persons who received this allowance continue to receive it.

Child benefit *(Allocations familiales)* is a universal scheme financed by tax. A child's personal rights are related to the residence. Each child brought up continuously in Luxembourg and with a legal residence there is entitled to this child benefit. The age limit is 18 years. For children in vocational training or further education or suffering from a serious infirmity, the age limit is 27 years old. Since 2019, the age limit for children in vocational training or further education is 25, whereas for children suffering from a serious infirmity, the age limit is as before (27). Since 2011 (from mid-2010 indeed, but implemented in EUROMOD from 2011 on), children in higher (tertiary) education are no longer eligible for child benefits. A reform of the higher education grant, complementary to the change in child benefits, has been implemented. The higher education grant was amended in 2014 again.

Up to 31st July 2016, the monthly amount is uniformly € 185.60 for one child, € 440.72 for two children, € 802.74 for three children and € 361.82 for each subsequent child. Child benefit does not vary with income. Child benefit varies with age: children aged 6 and more receive a supplement of € 16.17/month and children aged 12 and more receive a supplement of € 48.52/month. To this allowance is added the tax bonus (see *Section 2.4.2*) for children with a monthly amount of € 76.88 per child. The benefit is not subject to taxation nor to social contributions.

Since 1st August 2016, the child bonus for children is removed and two systems are applied. The changes compared to the previous system are mentioned below. Given the EUROMOD is here building on EU-SILC 2016 from the (income) years 2015 on, with no demographic change taken into account after 2015, those changes are not simulated in the model yet, out of the inclusion of the equivalent of the former tax bonus directly in child benefit.

*For children born before 1st August 2016 or the families arrived at Luxembourg before 1st August 2016***,** the monthly amount is € 265.00 for one child, € 594.48 for two children, € 1,033.38 for three children and € 438.70 for each subsequent child (the equivalent of former tax bonus included).

*For children born after 1st August 2016 or the families arrived at Luxembourg after 1st August 2016***,** the monthly amount is € 265 per child.

On top of this and in all cases, the supplement for age becomes € 20/month (children aged 6 and more) and € 50/month (children aged 12 and more).

Supplementary allowance *(Allocation spéciale supplémentaire)* of € 200/month for each child under 18, with an insufficiency or permanent reduction of at least 50% of physical or mental ability by comparison with that of a child of the same age. The allowance is neither subject to taxation nor to social contributions.

New school year allowance *(Allocation de rentrée scolaire)* aims to compensate the costs related to the new school year.
Since 1st August 2016, this allowance is fixed to € 115/year for a child of more than 6 years old and to € 235/year for a child of more than twelve years old. These amounts are per child.

The higher education grant and/or loan *(Bourse et/ou prêt d'études pour enseignement supérieur)* is mainly provided to students who are registered in a University or a College (tertiary

education). In parallel, children in higher education are no longer eligible for benefits related to families.

The higher education grant/loan was reformed since the academic year 2014/2015 by the law of 24 July 2014 (hence later than 30th of June, but given the impact of the change, it is implemented in EUROMOD since 2014 already). It is now depending on the composition and resources of the "household" which the student belongs to and is composed of 4 parts: i) a basic amount (€ 2,000/year in 2018, € 2,100/year in 2021), ii) a mobility allowance in case the student is studying abroad and facing housing costs : € 2,450/year (€ 2,572/year in 2021), iii) a "social" complement depending on the household's income net of taxes : from € 3,800/year (€ 3,990/year in 2021) if a net income below the Minimum Social Wage for non-qualified workers, down to € 550/year (€ 576/year in 2021) for incomes below 4.5 times the Minimum Social Wage, see *Section 2.4.3* for details) and iv) a family supplement if 2 children or more are involved in higher education : € 500/year per student (€ 524/year in 2021). The "household" to be considered is derived from administrative data and is basically composed of the fiscal unit, including children benefitting from derived rights in terms of health insurance.

The allowance is neither subject to taxation nor to social contributions.

The guaranteed minimum income *(Revenu minimum garanti)* was created by the law of 29 April 1999, which modified the law of July 1986, and was discontinued on 31st December 2018, when it was replaced by the Social Inclusion Income benefit. The principles of this benefit are to fight against social exclusion and to ensure sufficient means for a decent standard of living and measures of professional and social integration. The guaranteed minimum income can be either an integration allowance *(indemnité d'insertion)* or a supplementary allowance aiming at compensating the difference between the highest amounts of the guaranteed minimum income and the sum of the household resources. The eligibility conditions concern:

i) residence (persons resident in Luxembourg territory and having resided in the country for at least 5 years during the last 20 years. This residence condition is not required for EU or EEA citizens or for refugees);
ii) age (with effect from 25 years; exceptions for persons unable to work, those who are looking after a child or an invalid.);
iii) willingness to work (to be ready to participate in active measures);
iv) not to have abandoned or reduced work of their own free will, without giving important and real justifications or should not have been dismissed for serious reasons.

The reference minima have been fixed through political decision in comparison with the social minimum wage *(salaire social minimum)* and pension minima. The domestic unit for the calculation of resources is defined by the "*de facto*" community of all the persons living in the same common household, obviously disposing of a common budget and unable to provide evidence that they live elsewhere. The resources taken into account are the entire gross revenue of the household, possessions and replacement or supplementary social security benefits (excluding family allowances, maternity benefits, long-term care benefits and up to the guaranteed minimum income for a person living alone for the professional income of children less than 25 years old). However, to avoid inactivity traps, up to 30% of the reference minima are disregarded from the professional incomes and replacement incomes to compute the resources.

The guaranteed minimum income is fixed in 2018 at € 1,401.18/month for a person living alone or for the first person of the domestic unit (base amount). For the second adult, the base amount is uprated by 50% of € 1,401.18/month (€ 700.59 /month). For each subsequent adult, the base amount is uprated by € 400.93/month. For each child, the base amount is uprated by € 127.37/month.

Before 2016, when a rent is due for an occupied flat, the guaranteed minimum income is increased by the difference between the rent paid and the amount corresponding to 10% of the guaranteed minimum income (*revenu minimum garanti*). The increase is limited to a maximum of € 123.95/month. Since 2016, this allowance is becoming a separate benefit (or is completed) under specific circumstances (see "rent allowance" below).

The guaranteed minimum income is subject to taxation and to social contributions for health care and long-term care insurance.

The social inclusion income (*Revenu social d'inclusion*) replaced the guaranteed minimum income on 1st January 2019. This new benefit focuses on four priority areas:

i) promote a social inclusion approach;
ii) establish a coherent system between stabilization, social activation and reintegration policies;
iii) act against the poverty of children and lone parent families;
iv) lead administrative simplification.

It still has two components: the *inclusion allowance* which replaces the supplementary allowance and the *activation allowance* instead of the integration allowance.

Since 2019, for social assistance a dependent child is defined as a person younger than 25 years old.

The social inclusion income is fixed in 2021 at € 1,543.76/month for a person living alone or for the first person of the domestic unit (base amount). For each subsequent adult, the base amount is uprated by € 771.95/month. If there are children, the allowance is increased by € 115.95/month for the household and by € 239.83/month for each child, with an increase of € 70.88/month per child if living in a single-parent family.

The immunization mechanism obeys new rules which also aim to eliminate inactivity traps but also to enhance the income generated by increased activity. For this, an immunization of 25% is operated directly on the gross income concerned by the immunization and no longer on the scale due to the domestic community. Consequently, an increase in activity is no longer accompanied by an equivalent decrease in the inclusion allowance (as it was the case with the RMG).

The income for seriously disabled persons *(Revenu pour personnes gravement handicapées)* was created by the law of 12 September 2003. Persons entitled to this benefit must be at least 18 years old, must present a diminution of the ability to work by 30% due to physical, mental, sensorial or psychological disability; the disability has to be obtained before the age of 65. The state of health of the person must be at such a level that it is impossible to adapt a workplace in the ordinary or the protected environment to his needs. The person must be allowed to live in Luxembourg and must live there. Residents from a non-Member state have to show a 5-year long legal residence permit during the last 20 years. The income for a seriously disabled person is fixed at € 1401.18/month in 2018 (€ 1544.98/month in 2021). Up to 30% of the reference minima are disregarded from the professional incomes and replacement incomes to compute the resources. The income for seriously disabled persons is subject to taxation and to social contributions for health care and long-term care insurance.

The expensive life allowance *(Allocation de vie chère)* replaced the formerly implemented heating allowance in 2009. This allowance is a means-tested allowance. To be eligible in 2018, the global annual income must not exceed: € 24,026.89/year for a person living alone (€ 26,445.24/year in 2021), € 36,040.33/year for a two-person family (€ 39,667.8/year in 2021), € 43,248.40/year for a three-person family (€ 47,601.36/year in 2021), and € 7,208.07/year for each additional person in the family (€ 7,933.56/year in 2021).

Until 2020, the amount of the expensive life allowance is fixed at € 1,320/year for a person living alone, € 1,650/year for a two-person family, € 1,980/year for a three-person family, € 2,310/year for a four-person family and € 2,640/year for a five-person or more family. In 2021 these are: € 1,452/year for a person living alone, € 1,815/year for a two-person family, € 2,178 for a three-person family, € 2,541 for a four-person family and € 2,904 for a five-person or more family.

The allowance is neither subject to taxation nor to social contributions.

The rent allowance *(Subvention de loyer)* was created by the law of 9 December 2015, which modified the laws of February 1979, April 1999 and September 2006. The new allowance is in principle (since 2016) replacing the supplement for rental costs embedded in the "guaranteed minimum income" (see above). "Households" whose "*total net disposable income*" (up to 2017) or "*total income*" (from 2018) is below a threshold and facing rental costs higher than a "*reference rent*" may be entitled to a rent allowance. The rental costs must be related to the private sector exclusively. The income threshold, the reference rent and the maximum rent allowance to be considered are all dependent on the household composition (see *Section 2.4.7* for details).

Until 2018, the total net disposable income of the household took into account:

- the last known *income after tax* as defined in the law about personal income taxation (Art. 10);
- family allowances (out of the *new school year allowance*);
- the *maternity allowance*;
- the *child-raising allowance*;
- the *parental leave benefit*;
- the *maintenance payments* received;
- the *accident permanent benefit*;
- the *tax bonus for children* and
- the *cost of leaving allowance*.

From 2018, the total income takes into account:

- the last known *income after tax* as defined in the law about personal income taxation (Art. 10),
- the *parental leave benefit*;
- the *maintenance payments* received and
- the *accident permanent benefit*.

The main objective of such a "reduced" content is to enlarge the population possibly covered.

The "household" to be considered is similar to the "domestic unit" defined at the level of the *guaranteed minimum income* which is indeed involving all members of the residence household. A member is considered as "dependent child" if filling conditions in relation with child benefits or benefitting from derived rights in terms of health insurance.

Indeed, the non take-up for this new rent allowance as observed on early 2018 is still high, out of beneficiaries of the guaranteed minimum income who are informed on a more systematic basis and may still benefit from the former system. Therefore, the former support system is maintained in EUROMOD since 2016, and the new one taken into account for receivers of the guaranteed minimum income only and up to the extent that the new benefit is higher than the former one.

The allowance is neither subject to taxation nor to social contributions.

Old-age pension from the general scheme *(Pension de vieillesse du régime général).* A compulsory social insurance scheme financed by contributions with a participation of the State budget for the active population (employees and self-employed) with benefits depending on the duration of the affiliation (flat-rate) and on contributions (earnings-related). The legal retirement age is 65 years but an early retirement pension *(pension de vieillesse anticipée)* is possible from 60 years of age, on condition that 480 months of effective insurance can be proved or assimilated periods can be proved, and from 57 years of age, on condition that 480 months of effective insurance can be proved. The pension comprises two parts:

- A flat-rate pension *(majoration forfaitaire)* which depends on the number of insurance years of 1/40 per year (max. 40) and on a ratio of a so-called "reference amount" (€ 2,085 per year) which gradually increases (24.175% in 2018 and 24.513% in 2021). It is adjusted using the cost of living index (7.9454 in 2018 and 8.3476 in 2021) and a revaluation factor (1.466 in 2018 and 1.462 in 2021).
- An income-related pension part *(majoration proportionnelle)* obtained by multiplying the total earnings by a rate of increase (which varies according to the year of retirement) by the sum of wages. It is also adjusted using the cost of living index and the revaluation factor.

The rate decrease through time from 1.85% before 2013 down to 1.60% in 2052 (1.813% in 2018 and 1.794% in 2021). A staggered supplements *(majoration échelonnée)* can be added if the sum of the age and periods of compulsory insurance exceeds a threshold that changes according to the year of retirement (94 years in 2018 and 2021) : the rate is increased for each supplement year in activity (0.013%/year in 2018 and 0.014%/year in 2021). The maximum stagger supplement is 2.05%.

No old-age pension can be less than 90% of the reference amount (€ 1, 876.50/month) when the insured has covered a 40-year period of insurance periods. This amount is reduced by 1/40th per missing year between the 20th and the 39th year. To be eligible for the minimum pension, there must be a minimum period of 20 years of insurance periods, including 10 years of compulsory insurance, continued, optional or purchased.
The maximum amount is 5/6th of five times the reference amount : € 8,687.50/month.

An allowance at the end of the year *(allocation de fin d'année)* is added if the overall contribution rate for pension insurance does not exceed 24%. The allowance equals € 1.67 for each insurance year (€ 778.08/year in 2018 and € 815.28/year in 2021, in the case of a complete career of 40 years; otherwise proportional reduction).

The pension is subject to taxation and to social contributions for health care and long-term care. (https://www.cnap.lu/les-pensions/pension-de-vieillesse/calcul-du-montant-de-la-pension/)

Survival pension from the general scheme *(Pension de survie du régime général).* A compulsory social insurance scheme financed by contributions with a participation of the State budget for the active population (employees and self-employed) with benefits depending on the pension (flat-rate and earnings-related) of the deceased person. The pension comprises two parts: a flat-rate part depending on the number of insurance years of 1/40 per year (max. 40) and an income- (and contributions-) related part. The flat-rate pension part *(majorations forfaitaires)* and the special flat-rate supplements *(majorations forfaitaires spéciales)* equal the total to which the insured has or would have been entitled. The income-related pension part *(majorations proportionnelles)* and the special income-related supplements *(majorations proportionnelles spéciales)* equal ¾ of the benefit to which the insured has or would have been entitled. There is an allowance at the end of the year *(allocation de fin d'année)* of € 778.08/year in 2018 (€

815.28/year in 2021) in the case of a complete career of 40 years; otherwise proportional reduction. The pension is subject to taxation and to social contributions for health care and long-term care.

Invalidity pension from the general scheme *(Pension d'invalidité du régime général).* A compulsory social insurance scheme financed by contributions with a participation of the State budget for the active population (employees and self-employed) with benefits depending on the duration of the affiliation (flat-rate) and on contributions (earnings-related). The pension comprises two parts: a flat-rate part depending on the number of insurance years of 1/40 per year (max. 40) and an income- (and contributions-) related part. The flat-rate pension part *(majorations forfaitaires)* is set to € 478.25/month for 40 years' insurance in 2018 (€ 519.79/month in 2021) ; income-related pension part *(majorations proportionnelles)* is set to 1.813% of total wage taken into account in 2018 (1.794% in 2021). For invalidity before age of 55, special flat-rate supplements *(majorations forfaitaires spéciales)* of 1/40 for each year between commencement of entitlement to pension and age 65 (max. 40 years) are applied as well as special income-related supplements *(majorations proportionnelles spéciales)* for years remaining from commencement of entitlement until age 55. The rate of the supplement is 1.813% (1.794% in 2021) of average salary gained between age 25 and the year of cessation. The pension is subject to taxation and to social contributions for health care and long-term care.

Old-age pension from the statutory scheme *(Pension de vieillesse du régime statutaire).* This scheme concerns civil servants and employees of the State administration, civil servants and employees of the Communes, employees of the CFL (train company) and employees of public institutions and institutions of public interest. One must distinguish the transitory scheme that concerns persons in activity or retired as of 31 December 1998 from the special scheme that concerns persons who started to work after 31 December 1998.

For the transitory scheme, a right to old-age pension is open in the following situations: in the case of resignation from the age of 57 and a work duration of 40 years; in the case of resignation from the age of 60 and a work duration of 30 years; in the case of resignation at the age of 65 and a work duration of 10 years. The amount of the pension for the transitory scheme is calculated on the basis of the last wage: 5/6 of the last wage but for the years worked after 1 January 1999 the replacement rate will be progressively taken back to 72%. Nevertheless, civil servants with a complete career (35 or 40 years) at the age of the anticipated retirement (55 or 60 years) can increase their pension by 2.31%/supplement per year worked. The amount of the pension for the special scheme is calculated as for the general scheme except that there is no upper limit. There is an allowance at the end of the year (*allocation de fin d'année*) of € 778.08/year in 2018 (€ 815.28/year in 2021) in the case of a complete career of 40 years; otherwise proportional reduction. The pension is subject to taxation and to social contributions for health care and long-term care.

For the persons who started to work after 31 December 1998, a special scheme has been defined which is based on the characteristics of the general scheme described earlier.

Survival pension from the statutory scheme *(Pension de survie du régime statutaire).* The conditions to be eligible for a survival pension from the statutory scheme are similar to those foreseen for the general scheme and the reversion rates are also similar to those foreseen for the general scheme.

Invalidity pension from the statutory scheme *(Pension d'invalidité du régime statutaire).* The conditions to be eligible and the calculation of the pension for an invalidity pension survival pension from the statutory scheme are similar to those foreseen for the general scheme.

Unemployment benefit *(Indemnité de chômage).* An unemployment allowance scheme financed by the State with benefits related to remuneration previously earned. The main conditions for

being eligible for the unemployment benefit are the following: to be involuntarily unemployed, work not permitted, unless part-time and with anti-accumulation rules applying, to be fit to work, to be available for work, to be aged between 16 and 64, to have registered for employment, to accept suitable employment or an active measure offered, to be resident in Luxembourg when the redundancy occurs; claim for the benefit within 2 weeks. The qualifying period for this benefit is at least 26 weeks of employment during the last year.

