

EUROMOD

COUNTRY REPORT

NETHERLANDS (NL)
2018-2021

Klaas de Vos

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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 Netherlands. 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 Netherlands: Silvia De Poli

National team for Netherlands: Klaas de Vos

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 in this document does not reflect the position or opinion of the European Commission.

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1. BASIC INFORMATION

1.1 Basic information about the tax-benefit system

- The tax-benefit system is largely a unified, national system. The main exception is the immovable property tax (*Onroerendezaakbelasting, OZB*) collected and determined by local authorities (municipalities).
- The tax system generally changes on 1st January, each year. Main benefit changes happen at the same time, but may also be implemented on 1st July.
- Up to 2012, the state pension age was 65 for men and women. Beginning in 2013, the state pension age is gradually increased to 67 in 2024. After 2024, the state pension age will follow changes in the life expectancy.
- Minimum school leaving age is 16; dependent children are defined as age under 16 or under 18 and (largely) provided for by the parents.
- For benefit purposes lone parents are the parents of resident dependent children; they do not cohabit with a partner (but could live with other family members). For tax purposes a lone parent is a parent of a resident dependent child; here, the only other household members are children aged younger than 27.
- The income tax system is largely an individual system, with the spouses being assessed independently. However, spouses with low or zero taxable income may be entitled to tax credits dependent on the income of a higher earning partner.
- The means-tested benefit system assesses entitlement according to benefit unit income. The benefit unit is the nuclear family - the couple (cohabiting or married) or single adult plus any dependent children.
- Income tax withholdings are usually collected in such a way that the amount due in the financial year is more or less approximated. In principle all tax payers must file a tax return for income tax.
- Capital income taxation amounts to 30% of the assumed rate of return of 4% (taking account of a minimum threshold). Starting in 2017, the assumed rate of return is differentiated: low amounts of assets are assumed to yield the lowest rates of return.
- Most taxation amounts are subject to automatic yearly indexation by the inflation rate. Net benefits are linked to the net minimum wage.
- Most social contributions and state benefits and pensions are assessed and delivered on a monthly basis. Amounts are referred to in monthly terms. The main exception is income tax, where liability is based on annual income and allowances and thresholds are referred to in annual terms. Another exception is child benefit, which is paid out on a three-monthly basis. Furthermore, the municipal property tax is levied annually.
- Self-employed who work a minimum number of hours (1,225 per year) in their own firm are entitled to self-employment deduction. They are not included in unemployment insurance and disability insurance and are subject to separate arrangements with respect to social assistance.

1.2 Social Benefits

Child benefit (*kinderbijslag AKW*): benefit paid to all couples and single parents with dependent children aged below 18. Amount per child depends on age of the child and, to a minor extent, on the number of dependent children. The benefit is not taxable.

Survivor benefit (*nabestaandenuitkering ANW*): paid to surviving spouses aged younger than the state pension age, with a dependent child, a disability or born before 1st January, 1950. The benefit is means tested, income received ‘in relation with work’ (i.e. social insurance benefits) are deducted entirely, but part of income received from work is exempt.

The state old age pension (*ouderdomspensioen, AOW*) is a flat rate benefit paid to all persons aged above the state pension age who were resident in the Netherlands between the ages of 15 and the state pension age. For each year of absence from the Netherlands during that time 2% of the full benefit is deducted.

Social assistance (*bijstand*) is paid to households (couples, single parents, single persons) with low income and low assets. Separate arrangements without asset test exist for unemployed persons aged above 50 (IOAW/IOAZ) and 60 (IOW).

Rent allowance (*huurtoeslag*) is a benefit paid to tenants with low income and low assets whose rent exceeds a norm amount (but does not exceed a maximum ‘social rent’ threshold). The benefit is not taxable. Income and assets of the applicant, his/her benefit partner (*toeslagpartner*) and other residents are taken into account.

Unemployment benefit (*werkloosheidsuitkering WW*) is paid to persons younger than the state pension age who lost their job. The benefit amount is a percentage of previous earnings (with a maximum). Entitlement requires a certain minimum employment history as well as active job search. Duration depends on age and employment history.

Disability benefit (*arbeidsongeschiktheidsuitkering, WIA*): two main arrangements, after two years of illness, for working-age persons. IVA for persons who fully lost their ability for work (> 80%) with no/small recovery probability, WGA for persons who lost their ability for work for 35-80%. IVA pays 75% of earnings (with maximum) until the state pension age. WGA depends on rate of disability and extent to which remaining ability is used. Notably, WIA was introduced in 2006. Disability benefit recipients whose disability started earlier keep the previous benefit (WAO). Moreover, separate disability arrangements exist for persons who were already disabled as a child (Wajong) and for disabled self-employed (WAZ, no new cases accepted).

Care allowance (*zorgtoeslag*) is a benefit paid by the tax authorities to persons with low income to (partly) enable them to pay for their (compulsory) private health insurance. Income and assets of the applicant and his/her benefit partner (*toeslagpartner*) are taken into account.

Child care allowance (*kinderopvangtoeslag*) is a benefit paid by the tax authorities to persons in work or education to (partly) enable them to pay for (professional) child care. The benefit consists of two parts: an income dependent part paid out of the government budget and a part dependent on the actual child care costs, paid for by the employer.

Pregnancy and Childbirth Allowance (*Zwangerschaps- en bevallingsuitkering*). This is a non-contributory benefit for the period of maternity leave. Available to employees, recipients of unemployment and disability benefits and self-employed persons. The allowance is paid for at least 16 weeks (including 4-6 weeks before the childbirth and 10 weeks after the childbirth).