The benefit is determined by the salary earned before unemployment starts. The earnings taken are the gross earnings during the 3 months which precede unemployment. The allowance cannot exceed 2.5 times the minimum wage (€ 4,996.48/month in 2018, € 5,504.83/month in 2021) or 2 times the minimum wage (€ 3,997.18/month in 2018, € 4,403.86/month in 2021) in the case that the unemployment exceeds 182 days in a period of 12 months. In case of complementary benefit (when unemployment benefit is allowed after the 365 days of the normal duration of compensation) the ceiling is fixed at 1.5 times the minimum wage (€ 2,997.89/month in 2018, € 3,302.9/month in 2021). The rate of the benefit is 80% of reference earnings, increasing to 85% of earnings if there are dependent children. The duration of payment is 365 calendar days during a reference period of 24 months (without exceeding the duration of working days over the reference period); 182 extra calendar days for persons who are particularly "difficult" to place. For unemployed of 50 years and more, prolongation of 12, 9 or 6 months respectively if 30, 25 or 20 years of affiliation to pension. Loss of allowance for 7 days (30 days if repeated) if the unemployed person refuses to report to the employment office. Accumulation with other social security benefits is not possible. If income from a gainful professional activity exceeds 10% of the maximum threshold of the provided compensation, the unemployment benefit is reduced by the amount exceeding the provided ceiling.

The benefit is subject to taxation and to social contributions for health care, long-term care insurance and pension insurance.

Pre-retirement benefit *(Indemnité de préretraite).* Pre-retirement compensation *(indemnité de préretraite)* permitting enterprises to dismiss structurally redundant workers and to re-equilibrate the age structure among the workers within an enterprise. Early retirement measures are also applied in the case of night- and shift-work. The indemnity is paid by employers and partially reimbursed by the employment fund.

The eligibility conditions are the following: age 57, and having fulfilled in the 3 following years the conditions for an early retirement pension (*pension de vieillesse anticipée*), and fulfilling certain conditions related to the work record. The pre-retired must not exercise any professional activity other than insignificant or occasional activities.

The rates of the benefit are a percentage of previous gross earnings, as follows: 85% during 1st 12 months, 80% during 2nd 12 months, 75% during 3rd 12 months.

The benefit is subject to taxation and to social contributions for health care, long-term care insurance and pension insurance.

Sickness benefit *(Indemnité pécuniaire de maladie).* Compulsory social insurance scheme financed by contributions for all active population (employees and self-employed) with earnings-related benefits. The amount of the benefit is the full salary which the insured person would have earned if he had continued to work. The duration of the benefit is maximum 52 weeks. Payment ends if an invalidity pension *(pension d'invalidité)* is granted.

The benefit is subject to taxation and to social contributions for health care, long-term care insurance and pension insurance.

Maternity cash benefit *(Indemnité de maternité).* Compulsory social insurance scheme financed by contributions for the active population (employees and self-employed, given that civil servants receive ordinary wage during that period) and the recipients of a social security benefit. Maternity benefit *(prestations en espèces de maternité)*: 100% of the salary the insured received during the maternity leave. Maternity cash benefits are subject to taxation and to social contributions for health care, long-term care insurance and pension insurance.

The benefit is subject to taxation and to social contributions for health care, long term care insurance and pension insurance.

Parental leave benefit *(Indemnité pour congé parental).* Both parents are entitled to take parental leave up to the child's fifth birthday providing they have worked for their employer, without a break, for at least one year.

Since 1st December 2016, there is a new system for the parental leave. This new system aims at making it more flexible, more attractive financially and accessible, for the largest number of people and in particular for the fathers.

The parents can choose to stop working:
- A full-time parental leave of 4 or 6 months
- A part-time parental leave of 8 or 12 months.

The parental leave can also be "split", that is a full-time person can reduce its activity at the rate of :
- 20 % a week (1 day a week) during a period of 20 months or;
- 4 periods of one month for a maximum period of 20 months.

It is necessary to obtain the agreement of the employer to benefit from the flexible parental leave.

The parental leave benefit becomes a "replacement income", which is calculated on the basis of the applicant's income.

For a full-time, this income corresponds at least to the monthly minimum wage : € 1,998.59 in 2018, € 2,071.10 in 2019, € 2,141.99 in 2020 and € 2,201.93 in 2021; and is limited at € 3,330.98 in 2018, € 3,451.83 in 2019, € 3,569.99 in 2020 and € 3,669.88 in 2021.

Long-term care cash benefit *(Prestation en espèce en cas de dépendance).* Compulsory long-term care social insurance financed by a special contribution from the insured and by the State, covering all persons bound by a sickness insurance, with in kind and cash benefits. Benefits in kind can be combined or replaced by cash benefits. Cash benefits remunerate persons who are not working on behalf of a professional services network. The amount of the benefits totals half of the value of the benefit in kind. Benefit amount per hour: € 25. Maximum cash benefits amount per week: € 262.50.

Benefits are not subject to taxation or to social contributions.

Care allowance *(Allocation de soins).* The law concerning this allowance has been abrogated, with effect from 1 January 1999, by the law concerning long-term care insurance. However, recipients of this allowance at 31 December 1998 continue to receive this allowance. No allowance has been paid since 2016.

Seriously disabled persons allowance *(Allocation spéciale pour personnes handicapées).* The law concerning this allowance has been abrogated, with effect from 1 January 1999, by the law concerning long-term care insurance. However, recipients of this allowance at 31 December 1998 continue to receive this allowance. But as soon as long-term care insurance is granted, the

seriously disabled persons allowance is cancelled. In 2018 the amount of this allowance was € 709.05/month (€ 744.94/month in 2021).

- ***Scope and scale***

Table 5. Social benefits: resident recipients (as % of population)

	2018	2019	2020	2021
Maternity allowance	0.00	0.00	n/a	n/a
Birth grant	1.16	1.17	n/a	n/a
Child-raising allowance	0.04	0.00	n/a	n/a
Child benefit	19.68	19.54	n/a	n/a
Supplementary allowance	n/a	n/a	n/a	n/a
New school year allowance	12.84	12.60	n/a	n/a
Seriously disabled persons benefit				
Guaranteed minimum income	3.47	3.59	n/a	n/a
Income for seriously disabled persons	0.09	0.09	n/a	n/a
Expensive life allowance	3.18	3.26	n/a	n/a
Higher education grants	n/a	n/a	n/a	n/a
Survival pension from general scheme	4.04	3.98	n/a	n/a
Survival pension from statutory scheme	4.04	3.98	n/a	n/a
Invalidity pension from statutory scheme	0.18	0.19	n/a	n/a
Unemployment benefit	2.60	2.52	n/a	n/a
Pre-retirement benefit	0.20	0.19	n/a	n/a
Sickness benefit	n/a	n/a	n/a	n/a
Benefit for family reasons	n/a	n/a	n/a	n/a
Maternity cash benefit	0.57	0.58	n/a	n/a
Parental leave benefit	0.90	0.94	n/a	n/a
Long-term care cash benefit, care allowance and heavily handicapped person benefit	n/a	n/a	n/a	n/a
Permanent accident benefit	1.11	1.05	n/a	n/a

Notes: The % concerns only resident recipients. Recipients living abroad are excluded from the table.

Sources: www.isog.public.lu , STATEC, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

Table 6. Social benefits: expenditure (resident recipients only)

	2018	2019	2020	2021
Annual expenditure (in millions €)	5,522.17	5,472.90	n/a	n/a
as % of total expenditure				
Birth Grant	0.22	0.22	n/a	n/a
Child-raising/Education Allowance	0.13	n/a	n/a	n/a
Child benefit	8.78	8.28	n/a	n/a
Boni for children	0.01	0.00	n/a	n/a
Supplementary allowance	0.08	0.07	n/a	n/a
New School Year Allowance	0.29	0.27	n/a	n/a
Seriously disabled persons benefit	n/a	n/a	n/a	n/a
Guaranteed minimum income	3.25	3.28	n/a	n/a
Income for seriously disabled persons	0.84	0.91	n/a	n/a
Cost of living allowance	0.62	0.84	n/a	n/a
Higher education grants	1.71	1.70	n/a	n/a
Old-age pension from general and statutory schemes	54.70	53.87	n/a	n/a
Survival pension form general and statutory schemes	13.52	12.94	n/a	n/a
Invalidity pension form general scheme	4.42	4.17	n/a	n/a
Invalidity pension from statutory scheme	1.07	2.78	n/a	n/a
Unemployment benefit	3.62	3.58	n/a	n/a
Pre-retirement benefit	1.15	1.02	n/a	n/a
Sickness benefit	1.50	1.92	n/a	n/a
Benefit for family reasons	n/a	n/a	n/a	n/a
Maternity cash benefit	1.51	1.51	n/a	n/a
Parental leave benefit	1.67	1.75	n/a	n/a
Long-term care cash benefit and Care allowance	0.91	0.90	n/a	n/a

Notes: The annual expenditure and the % concern only resident recipients. For some benefits no distinction is made between residents and non-residents in raw data; for these cases we have estimated the amounts received by residents. The annual expenditure is equal to the sum of the different components present in the table. According to the statistics produced by the Social Security, the annual expenditure for cash benefits (residents and non-residents) was equal to € 8,418 million in 2017, out of which about 22% was transferred abroad, meaning that the annual expenditure for cash benefits towards the residents must be around € 6,566 million in 2017.
Sources: www.isog.public.lu, STATEC, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

1.3 Social contributions

Social contribution for health care - cash benefits (*Cotisations sociales pour soins de santé – prestations en espèce*) finance sickness and maternity cash benefits. All employees from the private sector are entitled to these social contributions. Civil servants who benefit from continuation of the salary in the case of sickness or maternity do not have to pay this social

contribution. The contribution basis is composed of the professional income, i.e., the gross pay including all the advantages even if they are in kind but excluding occasional allowances and bonuses. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Since 2009, a uniform status (*statut unique*) has been introduced for blue- and white-collar workers. Since the "statut unique", both white-collar and blue-collar workers continue to receive pay - imposed on the employer for the month in which the sickness occurs and for the following three months.

The employer's contribution rate involves a fix part (0.25% for all employers since 2009) and a variable part funding the so-called *Mutualité des employeurs* and depending on the "class of risk" regarding absenteeism within the firm. The corresponding variable part of rate was comprised 0.46% and 2.95% in 2018 (0.53% and 2.88% in 2021). However, given lack of data and for simplicity reasons, we have implemented an average variable rate only, changing through time: 1.71% in 2018,1.60% in 2019, 1.58% in 2020 and 1.71% in 2021.

Social contribution for health care - benefits in kind (*Cotisations sociales pour soins de santé-prestations en nature*). The contribution basis is composed of the professional incomes defined above, including occasional allowances and bonuses, pensions and all replacement incomes subject to social contributions. The contribution rate is 5.6% in total in 2016: 2.8% for the insured and 2.8% for the employer. For the contribution basis there is a ceiling that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Social contribution for long-term care insurance (*Cotisations sociales pour l'assurance dépendance*). The contribution basis is composed of professional incomes, replacement incomes and wealth incomes. The contribution rate amounts to 1.40 % for employees (there is no employer contribution). No maximum is applied to the contribution basis. The monthly contribution basis is reduced by 25% of the minimum wage for persons receiving a wage or a replacement income from the social security.

Social contribution for pension insurance (*Cotisations sociales pour pension*). The contribution basis is composed of professional incomes or the following replacement incomes (unemployment benefit, sickness benefit, maternity benefit, parental leave benefit). The contribution rate is 24% in total: 8% for the insured, 8% for the employer and 8% for the State. For the contribution basis there is a ceiling (except for the civil servants) that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Employer social contributions for accident *(Cotisations sociales de l'assurance accident)*. These contributions are paid exclusively by the employer. Since 2011 to 2018, all industrial firms are ranged in 22 risk classes. The rate is uniform with a level of 1.00% in 2017 and 0.90% in 2018. For the contribution basis there is a minimum that corresponds in principle to the minimum wage. In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021). Concerning the agricultural or forestry sector, the contributions are calculated according to the size of the land, the vineyard or the forest.

Since 2019, there are 17 risk classes according to the main activity and a bonus-penalty system varies the rate. A bonus-penalty factor (BPF) is calculated by comparing the contributor to the other contributors from the same class and depending on the result, the rate varies according to 5 values : 0.72% for a bonus-penalty factor (BPF) less than 0.9, 0.80% for a BPF between 0.9 and 1.0, 0.88% for a BPF between 1.0 and 1.1, 1.04% for a BPF between 1.1 and 1.3 and 1.20% for a

BPF greater than 1.3 in 2019. In 2020 and 2021 the values are respectively: 0.68%, 0.75%, 0.83%, 0.98% and 1.13%.

Social contributions for family alloweances (*Cotisations sociales pour les prestations familiales*). These contributions are paid nither by the employees nor by the employers but by the State.

- ***Scope and scale***

Table 7. Social contributions: resident contributors (as % of population)

	2018	2019	2020	2021
Social contributions				
Social contribution health care - cash benefits	34.15	34.46	n/a	n/a
Social contribution health care - benefits in kind	59.63	59.92	n/a	n/a
Social contribution long-term care insurance	59.63	59.92	n/a	n/a
Social contribution for pension insurance	n/a	n/a	n/a	n/a
Social contribution for accident insurance	37.51	37.60	n/a	n/a
Social contribution for family allowances	n/a	n/a	n/a	n/a

Notes: The % concern only resident contributors.
Sources: www.isog.public.lu, STATEC, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

Table 8. Social contributions: revenue

	2018	2019	2020	2021
Social contributions (millions of €)	3,729.00	3934.07	n/a	n/a
as % of total revenue				
Social contribution health care - Total	*29.82*	*29.85*	*n/a*	*n/a*
Social contribution health care - cash benefits (employee and employer)	1.34	1.35	n/a	n/a
Social contribution health care - benefits in kind (employee and employer)	28.48	28.51	n/a	n/a
Social contribution long-term care insurance (employee and employer)	6.73	6.73	n/a	n/a
Social contribution for pension insurance (employee and employer)	59.31	59.60	n/a	n/a
Social contribution for accident insurance (employer)	3.22	2.89	n/a	n/a
Social contribution for family allowances (employer and self-employed)	0.92	0.93	n/a	n/a

Notes: The % and amounts concern only resident contributors.
Sources: www.isog.public.lu, STATEC, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

1.4 Taxes

Personal income tax (*Impôt sur le revenu des personnes physiques*): taxed jointly at the family units. The family unit is defined by the marriage or the legal consensual union and children less than 18 years old on 1 January of the tax year. However, wages received by a child less than 18 years old are not covered by the joint taxation.

Tax payers are granted a tax class according to their family status. Basically, married taxpayers (even in the case of a wedding or divorce during the calendar year), widowed persons for the 3 years following the year in which they became widowed, divorced or separated individuals for the 3 years following the year of divorce or separation and civil partners who live together for a full tax year and elect to file jointly, belong to tax class 2.
Widowed persons not included in tax class 2, individuals aged at least 65 on 1 January and single parents belong to tax class 1a.
All other individuals belong to tax class 1.
For tax class purposes, a child is less than 21 years old on 1 January of the tax year or 21 years old and more continuing to study.
In 2018, married taxpayers could choose between several systems which distinguish between residents and non-residents (including some reallocation of income between spouses before taxation), but for reasons emphasized in *Section 2.6*, the collective taxation (as before 2018) remains the best choice for resident population (the one considered in EUROMOD).

In Luxembourg, the tax year corresponds to the calendar year. Income tax rates are progressive. They vary from 0% to 40% (19 brackets) in 2016, up to 42% since 2017 (23 tax brackets).
Since 2011, a surcharge for the unemployment fund is applied. Since 2013, it is either 7% or 9%, depending on the level and tax class of income.
As from 1 January 2015, a new tax is introduced on the income of individuals (residents and non-residents), called "budget balancing temporary tax". The rate of this tax is fixed at 0.5%. The tax base is constituted by the professional income, the replacement income and the income from capital. This contribution was removed in 2017.

There are eight categories of taxable income which, added together over the year, determine the total taxable income: Commercial/business profits; Profits from agriculture and forestry; Profits derived from self-employed professions (*profession libérale*); Net income from employment; Net income from pensions and/or annuities; Net income from investments (movable capital); Net income from rental of property and Other net income (including capital gains).
Withholding taxes are levied on some of the incomes above. Income from employment, pensions and some savings and investment incomes are subject to a pay-as-you-earn system. Other income must be declared in an annual tax return, submitted to the Luxembourg Tax Administration.
The income subject to tax according to the tax schedule (*revenu imposable ajusté*) is equal to the net income of the different categories of incomes after deduction of operating expenses, accusation costs, exemptions and several deductions.
The salary of a child less than 18 years old is taxed individually but parents are eligible to a tax reduction for this child. All other types of income received by a child less than 18 years old are added together with the parent's incomes.
Children aged 18 to 21 years are taxed individually but parents are eligible to a tax reduction for children.

Property tax (*Impôt foncier*): the property tax is a communal tax that applies to all the constructed or non-constructed real properties. The amount of this tax is very low.

Value Added Tax (*Taxe sur la valeur ajoutée*): there are 4 different tax rates: normal rate at 17%, a reduced rate at 8%, a super-reduced rate at 3% and an intermediate rate at 14%.

Excise duties *(Accises et taxes assimilées*): These taxes are levied on alcohol and alcoholic beverages, beer, tobacco, petrol, gas and electrical energy.

- ***Scope and scale***

Table 9. Taxes: taxpayers (as % of population)

No information is available to estimate taxpayers as % of population

Table 10. Taxes: revenue

	2018	2019	2020	2021
Annual revenue (millions of €)	17,125	18,069	n.a.	n.a.
Direct taxes				
Taxes on income and profits, on Individuals (then out of corporate)	5,599	5,917	n.a.	n.a.
Personal income tax	n.a.	n.a.	n.a.	n.a.
Solidarity income tax increase for persons	n.a.	n.a.	n.a.	n.a.
Withholding personal tax	n.a.	n.a.	n.a.	n.a.
Recurrent taxes on immovable property	38	39	n.a.	n.a.
Indirect taxes				
VAT	3,728	3,872	n.a.	n.a.
Excise duties	1,556	1,674	n.a.	n.a.

Notes: The annual revenue numbers reported in the first line are exclusive of revenue from social insurance contributions. The numbers reported in Table 10 include tax paid by non-residents.
Source: OECD Revenue Statistics 1965-2019 – details of tax revenue, Luxembourg

Note : a tax reform in 2018, yet not to be implemented in EUROMOD

Before 2018, married taxpayers were necessarily taxed collectively with their spouses. From fiscal year 2018, these married taxpayers can choose between either a pure individual taxation, an individual taxation with reallocation of income, or a collective taxation (as before 2018).