Adoption and Foster care Allowance (*Adoptie- en pleegzorguitkering*). This is a non-contributory benefit available to employees and recipients of unemployment and disability

benefits. The allowance is paid for a maximum of 4 weeks for both parents who adopt a child or become a foster-parent.

Paternity leave, parental leave (*Kraamverlof, ouderschapsverlof*). The partner of the mother is entitled to two days of paid paternity leave and three days of unpaid parental leave per childbirth, if he/she is employee. In addition, both parents are entitled to 26 weeks of unpaid parental leave per child

Child related budget (*kindgebonden budget*) is a means tested benefit paid by the tax authorities to parents with dependent children. The benefit is not taxable. Income and assets of the applicant and his/her benefit partner (*‘toeslagpartner’*) are taken into account.

There are a number of specific benefits for specific target groups such as artists, military, war victims 1940-45, persons active in the resistance 1940-45, and there are specific compensations for necessary expenditures by chronically ill and handicapped and e.g. families with children younger than 18 who are in specific types of education not financed by the state. There are also specific social assistance arrangements for the self-employed.

- ***Not strictly benefits***

In addition there are components of income that are not strictly part of the benefit system. These include:

Scholarships (*basisbeurs, aanvullende beurs*) are paid to students aged between 18 and 30. The basic scholarship (*basisbeurs*) depends on the level of education and on whether the student lives with his parents or not. The supplementary scholarship (*aanvullende beurs*) depends on the level of education and the income of the parents. The paid amounts also depend on the own income of the student and are conditional on the progress in education. Additionally, student loans are available. Notably, from September 1, 2015 basic scholarships for new students in higher education have been replaced by student loans.

Occupational (employer-provided) pensions are earnings related pensions that for the majority of employees supplement the flat-rate state pension (AOW) after the state pension age. In a decreasing number of cases, the occupational pensions include early retirement arrangements (starting before the state pension age).

In case of **sickness** the employer pays (at least) 70% of the wage for a period of at most two years (*Wet Uitbreiding Loondoorbetalingsverplichting Bij Ziekte* and *Wet Verlenging Loondoorbetalingsverplichting Bij Ziekte*).

1.3 Social contributions

Many benefits are largely or wholly paid for by social contributions. A difference can be made between employees insurances (unemployment insurance, *Werkloosheidswet (WW)* and disability insurance, *Wet Werk en Inkomen naar Arbeidsvermogen (WIA)*) where the contributions are shared between employee and employer or paid by the employer, and peoples insurances (basic state pension: *Algemene Ouderdomswet (AOW)*, survivor benefit *Algemene Nabestaandenwet (ANW)* and long term health care costs: *Wet Langdurige Zorg (WLZ)*) which are collected by the tax authorities in combination with income tax. In addition, all residents are obliged to take out private health insurance, which is partly paid for by amounts determined by the insurance companies and partly by income related amounts which are paid by the employer, if any (health care insurance act, *Zorgverzekeringswet (ZVW)*).

Employees insurances:

Unemployment insurance contribution (*werkloosheidswet, WW*) is partly paid by the employer and partly by the employee. A distinction can be made between a national component and a component which differs by sector. Starting in 2020, a distinction is made between a low contribution for employees with a fixed contract and a high contribution for employees with a temporary or flexible contract.

Disability insurance contribution (*Wet Werk en Inkomen naar Arbeidsvermogen (WIA)*) is paid by the employer. Unemployment and disability insurance have the same tax base and the same ceiling determining the maximum contribution and the maximum benefit).

Peoples insurances:

Basic state pension contribution (*Algemene Ouderdomswet (AOW)*) is paid by all persons with taxable income from work and/or accommodation under the state pension age. It is calculated as a percentage up to a maximum.

Survivor benefit contribution (*Algemene Nabestaandenwet (ANW)*) is paid by all persons with taxable income from work and/or accommodation. It is calculated as a percentage up to a maximum.

Act on long term health care cost contribution (*Wet Langdurige Zorg (WLZ)*) is also paid by all persons with taxable income from work and/or accommodation. It is also calculated as a percentage up to a maximum.

Other:

Health insurance contribution (*Zorgverzekeringswet ZVW*): all residents have to insure privately and pay health insurance premiums to health insurance companies. In addition, an income related contribution is levied up to a maximum; this contribution is usually paid by the employer or benefit agency in the case of earnings and most benefits (not: old age pensions).

1.4 Taxes

Personal Income Tax (*inkomstenbelasting*): income is taxed at the individual level, but tax credits of partners with a low income may depend on the income of the higher earning spouse. The base of the income tax is relatively broad. The main exceptions are child benefit and child support, and rent allowance, care allowance and child care allowance. Mortgage interest payments for the main residence are deductible from taxable income but imputed rent is taxed. Apart from the main residence, (returns from) properties and assets are taxed by a separate schedule. Income tax is largely collected at source (*loonbelasting*) but the final assessment is made on the basis of tax returns sent in after the end of the tax year (= calendar year).

Corporate Income Tax (*vennootschapsbelasting*) is taxed on the profits of (larger) firms.

Dividend Tax (*dividendbelasting*): companies paying dividends to their shareholders have to pay a fixed percentage as dividend tax. For shareholders who also pay income tax the dividend tax withheld by the company is deducted from the income tax due.

Inheritance tax (*successierecht*): It is charged using flat tax rates. There are exemptions and deductions as well as different rates, dependent on the type of relationship the individual has/had with the deceased and the nature of the donation or bequest.

Value Added Tax (*belasting toegevoegde waarde*): there are two rates: 6 percent (from January 1, 2019: 9 percent) for books, magazines and newspapers, food and non-alcoholic beverages, agricultural products and services, personal transport, rent of holiday homes and campsings, access

to cultural and sports events, services of hair dressers, repairs of clothing, shoes and bicycles, medicines; and 21 percent for other goods and services. Immovable property older than two years, medical services, education, sports services to club members, socio-cultural services and products, child care, care and housekeeping services, most bank services and services by composers, writers and journalists are exempt.

Excise duties (*accijnzen*): are charged on alcohol and alcoholic beverages, beer, tobacco, and fuels. Soft drinks are subject to a separate consumption tax (*verbruiksbelasting*).

Motor vehicle tax (*motorrijtuigenbelasting*) is charged on owners of motor vehicles.

Tax of passenger cars and motorcycles (*belasting personenauto's en motorrijwielen*) is charged on new and/or imported cars and other motor vehicles.

A **Transfer tax (*overdrachtsbelasting*)** of 2% is charged when one buys an immovable property (except newly built properties).

Energy tax (*energiebelasting*) is charged on the use of electricity, natural gas, and various fuels.

Immovable property tax (*onroerendezaakbelasting*): is levied by municipal authorities on the owned residence. Municipalities determine the tax as a percentage of the estimated value of the house.

2. SIMULATION OF TAXES, SOCIAL INSURANCE CONTRIBUTIONS AND BENEFITS IN EUROMOD

2.1 Scope of simulation

Most of the taxes and benefits mentioned in the previous section are simulated by EUROMOD, but not all. Some of the taxes or benefits are beyond its scope (i.e. indirect and business taxation), others cannot be simulated based on the available data, and therefore are excluded from further simulations or imputations into the model. If feasible, though, they are included in the EUROMOD database either as individual or/and aggregate income sources. When possible, the output includes both the simulated and the original survey reported variables.

Table 2.1 and Table 2.2 list the main tax-benefit instruments in the Netherlands, as discussed in Section 1, and provide a brief explanation in which format the instruments are included in the EUROMOD database or why they are not (fully) simulated. The benefits that are simulated in EUROMOD include family benefits that depend on the number of children and their age. Furthermore, simulations are possible for a number of contributory (social insurance based) benefits, such as the state pension and non-contributory benefits such as social assistance assigned to low income households. A number of benefits with entitlement rights dependent on contribution history (i.e. unemployment, etc.) are only partially simulated due to the lack of data on previous employment history and salaries received.

Table 2.1 Simulation of benefits in EUROMOD

	Variable name(s)	Treatment in EUROMOD				Why not fully simulated?
		2018	2019	2020	2021	
State pension	poa_s	S	S	S	S	
Survivor benefit	psu_s	S	S	S	S	
Other pensions	poacm	I	I	I	I	Insufficient information on contributions/rules etc
Contributory Unemployment benefit	bunct	PS	PS	PS	PS	Insufficient information on unemployment history
Other unemployment benefit	bunst	I	I	I	I	Insufficient information
Disability benefit	pdi	I	I	I	I	Insufficient information on earnings history, extent of disability etc
General Social assistance	bsa00_s	S	S	S	S	
Other taxable social assistance	bsaot	I	I	I	I	Insufficient information
Other nontaxable social assistance	bched	I	I	I	I	Insufficient information
Scholarships etc	bed	I	I	I	I	Insufficient information
Sickness benefit	bhl	I	I	I	I	Insufficient information
Care allowance	bhlmt_s	S	S	S	S	
Child benefit	bfa_s	S	S	S	S	
Child allowance	bch_s	S	S	S	S	
Pregnancy allowance	bcbma01	I	I	I	I	Insufficient information
Childbirth allowance	bcbma02	I	I	I	I	Insufficient information
Housing benefit	bho_s	S	S	S	S	
Temporary social assistanc self-employed (Covid-19)	bsase00_s	-	-	(P)S	(P)S	
Monetary compensation for employers (Covid-19)	bmcer_s	-	-	(P)S	(P)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.

Most of the direct income taxes and social insurance contributions are simulated (except some minor ones). Nevertheless, application of some income tax allowances or estimation of some income taxation is not possible or not accurate enough due to the lack of more detailed information on a person’s disability degree, economic activity type or other specific socio-economic information that is not collected in the EU-SILC database. In such cases, basic tax allowance levels or other general income taxation rules are applied.

Table 2.2 Simulation of taxes and social insurance contributions in EUROMOD

	Variable name(s)	Treatment in EUROMOD				Why not fully simulated?
		2018	2019	2020	2021	
Personal Income Tax	tin_s	S	S	S	S	
Corporate Income Tax		E	E	E	E	Insufficient information
Inheritance tax		E	E	E	E	Insufficient information
Immovable Property tax		E	E	E	E	Insufficient information
Other direct taxes		E	E	E	E	Insufficient information
Value Added Tax		E	E	E	E	Insufficient information
Excise duties		E	E	E	E	Insufficient information
Other indirect taxes		E	E	E	E	Insufficient information
Unemployment insurance employees	tsceei_s	S	S	S	S	
Unemployment insurance employers	tscerui_s	S	S	S	S	
Disability insurance Employers	tscerdi_s	S	S	S	S	
Health insurance	tschl_s	S	S	S	S	
Peoples insurance:	tsceepi_s	S	S	S	S	
AOW	Temp_PIpension	S	S	S	S	
WLZ	Temp_PHealth	S	S	S	S	
ANW	Temp_PIsurvivor	S	S	S	S	

Notes: “-” policy did not exist in that year; “E” policy is *excluded* from the model’s scope as it is neither included in the microdata nor simulated by EUROMOD; “PS” policy is *partially simulated* as some of its relevant rules are not simulated; “S” policy is *simulated* although some minor or very specific rules may not be simulated.