The *pure personal taxation* takes into account only the own income of the married taxpayer. If the couple chooses this tax, each spouse is taxed in class 1 (see Section 2.6.1) taking into account his/her own income. Tax allowances (limits), for example the extra-professional allowance, are divided equally between the two spouses.

Individual taxation with income reallocation takes into account the total income of the couple. Then the couple chooses the share of adjusted taxable income to be allocated to each spouse. Therefore, each spouse is taxed based on class 1 and taking into account the share of income allocated to him/her.

If nothing is explicitly specified by the spouses, the adjusted taxable income is equally shared between the two taxpayers. This is a so-called *"convergent reallocation"*. In the case where the spouses explicitly indicate the share of adjusted taxable income to be allocated to each, we face a *"divergent reallocation"*.

In the case of individual taxation with reallocation, there is no distribution of tax allowances because the reallocation is done at the level of the adjusted taxable income, that is to say after the imputation of all the allowances which the household may be entitled.

EUROMOD applies to resident population and is considering tax computation for all households, whatever the marital status, income levels, etc of the members. It is therefore easy to understand that in case of married taxpayers, the joint taxation dominates, in terms of net disposable income downstream, all other configurations. Therefore and for all households resident in Luxembourg, the tax reform as seen from EUROMOD is of no effect.

For reasons out of the scope of the present report, only non-resident households fully or partially taxable in Luxembourg might benefit from the 2018 reform. Practically, this implies that the tax module in EUROMOD remains unchanged despite the reform.

2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

General remark:

All amounts and qualitative information mentioned below correspond to the year 2018 (as on June 30th, when relevant), unless otherwise stipulated.

2.1 Scope of simulation

Not all benefits and taxes are simulated in EUROMOD. Indirect taxes such as VAT and excise duties that do not affect net disposable income are currently outside the scope of EUROMOD. The same is true for services in-kind. These are neither simulated nor included among the output variables. Other benefits and taxes may not be simulated due to lack of information in the input dataset. These are included in the final output dataset but the rules governing them may not be altered by the simulation. Tables 11 and 12 classify all the main tax-benefit instruments into one of these three groups and provide a brief explanation as to why the instrument is not fully simulated if this is the case. Information is provided regarding the treatment of all tax and benefit instruments in each policy year that has been implemented.

Table 11. Simulation of benefits in EUROMOD

	Variable name(s)	2018	2019	2020	2021	Why not fully simulated ? / Remarks
Care allowance	bca01	I	I	I	I	No data on the level of dependency
Long-term care cash benefit	bca02	I	I	I	I	No data on the level of dependency
Child credit	bch00_s	S	S	S	S	Dropped since 1st August 2016 /
New school year allowance	bched01_s	S	S	S	S	
Child-raising Allowance	bched04_s	I	I	I	I	Copied from input up to 2014 (No precise information on the contribution history before the child is 2 years old). Benefit dropped since 1st June 2015, but allocations already "engaged" are maintained => hence still copied in 2015 and 2016, dropped afterwards
Allowance for looked after children in families	bched05	I	I	I	I	Target cannot be identified
Higher education grants	bed_s	S	S	S	S	
Seriously disabled persons benefit	bdisv	I	I	I	I	No information on disability
Parental leave benefit	bfapl	I	I	I	I	No data on the intention to take the parental leave
Child benefit	bfauc_s	S	S	S	S	
Sickness benefit	bhl	I	I	I	I	No data on contribution history and on sickness

Rent allowance	bsaho_s	S	S	S	S	Part of Guaranteed minimum income
Rent allowance	bho_s	S	S	S	S	/ Introduced in 2016
Birth grant	bmaba	I	I	I	I	No information on medical examinations
Maternity cash benefit	bmawk	I	I	I	I	No data on contribution history
Guaranteed minimum income	bsacm_s	S	S	S	S	/ Full take-up considered
Heating allowance / Expensive life allowance	bsaht_s	S	S	S	S	
Unemployment benefit	bunss or bunss_s	PS	PS	PS	PS	No data on contribution history / Simulation possible according to the fact that the wage preceding the unemployment benefit has been estimated in the input database (yempv) using the reverse function of the unemployment benefit rules
Pre-retirement benefit	byr	I	I	I	I	No data on contribution history
Invalidity pension	pdi00	I	I	I	I	No data on contribution history and on disability
Old-age pension from General and Statutory schemes	poapups	I	I	I	I	No data on contribution history (no separation between schemes since EU-SILC 2016 any longer)
Short-term work allowance (paid by state)	bwkmcee_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.

Some benefits use eligibility information from the data due to lack of information in the data to simulate all eligibility rules and are therefore only **partially simulated**. This is the case for the unemployment benefit (bunss_s) in Luxembourg. The benefit is only simulated for those with receipt of the benefit in the data using an imputed previous wage to determine the benefit size.

Table 12.

	Variable name(s)	2018-2021	Why not fully simulated?
Personal income tax	tin_s	S	
Tax credit for employees	tintceent_s	S	
Tax credit for lone parents	tintclpnt_s	S	
Tax credit for retired	tintcpent_s	S	
Tax credit for self employed	tintcsent_s	S	
Contribution to unemployment fund	tinui_s	S	
Credited social contributions for replacement income and pensions – health care	tsccthl_s	S	

Credited social contributions for replacement income - pension insurance	tscctpi_s	S	
Credited social contributions for social assistance – health care	tscctsi_s	S	
Social contributions on social assistance – long term care insurance	tsceebeot_s	S	
Employee social contribution for health care - benefits in kind	tsceehl_s	S	
Employee social contribution for long-term care insurance	tsceeot_s	S	
Employee social contribution for pension insurance (civil servant)	tsceepbpi_s	S	
Employee social contribution for pension insurance (non civil servant)	tsceepi_s	S	
Employee social contribution for health care - cash benefits	tsceesi_s	S	
Employer social contribution for accident insurance	tscerac_s	S	
Employer social contribution for health care - benefits in kind	tscerhl_s	S	
Employer social contribution for pension insurance	tscerpi_s	S	
Employer social contribution for health care - cash benefits	tscersi_s	S	
Self-employed social contribution for accident insurance	tscseac_s	S	
Self-employed social contribution for health care - benefits in kind	tscsehl_s	S	
Self-employed social contribution for long-term care insurance	tscseot_s	S	
Self-employed social contribution for pension insurance	tscsepi_s	S	
Self-employed social contribution for health care - cash benefits	tscsesi_s	S	
Excise duties		E	No information on expenditures
Property tax		E	No information on the way the administration estimates the value of the property
Value added tax		E	No information on 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 Main policy changes

- ***2015-2016***

A new rent allowance is introduced.

- ***2016-2017***

Since 2016, a new "Housing benefit" has been implemented.

Since August 2016, an additional system for "Child benefits" is introduced, to become progressively effective.

Since 1st December 2016, a new system for the "Parental leave" is introduced.

Since 2017, the "Budget balancing temporary tax", the "Education allowance" and the "Child credit" are removed, the last benefit being integrated in the general child benefit scheme.

Since 2017, the "Tax system" is significantly reformed, with more brackets and a maximum marginal tax rate fixed to 42% (40% formerly). Several "Tax credits" are also becoming dependent on the level of income with regard the rate to be applied.

Finally, the "Higher education grant" policy has been reformed.

- ***2017 -2018***

No changes.

- ***2018-2019***

With the tax reform, from fiscal year 2018, these married taxpayers can choose either a pure individual taxation, either an individual taxation with reallocation of income, either a collective taxation.

Since 2018, the components of the total income of the household takes into account to evaluate the attribution of the rent allowance are reduced to enlarge the population possibly covered.

- ***2019-2020***

The new social assistance REVIS replace the RMG in order to improve social inclusion and act against child poverty and single-parent families.

For the employer social contributions for accident, the number of risk classes is reduced from 22 to 17 and the uniform rate is replaced by a rate which varies depending on a bonus-penalty factor.

Because of COVID-19, a partial unemployment scheme for cases of force majeure has been set up, supported by the state up to 80% of the employees' wages.

- ***2020-2021***

No changes.

2.3 Order of simulation and interdependencies

- ***Order of simulation in 2018-2021***

The following table shows the order in which the main elements of the Luxembourg system in 2018-2021 are simulated.

Table 13. EUROMOD Spine: order of simulation, 2018-2021

Policy	Description	LU_2018	LU_2019	LU_2020	LU_2021	Main output
random_lu	Random assignment			on	on	several
transLMA_lu	Simulation of labour market transitions			off	off	several
bunss_lu	Unemployment benefit	on	on	on	on	bunss_s
bsacm_lu	Guaranteed minimum income (RMG)	on	on	on	on	bsacm_s
tscee_lu	Employee social contribution	on	on	on	on	tscee_s
tscer_lu	Employer social contribution	on	on	on	on	tscer_s
tscct_lu	Credited social contributions	on	on	on	on	tscct_s
tscse_lu	Self-employed social contributions	on	on	on	on	tscse_s
tsceebeot_lu	Long term care contribution related to RMG	on	on	on	on	tsceebeot_s
tscctsi_lu	Credited social contributions for social assistance	on	on	on	on	tscctsi_s
bch00_lu	Child tax credit *(since 2008 only)*	off	off	off	off	bch00_s
bfauc_lu	Child benefit	on	on	on	on	bfauc_s
bched01_lu	New school year allowance	on	on	on	on	bched01_s
bsaht_lu	Heating allowance	on	on	on	on	bsaht_s
tin_lu	Personal income tax	on	on	on	on	tin_s
bedsim_lu	Scholarship for higher education *(2011 on)*	on	on	on	on	bed_s
bho_lu	Rent allowance *(since 2016)*	on	on	on	on	bho_s
tintcee_lu	Tax credit for employees *(since 2009 only)*	on	on	on	on	tintceent_s
tintcpe_lu	Tax credit for retired *(since 2009 only)*	on	on	on	on	tintcpent_s

tintcse_lu	Tax credit for self employed *(since 2009 only)*	on	on	on	on	tintcsent_s
tintclp_lu	Tax credit for lone parent *(since 2009 only)*	on	on	on	on	tintclpnt_s

2.4 Policy switches

There is a single policy switch in Luxembourg that may be turned on or off. ICS_lu is by default switched on and it drops individuals/households with international civil servants from the 2016 dataset. International civil servants have their own set of tax and benefit rules not modelled in EUROMOD, however this switch allows one to keep these individuals/households in the data and study the effects of applying the Luxembourgish national tax and benefit rules on those otherwise excluded households.

2.5 Social benefits

Child benefit (*Allocations familiales*) (*bfauc_lu*)

- ***Definitions***

The unit of analysis is the family (tu_cb_lu), which is composed of parents and their dependent children (see Eligibility conditions below). To form a family, parents do not necessarily have to be married.

- ***Eligibility conditions***

The child benefit is a universal scheme. A child's personal rights are related to the residence. Each child brought up continuously in Luxembourg and with a legal residence there is entitled to this child benefit. The age limit is 18 years. For children in vocational training or further education or suffering from a serious infirmity the age limit is 25 years.

Since 2011, children in higher education are no longer eligible (see *Section 1.2*).

- ***Income test***

The child benefit does not vary with income.

- ***Benefit amount***

The monthly amount is uniformly € 185.60 for one child, € 440.72 for two children, € 802.74 for three children and € 361.82 for each subsequent child. Child benefit does not vary with income. Child benefit varies with age: children aged 6 and more receive a supplement of € 16.17/month and children aged 12 and more receive a supplement of € 48.52/month.

Since 1st August 2016, two systems are applied and the changes compared to the previous system are mentioned below. Given the EUROMOD is here building on EU-SILC 2017 from the (income) years 2016 on, with no demographic change taken into account after 2016, those changes are not simulated in the model yet.

For children born before 1st August 2016 or the families arrived at Luxembourg before 1st August 2016, the monthly amount is € 265.00 for one child, € 594.48 for two children, € 1,033.38 for three children and € 438.70 for each subsequent child.

For children born after 1st August 2016 or the families arrived at Luxembourg after 1st August 2016, the monthly amount is € 265 per child.

On top of this and in all cases, the supplement for age becomes € 20/month (children aged 6 and more) and € 50/month (children aged 12 and more).

(https://guichet.public.lu/fr/citoyens/famille/parents/allocation-naissance.html)

Tax bonus for children (*Boni pour enfant*) (*bch00_lu*)

- ***Definitions***

The tax bonus has been introduced in 2008, it replaced the tax reduction for children and it is paid by the family allowance fund. That is why the tax bonus is classified in the benefit section rather in the tax credit section. The unit of analysis is the same as that used for the personal tax (see "tu_tin_lu" in *Section 2.6.1*).

- ***Eligibility conditions***

The tax bonus for children is awarded in favour of each child for whom the child benefits are paid. Children to whom the child benefits are no longer paid, are not eligible for the tax bonus for children. These children continue to be eligible for the tax reductions for children. Since 1st August 2016, the tax bonus for children is removed.

Since 2011, children in higher education are no longer eligible (see *Section 1.2*).

- ***Income test***

The tax bonus for children does not vary with income.

- ***Benefit amount***

Since 2008, the monthly amount is € 76.88 (€ 922.56/year) per child. The benefit is not subject to taxation or to social contributions and is not linked to changes in prices, meaning that the amounts are similar for the years 2008 up 2016. It is "0" since 2017.

EUROMOD Notes: The condition of being a child not eligible for the tax bonus but who continues to be eligible for the tax reduction for children is not simulated. It concerns very few cases.

Higher education grant and/or loan *(Bourse et/ou prêt d'études pour enseignement supérieur)* (*bedsim_lu*)

- ***Definitions***

The higher education grant and/or loan (*bourse et/ou prêt d'études pour enseignement supérieur*) is basically awarded to students who are registered in a University or a College (tertiary education). It has been reformed in 2014 with some new adaptation in 2016. The unit of analysis is "education grant"-related family (*tu_edugrant_lu*).

- ***Eligibility conditions***

The grant is basically awarded to students who are registered in a University or a College (tertiary education), under common conditions (recognized programme, minimum number of credits, etc) or, in special cases, to students in technical secondary education (and who are allowed to complete their training abroad).

- ***Income test***

The level of grant depends on the income net of taxes of the student's "household" (since 2014). Nevertheless, if the student's personal income exceeds the social minimum wage. The "household" to be considered is derived from administrative data and is basically composed of the fiscal unit, including children benefitting from derived rights in terms of health insurance.

- ***Benefit amount***

See *Section 1.2* for basic information.
The grant is composed by:
- A basic amount: € 2,000/year in 2018 (€ 2,100/year in 2021).
- A mobility allowance: € 2,450 in 2018 (€ 2,572/year in 2021).
- A family supplement if 2 children or more are involved in higher education: € 500/year in 2018 per student (€ 524/year in 2021).
- A "social" complement depending on the household's income:

Table 14. Higher education grant and/or loan benefit (bedsim_lu) amounts

Annual household's income, net of taxes	Social complement (per year)		
	2018-2019	2020	2021
<= "Minimum Social Wage for non-qualified workers" (MSW)	€ 3,800	€ 3,894	€ 3,990
from MSW to 1.5 MSW	€ 3,200	€ 3,280	€ 3,364
from 1.5 MSW to 2 MSW	€ 2,650	€ 2,716	€ 2,782
from 2 MSW to 2.5 MSW	€ 2,150	€ 2,202	€ 2,256
from 2.5 MSW to 3 MSW	€ 1,650	€ 1,690	€ 1,732
from 3 MSW to 3.5 MSW	€ 1,150	€ 1,178	€ 1,206
from 3.5 MSW to 4.5 MSW	€ 550	€ 562	€ 576
> 4.5 MSW	No complement	No complement	No complement

Since 1 Aug 2017, all those amounts will be adapted to the so-called "*échelle mobile des salaires*" (close to automatic indexation of wages) each academic year following an academic year where this index will have been changed (law of July 2016).

(https://guichet.public.lu/fr/citoyens/enseignement-formation/etudes-superieures/aides-logement/aide-financiere.html)

New school year allowance (*Allocation de rentrée scolaire*) (*bched01_lu*)

- ***Definitions***

The unit of analysis is the family (tu_cb_lu, see *Section 2.4.1*). The new school year allowance *(Allocation de rentrée scolaire)* aims to compensate costs related to the new school year.

- ***Eligibility conditions***

This allowance is given to children over 6 years. Except for the age condition, the eligibility conditions are similar to those for the child benefit.

- ***Income test***

This allowance does not vary with income.

- ***Benefit amount***

Since 1st August 2016, the amount of this allowance varies only with the age. Theses monthly amounts are € 115 euros/year for a child of more than 6 years old and to € 235 euros/year for a child of more than 12 years old. These amounts are per child.

(https://guichet.public.lu/fr/citoyens/famille/parents/allocation-naissance/allocations-familiales.html)

Social assistance (Revenu Minimum Garanti & Revenu d'inclusion sociale) (*bsacm_lu*)

- ***Definitions***

The guaranteed minimum income, which was available until 31st December 2018, could be either an integration allowance *(indemnité d'insertion)* or a supplementary allowance (allocation complémentaire) aiming to compensate the difference between the highest amounts of the guaranteed minimum income and the sum of the household resources. Since 1st January 2019, the social inclusion income (REVIS for REVenu d'Inclusion Sociale) replaces the guaranteed minimum income, always with two components: the inclusion allowance which replaces the supplementary allowance and the activation allowance instead of the integration allowance. By this changes, the aim is to improve certain points such as establishing a coherent system between stabilization, social activation and reintegration policies or acting against the poverty of children and single-parent families. Thereby, maximum amounts of the inclusion allowance increase for families with children and/or with one parent.

The simulation concerns only the supplementary/inclusion allowance, the most current situation. The integration/activation allowance can be considered as a salary: beneficiaries who participate in activation measures (for employment) are entitled to a monthly allowance based on the minimum social wage.

The domestic unit for the calculation of resources is defined by the "de facto" community of all the persons living in the same common household, obviously disposing of a common budget and unable to provide evidence that they live elsewhere (*tu_bsa_lu*).

For social assistance a dependent child is defined until 31st December 2018 as a person less than 18 years old or less than 27 years old and in education or disabled, and since 1st January 2019 as a person less than 25 years old in education.