2.2 Main policy changes

- **Main policy changes between 2018 and 2019**

- 1) State pension
 - a) The state pension age has been increased by 4 months to 66 years and 4 months.
- 2) Income tax
 - a) The old age credit is gradually reduced for persons with taxable income above € 36,783.
 - b) Starting in 2019, the deduction for tax-payers with a small mortgage debt will be abolished in 30 years.

- **Main policy changes between 2019 and 2020**

- 1) Social insurance contributions

- a) Unemployment contributions now depend on the type of contract: high contributions for employees with a flexible/temporary contract, low contributions for employees with a fixed contract.
- 2) Rent allowance
 - a) The income thresholds above which no rent allowance is paid out have been abolished. Instead, the allowance gradually decreases with increasing income.
- 3) Child allowance
 - a) The earnings limits for children aged 16 and 17 have been abolished
- 4) Income tax
 - a) The speed of the decrease in the income tax deduction of mortgage interest payments has been increased.
 - b) A similar decrease in the income tax deduction is introduced for other deductions, such as the self-employment allowance
- 5) Minimum wage
 - a) As of 1 July 2019, 21-year olds are entitled to 100% of the minimum wage. In addition, the percentages of the minimum wage valid for younger persons have been raised.
- 6) Covid-19
 - a) To mitigate the economic impact of the Covid-19 crisis, a number of policy measures were implemented. See text box below.

- *Main policy changes between 2020 and 2021*

- 1) Covid-19
 - a) The Covid-19 measures were extended to the first half of 2021

Summary of COVID-19 policies, 2020-2021

In order to mitigate the economic impact of the COVID-19 crisis, the Dutch government implemented a series of policy measures. The first set of measures was presented on 17 March 2020, and the second set of measures was presented on 20 May 2020. A third set of measures was presented on 30 September 2020. By and large, the first set of measures covered three months (March, April and May, 2020), and the second set of measures covered four months (June, July, August and September, 2020). The third set of measures covers three periods of three months (until 30 June 2021). Most of these measures are to be extended to 30 September 2021.

NOW (*Noodmaatregel Overbrugging Werkgelegenheid*, Emergency measure bridging employment) subsidizes 90% of the wage cost of employers in case of loss of revenue of more than 20%. In phase 1, recipients of NOW had to reimburse 150% of the subsidy if employees were laid off. In phase 2, the NOW subsidy is reduced proportionally to the number of lay-offs. In case more than 20 employees are laid off without agreement with the trade unions and without mediation, the NOW subsidy is reduced with 5%. Employers are assumed to continue to pay 100% of the wages. In phase 3, employers are allowed to reduce their wage cost, whilst the subsidy percentage has been reduced to 80% for the last three months of 2020 (Phase 3.1) and to 85% for the first six months of 2021 (Phase 3.2 and 3.3).

TOZO (*Tijdelijke Overbruggingsregeling Zelfstandige Ondernemers*, Temporary bridging arrangement independent entrepreneurs) supplements the income of self-employed to social assistance level, in case it drops below this threshold as a result of the COVID-19 crisis. In contrast with general social assistance, no asset test is performed. In phase 1, the income of the spouse was not taken into account in the calculation of the benefit, but in phase 2, the income of the spouse is taken into account. An asset test, announced for phase 3, was postponed.. In addition, TOZO includes loans to firms suffering from loss of revenues.

TOGS (*Tegemoetkoming Ondernemers Getroffen Sectoren*, Allowance for entrepreneurs in the affected sectors) is an allowance of € 4,000 for entrepreneurs in the affected sectors, to cover fixed costs in the case of loss of revenue of more than € 4,000. In phase 2, TOGS was replaced by TVL (*Tegemoetkoming Vaste Lasten*, Allowance for fixed costs). This allowance is meant to cover fixed costs and consists of an amount between € 1,000 and € 50,000, dependent on the loss of revenue (more than 30%) and the amount of fixed costs. In a number of respects, TVL has been adjusted in phase 3. In the fourth quarter of 2020 it is available to firms suffering loss of revenue in almost all sectors.

In addition, the tax authorities may allow firms to delay payment of taxes. The interest rate paid on debts to the tax authorities has been reduced to 0.01%.

2.3 Order of simulation and interdependencies

The following table shows the order in which the main elements of the Dutch system are simulated. Notably, although `yem_nl` is switched on, the minimum wage is not implemented (see section 4.3) in the baseline. Social assistance is calculated after all other benefits that are included in the means test have been simulated (`bsanet_nl`, `bsa_gross_nl`). The final calculation of social

assistance also includes the recalculation of income tax and social insurance contributions. Care allowance and housing benefit are calculated at the end because they depend on taxable income.