- ***Eligibility conditions***

The eligibility conditions concern i) residence (persons resident on Luxembourg territory and having resided in the country for at least 5 years during the last 20 years. This residence condition is not required for EU or EEA citizens or for refugees); ii) age (with effect from 25 years; exceptions for persons unable to work, those who are looking after a child or an invalid); iii) have resources below the REVIS scale for their household community; iv) willingness to work (be registered with the Employment Development Agency (ADEM) and actively seek employment); v) should not have disqualifying criteria (abandonment or reduction of work, non-respect of the collaboration agreement with ADEM, have been dismissed for serious reasons...).

- ***Income test***

The resources taken into account are the entire gross revenue of the household, possessions and replacement or supplementary social security benefits. Family allowances, maternity benefits, long-term care benefits and professional income of children less than 25 years old up to the guaranteed minimum income for a person living alone (€ 1,401.18/month in 2018, € 1,543.73/month in 2021) are not taken into account. However, in RMG, to avoid inactivity traps, up to 30% of the reference minima are disregarded from the professional incomes and replacement incomes to compute the resources. With REVIS, the immunization mechanism obeys new rules which also aim to eliminate inactivity traps but also to enhance the income generated by increased activity. For this, an immunization of 25% is operated directly on the gross income concerned by the immunization and no longer on the scale due to the domestic community. Consequently, an increase in activity is no longer accompanied by an equivalent decrease in the inclusion allowance (as it was the case with the RMG).

The resources of wealth are also taken into account. These resources are defined by conversion into a life annuity of the global value of the wealth through multipliers that have to be defined by the State. The real estate value of property situated in Luxembourg is defined according to the unit values fixed by the tax administration. Due to lack of information, the resources of wealth are not simulated.

- ***Benefit amount***

The guaranteed minimum income is fixed in 2018 at € 1,401.18/month (€ 1,543.73/month for the REVIS in 2021) for a person living alone or for the first person of the domestic unit (base amount). In RMG as in the REVIS, for the second adult, the base amount is uprated by 50% of the amount for a person living alone, i.e. € 700.59/month in 2018 (€ 771.86/month in 2021 with the REVIS). For each subsequent adult, the base amount is uprated by € 400.93/month. For each child, the base amount is uprated by € 127.37/month. With the REVIS in 2021, for each subsequent adult, the base amount is uprated by € 441.76/month, and by € 140.41/month for each child. In addition to that, the REVIS add an increase of € 115.95/month for household with children and € 70.88/month per child living in a single-parent family (SPF).

Before 2016, where rent is due for an occupied flat, the difference between the rent paid and the amount corresponding to 10% of the guaranteed minimum income *(revenu minimum garanti)* is granted additionally. Maximum: € 123.94/month for a person living alone, to € 300/month for a household with more than 6 children. Since 2016, this allowance is becoming a separate benefit. However, given circumstances related to the "new" rent allowance introduced in 2016, the present supplement is still taken into account up to a certain extent. *Cf. (*) in the Table below and EUROMOD Notes in Section 2.4.7.*
(https://guichet.public.lu/subvention-loyer / https://logement.public.lu/)

The supplementary allowance is subject to taxation and to social contributions for health care and long-term care insurance.

Table 15. Social assistance (Revenu Minimum Garanti & Revenu d'inclusion sociale) amounts (*bsacm_lu*)

	First adult	Second adult	Subsequent adult	Child	Maximum supplement in case of tenant
2018	1401.18€	700.59€	400.93€	127.37€	*124€ to 300€ (*)*

2019	1452.00€	726.04€	415.51€	225.59€ (+66. 70€ if SPF)	*124€ to 300€ (*)*
2020	1501.65€	750.95€	429.74€	233.32€ (+68.96€ if SPF)	*124€ to 300€ (*)*
2021	1543.76€	771.98€	441.76€	€ 239.83 (+70.88€ if SPF)	*124€ to 300€ (*)*

(https://revis.public.lu/fr.html / Social_parameters2020)

Expensive life allowance (*Allocation de vie chère*) (*bsaht_lu*)

NB: formerly (prior to 2009) "Heating allowance", hence policy name

- ***Definitions***

The expensive life allowance *(Allocation de chauffage)* aims to support the cost of living for low income families. The unit of analysis is the household (*tu_household_lu*).

- ***Eligibility conditions***

The eligibility conditions concern residence (persons resident on Luxembourg territory).

- ***Income test***

This allowance is a means-tested allowance. To be eligible in 2018, the global annual income should not exceed: € 24,026.89/year for a person living alone (€ 26,445.24/year in 2021), € 36,040.33/year for a two-person family (€ 39,667.8/year in 2021), € 43,248.40/year for a three person family (€ 47,601.36/year in 2021), € 50,456.47/year for a four-person family (€ 55,534.92/year in 2021) and € 57,664.54/year for a five-person or more family (€ 63,468.48/year in 2021).

The global annual income of the family involves labor earnings, replacement income, revenue from movable and immovable property, pensions and rents, allowances and other benefits from public as well as private bodies and alimonies. In 2018, child benefits (*allocations familiales*), new school year allowances (*allocation de rentrée scolaire*) and birth grants (*allocation de naissance*) are excluded from the total amount to be considered.

- ***Benefit amount***

Table 16. Expensive life allowance (Allocation de vie chère) benefit amounts (bsaht_lu)

	One-person household		**Two-person household**		**Three-person household**		**Four-person household**		**Five-person household and more**	
	Upper limit €/year	Ben. €/year	Upper limit €/year	Ben. €/year	Upper limit €/year	Ben. €/year	Upper limit €/year	Ben. €/year	Upper limit €/year	Ben. €/year
2018	24,026.89	1,320	36,040.33	1,650	43,248.40	1,980	50,456.47	2,310	57,664.54	2,640
2019	24,920.64	1,320	37,380.96	1,650	44,857.16	1,980	52,333.36	2,310	59,809.56	2,640
2020	25,744.00	1,320	38,616.00	1,650	46,339.20	1,980	54,062.40	2,310	61,785.60	2,640
2021	26,445.24	1,452	39,667.8	1,815	47,601.36	2,178	55,534.92	2,541	63,468.48	2,904

The amount of the expensive life allowance was fixed in 2018 at € 1,320/year for a person living alone, € 1,650/year for a two-person family, € 1,980/year for a three-person family, € 2,310/year for a four-person family and € 2,640/year for a five-person or more family. Those annual amounts, which remained constant until 2020, are in 2021: € 1,452/year for a person living alone, € 1,815/year for a two-person family, € 2,178 for a three-person family, € 2,541 for a four-person family and € 2,904 for a five-person or more family.

The allowance is not subject to taxation or to social contributions.

Persons with an income higher than the limits defined in the "income test" paragraph are entitled to a reduced allowance that corresponds to the difference between the amounts of the expensive life allowance and the part of the annual income that exceeds the income limits.

(guichet.public.lu/allocation-vie-chere)

New rent allowance (*Subvention de loyer*), since 2016 (*bho_lu*)

- ***Definitions***

The rent allowance (*Subvention de loyer*) is by principle replacing since 2016 the supplement for rental costs embedded in the "guaranteed minimum income" (see *Sections 1.2 and 2.4.5* above). The unit of analysis is the "rent allowance"-related household (*tu_bho_lu*) which is indeed involving all members of the residence household with specific conditions to be considered for dependent children (see *Section 1.2*).

- ***Eligibility conditions***

The eligibility conditions concern residence (persons resident on Luxembourg territory) and rental costs to related to the private sector exclusively.

- ***Income test***

This allowance is a means-tested allowance. Since 2016, only households whose the "total net disposable income" -up to 2017- or "total income" –in 2018- (made explicit in *Section 1.2*) is below a threshold may be awarded a rent allowance. This threshold remains constant from 2018 to 2020, but increases in 2021 because of the COVID-19 crisis.

The threshold for net disposable income depends on the composition of the household: one-person household (1A), 2-person household without a child (2A), household with 1/2/3/4/5/6 child(ren) (A1C, A2C, A3C, A4C, A5C, A6C) or household with 7 children or more (A7C+). The thresholds corresponding to each configuration are mentioned in the table just below (in EUR/month).

Table 17. New rent allowance (*Subvention de loyer*), since 2018 (*bho_lu*) Income Tests

	1A	2A	A1C	A2C	A3C	A4C	A5C	A6C	A7C+ (per child above 6th)
2018	2,500	3,750	4,500	5,250	6,000	6,750	7,500	8,250	+750
2019	2,500	3,750	4,500	5,250	6,000	6,750	7,500	8,250	+750
2020	2,500	3,750	4,500	5,250	6,000	6,750	7,500	8,250	+750
2021	2,500	3,750	4,500	5,250	6,000	6,750	7,500	8,250	+750

- ***Benefit amount***

Households who satisfy the eligibility condition, the income test and which are facing rental costs (related to the private sector) lower than a "reference rent" may be awarded a rent allowance.

The reference rent to be considered is depending on the household composition (1A to A7C+) and mentioned in the table just below (in EUR/month).

Table 18. New rent allowance (*Subvention de loyer*), since 2018 (*bho_lu*) Reference rents

	1A	2A	A1C	A2C	A3C	A4C	A5C	A6C	A7C+ (per child above 6th)
2018	846	927	1,089	1,249	1,463	1,816	2,034	2,170	+ 125
2019	846	927	1,089	1,249	1,463	1,816	2,034	2,170	+ 125
2020	846	927	1,089	1,249	1,463	1,816	2,034	2,170	+ 125
2021	846	927	1,089	1,249	1,463	1,816	2,034	2,170	+ 125

Finally, the rent allowance to be considered is computed as follows (up to 2017 included):

Reference rent – (0.33 * Net disposable income)

or (since 2018):

Reference rent – (0.25 * Net disposable income)

It can of course not be negative and is upper-limited, based on a maximum amount also depending on the household composition (1A to A7C+) and mentioned in the table just below (in EUR/month).

Table 19. New rent allowance (*Subvention de loyer*), since 2018 (*bho_lu*) Benefits ceiling

	1A	2A	A1C	A2C	A3C	A4C	A5C	A6C	A7C+ (per child above 6th)
2018	124	124	149	174	199	224	248	273	0
2019	124	124	149	174	199	224	248	273	0
2020	124	124	149	174	199	224	248	273	0
2021	124	124	149	174	199	224	248	273	0

(https://logement.public.lu/fr/locataire/obtenir-aide-location/subventionloyer.html - Plafonds et barèmes - Subvention de loyer)

EUROMOD Notes:

The last known "income after tax" if basically referring to a year anterior to the simulation period. We do not transfer those amounts across years in EUROMOD and therefore consider here the "income after tax" corresponding to the "present" period (the one presently simulated), which may deviate somewhere from reality. This is the reason why the new policy is implemented after income taxation in the simulation spine, which may make the "interaction" between the former rental allowance (necessarily embedded in the minimum guaranteed income computation) and the new one rather complex if all possible feedbacks had to be taken into account, what is not done in the present version of the model for sake of simplicity (anyway, the expected noise is low).

Moreover, the non take-up rate for this new rent allowance as observed in 2017 and early 2018, despite decreasing rapidly, still appears to be rather high, out of beneficiaries of the guaranteed minimum income scheme who are informed on a more systematic basis and may still benefit from the former system. Therefore, we choose to implement the new system for the beneficiaries of the guaranteed minimum income exclusively, maintain the former system in EUROMOD in 2016, 2017 and 2018, compute the new one and simply add to benefits at large the difference between the two amounts, provided that there is a positive difference (otherwise maintaining the former level of support). Based on the evolution of the take up of this benefit, the situation will be re-evaluated the next year.

Unemployment benefit (*Indemnité de chômage*) (*bunss_lu*)

- ***Definitions***

The unemployment benefit *(indemnité de chômage)* is a benefit related to remuneration previously earned. The unit of analysis is the individual (*tu_individual_lu*).

- ***Eligibility conditions***

The main conditions for being eligible for the unemployment benefit are the following: to be involuntarily unemployed, work not permitted, unless part-time and with anti-accumulation rules applying, to be fit to work, to be available for work, to be aged between 16 and 64, to have registered for employment, to accept suitable employment or an active measure offered, to be resident in Luxembourg when the redundancy occurs; claim for the benefit within 2 weeks. The qualifying period for this benefit is at least 26 weeks of employment during the last year (with at least 16 hours of work per week).

- ***Income test***

None.

- ***Benefit amount***

The benefit is determined by the salary earned before unemployment starts : 80% of previous gross wages or 85% if the unemployed has one or more children. The earnings taken are the gross earnings during the 3 months which precede unemployment (6 months for special cases). The allowance cannot exceed 2.5 times the minimum wage (€ 4,996.48/month in 2018, € 5,504.83/month in 2021) or 2 times the minimum wage (€ 3,997.18/month in 2018, € 4,403.86/month in 2021) in the case that the unemployment exceeds 182 days in a period of 12 months. For the period of complementary benefit (in case of unemployment benefit is allowed after the 356 days of the normal duration of compensation) the ceiling is fixed at 1.5 times the minimum wage (€ 2,997.89/month in 2018, € 3,302.9/month in 2021). The rate of the benefit is 80% of reference earnings, increasing to 85% of earnings if there are dependent children. The duration of payment is 365 calendar days during a reference period of 24 months (without exceeding the duration of working days over the reference period); 182 extra calendar days for persons who are particularly "difficult" to place. For unemployed of 50 years and more, prolongation of 12, 9 or 6 months respectively if 30, 25 or 20 years of affiliation to pension. Loss of allowance for 7 days (30 days if repeated) if the unemployed person refuses to report to the employment office. Accumulation with other social security benefits is not possible (*). If income from a gainful professional activity exceeds 10% of the maximum threshold of the provided compensation, the unemployment benefit is reduced by the amount exceeding the provided ceiling (*). The benefit is subject to taxation and to social contributions for health care, long-term care insurance and pension insurance.

The following table summarises the main characteristics of unemployment insurance benefit in Luxembourg.

Table 20. Characteristics of the unemployment benefit

		2018	2019	2020	2021
Eligibility	Contribution period	6 months	6 months	6 months	6 months
	Other conditions	See above	See above	See above	See above
Payment	Contribution base	Last 3 months gross earning	Last 3 months gross earning	Last 3 months gross earning	Last 3 months gross earning
	Basic amount	80% of reference earnings	80% of reference earnings	80% of reference earnings	80% of reference earnings
	Additional amount	€ 2,997.89/month	€ 3,106.65/month	€ 3,212.99/month	€ 3,302.9/month
	Floor	80% of reference earnings	80% of reference earnings	80% of reference earnings	80% of reference earnings
	Ceiling				
	Until the 6th month	€ 4,996.48/month	€ 5,177.75/month	€ 5,354.98/month	€ 5,504.83/month
	After the 6th month	€ 3,997.18/month	€ 4,142.20/month	€ 4,283.98/month	€ 4,403.86/month
Duration	Standard (in months)	6/12month	6/12month	6/12month	6/12month
	Special cases (in month)	12±months	12±months	12± months	12± months
Subject to	Taxes	yes	yes	Yes	Yes
	SIC	yes	yes	Yes	Yes

EUROMOD Notes: No information concerning the salary earned before unemployment starts and other eligibility conditions is available. To make it possible to simulate unemployment benefit, an inverse function of the unemployment benefit for the current recipients of the benefit has been implemented in order to estimate the salary earned before unemployment starts. From the estimated salary earned before unemployment starts it is then possible to estimate the unemployment benefit using the 80% or 85% replacement rate. Concerning the ceiling of the benefit, it is only possible to use 2.5 times the minimum wage. (*) Moreover, due to difficulty of implementation, both the accumulation rule with other social security benefit and the rule on benefit reduction if income from professional activity exceed 10% of the befit amount are not simulated yet in the present version.

(https://guichet.public.lu/fr/citoyens/travail-emploi/chomage/indemnite)

COVID-19 crisis measures: people whom unemployment benefit ends during the crisis are extended until the end of the crisis.

(https://guichet.public.lu/fr/actualites/2020/mars/30-coronavirus-mesures)

2.6 Social contributions

Social contributions are compulsorily paid by insured persons and, if appropriate, by their employers. Social contributions are calculated on the basis of the professional incomes (or replacement incomes) through an equal contributions rate independently from the individual situation (age, gender, family situation, health status) but depending on the risks insured (health, sickness and maternity, pension, long-term care, accident) and the socio-professional categories (blue-collar, white collar, civil servant, self-employed, farmers…). Unlike in many other countries, unemployment benefits are not financed by social contributions but by income tax.

(https://www.pwc.lu/en/newsletter/2020/parametres-sociaux
https://ccss.public.lu/fr/parametres-sociaux.html)

Employee social contributions *(tscee_s)*

Employee social contributions are composed of social contributions for health care – cash benefits *(tsceesi_s)*, social contributions for health care – benefits in kind *(tsceehl_s)*, social contributions for pension *(tsceepi_s* and *tsceepbpi_s)* and social contributions for long-term care *(tsceeot_s)*. Social contributions are paid on an individual basis *(tu_individual_lu)*.

Social contribution for health care - cash benefits *(Cotisations sociales pour soins de santé – prestations en espèce)* finance sickness and maternity cash benefits. All employees from the private sector are entitled to these social contributions. Civil servants who benefit from continuation of the salary in the case of sickness or maternity do not have to pay this social contribution. The contribution basis is composed of the professional income, i.e., the gross pay including all the advantages even if they are in kind but excluding occasional allowances and bonuses. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Since 2009, a uniform status (*statut unique*) has been introduced for blue- and white-collar workers. Since the "statut unique", both white-collar and blue-collar workers continue to receive pay - imposed on the employer for the month in which the sickness occurs and for the following three months.

Table 21. Employee social contributions (tscee_s) rates and amounts

	Rate for blue-collar workers	Rate for white-collar workers	Minimum contributory amount	Maximum contributory amount	Value of the minimum wage (MW)
2018	0.25%		MW	5 x MW	1,998.59€/month
2019	0.25%		MW	5 x MW	2,071.10€/month
2020	0.25%		MW	5 x MW	2,141.99€/month
2021	0.25%		MW	5 x MW	2,201.93€/month

EUROMOD Notes: The contribution basis is composed of the professional income, i.e., the gross pay including all the advantages even if they are in-kind but excluding occasional allowances and bonuses. However, for the simulation we consider only the gross pay and not the fringe benefits.

Social contribution for health care - benefits in kind *(Cotisations sociales pour soins de santé- prestations en nature).* The contribution basis is composed of the professional incomes defined above including occasional allowances and bonuses, the pensions and all replacement incomes subject to social contributions. The contribution rate is 5.6% in total since 2016: 2.8% for the insured and 2.8% for the employer. For the contribution basis there is a minimum that corresponds in principle to the minimum wage (for a full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. The minimum is increased by 30% for persons receiving a pension. If the pension does not reach the minimum, the contribution basis is the effective amount of the pension and the institution that pays the pension will pay the difference. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Table 22. Social contribution for health care - benefits in kind (Cotisations sociales pour soins de santé- prestations en nature) amounts

	Rate	Minimum contributory amount*	Maximum contributory amount	Value of the minimum wage (MW)
2018	2.8%	MW	5 x MW	1,998.59€/month
2019	2.8%	MW	5 x MW	2,071.10€/month
2020	2.8%	MW	5 x MW	2,141.99€/month
2021	2.8%	MW	5 x MW	2,201.93€/month

*MW+30% for pensioners

Social contribution for long-term care insurance *(Cotisations sociales pour l'assurance dépendance*). The contribution basis is composed of the professional incomes, the replacement incomes and the wealth incomes. The contribution rate amounts to 1.40 % for employees (there is no employer contribution). No maximum is applied to the contribution basis. The monthly contribution basis is reduced by 25% of the minimum wage for persons receiving a wage or a replacement income from the social security.

Table 23. Social contribution for long-term care insurance rates and amounts

	Rate	Amount disregarded for wage earner or recipients of a replacement income from the social security	Value of the minimum wage (MW)
2018	1.4%	25% MW	1,998.59€/month
2019	1.4%	25% MW	2,071.10€/month
2020	1.4%	25% MW	2,141.99€/month
2021	1.4%	25% MW	2,201.93€/month

Social contribution for pension insurance (*Cotisations sociales pour pension*). The contribution basis is composed of the professional incomes or by the following replacement incomes (unemployment benefit, sickness benefit, maternity benefit, parental leave benefit). The contribution rate is 24% in total: 8% for the insured, 8% for the employer and 8% for the State. For the contribution basis there is a minimum that corresponds in principle to the minimum wage (for a full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling for the contribution basis that corresponds

to 5 times the minimum wage, which means 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2020). Nevertheless, there is no ceiling for civil servants.

Table 24. Social contribution for pension insurance rates and amounts

	Rate	Minimum contributory amount	Maximum contributory amount	Value of the minimum wage (MW)
2018	8%	MW	5 x MW	1,998.59€/month
2019	8%	MW	5 x MW	2,071.10€/month
2020	8%	MW	5 x MW	2,141.99€/month
2021	8%	MW	5 x MW	2,201.93€/month

Employer social contributions *(tscer_s)*

Employer social contributions are composed of social contributions for health care – cash benefits *(tscersi_s)*, social contributions for health care – benefits in kind *(tscerhl_s)*, social contributions for pension *(tscerpi_s)* and social contributions for an accident *(tscerac_s)*. Except for the contributions for an accident, the rules for the other employer social contributions are exactly the same as those concerning employee social contributions.

Social contribution for health care - cash benefits (*Cotisations sociales pour soins de santé – prestations en espèce*) Regarding health care – cash benefits, the participation of the employers to the "Mutualité des employeurs" has been made compulsory since 2009, due to the new "statut unique". The employer's contribution rate involves a fix part (0.25% for all employers since 2009) and a variable part funding the so-called *Mutualité des employeurs* and depending on the "class of risk" regarding absenteeism within the firm. The corresponding variable part of rate was comprised between 0.46% and 2.95% in 2018 (0.53% and 2.88% in 2021).

Table 25. Social contribution for health care - cash benefits rates

	Rate *(1)*
2018	0.25% + *1.71%*
2019	0.25% + *1.60%*
2020	0.25% + *1.58%*
2021	0.25% + *1.71%*

(1) **EUROMOD Notes:** Given lack of data and for simplicity reasons, we have implemented an unweighted average variable rate only, changing through time: 1.71% in 2018, 1.60 in 2019, 1.58 in 2020 and 1.71 in 2021.
(https://www.mde.lu/affiliation-et-financement/les-taux-de-cotisations/)

Social contribution for health care - benefits in kind *(Cotisations sociales pour soins de santé-prestations en nature).* See "Employee social contributions", Section 2.5.1.

Employer social contributions for accident (*Cotisations sociales de l'assurance accident*). These contributions are paid exclusively by the employer. Since 2011 to 2018, all industrial firms are ranged in 22 risk classes and the rate is uniform with a level of 1.00% in 2016 and 2017, 0.90% in 2018. Since 2019, there are 17 risk classes according to the main activity and a bonus-penalty system varies the rate. A bonus-penalty factor (BPF) is calculated by comparing the

contributor to the other contributors from the same class and depending on the result, the rate varies according to 5 values : 0.68% for a bonus-penalty factor (BPF) less than 0.9 in 2021, 0.80% for a BPF between 0.9 and 1.0, 0.88% for a BPF between 1.0 and 1.1, 1.04% for a BPF between 1.1 and 1.3 and 1.20% for a BPF greater than 1.3. These amounts are similar to 2020.

For the contribution basis there is a minimum that corresponds in principle to the minimum wage (for a full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021). Concerning the agricultural or forestry sector, the contributions are calculated according to the size of the land, the vineyard or the forest.

Table 26. Employer social contributions for accident - cash benefits rates & cash benefit bonus penalty factor rate (since 2019)

2018		2019	2020	2021
Rate	**Bonus-penalty factor**	**Rate**	**Rate**	**Rate**
0.90%	0.9	0.72%	0.68%	0.68%
	1.0	0.80%	0.75%	0.75%
	1.1	0.88%	0.83%	0.83%
	1.3	1.04%	0.98%	0.98%
	1.5	1.20%	1.13%	1.13%

(https://aaa.public.lu/fr/prestations-cotisations/cotisations/bonusmalus.html)

Self-employed social contributions *(tscse_s)*

Self-employed social contributions are composed of social contributions for health care – cash benefits *(tscsesi_s)*, social contributions for health care – benefits in kind *(tscsehl_s)*, social contributions for pension *(tscsepi_s)*, social contributions for long-term care *(tscseot_s)* and social contributions for accident *(tscseac_s)*. Social contributions are paid on an individual basis *(tu_individual_lu)*.

Social contribution for health care - cash benefits *(Cotisations sociales pour soins de santé – prestations en espèce)* finance sickness and maternity cash benefits. The contribution basis is composed of the professional income of the insured person. For the self-employed, excluding agricultural activity, the professional income corresponds to the net income defined by the tax law. For the agricultural self-employed, the professional income is fixed on the basis of the production. The contribution rate is 0.50% since 2009. For the contribution basis there is a minimum that corresponds in principle to the minimum wage (for a full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

EUROMOD Notes: As it is impossible to obtain information on the production of the agricultural self-employed, we use the professional income as for the other self-employed.

Social contribution for health care - benefits in kind *(Cotisations sociales pour soins de santé-prestations en nature)*. The contribution basis is composed of the professional incomes defined

above. The contribution rate is 5.6%. For the contribution basis there is a minimum that corresponds in principle to the minimum wage (full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means 2018: 5 x € 1,998.59/month = € 9,992.95/month (€ 11,009.65/month for 2021).

Table 27. Social contribution for health care - benefits in kind rates and amounts

	Rate	Minimum contributory amount	Maximum contributory amount	Value of the minimum wage (MW)
2018	5.6%	MW	5 x MW	1,998.59€/month
2019	5.6%	MW	5 x MW	2,071.10€/month
2020	5.6%	MW	5 x MW	2,141.99€/month
2021	5.6%	MW	5 x MW	2,201.93€/month

Social contribution for long-term care insurance (*Cotisations sociales pour l'assurance dépendance*). The contribution basis is composed of the professional incomes. The contribution rate amounts to 1.40 %. No maximum is applied to the contribution basis.

Table 28. Social contribution for long-term care insurance rates

	Rate
2018	1.4%
2019	1.4%
2020	1.4%
2020	1.4%

Social contribution for pension insurance *(Cotisations sociales pour pension)***.** The contribution basis is composed of the professional incomes. The contribution rate is 16%. For the contribution basis there is a minimum that corresponds in principle to the minimum wage (full-time job). In the case of a part-time job, the minimum is reduced proportionally regarding the duration of the job. There is also a ceiling for the contribution basis that corresponds to 5 times the minimum wage, which means for 2017: 5 x € 1,998.59/month = € 9,992.95/month (€ 10,709.95/month for 2020). Nevertheless, there is no ceiling for civil servants.

Table 29. Social contribution for pension insurance rates and amounts

	Rate	Minimum contributory amount	Maximum contributory amount	Value of the minimum wage (MW)
2018	16%	MW	5 x MW	1,998.59€/month
2019	16%	MW	5 x MW	2,071.10€/month
2020	16%	MW	5 x MW	2,141.99€/month
2021	16%	MW	5 x MW	2,201.93€/month

Self-employed social contributions for accident *(Cotisations sociales de l'assurance accident)*. Same configuration and implementation as for "Employer social contributions", Section 2.5.2.

Social contributions on social assistance *(tsceebeot_s)*

Two types of social contributions are levied on the social assistance benefit *(revenu mimum garanti)*: the social contribution for health-benefit in kind that is calculated in the module "Employee social contributions (section 2.4.1)" and the social contribution for long-term care *(tsceebeot_s)*.

The rules for calculating these two social contributions are exactly the same as those described above for employees. The contribution basis is the gross amount of the social assistance.

Credited social contributions *(tscct_s)*

Credited social contributions are composed of social contributions for health care – benefits in kind *(tsccthl_s)* and social contributions for pension *(tsccctpi_s)*. The rules for these social contributions are exactly the same as those concerning employee social contributions. The contribution basis is the replacement income or the pension income.

Credited social contributions for social assistance *(tscctsi_s)*

Credited social contributions for social assistance are composed of social contributions for health care – benefits in kind. The rules for these social contributions are exactly the same as those concerning employee social contributions. The contribution basis is the gross amount of the social assistance.

2.7 Personal income tax

Tax unit

Personal income tax (*Impôt sur le revenu des personnes physiques*) is taxed jointly at the family unit *(tu_tin_lu)*.
The family unit is defined by the marriage or the legal consensual union and children less than 18 years old on 1 January of the tax year without a salary.

Taxpayers are granted a tax class according to their family status.
Until 2018, married taxpayers (even in the case of a wedding or divorce during the calendar year), widowed persons for the 3 years following the year in which they became widowed, divorced or separated individuals for the 3 years following the year of divorce or separation and civil partners who live together for a full tax year and elect to file jointly, belong to tax class 2.
Widowed persons not included in tax class 2, individuals aged at least 65 on 1 January and single parents belong to tax class 1a.
All other individuals belong to tax class1.

For tax class purposes, the definition of a child is different from that used in the tax unit. A child is less than 21 years old on 1 January of the tax year or 21 years old and more continuing to study.

Table 30. Personal income tax classes eligibility by marriage status

	Without children	With children	More than 64 years old on 1 January
Single	1	1a	1a
Married/ Legal consensual union*	2	2	2
Separated**	1	1a	1a
Divorced**	1	1a	1a
Widow**	1a	1a	1a

* If the persons in legal consensual union ask to be taxed jointly, the rules concerning married couples are applied

** These taxpayers continue to benefit from splitting (tax class 2) during the 3 years after the separation, the divorce or being widowed.

Since 2018, a tax reform of 2017 introduced a distinction between resident and non-resident taxpayers who are married with multiple cases.

Table 31. Personal income tax classes eligibility by marriage status and residence

	Without children	With children	More than 64 years old on 1 January
Married taxed collectively, including spouses' native and foreign income (non-resident spouses must fulfill the conditions of assimilation to benefit class 2), the resident generating at least 90% of the household income in Luxembourg	2	2	2
Married, with one resident taxpayer and the other non-resident	1	1a	1a
Married non-residents, from the 2018 tax year, each spouse is taxed separately only on his own native income in Luxembourg	1	1	1
Married non-residents, for the fiscal year 2017 (or earlier if no break in the life and interests community), having more than 50% of the household income in Luxembourg	2	2	2
Married non-residents, for the fiscal year 2017 (or earlier if no break of the life and interests community), having less than 50% of the household income in Luxembourg	1a	1a	1a
Married non-residents, for fiscal years prior to 2017, in break of the life and interests community	1	1a	1a

(https://impotsdirects.public.lu/fr/salpens/fiche/classe_impot.html)

Exemptions

We define exemptions following Verbist (2004): “income components (that) are part of pre-tax income, but do not have to be declared to the tax authorities, and thus are not included in the concept of taxable income (e.g. child benefits in most countries)”.

Exemptions concern child benefit, new school year benefit, education benefit, maternity benefit, birth benefit, parental leave benefit, heating allowance benefit, 30% of the wage of the agricultural worker, additional wages for night work, Sunday work and bank holiday work, payment for additional hours, and severance pay.

EUROMOD Notes: additional wages for night work, Sunday work and bank holiday work, and payment for additional hours could not be identified in EUROMOD. The exemption of 30% of the wage of agricultural worker is simulated like an allowance in EUROMOD.

Tax allowances

Here, we define tax allowances as any amount subtracted from pre-tax income (including social insurance contributions). Unlike Verbist (2004), there is no distinction between those that are fixed amounts (tax allowances) and those whose level is a function of pre-tax income (deductions).

There are many allowances in the Luxembourg income tax regime. According to the data available in the input data, it is impossible to simulate all of them. The table below presents the main allowances present in the personal income tax regime. Three types of allowances can be distinguished: acquisition costs, special expenses and allowances.

Acquisition costs *(frais d'obtention)* correspond to expenses in order to earn income. For wage earners, the acquisition costs correspond to a lump-sum of € 540/year (this lump-sum can be replaced by the allowable expenses if they are higher – no information about allowable expenses in Euromod, hence basic lump-sum is used-) and travelling costs: a minimum of € 0/ and a maximum of € 2,574/year depending on the distance home-workplace (no information about the distance home-workplace in Euromod, hence the minimum is used). For recipients of pensions, the acquisition costs correspond to a lump-sum of € 300/year. When married couples jointly taxed receive each one a wage and/or a pension, the two members of the couple are entitled to these acquisition costs. For persons having income form a movable asset, acquisition costs correspond to a lump-sum of € 25/year (doubled in case of joint taxation). The acquisition costs for rental income correspond to 35% of the gross annual rentals. The rental value of a dwelling occupied by an owner-occupier is regarded as taxable (the value of the rent is calculated by the tax administration. The value is unknown in Euromod but it is very low) and the interest repayments on mortgage for the acquisition of the dwelling are considered as acquisition costs. Since 2017, these costs were fixed per annum per family member for the first five years of occupation at € 2,000, for the next five years at € 1,500 and for the next years at € 1000 (no information about the year of occupation in Euromod – we use the value that corresponds to 6-10 years of occupation).

(https://impotsdirects.public.lu/fr/az/f/frais_obten.html - https://guichet.public.lu/fr/citoyens/logement/acquisition/aides-indirectes)

Special expenses *(dépenses spéciales)* correspond to the compulsory social contributions (except social contributions for long- term care insurance) and other expenses. They are several other expenses but all taxpayers benefit at least from a lump-sum of € 480/year without any justification (time two in case of joint taxation and both members of the couple have a salaried occupation). In case of higher expenses than the lump-sum, taxpayers can deduct the amount of the expenses instead the lump-sum (no information about expenses in Euromod – lump-sum is used). Next to the lump-sum, other expenses can be deducted. The most common are i) interest expenses (excluded the mortgage interests of the main residence that are considered as acquisition costs – see above) and ii) insurance payment merged into a single category since 2017 up to € 672/year (amount increased by its own amount for the spouse and for each child in the household), iii) private pension contributions (3rd pillar) up to € 3,200/year since 2017 (the age is not considered anymore) and iv) maintenance payments up to € 24,000/year since 2011.

(https://impotsdirects.public.lu/fr/az/d/depens_spe.html)

Other allowances *(abattements)* are obtained to reduce the taxable income. The most common allowances are i) allowance for extraordinary burden (childcare costs, domesticity costs…); the allowance is maximum equal to € 5,400/year and cannot exceed the real costs (no information about these costs in EUROMOD – not simulated), ii) Extra-professional allowance equal to € 4,500/year applicable to married couples jointly taxed if both of them are working (wage earners or self-employed) and iii) 50% of pensions from private pension plans (3rd pillar).

Table 32. Other Allowances yearly amounts

Allowances *(yearly amounts, in €)*		**2018-2021**
Acquisition costs *(Frais d'obtention)*		
Income from a salaried occupation		540
Travelling costs (depending on the distance home-workplace)	Min	0
	Max	2,574
Income resulting from a pension		300 (x2 for spouses collectively taxed)
Income from a movable asset		25 (x2 for spouses collectively taxed)
Rental income		35% of the rent
	Max	2,700 per building
Interest repayments on mortgage for the main residence	1-5 years after first occupation	2,000 per member of the HH
	6-10 years after first occupation	1, 500 per member of the HH
	11 and more years after first occupation	1,000 per member of the HH

Special expenses *(Dépenses spéciales)*		
Compulsory social contributions (except social contributions for long- term care insurance)		No limit
For lack of higher expenses, lump-sum (times two in case of joint taxation and both members of the couple have a salaried occupation)		480
Interest expenses & insurance payment (amount multiplied by the number of persons in the tax unit)		672
Private pension contributions	Max	3,200 independent of age
Maintenance payment (*)	Max	24,000
Allowances *(Abattements)*		
Allowance for extraordinary burden (childcare costs, domesticity costs…); the allowance cannot exceed the real costs		5,400
Extra-professional allowance		4,500
Transfer or termination allowance		10,000
Pensions from private pension plans (3rd pillar)		50% of the pension

Notes: Allowances in grey could not be implemented in the simulation
(*) These are paid amounts ; private inter-households transfers (received) are part of taxable income (included in "other net income", see *Section 1.2*) up to a maximum level identical to the one mentioned here for maintenance payments

(https://impotsdirects.public.lu/fr/az/d/depens_spe.html)

Tax base

The tax base is called "income to tax according to the schedule" *(revenu à imposer suivant barème)*, which is equal to the sum of the eight categories of taxable income: Commercial/business profits; Profits from agriculture and forestry; Profits derived from self-employed professions (*profession libérale*); Net income from employment; Net income from pensions and/or annuities; Net income from investments (movable capital); Net income from rental of property and Other net income (including capital gains). By net income we mean the difference between the receipts and the costs of obtaining these receipts *(dépenses d'exploitation et frais d'obtention)* (for example, travelling costs). Social contributions except for social contributions for long-term care and several allowances *(dépenses spéciales et abattements)* are finally deducted from the net income to obtain the adjusted tax base.