Table 2.3 EUROMOD Spine: order of simulation

Policy	Description	2018	2019	2020	2021
uprate_nl	Definition of uprating factors	on	on	on	on
ildef_nl	Definition of income lists	on	on	on	on
tundef_nl	Definition of tax units	on	on	on	on
constdef_nl	Definition of constants	on	on	on	on
random_nl	Random variables for yse loss	off	off	on	on
TransLMA_nl	Definition of transitions	off	off	on	on
yem_nl	Minimum wage	on	on	on	on
neg.nl	Recode negative income from self-employment to zero	on	on	on	on
bfa_nl	Child Benefit	on	on	on	on
bunct_nl	Unemployment ins. benefit	on	on	on	on
bma_nl ^S	Maternity allowance	off	off	off	off
psu_nl	Survivor pension	on	on	on	on
poa_nl	State pension	on	on	on	on
eesic_nl	Employee social ins. contr.	on	on	on	on
tschl_nl	Health ins. contr.	on	on	on	on
tin_nl	Gross income tax (box1)	on	on	on	on
tinkt_nl	Gross income tax (box3)	on	on	on	on
peoplesic_nl	Gross people insurance contribution	on	on	on	on
tintc_nl	Income tax credits	on	on	on	on
chall_nl	Child allowance	on	on	on	on
bsanet_nl	Social assistance benefit (net)	on	on	on	on
bsagross_nl	Social assistance benefit (gross)	on	on	on	on
bsasenet_nl	Temporary social assistance self-employed (net)	off	off	on	on
bsasegross_nl	Temporary social assistance self-employed (gross)	off	off	on	on
chall2_nl	Child allowance recalculated	off	off	on	on
bhlmt_nl	Care allowance	on	on	on	on
ersic_NL	Employer social ins. contr.	on	on	on	on
bho_nl	Housing benefit	on	on	on	on
yemcomp_nl	Monetary compensation for employers (Covid-19)	-	-	on	on
	Output policies	on	on	on	on

^S Switch-controlled module.

In the 2020 system a number of policies has been added in order to simulate the temporary benefit for self-employed suffering income losses as a result of the Covid-19 crisis (*TOZO*) as described above. Similar to *bsanet_nl* and *bsagross_nl*, *bsasenet_nl* calculates the means tested net benefit. This is followed by a recalculation of income tax and social insurance contributions in *bsasegross_nl*. In addition, monetary compensation for employers suffering loss of revenue (*NOW*) is simulated in *yemcomp_nl*.

2.4 Policy extensions

Currently, there are two policy extensions¹ used in the Dutch EUROMOD model. The Full Year Adjustment (FYA) allows the user to choose between modelling policies as of 30th June (switch set to off, the default) and modelling annual policies (switch set to on), which takes into account within-year policy changes.

Parental Benefits Extension (PBE) allows the user to choose between observed (extension set to off, the default) and simulated (extension on) values of maternity benefit. Due to issues in the validation and consistency over different policy years, the policy is turned off in the baseline. It can be switched on for 2015-2020 in the Run dialogue box.

Other policies can be switched on or off by changing the relevant parameters. A case in point is the minimum wage policy (see also section 4.3). This is switched off in the baseline but can be switched on by changing the value of the final function of the `yem_nl` policy from 'off' to 'on' (from within the model).

In addition, the monetary compensation for employers to mitigate the effects of Covid-19 in 2020 is switched off in the baseline, but can be switched on by the LMA add-on.

2.5 Benefits

2.5.1 Child benefit (*bfa_s*)

- *Brief description*

Benefit targeted to all benefit units with children aged below 18.

- *Definitions*

Unit of analysis is the benefit unit consisting of the head, spouse or cohabitant partner and children under 16 or under 18 years if they are in education (at least 213 hours per quarter), or unemployed, or at least 45% disabled. Eligible children living in the household, but without parents (i.e. so called “loose children”), are also counted as dependent children.

- *Eligibility conditions*

Parents (including foster-parents) are eligible for child benefits for children aged less than 18 but eligibility for children aged above 15 and less than or equal to 17 requires that they are in education, or unemployed, or at least 45% disabled. In EUROMOD, the condition that children aged 16 and 17 are in education is assumed to be met if *dec* (current education) > 0, or if *les* = 6 (self-defined economic status = pupil, student, further training, unpaid work experience).

- *Income test*

For children aged 16 or 17, the parents should contribute to the sustenance of the children to an important extent, which translates to the condition that the income of the children in this age group should be less than €1,266 + 1,300/4 net per quarter (or €530.33 per month). Notably, starting in 2020, this income test has been abolished.

¹ Policy extensions can be switched on (or off) from the Run dialogue box.

Table 2.4 Child benefit: income limits

Income limits	2018	2019	2020	2021
Amount per quarter	1,266	1,296	-	-
+	1,300/4	1,330/4	-	-
= per month	530.33	542.83	-	-

- **Benefit amount**

The base amount is €201.05 per quarter per child. Different multipliers apply depending on the age of the child:

Table 2.5 Child benefit: base amounts

	2018	2019	2020	2021
Base amount	201.05	219.97	221.49	223.37

Table 2.6 Child benefit: multipliers

AGE	
<6	1
6 to 11	1.2143
12 to 18	1.4286

In 2018 a household with 4 children: 1 aged 3, 1 aged 10, 1 aged 14 and 1 aged 17 would be entitled to $(1 + 1.2143 + 2 \cdot 1.4286)$ times the base amount per three months.

No taxes/contributions are payable on child benefit. It is not included in the means test for the calculation of social assistance, housing benefit and other benefits.

2.5.2 Survivor benefit (*psu_s*)

- **Brief description**

Benefit for surviving spouse younger than the state pension age (see section 2.4.3).

- **Definitions**

Unit of analysis is the benefit unit - consisting of the head, spouse or cohabitant partner and own children under 18 years - if it consists of a surviving spouse with or without children.

- **Eligibility conditions**

Entitlement to the survivor benefit exists for the survivor younger than the state pension age who:

- a) has an unmarried child younger than 18 who does not belong to somebody else's household or
- b) is disabled for work for at least 45% or
- c) was born before 1st January 1950

Entitlement to the survivor benefit stops if the survivor repartners, but not if he/she starts living with two or more adults.

- **Income test**

The survivor benefit is income dependent: income received 'in relation with' work (i.e. social insurance benefits) is deducted entirely, but a part of income received from work (earnings, profits, private pensions (A)) is exempt ($0.5 * \text{the minimum wage of } \text{€}1,578 \text{ per month (B)}$), plus a third of the remainder). In other words, the disregard equals: $\max(0, \min(A, 0.5*B) + 0.333 * \max(A - 0.5*B, 0))$. As a result, the benefit is paid in full if income from work is below €789, and zero if income from work is above €2,556.57. Notably, all these amounts are net of holiday allowance.

Table 2.7 Survivor benefit: relevant thresholds

	2018	2019	2020	2021
Minimum wage (B)	1,578	1,615.8	1,653.60	1,684.80
Full benefit paid below (A)	789	807.9	826.80	842.40
No benefit paid above	2,556.57	2,614.49	2,672.54	2,709.77

- **Benefit amount**

Survivor benefit: maximum: €1,280.77 = €1,178.38 + €85.47 holiday allowance + €16.92 extra allowance per month

As of 2007, recipients of the survivor benefit are awarded an extra allowance².

Table 2.8 Survivor benefit: base amounts

	2018	2019	2020	2021
Amount	1,178.38	1,204.39	1,230.49	1,244.91
Holiday allowance	85.47	86.94	87.39	87.21
Extra allowance	16.92	17.12	17.39	17.67
Total	1,280.77	1,308.45	1,335.27	1,349.79

The survivor benefit is taxable. It is included in the means test for social assistance and other benefits.

- **EUROMOD modelling**

In EUROMOD, it is assumed that a holiday allowance of 8% is already included in income from work and benefit income. The holiday allowance added to the survivor benefit is reduced by the same percentage by which the survivor benefit is reduced as a result of the means test.

² The extra allowance is an addition to the regular allowance. It is added to maintain the purchasing power of the benefit separate from the normal indexation.

In EUROMOD, private pensions received by males younger than 60 and females younger than the state pension age³ are assumed to be private survivor pensions, and, as such, not counted as income. Private pensions received by males aged between 60 and the state pension age are assumed to be old-age pensions, and counted as income received from work.

Notably, the current survivor benefit act ('Algemene Nabestaandenwet', ANW) was introduced on 1st July 1996. Special rules apply for persons who were already survivor before that date, and for persons born between 1st January 1950 and 1st July 1956 who lost their partner before 1st July 1999. These special cases are not taken into account in EUROMOD. Entitlement to ANW may also apply to divorcees if the ex-spouse dies. This is also not taken into account in EUROMOD.

2.5.3 State pension (*poa00_s*)

- *Brief description*

Flat rate state pension for all residents who have reached the state pension age⁴.

- *Definitions*

Unit of analysis is the individual.

- *Eligibility conditions*

All residents who have reached the state pension age are entitled to the flat rate State Pension (AOW). If both spouses have reached the state pension age they both receive (in net terms) slightly more than half the (net) minimum wage, whilst single persons receive about 70% of the minimum wage. Persons with a spouse younger than the state pension age old receive 50% of the minimum wage, with a supplement of at most 50% of the minimum wage. The supplement depends on the means of the younger spouse.

For every year of the 50 years before the state pension age that the pensioner lived abroad the State Pension is reduced by 2% (however, reductions are not taken into account in EUROMOD).

- *Income test*

The only means to be taken into account in the calculation of the State Pension are the means of the younger spouse (if aged below the state pension age). When both spouses have reached the state pension age, they are both entitled to the full flat rate State Pension, irrespective of their income.

Means = $\max(0, \text{Income 'in relation with' work (i.e. benefits)})$

+ $\max(0, 2/3 * \max(0, \text{Income from work(A)} - 0.15 * \text{gross minimum wage(B)}))$.

In other words, there is a disregard of: $\max(0, \min(A, 0.15 * B) + 1/3 * (\max(0, A - 0.15 * B)))$

³ We try to distinguish (private) survivor pensions from (early-retirement) old-age pensions. Relatively few women are working up to their early retirement age; therefore we assume that their pensions are survivor pensions (if they are survivor). On the other hand most men receiving pensions between age 60 and the state pension age would be entitled to old age pensions based on their own work history. If younger than 60, the likelihood that they are already receiving an early retirement pension is small, and hence we assume that the pension they receive is a survivor pension if they are survivor.

⁴ From 2013 the official pension age is gradually increased from 65 to 67 in 2024. Up to now, the increased pension age was not taken into account in EUROMOD. The results presented in this Country Report (for the years 2018-2021) are based on a pension age of 66.

Gross minimum wage equals €1,578 in 2018. Notably, these amounts are net of holiday allowance. In EUROMOD, it is assumed that in income from work and benefit income a holiday allowance of 8% is included. The holiday allowance added to the supplement of the state pension is to be reduced by the same percentage as the supplement.

Private pensions are counted as income in relation with work.

- **Benefit amount**

Amounts for the state pension (per month):

Single: €1,148.40 + €71.42 holiday allowance + €24.93 extra allowance= €1244.75.

Married/cohabiting: €782.95 + €51.01 + €24.93 = €858.89 (per person).

Supplement if spouse younger than the state pension age: at most €782.95 + €51.01 = €833.96.

Table 2.9 State pension: benefit amounts

	2018	2019	2020	2021
Single person	1,148.40	1,190.58	1,230.24	1,266.46
Holiday allowance	71.42	72.44	72.04	71.93
Extra allowance	24.93	25.23	25.63	26.04
Married/cohabiting	782.95	809.81	833.92	857.63
Supplement	782.95	809.81	833.92	857.63
Holiday allowance	51.01	51.75	51.46	51.37
Supplement holiday allowance	51.01	51.75	51.46	51.37
Extra allowance	24.93	25.23	25.63	26.04

Supplement = max (0, maximum supplement - means of younger spouse)

The latter amounts are valid for pensions started from 1st July 1996. For pensions started earlier, rules for persons with a younger spouse differ to some extent (not taken into account in EUROMOD). Starting in 2015, the supplement for pensioners with a younger spouse is abolished for pensioners who did not receive this supplement previously.