Tax schedule

In 2017, the tax brackets and marginal tax rates have been significantly reshaped, with a maximal rate of 42% for annual incomes greater then € 200,004 (40% if an income above € 100,000 before 2017).

For taxpayers in tax class 1, tax is determined by applying the tax schedule presented in the table below to the adjusted taxable income.

For taxpayers in tax class 1a, the marginal tax rate cannot exceed 39% for ATIs between € 37,842 and € 100,002, 40% for ATIs between € 100,002 and € 150,000, 41% for ATIs between € 150,000 and € 200,004 and 41% if ATI is greater then € 200,004. Those rules imply that ATIs exceeding € 37,842 will be taxed following the marginal rates of the "class 1" tax payers. ATIs below € 37,842 will be taxed based on the rules defined for "class 1a" tax payers before 2017. The marginal tax rate for ATI is 39%, corresponding to a rate of 26% to be applied to the "complement to €45,060", hence a limit for tax bracket of € 34,233 (those limits have been changed in 2017) which in turn gives an ATI of € 37,842. Q.E.D.

For taxpayers in tax class 2, tax is determined by applying the tax schedule presented in the table below to the adjusted taxable income divided by 2 and then the tax obtained is multiplied by 2.

Finally, a surcharge is added as a contribution to the unemployment fund (see *Section 1.4*). This surcharge is fixed to 7% if yearly adjusted tax base (*revenu ajusté*) is lower than € 150,000 for tax classes 1 and 1a or € 300,000 if the tax class is 2. In other cases, the surcharge is 9%.

Table 33. Tax schedules (2018-2021)

Years	**2018-2021**		
Bracket number	Lower Limit (€/year)	Upper Limit (€/year)	Rate
1	0	11265	0 %
2	11265	13137	8%
3	13137	15009	9%
4	15009	16881	10%
5	16881	18753	11%
6	18753	20625	12%
7	20625	22569	14%
8	22569	24513	16%
9	24513	26457	18%
10	26457	28401	20%
11	28401	30345	22%
12	30345	32289	24%
13	32289	34233	26%
14	34233	36177	28%
15	36177	38121	30%
16	38121	40065	32%
17	40065	42009	34%
18	42009	*43953*	36%
19	*43953*	45897	*38%*
20	*45897*	100002	*39%*
21	100002	150000	*40%*
22	150000	200004	*41%*
23	200004		*42%*

(https://impotsdirects.public.lu/fr/az/t/tarif_pers.html)

Tax credits

Since 2009, three refundable tax credits were introduced by the Government (to replace former tax allowances): the tax credit for employees *(crédit d'impôt pour salariés)*, the tax credit for the retired *(crédit d'impôt pour pensionnés)*, the tax credit for the self employed *(crédit d'impôt pour travailleurs indépendants)* and the tax credit for lone parents *(crédit d'impôt monoparental).*

Four different policies have been created to simulate these three tax credits.

- **Tax credit for employees *(tintcee_lu):*** the unit of analysis is the individual *(tu_individual_lu).*
  Since 2017, the amount of tax credit for employees varies with the employee's annual gross income.
  For a gross income amounting between € 936 and € 11,265 : the amount is [300+(gross income -936)*0,029] euros per year until 2020 and [396+(gross income -936)*0,029] euros per year in 2021.
  For a gross income amounting between € 11,266 and € 40,000 : the amount is € 600 per year until 2020 and € 696 per year in 2021.
  For a gross income between € 40,001 and € 79,999 : the amount is [600-(gross income -40,000)*0,015] euros per year until 2020 and [696-(gross income -40,000)*0,0174] euros per year in 2021.
  For a gross income lower to € 936 or exceeding € 80,000, the amount is 0.

- **Tax credit for self employed *(tintcse_lu)*:** the unit of analysis is the individual *(tu_individual_lu).*
  Since 2017, the amount of tax credit for self-employed depends on annual net profit.
  For a net profit lower to € 936, the amount is € 300.
  For a net profit amounting between € 936 and € 11,265 : the amount is [300+(net profit -936)*0,029] euros per year.
  For a net profit amounting between € 11,266 and € 40,000 : the amount is € 600 per year.
  For a net profit between € 40,001 and € 79,999 : the amount is [600-(net profit -40,000)*0,015] euros per year.
  For a net profit exceeding € 80,000, the amount is 0.

  This tax credit cannot be cumulated with tax credit for employees and retired.

- **Tax credit for retired *(tintcpe_lu)*:** the unit of analysis is the individual *(tu_individual_lu).*
  Since 2017, the amount of tax credit for retired varies with the annual gross pension.
  For a gross pension amounting between € 0 and € 936 : the amount is € 300 per year until 2020 and € 396 until 2021.
  For a gross pension amounting between € 936 and € 11,265 : the amount is [300+(gross pension -936)*0,029] euros per year until 2020 and [396+(gross pension -936)*0,029] euros per year in 2021.
  For a gross pension between € 11,266 and € 40,000 : the amount is € 600 per year until 2020 and € 696 until 2021.
  For a gross pension between € 40,001 and € 79,999 : the amount is [600-(gross pension -40,000)*0,015] euros per year until 2020 and [696-(gross pension -40,000)*0,0174] euros per year in 2021.
  For a gross pension exceeding € 80,000 the amount is 0. This tax credit cannot be cumulated with tax credit for employees or self-employed.

- **Tax credit for lone parent *(tintclp_lu)*:** the unit of analysis is the tax household *(tu_tin_lu).*
  Since 2017, the maximum amount of the tax credit for lone parent is increased to € 1,500 for single-parent taxpayers who have an adjusted taxable income less than € 35,000.
  From an adjusted taxable income exceeding € 35,000 the tax credit decreases linearly from € 1,500 to reach the amount applicable before 2017 (€ 750) as soon as the adjusted taxable income is € 105,000. The computation is (in €): 1,875 - adjusted taxable income * 750 / 70,000.

  (https://www.guidedesimpots.lu/deduction_fiscale_luxembourg/)

2.8 (Social) Minimum wage

Unless exceptional and specific agreements possible in some circumstances, wages are submitted to minimum rates in Luxembourg: € 1,998.59/month for non-qualified wage-earners in 2018 for a full time (40 hours/week) job (€ 11.1042/hour with a basis of 173 hours/month), € € 2,071.10/month in 2019, € 2,141.99/month in 2020 and € 2,201.93/month in 2021.

Those basic amounts are increased by 20% for qualified workers and also modulated based on the age of the wage-earner: 80% of the basic amount if aged 17 or 18, 75% of the basic amount if between 15- and 17-year-old.

The basic amount is defined as the "Minimum Social Wage" *(salaire social minimum)*, hereafter "Minimum Wage" or "MW" and is also an important parameter for the tax-benefit system as a whole : several amounts are defined based on this MW : upper limit of the monthly old-age pension in the general scheme (5 times the MW), ceilings for social contributions, etc.

EUROMOD Notes: Only the basic amount is simulated in EUROMOD.

2.9 Labour Market Transition (TransLMA):

TransLMA allows users to design and implement labour market transitions from work to either unemployment or monetary compensations schemes. It allows for the simulation of policies triggered by changes in the labour market status of individuals. The individuals that are selected to undergo transitions to monetary compensation schemes are defined in the TransLMA_lu, which is switched on automatically by the add-on. For more information about the modelling of labour market transitions please consult the 'Simulating labour market transitions in EUROMOD' document. For more information about the data please consult the methodological note available at 9a70fb55-ceb7-d25a-1b31-ab0c030095d2 (europa.eu).

2.9.1 COVID19:

Since March 16th 2020, like other European countries, Luxembourg has been affected by the COVID-19 outbreak and has gradually been put in lockdown (closure of schools, shops...). This lockdown has an impact on the economy since most sectors of activity are at a standstill. The economic slowdown induced by the lockdown increases the risk of workers losing their job or suffering a loss of earnings. However, this risk differs from one sector of activity to another, as not all are affected in the same way. Moreover, Luxembourg's social protection system protects the population against the risk of unemployment or loss of earnings. For example, the Luxembourg government has extended its short-time working or wage compensation scheme which ensures that employees in the affected sectors receive a wage equivalent to 80% of their usual wage during the period of reduced activity (with a cap at 2.5 times the unqualified minimum wage and a floor at the unqualified minimum wage). In addition, as a result of the closure of schools and crèches, many parents have to take care of their children and therefore cannot work. The State has therefore introduced a special covid-parental leave for parents of children under the age of 13 who has no other options of care. Only one parent at a time can take it and one parent on short-time work (chomage partiel) is considered available to take care of the child(ren), so the spouse of a person on short-time work cannot benefit from it. This subsection shows the simulation of the impact of the economic shock and the measures taken to protect households on the income distribution. In simulation, employment income and number of months in work are adjusted to account for the reduction of months and hours of work. In total layoff (zero hours), they receive 80% of their original salaries, with a minimum of Social Minimum Income (€ 2,141.99/month in 2020, and € 2,201.93/ month in 2021) and a maximum of 2.5*Social Minimum

Income. These limits are adjusted proportionally if the worker has a part-time contract. In partial layoff, the worker gets 80% of the proportion of the salary corresponding to the hours lost, and 100% of the proportion of the salary corresponding to the hours worked. Limits are additionally adjusted by the share of lost hours over total hours in the contract. In order to calculate benefit we define the specific conditions for the "short time work" policy (e.g. sectors affected). A random variable is created drawing from a uniform distribution. The variable is used in the simulation of transition from employment into compensation scheme. Within each sector we (randomly) select workers in proportion to the job loss projected by Eurostat. Finally, we recalculate families annual (disposable) income with the modified earnings of the selected workers for two situations:

1) Baseline: the tax-benefit system applied to this scenario does not account for any pandemic related policy changes. This baseline was defined as the 2020 Luxembourg personal income tax system.

2) COVID19: the tax-benefit system applied to this scenario account for COVID19 related policy changes using the switch of TransLMA_lu add-ons.

As we have transitions to monetary compensation by 5 groups of sectors and gender (see Table B1a in Annex 4), and we also have information on duration and share of hours worked (see Table B1b in Annex 4). We compare the baseline situation to the simulated situation described above. Table B2 in Annex 4 shows the change of Market Incomes, Government Revenue, & Expenditure for a loss of gross earnings. The table shows that the COVID19 has an impact on the economy. The shutdown imposed by the government would imply a loss of market income of around 308.76 million euros. With such a loss of Market Incomes, the government would lose 45.14 million euros of personal income tax revenues and 10.11 million euros of employee social security contributions.

3. DATA

3.1 General description

The underlying data base

The Luxembourg database consists of the Luxembourgish part of the 2017 wave (operation 2019) of the European Union Statistics on Income and Living Conditions (EU-SILC). The database is a representative cross-sectional sample of the Luxembourgish population living in private households. It is constructed from four sources:

- The first longitudinal sample consisted of 1032 addresses who agreed to participate for the first time in 2016.
- A second longitudinal sample consisted of 1023 addresses who agreed to participate for the first time in 2017.
- A third longitudinal sample consisted of 1337 addresses who agreed to participate for the first time in 2018.
- In addition to the three sampling frames (one base for each of the longitudinal samples mentioned above), a fourth sampling frame of 4250 individuals aged 18 or more was taken from the Luxembourg National Population Register (RNP). This register included all the individuals who officially lived in Luxembourg in January 2019.

Up to 2015, the sampling unit was the "fiscal" household, while sampling units in 2016 is the individual aged 18 or more. This is essential and implies a significant change for the EUROMOD input data base (hence outcomes) compared to the previous provisions. Given the new methodological choices for sampling, the International Civil Servants ("ICS") rather numerous in Luxembourg in % of resident population (they represent around 4% of the resident active population and earn mid to high wages), are from now properly represented. This was not assured previously and conducted the EUROMOD Luxembourg national team to exclude from the input dataset and therefore from simulations and analyses all the households involving at least one ICS. Improved sampling now enables to keep those households in the input dataset. Of course, International civil servants ("ICS") are facing a tax-benefit system different from the national one (and certainly not implemented through EUROMOD at date) and we have no access to relevant external sources with regard to either their contributions to the social security systems at large (both national and international ones) or the benefits they are entitled to. Therefore, ICS households are not taken into account in the baseline scenario. However if one wishes to do so, they can now apply the national tax and benefit rules on those households.

The survey takes place mostly in the first half of the year following the income reference year. The unit of assessment is the sociological household, defined as the persons living at the same address. The response rate for the total sample is 49.57%. Table 34 provides the descriptive statistics of EUROMOD database LU_2019_a1.

Table 34. EUROMOD database description

EUROMOD database	LU_2019_a1
Original name	EU-SILC wave 17
Provider	STATEC
Year of collection	2019
Period of collection	January 2019 to July 2019
Income reference period	2018
Sampling	Stratified sampling
Unit of assessment	Fiscal household
Coverage	Private households
Sample size	3,828 households and 10,453 persons aged 18 years and more
Response rate	49.57%

The Data Base on which the EUROMOD model is based is provided by STATEC. Contrary to the User Data Base provided by Eurostat, the "national" Data Base provided by STATEC is more detailed, especially concerning the income components.

Sample quality and weights

Sample weights are produced in order to infer from sample observations to the whole target population of EU-SILC that is, the private households and their current members currently residing within Luxembourg's national territory. These coefficients aim to reflect unequal probabilities of selection for the sampling units, differential non-response rates and are also calibrated to external benchmarks.

The calculation of sampling weights is a stepwise procedure whereby weight are first calculated for each sub-sample separately and then combine in order to obtain final weights for the whole sample.

Table 35. Descriptive statistics of the grossing-up weight

Number	10,453
Mean	56.36534
Median	48.75511
Maximum	532.3231
Minimum	.28595
Max/Min	1861.59503
Decile 1	3.28845
Decile 9	103.744
Dec 9 / Dec1	31.54799

Note: the numbers in the table correspond to the adjusted dataset (see *Section 3.2*, Data adjustment).

3.2 Data adjustment

Adjustments to variables are kept to a minimum. Some minor data cleaning is done to make sure that the households and relationships of individuals within households are coherent (for example, that young children are not living alone or family relations are coherent).

In order to guarantee consistency between demographic variables and income variables which refer to the previous year (and on which the EUROMOD simulation is based), all children born between the end of the income reference period and the date of interview have been dropped from the sample. After having dropped the children born between the end of the income reference period and the date of interview (55 cases), the dataset contains 10,453 observations.

3.3 Imputations and assumptions

Time period

- Reference period of socio-demographic, labour, economic characteristics corresponds to the time of data collection (January-July 2019). However, some labour information (monthly main activity) corresponds to the time of income reference period (2018).
- Information on incomes refers to the calendar year 2018.
- For the following income components, information about how many number of months they were paid is present: employment income (*yemmy*), self-employment income (*ysemy*), unemployment income (*bunmy*), fringe benefit (*kfbmy*), invalidity income (*pdimy*), old-age pension (*poamy*) and survivor pension (*psumy*).

Gross incomes

The EU-SILC survey contains information on both gross and net monetary incomes. Both incomes are collected during the fieldwork.

Disaggregation of harmonized variables

Since Luxembourg uses the national version of EU-SILC with detailed information on income components, no specific imputation has been done to disaggregate the income component present in the EU-SILC UDB.

In order to simulate the unemployment benefit, the variable *yempv* (previous year income) has been derived reversing the rule for the calculation of unemployment benefit.

3.4 Updating

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

Updating factors are provided for non simulated monetary components present in the input dataset only. No other updating adjustments are employed. Thus, the distribution of characteristics (such as employment status and demographic variables), and the distribution of each income source that is not simulated, remain as they were in 2015.

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 3. 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.

It is worth to mention that, in order to keep external sources as close as possible from what can be derived from EUROMOD, aggregate validation has been based on simulations outcomes after having dropped all households involving at least one International civil servant (see Section 3.1.1 for further details).

Often, the results are good. The discrepancies observed between the EUROMOD and external sources numbers can be partially explained by seven main factors: *i)* persons living in collective households are present in external sources and not in EUROMOD, *ii)* the definition of some income components may differ slightly from one source to another, *iii)* for some components, we had to hypothesise concerning the share of resident recipients and the % expenditure/revenue concerning specifically residents, *iv)* income variables in external administrative sources are sometimes indirectly derived from social contributions rather than directly registered/observed as in SLC data, *v)* a few income components are not well understood during the survey, *vi)* we hypothesize full take-up of several simulated benefits in EUROMOD Luxembourg (which is especially significant for social assistance) and *vii)* a few employer health social contributions are involving payments to the so-called "*Mutualité des Employeurs*" for which no acceptable external source has been gathered yet by the EUROMOD national team.

Components of disposable income

Table 36. Components of disposable income

	EUROMOD 2019	EU-SILC [2019 / *income 2018*]
	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	+	+
Rent allowances	+	+
Regular inter-household cash transfer received	+	+
Interests, dividends, etc.	+	+
Income received by people aged under 16	+	+
Regular taxes on wealth	-	-
Regular inter-household cash transfer paid	-	-
Tax on income and social contributions	-	-
Repayments/receipts for tax adjustment	0	+

Source: EUROMOD and EU-SILC (2018)

Validation of incomes inputted into the simulation

Tables 4.2 to 4.6 present a comparison between EUROMOD *non-simulated* income components recipients/payers and expenditure/revenue and external sources for the years 2018 and 2021 (no sufficient external data available for 2020 and 2021). Ratio to external source corresponds to EUROMOD numbers divided by the numbers from external sources.

EUROMOD numbers of recipients/payers are always the same (for *non-simulated* variables) in 2018-2021 as in 2018 (no demographic update). But the expenditure/revenue figures are updated using the income updating factors.