Since 2007, recipients of the state pension are awarded an extra allowance. This extra allowance does not affect the calculation of the supplement.

The state pension is taxable. It is included in the means test for social assistance and other benefits.

In addition to the state pension, many pensioners who were previously employed receive additional occupational pensions (included in *poacm*), administered by sector- or employer specific pension funds. These pensions usually aim to supplement the flat rate state pension to 70% of average earnings of the employee.

2.5.4 Social assistance (*bsa00_s*) and temporary social assistance for self-employed (*bsase00_s*)

- **Brief description**

A means tested benefit for benefit units lacking other sources of income.

- **Definitions**

Unit of analysis is the benefit unit consisting of the head, spouse or cohabitant partner and children under 16 or under 18 years if they are in education (at least 213 hours per quarter), or unemployed, or at least 45% disabled. Eligible children living in the household, but without parents (i.e. so called “loose children”), are also counted as dependent children.

- **Eligibility conditions**

A benefit unit (couple, single person, lone parent) is eligible for social assistance if:

- they are not a student and
- if single, assets are less than single asset limit of €5,940
- if married/cohabiting/lone parent, assets are less than married asset limit of €11,880
- aged 18 or over or
- a parent (Note: Even if a parent, persons below 18 are not generally entitled)

Self-employed persons with (temporary) low incomes (which includes those in receipt of the separate social assistance benefit (*Besluit Bijstandsverlening Zelfstandigen* BBZ) for self-employed) are not entitled to the regular social assistance benefit (*algemene bijstand*, as defined in the *Participatiewet*), indicated as BSA in this report. In 2020, as result of the COVID-19 crisis, a temporary social assistance for self-employed was introduced (TOZO). Amounts and conditions for this benefit are broadly similar to general social assistance, but in phases 1 and 2 no asset test is performed.

Table 2.10 Social assistance: Asset test amounts

	2018	2019	2020	2021
Single persons	6,020	6,120	6,200	6,295
Couples, lone parents	12,040	12,240	12,400	12,590

Assets include financial assets (savings, cash, shares) of all members of the benefits unit but also the value of cars, motorcycles, caravans, boats, houses. The local authorities (municipalities) have some discretionary power in taking into account the value of cars, motorcycles and caravans (if not extremely expensive, they may be excluded). Debts are subtracted if the recipient of social assistance can show that the debt in question has to be repaid. Homeowners are usually excluded from social assistance (they have to 'eat' their house first).⁵

- **Income test**

The income base for the means test consists of all other employment income⁶, benefits and pensions except child benefits and allowances such as rent allowance and care allowance. Because the benefit is calculated as a net (after tax) amount, this requires the calculation of the taxes and

⁵ In EUROMOD we approximate financial capital afc on the basis of investment income yiy. Similarly, we could have imputed the value of property on the basis of property income ypr. However, ypr may be income from the rental of rooms in the (rented) house it should be counted as income in the means test. For the time being we count ypr as income in the means test, and do not include an imputed value of property in the asset test.

⁶ Employment income of dependent children is not taken into account.

social insurance contributions on all other income components before the entitlement to Social Assistance can be calculated. Notably, Social Assistance is subject to social insurance contributions and income tax as well. It is paid out as a net amount, on top of which the municipalities pay taxes and social insurance contributions directly to the relevant authorities.

So, to obtain net means, income taxation and social insurance contributions payable on gross means have to be calculated. In EUROMOD, the policy modules designed to compute income taxation and social insurance contributions are also used for the purpose of calculating the means taken into account for the calculation of social assistance. The withdrawal rate is 100%.⁷

In the case of a couple, the resulting net BSA amount is supposed to be shared equally among both spouses.

Next, gross social assistance is approximated, by applying grossing-up factors to net BSA: gross BSA = *factor1* * net BSA

Table 2.11 Social assistance: Factor 1

	2018	2019	2020	2021
age < state pension age	1.576044	1.57853	1.59617	1.589825
age >= state pension age	1.05988	1.06045	1.05764	1.061008

Finally, income taxation and social insurance contributions payable on gross social assistance are calculated and added to the amounts calculated earlier.

Notably, this procedure leads to incorrect results when the total amount of income tax and peoples’ insurance contributions calculated for the BSA recipient (single person, single parent or couple) is negative. In these cases a revised calculation of net means applies in which income tax, people’s insurance contributions and tax credits are not taken into account.

- **Benefit amount**

- a) Couples with children

- €1,417.32 (if both aged between 21 and the state pension age)

- €1,525.44 (if both above the state pension age)

- €1,525.44 (if one above state pension age, one between 21 and state pension age)

- €773.28 (if both 18-20)

- €1,237.03 (if one 18-20, one 21+)

- b) Couples without children

⁷ In exceptional cases (not taken into account in EUROMOD) (persons 57.5 - 64, single parents with child younger than 5, persons who are deemed to be dependent on part-time jobs for medical or social reasons) municipalities may allow that (for at most six months) min (0.25*inc, 200) per month is not taken into account when calculating the BSA. Furthermore the interest received on assets below the asset-limit is not taken into account. Some lump sum benefits for necessary education and for accepting a job are not taken into account. In addition, the child tax credit is not taken into account, and for single parents with a child under 5, the child tax credit, the combination credit, the supplementary combination credit and the supplementary single parent credit are not taken into account in the means test.