Most discrepancies observed between the EUROMOD and external sources can be explained by the factors listed in *Section 4.1*. Some of them are now illustrated for inputting incomes. For example, in Luxembourg the concept of early retirement *(préretraite)* coexists with the concept of anticipated retirement *(retraite anticipée)*. It seems that some persons confused these two concepts which may explain why the number of recipients of the early retirement benefit is close to 3 times higher in EUROMOD than in external sources (*Table 4.5*). A large discrepancy can also be observed for recipients of "long-term care benefit"; however, the outcome for amounts may appear to be better, for example as soon as this benefit is aggregated to others (they sometimes cannot be disentangled), which might be seen as a complementary illustration of factor *v)* (*Table 4.6*). But factors *iii)*, *iv)* and *vii)* are certainly not to be underestimated either. In particular, these may lead to the discrepancies observed between EUROMOD and external sources for employment and self-employment recipients and/or amounts (*Table 4.3* and *4.4*). With that respect, some deterioration of the representativeness of the aggregate employment income can be observed compared to previous provisions of the model. Finally, differences in survivor pensions between EUROMOD and external sources are striking, maybe due to factor *i)*, part of survivors (mainly women) living in collective households ; however, such an hypothesis is certainly to be explored further before concluding.

Validation of output (simulated) incomes

Tables 4.7 and *4.8* present a comparison between EUROMOD *simulated* components and external sources for the years 2018 and 2021 (no sufficient external data available for 2020 and 2021). Ratio to external source corresponds to EUROMOD numbers divided by the numbers from external sources.

Except for social assistance and heating allowance, two components subject to non take-up (see factor *vi* in *Section 4.1*), and a few other amounts (e.g. amounts for health payment social contribution) the results are satisfactory.

Out of non take-up phenomenon, the discrepancies observed between the EUROMOD and external sources numbers can be partially explained by the factors *i)* to *v)* emphasized in *Section 4.1*. For example, in Luxembourg external sources do not always provide taxes and benefits components paid/received by residents and by non-residents. For some components, we had to hypothesise concerning recipients and the % expenditure/revenue concerning residents only. For *tin_s* and the sum of the contributions for healthcare, we hypothesise that residents pay 65% of the income tax (the ratio between all kinds of resident "workers" and pensioners and the same population whatever the residence status). For other components, ratios are derived based on the target resident population/amount compared to the whole target population/amount. If unknown, a share is derived from similar components (see *bch00_s* below).

For *bch00_s* (boni for children), we do not have the number of recipients for residents only from external source. We hypothesise, that the number is the same than for *bfauc_s*. Since 2009 and the introduction of a uniform status (*statut unique*) for blue-collar and white-collar workers, there is a discrepancy between external sources and EUROMOD outcome regarding the social contributions for health payment from "employers" (including self-employed and "credited") due lack of external information regarding the "Mutualité des employeurs" which has been made compulsory and is benefitting from a greater part of contributions than earlier.

Social assistance and the heating allowance benefit show a remarkable gap between values as simulated through EUROMOD and derived from external sources. Ratios between 2.78 and 3.25 (regarding recipients, all years, *Table 4.7*) and between 1.98 and 2.41(for the amounts, *Table 4.8*) certainly largely result from a non take-up attitude, on top of the various discrepancy factors mentioned earlier. Considering such an attitude as the dominant factor would lead to an indication

of take-up ratios which roughly correspond to what literature is emphasizing for Luxembourg and countries around, with higher values for recipients (about 40% in 2009) compared to amounts (around 60% in 2009) when social assistance is considered.

4.2 Income distribution

All income distribution results presented in *Table 4.9* are computed for individuals according to their household disposable income (HDI) equivalised by the "modified OECD" equivalence scale. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions. The weights in the OECD equivalence are: first adult=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

Differences between EUROMOD computations and EU-SILC ("external") derivations can be partially explained by a non-fully consistency between the definitions of disposable income on both sides ("ils_dispy" for EUROMOD, "hy020" for EU-SILC, cf. *Table 36*). Moreover, the coverage of EUROMOD input data differs from that of SILC 2019 because international civil servants (high income) have been excluded from the EUROMOD input data. But a third factor is playing an important role, as explained below.

Income inequality

Table 4.9 compares income inequality indicators issued from EUROMOD with the income inequality produced from EU-SILC 2018.

Inequalities seem lower when measured through EUROMOD computations. This can be partially explained by the explicit hypothesis of full take-up for social benefits in the model. Another source might be the discrepancy between the target populations, international civil servants being dropped in the EUROMOD simulations (not in SILC data).

Poverty rates

Table 4.10 compares poverty rates issued from EUROMOD with the official poverty rates produced from EU-SILC 2018. The EUROMOD rates are clearly below the SILC rates. This difference can be explained the same way as mentioned in the previous paragraphs, in particular taking into account full take-up for social benefits as they are simulated through EUROMOD presently.

4.3 Summary of "health warnings"

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

- The new procedure for building-up the EU-SILC dataset, including intermediary more disaggregated "national" variables, is since EU-SILC 2018 solely governed by the Luxembourg National Statistical Office (STATEC). Operational choices made can differ from past practices and this may induce some variability in outcomes compared to previous provisions by the EUROMOD Luxemburgish national team (close to some kind of rupture in statistical series that might be observed for specific variables, hence EUROMOD outputs).
- In particular and up to 2015, the sampling unit was the "fiscal" household, while sampling units in 2016 is the individual aged 18 or more. This is essential and implies a significant

change for the EUROMOD input data basis (hence outcomes) compared to the previous provisions. Given the new methodological choices for sampling (see Section 3), the International Civil Servants ("ICS") rather numerous in Luxembourg in % of resident population, are from now properly represented, hence are kept in the input dataset. This representativeness was not assured previously and conducted the EUROMOD Luxembourg national team to exclude all the households involving at least one ICS.

- Of course, International civil servants ("ICS") are facing tax-benefit systems different from the national one (and certainly not implemented through EUROMOD at date) and we have no access to relevant external sources with regard either their contributions to the social security systems (both national and international) at large or the benefits they are entitled to. Therefore for the aggregate validation of the model all households involving at least one ICS have been dropped from the outcomes before comparisons to external sources.
- The input database contains only residents affiliated to the national social security system. That means that international civil servants who have their own social security system and their own tax system have been excluded from the sample. In Luxembourg, a small country with several international institutions, they represent around 4% of the resident active population. Care should be taken in comparing EUROMOD outputs with EU-SILC outputs. One must know that international civil servants earn mid to high wages.
- Around 40% of the labour force is composed by cross-border workers in Luxembourg. They are not included in the database because the sample covers only residents. Care should be taken in comparing some EUROMOD outputs with external statistics. External statistics do not always make the difference between residents and cross-border workers.
- External statistics about income tax are extremely rare in Luxembourg. It is impossible to know the numbers of persons or fiscal households who pay income tax and the aggregate amount of income tax does not make the difference between residents and cross-border workers. So, the validation for income tax is difficult to achieve.
- The simulation of monetary compensation schemes (bwkmcee_s and yemmc_s) is triggered by the simulation of labour market transitions defined in policy TransLMA_lu. This policy becomes operational if the model is run in conjunction with the LMA add-on. The nature of these simulations is still experimental and only partially validated. Users are encouraged to refer to the "Simulating labour market transitions in EUROMOD" document prior to their use.
- Labour market transitions are switched OFF in EUROMOD baselines. As a consequence, the simulation of monetary compensation schemes does not produce any effect in baseline simulations. Since all policies not linked to labour market transitions are fully functional, it is possible for disposable income in 2020/2021 to be higher than disposable income in previous years.

REFERENCES

Administration des Contributions Directes (2021): http://www.impotsdirects.public.lu

Administration De l'Emploi: Rapports annuels 2018, 2019 and 2020
http://www.adem.public.lu/fr/publications/index.php

European Commission (2021)
http://ec.europa.eu/employment_social/missoc/db/public/compareTables.do?lang=en

Eurostat (2021): https://ec.europa.eu/eurostat/data/database

Fonds National de Solidarité (2021): http://www.fns.lu/

Ministère des Finances: Rapports d'activité 2018, 2019 and 2020
http://www.mf.public.lu/publications/rapports/

Ministère de la Sécurité Sociale (2021) :
https://mss.gouvernement.lu/fr/publications.html

Ministère de la Sécurité Sociale (2021): http://www.isog.public.lu

OECD (2021): http://stats.oecd.org/Index.aspx .

Service National d'Action Sociale (2021): http://www.snas.public.lu

STATEC (2021): http://www.statistiques.public.lu/fr/acteurs/statec/index.html

Verbist, G. (2004) "Redistributive effect and progressivity of taxes An International Comparison across the EU using EUROMOD", EUROMOD Working Paper No. EM5/04.

Beine M. et al (2020). "Health Risks and Economic Benefits from Lifting Containment Measures in Luxembourg". Working note; LISER, Luxembourg.

ANNEX 1. UPRATING FACTORS

Table A1.1-Uprating factors values and sources

Index	Constant name	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Source
National Consumer Price index (IPCN)	$f_IPCN	111.49	115.29	118.37	120.42	121.18	121.75	122.1	124.22	126.12	128.31	129.37	130.99	STATEC / IPCN http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=eng&MainTheme=5&FldrName=5&RFPath=109
Annual average of the personal minimum pension	$f_upr2	707.08	723.32	739.32	761	775.17	775.17	779.03	805.85	828.31	835.83	859.09	862.21	IGSS / Social parameters - "nombre indice" & "Facteur de réajustement des pensions" (from 2013 on)/"Facteur de revalorisation' (before 2013), Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
Annual average care allowance	$f_upr3	634.56	646.4	662.56	679.12	691.76	691.76	691.76	709.05	709.05	726.78	744.94	744.94	IGSS / Social parameters - Care allowance, Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
Annual average long term care allowance	$f_upr4	59.27	61.58	63.63	65.22	66.43	66.43	67.9	71.51	71.51	75.74	77.64	82.59	IGSS / Social parameters - Long-term care allowance, Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
No Uprating	$f_NoUpr	1	1	1	1	1	1	1	1	1	1	1	1	
Annual average minimum wage	$f_upr5	1703.79	1768.54	1812.75	1885.9	1921.03	1922.96	1922.96	1998.59	1998.59	2089.75	2141.99	2201.93	IGSS / Social parameters, Minimum social wage, Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
Annual average of the Expensive life allowance	$f_upr6	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1452	IGSS / Social parameters – Expensive life allowance, Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
Annual average minimum wage lagged by 1 year	$f_upr7	1675.92	1703.79	1768.54	1812.75	1885.9	1921.03	1922.96	1922.96	1998.59	1998.59	2089.75	2141.99	IGSS / Social parameters, Minimum social wage, Yearly average (http://www.mss.public.lu/publications/parametres_sociaux/index.html) & Own calculations
HICP	$HICP	91.44	94.85	97.59	99.25	99.94	100	100.04	102.15	104.21	105.93	105.93	107.79	STATEC / HICP http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=eng&MainTheme=5&FldrName=5&RFPath=109

Table A1.2-Uprating indexes usage

National Consumer Price index (IPCN)	$f_ipcn	afc, bched02, bched03, bed, bhl, bho, tad, tis, tpr, xhc, xhcmomi, xhcot, xhcrt, xmp, xpp, yds, yiy, yot, ypp, ypr, ypt, yse, ysv, kfb, kivho, kfbcc, ydses_o, bched05
Annual average of the personal minimum pension	$f_upr2	bacpm, bdisv, pdi00, poacc, poacm, poamr, poaps, poapu, poawr, poaxp, psups, psupu
Annual average care allowance	$f_upr3	bca01
Annual average long term care allowance	$f_upr4	bca02
No Uprating	$f_noupr	bched01, bched04, bfapl, bfauc, bmaba, bmals
Annual average minimum wage	$f_upr5	bmawk, bsacm, bsaot, bunss, byr, yem, yivwg
Annual average of the Expensive life allowance	$f_upr6	bsaht
Annual average minimum wage lagged by 1 year	$f_upr7	yempv
HICP	$hicp	

ANNEX 2. POLICY EFFECTS IN 2020-2021

Table A1 and Figure A1 show the effect of 2021 policies on the mean equivalised household disposable income by income component and income decile group, as a percentage of mean equivalised household disposable income in 2020. The effect is estimated as a difference between simulated household net income under the 2021 tax-benefit policies (deflating monetary parameters by *projected* Eurostat's Harmonized Index of Consumer Prices, HICP) and net incomes simulated under 2020 policies.

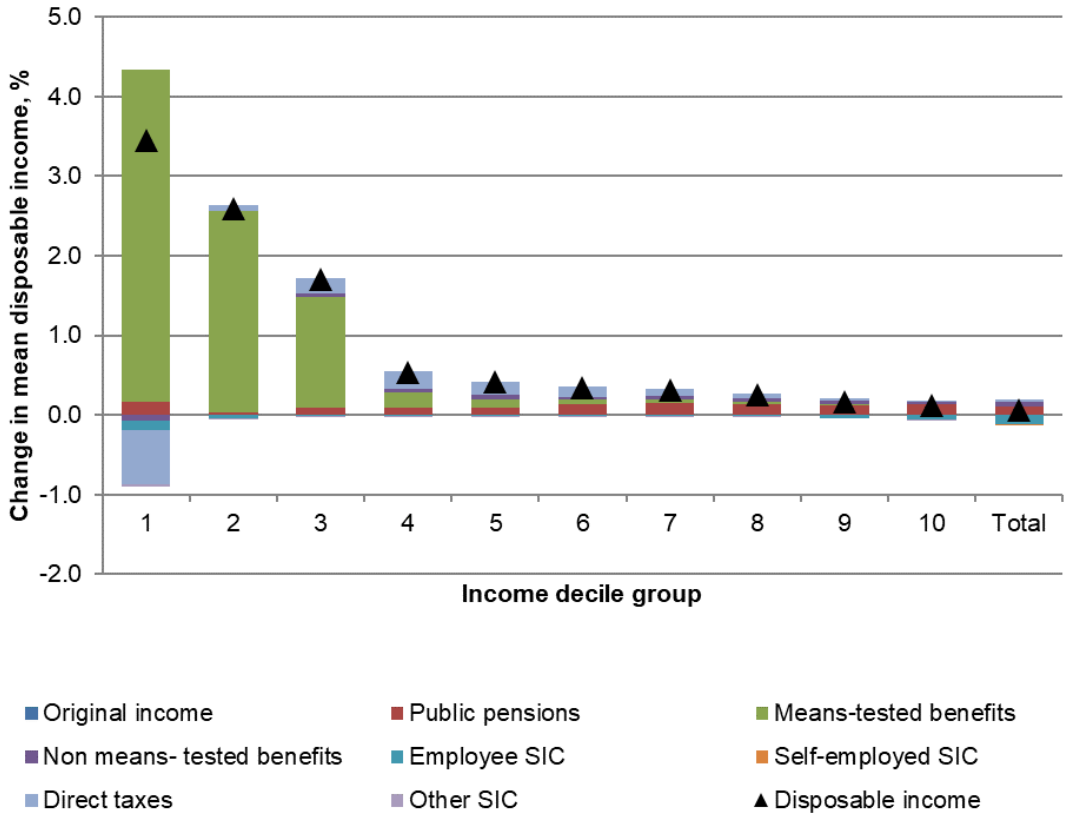
The analysis of the effects of policy changes between 2020 and 2021 shows that overall policy effects were very modest - mean disposable income has increased by just 0.41%. However, there were decreases in direct taxes (decrease by 0.08%), resulting in a increase in average household disposable income. The effect from all the other components was negligible.

Table A1: Policy effects for Luxembourg with alpha: custom [1] on dataset LU_2019_a1

	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-employed SIC	Other SIC	Direct taxes	Disposable income
Decile 1	0.00	0.03	2.53	0.00	-0.04	0.00	-0.01	0.07	2.59
Decile 2	0.00	0.09	1.39	0.04	-0.02	0.00	0.00	0.20	1.70
Decile 3	0.00	0.09	0.20	0.05	0.00	0.00	0.00	0.22	0.54
Decile 4	0.00	0.10	0.10	0.06	-0.01	0.00	0.00	0.17	0.42
Decile 5	0.00	0.14	0.07	0.03	-0.01	0.00	0.00	0.13	0.35
Decile 6	0.00	0.15	0.05	0.04	-0.01	0.00	0.00	0.10	0.32
Decile 7	0.00	0.14	0.03	0.05	-0.02	0.00	0.00	0.06	0.26
Decile 8	0.00	0.13	0.01	0.05	-0.04	0.00	0.00	0.03	0.17
Decile 9	0.00	0.14	0.01	0.02	-0.05	-0.01	0.00	0.02	0.12
Decile 10	0.00	0.10	0.00	0.07	-0.11	-0.02	0.00	0.02	0.07
Total	0.00	0.12	0.22	0.04	-0.04	-0.01	0.00	0.08	0.41

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 2020, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2021 policies by Eurostat's Harmonized Index of Consumer Prices (HICP).

Figure A1: Policy effects in 2020-2021, with alpha: custom [1] on dataset LU_2019_a1



ANNEX 3. VALIDATION TABLES

Table 4.2-Number of employed and unemployed (in thousands).

	EUROMOD	External				Ratio			
	2018	2018	2019	2020	2021	2018	2019	2020	2021
Number of employed	250.85	265.369	272.729	276.249	283.567	0.93	0.90	n/a	n/a
Number of unemployed	9.38	14.482	15.037	19.876	16.402	0.65	0.62	n/a	n/a

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

	EUROMOD	External				Ratio			
	2018	2018	2019	2020	2021	2018	2019	2020	2021
Employment income	254.2423	235.40	242.79	n/a	n/a	1.08	1.047	n/a	n/a
Self-employment income	17.9754	21.51	21.94	n/a	n/a	0.84	0.82	n/a	n/a
Rent income	43.25018	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Investment income	211.8122	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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

	EUROMOD				External				Ratio			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
Average employment income	47748.05	53402.16	57199.26	65496.44	61221.64	n/a	n/a	n/a	0.78	n/a	n/a	n/a
Employment income	12139.57	13471.26	14215.05	17735.14	14691.71	15592.58	n/a	n/a	0.83	0.86	n/a	n/a
Self-employment income	880.7463	941.9638	967.549	858.9944	956.98	1001.59	n/a	n/a	0.92	0.94	n/a	n/a
Rent income	478.8716	565.3516	457.4311	605.7754	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Investment income	192.9805	237.8362	119.2734	238.7931	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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

	EUROMOD	External				Ratio			
	2018	2018	2019	2020	2021	2018	2019	2020	2021
Benefits, Taxes and Social Insurance contributions									
Early retirement benefit	3.49016	1.207	1.197	n/a	n/a	2.89	2.92	n/a	n/a
Disability benefit	9.21867	9.59	9.35	n/a	n/a	0.96	0.99	n/a	n/a
Old-age pension for having educated children	15.9837	18.657	18.200	n/a	n/a	0.86	0.88	n/a	n/a
Additional pension. 2nd pillar	2.74338	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Old-age pension from private & public sectors	73.85876	78.675	81.724	n/a	n/a	0.94	0.90	n/a	n/a
End-of-year allowance for pensioners	36.03923	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Survivor pension from private & public sectors	20.3091	24.799	24.907	n/a	n/a	0.82	0.82	n/a	n/a
Care allowance	0.88981	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Long-term care benefit	4.36508	6.276	6.264	n/a	n/a	0.70	0.70	n/a	n/a
Allowance for children in placement	0.31635	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Parental leave benefit	4.76427	5.509	5.897	n/a	n/a	0.86	0.81	n/a	n/a
Antenatal, birth, postnatal benefit	11.5135	7.146	7.309	n/a	n/a	1.61	1.58	n/a	n/a
Maternity payment	0.71511	3.505	3.613	n/a	n/a	0.20	0.20	n/a	n/a
Other benefit from FNS	1.73972	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Unemployment benefit	11.67523	15.956	15.757	n/a	n/a	0.73	0.74	n/a	n/a
Health payment	40.93605	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fringe Benefit	61.77042	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pension from private pension plans	3.50942	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Severance pay	0.49261	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Education-related allowances	5.66188	18.879	19.717	n/a	n/a	0.30	0.29	n/a	n/a
Regular inter-household cash transfers received	8.52361	n/a	n/a	n/a	n/a			n/a	n/a
Family allowances unconditional	119.7401	120.828	122.332	n/a	n/a	0.99	0.98	n/a	n/a

Sources: EUROMOD computations, STATEC, IGSS, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

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

	EUROMOD				External				Ratio			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2022
Benefits, Taxes and Social Insurance contributions												
Early retirement benefit	131.07	184.09	223.05	136.82	63.30	59.50	n/a	n/a	2.07	3.09	n/a	n/a
Disability benefit	215.68	245.94	253.62	239.40	243.87	244.40	n/a	n/a	0.88	1.01	n/a	n/a
Old-age pension for having educated children	44.95	35.95	31.34	37.62	37.47	36.53	n/a	n/a	1.20	0.98	n/a	n/a
Additional pension. 2nd pillar	13.37	1.03	1.15	1.17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Old-age pension from private & public sectors	3599.49	4263.58	4557.45	5003.89	3020.73	3154.26	n/a	n/a	1.19	1.35	n/a	n/a
End-of-year allowance for pensioners	17.93	12.41	11.45	10.33	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Survivor pension from private & public sectors	567.16	510.59	543.35	557.68	746.46	757.68	n/a	n/a	0.77	0.68	n/a	n/a
Care allowance	5.99	3.33	0.00	0.00	n/a	n/a	n/a	n/a			n/a	n/a
Long-term care benefit	42.32	42.75	54.49	55.20	50.20	52.70	n/a	n/a	0.93	0.87	n/a	n/a
Allowance for children in placement	4.96	7.45	3.48	6.46	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Parental leave benefit	31.25	40.12	64.32	70.71	92.05	102.24	n/a	n/a	0.34	0.39	n/a	n/a
Antenatal. birth. postnatal benefit	7.59	8.43	8.16	9.37	12.35	12.61	n/a	n/a	0.61	0.67	n/a	n/a
Maternity payment	11.60	30.76	75.41	95.82	83.62	88.41	n/a	n/a	0.14	0.35	n/a	n/a
Other benefit from FNS	27.21	23.67	36.49	33.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Unemployment benefit	172.80	228.73	244.63	219.74	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Health payment	69.76	99.60	81.18	83.55	61.49	85.22	n/a	n/a	1.13	1.17	n/a	n/a
Fringe Benefit	204.75	171.83	212.68	316.76	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pension from private pension plans	36.21	5.09	4.64	8.80	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Severance pay	3.28	13.54	2.04	2.55	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Education-related allowances	78.65	106.14	93.01	97.19	94.39	99.41	n/a	n/a	0.83	1.07	n/a	n/a
Regular inter-household cash transfers received	60.91	75.13	56.93	34.94	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Family allowances unconditional	418.82	445.73	437.20	462.33	485.11	484.85	n/a	n/a	0.86	0.92	n/a	n/a

Sources: EUROMOD computations, STATEC, IGSS, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data wareho

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

	EUROMOD				SILC	Ratio	External				Ratio			
	2018	2019	2020	2021	2018	2018	2018	2019	2020	2021	2018	2019	2020	2021
Benefits														
Unemployment benefit	11.68	14.80	14.37	12.54	11.68	1.00	15.96	15.76	n/a	n/a	0.73	0.94	n/a	n/a
Social assistance	30.85	26.95	39.25	30.44	6.72	4.59	9.50	9.69	n/a	n/a	3.25	2.78	n/a	n/a
Heating allowance	60.69	61.69	74.20	78.35	18.42	3.30	19.54	20.43	n/a	n/a	3.11	3.02	n/a	n/a
Child benefit	78.10	78.43	74.84	76.15	119.74	0.65	71.19	72.40	n/a	n/a	1.10	1.08	n/a	n/a
New year school allowance	55.19	55.95	53.41	50.75	60.35	0.91	46.67	46.92	n/a	n/a	1.18	1.19	n/a	n/a
Scholarship for higher education	23.80	27.74	23.07	23.00	5.66	4.20	18.88	19.72	n/a	n/a	1.26	1.41	n/a	n/a
Rent allowance. part of bsacm_s	46.36	42.00	45.04	40.66	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Housing benefit. since 2016	16.51	14.32	19.10	15.81	40.94	0.40	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Taxes and Social Insurance contributions														
Income tax	256.65	264.42	275.43	286.97	n/a	n/a	256.91	264.73	n/a	n/a	1.00	1.00	n/a	n/a
Employee social contributions for healthcare	315.67	325.28	332.57	345.22	n/a	n/a	348.14	357.03	n/a	n/a	0.91	0.91	n/a	n/a
Employer social contributions for healthcare	199.52	197.09	199.07	215.90	n/a	n/a					0.93	0.94	n/a	n/a
Credited social contributions for healthcare	124.69	139.37	141.01	139.53	n/a	n/a	348.14	357.03	n/a	n/a				
Self-employed social contributions for healthcare	17.85	14.61	15.07	14.61	n/a	n/a	17.89	18.16	n/a	n/a	1.00	0.80	n/a	n/a
Employee social contributions for health payment	190.85	188.33	191.85	204.48	n/a	n/a	191.78	197.60	n/a	n/a	1.00	0.95	n/a	n/a
Employer social contributions for health payment	190.85	188.33	191.85	204.50	n/a	n/a	191.78	197.60	n/a	n/a	1.00	0.95	n/a	n/a
Self-employed social contributions for health payment	17.85	14.61	15.07	14.61	n/a	n/a	17.89	18.16	n/a	n/a	1.00	0.80	n/a	n/a
Credited social contributions for health payment	30.85	26.95	39.25	30.44	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Civil servant social contributions for pension	16.83	17.20	16.55	23.42	n/a	n/a	28.86	30.03	n/a	n/a	0.58	0.57	n/a	n/a
Employee from the private sector social contributions for pension	246.18	247.21	244.29	257.16	n/a	n/a	238.85	245.34	n/a	n/a	1.11	1.07	n/a	n/a
Self-employed social contributions for pension	17.98	14.65	15.07	14.74	n/a	n/a								
Employer social contributions for pension	254.24	252.26	248.52	270.78	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Credited social contributions for pension	20.12	25.18	26.64	22.13	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Employee social contribution for long-term care	340.33	353.83	355.17	377.75	n/a	n/a	348.14	357.03	n/a	n/a	1.03	1.04	n/a	n/a
Social assistance recipient social contribution for long-term care	19.89	18.54	24.83	17.92	n/a	n/a								
Self-employed social contribution for long-term care	17.85	14.61	15.07	14.61	n/a	n/a	17.89	18.16	n/a	n/a	1.00	0.80	n/a	n/a
Employer social contribution for accident	254.24	252.26	248.52	270.78	n/a	n/a								
Self-employed social contribution for accident	17.85	14.61	15.07	14.61	n/a	n/a	230.25	235.43	n/a	n/a	1.18	1.13	n/a	n/a

Sources: EUROMOD computations, STATEC, IGSS, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

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

	EUROMOD				SILC	Ratio	External				Ratio			
	2018	2019	2020	2021	2018	2018	2018	2019	2020	2021	2018	2019	2020	2021
Benefits														
Unemployment benefit	131.21	167.54	183.66	165.36	172.80	0.76	200.01	209.66	n/a	n/a	0.66	0.80	n/a	n/a
Social assistance	328.17	298.57	441.74	343.29	69.01	4.76	136.19	151.02	n/a	n/a	2.41	1.98	n/a	n/a
Heating allowance	82.96	72.51	74.30	72.39	27.95	2.97	34.49	36.27	n/a	n/a	2.41	2.00	n/a	n/a
Child benefit	530.63	506.33	468.66	468.41	418.82	1.27	485.11	484.85	n/a	n/a	1.09	1.04	n/a	n/a
New year school allowance	15.82	15.60	14.88	14.15	7.45	2.12	16.09	16.08	n/a	n/a	0.98	0.97	n/a	n/a
Scholarship for higher education	130.17	151.46	128.47	130.28	78.65	1.66	94.39	99.41	n/a	n/a	1.38	1.52	n/a	n/a
Taxes and Social Insurance contributions														
Income tax	2966.06	3624.79	3946.71	5141.91	2966.06	3624.79	3173.56	3296.64	n/a	n/a	0.93	1.10	n/a	n/a
Employee social contributions for healthcare	371.33	407.13	449.91	527.86	371.33	407.13								
Employer social contributions for healthcare	234.02	248.35	279.13	345.67	234.02	248.35								
Credited social contributions for healthcare	128.23	150.77	158.48	173.24	128.23	150.77	1061.92	1121.48	n/a	n/a	0.73	0.75	n/a	n/a
Self-employed social contributions for healthcare	41.95	38.07	41.94	39.37	41.95	38.07								
Employee social contributions for health payment	18.82	19.94	22.87	27.41	n/a	n/a								
Employer social contributions for health payment	147.53	156.33	167.39	214.91										
Self-employed social contributions for health payment	3.75	3.40	3.74	3.52			50.07	53.00	n/a	n/a	3.58	3.55	n/a	n/a
Credited social contributions for health payment	9.19	8.36	12.37	9.61	n/a	n/a								
Civil servant social contributions for pension	76.79	79.79	86.17	132.40			234.94	250.89	n/a	n/a	0.33	0.32	n/a	n/a

Employee from the private sector social contributions for pension	880.69	984.63	1037.89	1216.29										
Self-employed social contributions for pension	119.87	108.76	119.82	112.48	n/a	n/a								
Employer social contributions for pension	930.00	1026.07	1079.01	1311.30			1976.76	2093.74	n/a	n/a	0.99	1.03	n/a	n/a
Credited social contributions for pension	27.49	38.38	45.06	38.27										
Employee social contribution for long-term care	206.41	233.34	248.42	299.93	n/a	n/a								
Social assistance recipient social contribution for long-term care	2.48	2.24	3.40	2.56			250.95	264.84	n/a	n/a	0.88	0.94	n/a	n/a
Self-employed social contribution for long-term care	12.33	13.19	13.55	12.03										
Employer social contribution for accident	104.37	115.14	120.66	146.96	n/a	n/a								
Self-employed social contribution for accident	7.49	6.80	7.49	7.03			120.00	113.68	n/a	n/a	0.93	1.07	n/a	n/a

Sources: EUROMOD computations, STATEC, IGSS, Ministry of Labor and Employment, SNAS, ADEM and own computations from IGSS Data warehouse

Table 4.9 - Distribution of equivalised disposable income

	EUROMOD				External				Ratio			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
D1	4.81	4.83	4.65	4.69	2.40	n/a	n/a	n/a	2.00	n/a	n/a	n/a
D2	5.68	5.70	5.46	5.73	4.60	n/a	n/a	n/a	1.23	n/a	n/a	n/a
D3	6.50	6.55	6.38	6.32	5.80	n/a	n/a	n/a	1.12	n/a	n/a	n/a
D4	7.44	7.40	7.44	7.47	6.60	n/a	n/a	n/a	1.13	n/a	n/a	n/a
D5	8.39	8.40	8.53	8.23	7.90	n/a	n/a	n/a	1.06	n/a	n/a	n/a
D6	9.48	9.47	9.35	9.42	9.10	n/a	n/a	n/a	1.04	n/a	n/a	n/a
D7	10.60	10.65	10.73	10.66	10.60	n/a	n/a	n/a	1.00	n/a	n/a	n/a
D8	12.03	11.93	12.22	12.17	12.50	n/a	n/a	n/a	0.96	n/a	n/a	n/a
D9	14.03	14.05	14.28	14.31	15.60	n/a	n/a	n/a	0.90	n/a	n/a	n/a
D10	21.04	21.02	20.96	20.99	24.80	n/a	n/a	n/a	0.85	n/a	n/a	n/a
Median	34952.29	34952.29	37202.26	37752.56	40270.00	n/a	n/a	n/a	0.87	n/a	n/a	n/a
Mean	38936.61	39027.18	41860.35	42680.28	47878.00	n/a	n/a	n/a	0.81	n/a	n/a	n/a
Gini	24.84	24.75	25.44	25.28	33.20	n/a	n/a	n/a	0.75	n/a	n/a	n/a
S80/S20	3.34	3.33	3.49	3.38	5.72	n/a	n/a	n/a	0.58	n/a	n/a	n/a

Sources : Euromod, EU-SILC

Table 4.10 - Poverty rates by gender and age

	EUROMOD				External				Ratio			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
40% median HDI												
Total	0.27	0.36	0.45	0.63	6.80	n/a	n/a	n/a	0.04	n/a	n/a	n/a
Males	0.28	0.34	0.49	0.72	6.00	n/a	n/a	n/a	0.05	n/a	n/a	n/a
Females	0.26	0.38	0.40	0.53	7.60	n/a	n/a	n/a	0.03	n/a	n/a	n/a
50% median HDI												
Total	1.09	3.18	1.44	3.22	11.00	11.90	n/a	n/a	0.10	0.27	n/a	n/a
Males	1.06	3.14	1.30	3.24	10.30	10.90	n/a	n/a	0.10	0.29	n/a	n/a
Females	1.13	3.22	1.59	3.20	11.70	13.10	n/a	n/a	0.10	0.25	n/a	n/a
60% median HDI												
Total	9.40	12.81	11.47	12.40	18.70	18.30	n/a	n/a	0.50	0.70	n/a	n/a
Males	9.35	12.23	10.81	11.97	17.90	17.00	n/a	n/a	0.52	0.72	n/a	n/a
Females	9.45	13.39	12.14	12.84	19.40	19.60	n/a	n/a	0.49	0.68	n/a	n/a
70% median HDI												
Total	22.69	22.00	22.59	21.94	26.30	26.60	n/a	n/a	0.83	0.87	n/a	n/a
Males	21.71	21.05	21.76	20.79	25.40	25.20	n/a	n/a	0.82	0.89	n/a	n/a
Females	23.69	22.97	23.42	23.12	27.30	28.00	n/a	n/a	0.84	0.85	n/a	n/a
60% median HDI												
0-15 years	11.49	13.49	10.95	15.03	21.30	22.00	n/a	n/a	0.54	0.61	n/a	n/a
16-24 years	17.59	22.28	18.98	20.99	27.80	23.40	n/a	n/a	0.63	0.95	n/a	n/a
25-49 years	8.00	11.94	10.12	11.14	17.90	17.40	n/a	n/a	0.45	0.69	n/a	n/a
50-64 years	8.35	12.39	13.21	12.13	16.80	18.60	n/a	n/a	0.50	0.67	n/a	n/a
65+ years	4.44	6.35	7.48	6.80	11.80	12.10	n/a	n/a	0.38	0.53	n/a	n/a

Source: Euromod, EUROSTAT

ANNEX 4. (COVID19) WAGE COMPENSATION/SHORT TIME WORKING SCHEME

Table B1a: The employment share of a move from employment status to short time work by sector of activity

		Share of wage compensation scheme			
		Employee		*Self-employed*	
No.	*Industry*	*Female*	*Male*	*Female*	*Male*
1	*NACE A-E*	16,8%	15,6%	0,0%	0,0%
2	*NACE F*	27,7%	36,8%	0,0%	24,4%
3	*NACE G,H,J-N*	19,5%	14,9%	30,9%	28,3%
4	*NACE I*	43,5%	37,7%	32,4%	0,0%
5	*NACE O-U*	17,9%	12,9%	24,7%	29,1%

Table B1b: The employment share of a move from employment status to short time work by duration

	Share of wage compensation scheme	
	Employee	*Self-employee*
Duration		
1 month	25,3%	12,6%
2 months	52,6%	37,8%
3 months	74,7%	76,8%
4 months	91,2%	86,9%
5 months	94,3%	92,7%
6 months	97,7%	100,0%
7 months	99,1%	100,0%
8 months	99,4%	100,0%
9 months	100,0%	100,0%
Hours of work per week		
0 hour	42,1%	36,0%
15 hours	74,3%	83,5%
45 hours	91,7%	100,0%

Table B2: **Market Incomes and Government Revenue & Expenditure** (Yearly, in million)

	Baseline	*Covid19*	*Difference*
Total market incomes	18,849.85	18,541.09	-308.76
... income from (self) employment	18,098.96	17,790.20	-308.76
... other sources	750.89	750.89	0.00
Government revenue through taxes and social insurance contributions	9,070.09	9,094.80	24.71
... direct taxes	4,796.84	4,841.98	45.14
... employee social insurance contributions	2,149.34	2,194.68	45.34
... self-employed social insurance contributions	171.41	161.30	-10.11
... other social insurance contributions	2.48	2.49	0.01
... employer social insurance contributions (not part of disposable income)	1,950.02	1,894.35	-55.66
Credited social insurance contributions (not part of disposable income)	218.63	314.52	95.89
Government expenditure on social transfers	7,473.75	7,931.46	457.70
by target group	0	0	0
... unemployment benefits	295.53	757.27	461.74
... family and education benefits	788.28	787.94	-0.34
... social assistance and housing benefits	426.78	423.08	-3.70
... pensions, health and disability benefits	5,963.16	5,963.16	0.00
by benefit design	0	0	0
... means-tested non-pension benefits	520.59	516.55	-4.04
... non-means-tested non-pension benefits	991.14	1,452.88	461.74
... pensions	5,962.02	5,962.02	0.00