€1,417.32 (if both aged between 21 and the state pension age)

€1,525.44 (if both above the state pension age)

€1,525.44 (if one above state pension age, one between 21 and state pension age)

€489.82 (if both 18-20)

€953.57 (if one 18-20, one 21+)

c) Lone Parent⁸

€992.12 (if aged between 21 and the state pension age)

€1,115.48 (if above state pension age)

d) Single person

€708.66+ € 283.46 (if really living alone) (between 21 and the state pension age)

€1,115.48 (above state pension age)

€244.91 (if 18-20)

⁸ As from 2015, social assistance no longer distinguishes single parents from other single persons.

Table 2.12 Social assistance: base amounts

	2018	2019	2020	2021
Couple with children				
21-s.p.a. ¹	1417.32	1465.07	1503.31	1536.34
s.p.a.+	1525.44	1563.46	1594.42	1620.74
1 21-64, 1 s.p.a.+	1525.44	1563.46	1594.42	1620.74
18-20	773.28	799.35	820.22	838.25
1 18-20, 1 20+	1237.03	1278.72	1312.10	1340.93
Couple no children				
21-s.p.a.	1417.32	1465.07	1503.31	1536.34
s.p.a.+	1525.44	1563.46	1594.42	1620.74
1 21-64, 1 s.p.a.+	1525.44	1563.46	1594.42	1620.74
18-20	489.82	506.34	519.56	530.98
1 18-20, 1 20+	953.57	985.17	1011.44	1033.66
Single parents				
21-s.p.a.	992.12	1025.55	1052.32	1075.44
Supplement	0.00	0	0	
s.p.a.+	1115.48	1147.8	1176.25	1195.97
18-20	244.91	253.17	259.78	265.49
Single persons				
21-s.p.a.	708.66	732.54	751.66	768.17
Supplement	283.46	293.01	300.66	307.27
s.p.a.+	1115.48	1147.8	1176.25	1195.97
18-20	244.91	253.17	259.78	265.49

¹s.p.a. = state pension age

Persons aged below the state pension age who became unemployed after age 50 and exhausted their entitlement to (earnings related) unemployment benefits are entitled to a separate social assistance benefit: IOAW.⁹ The difference with the general BSA (*Participatiewet*) is that no asset test is applied to calculate the entitlement for IOAW. The IOAW also applies to persons partially disabled for work, younger than 50, who were already disabled for work at age 17 and who are receiving a disability benefit (Wajong) based on their partial disability (< 80%).

Persons above the state pension age with insufficient means are entitled to the separate supplementary income provision for the elderly: AIO (*Aanvullende Inkomensvoorziening Ouderen*). This includes pensioners who did not build up the full state pension and insufficient supplementary pensions, and, as from 2015, pensioners with younger spouses with low incomes, with combined means below the social assistance norms.

- **EUROMOD modelling**

As from January 2015, for recipients of social assistance who can share their housing costs with other persons aged 21 or over living in the same accommodation, social assistance is reduced.

⁹ Since the eligibility for IOAW can only be approximated (in particular the age at which one became unemployed is not registered in the data) previous EUROMOD versions overestimated the number of persons receiving IOAW and underestimated ordinary BSA. In actual fact, the number of recipients of IOAW is less than 5% of that of BSA. Lacking better data, we do not model IOAW in EUROMOD

With 3 non-student persons aged 21 or over sharing the accommodation, the base amount is reduced by 13.3%, 4: 20%, 5: 24%, 6: 26.7%, 7: 28.6%, 8: 30%. Until July 2015 this only affected new beneficiaries. It was not implemented in the base version of EUROMOD 2015 but available as an option (using switch FYA_nl). Now that it is fully enforced, about 15% of all benefit units are affected, reducing the total expenditures by about 3.4%.

As mentioned above, self-employed with low incomes are not entitled to regular social assistance. They may be entitled to social assistance for self-employed (*Bijstandsbesluit Zelfstandigen*, BBZ) supplementing their income to the same level. Conditions depend on whether the self-employed has a viable enterprise with temporary financial problems, is approaching retirement with a non-viable enterprise or is stopping the enterprise. Depending on the circumstances, the benefit may also be paid out as a loan. BBZ is not simulated in EUROMOD. By contrast, the temporary benefit for self-employed suffering income losses as a result of the Covid-19 crisis (TOZO) is simulated in EUROMOD (policy bbase00_s). In phase 1, the income of the spouse was not taken into account in the calculation of the benefit, but in phase 2 and 3, the income of the spouse is taken into account. The EUROMOD simulation for 2020 takes into account rules of phase 2.

Notably, in EUROMOD the income losses of self-employed in 2020 as a result of Covid-19 are taken into account only when the model is run in combination with the LMA add-on. The individuals that had a loss in self-employment income are defined in the TransLMA_nl policy, 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.

2.5.5 Rent allowance (*bho_s*)

- **Brief description**

Rent allowance is a benefit targeted to tenant households with high (but not too high) rents given their income. These households are entitled to a monthly means-tested rent subsidy.

- **Definitions**

Unit of analysis is the household: in addition to the income of the benefit unit, income of other household members is also taken into account. Income of children younger than 23 is only taken into account above a threshold.

Actual rent: rent to be paid to the landlord/owner of the accommodation

Norm rent: Rent amount used in the formula for the computation of the rent allowance, depending on the income of the tenant and his household composition.

- **Eligibility conditions**

Since 2006, the current taxable income (*il_taxable*) is taken into account. There is also an asset test: the tax unit is not entitled to rent subsidy if income in Box 3 (Income from saving and investment - see section 2.6.4) produces a positive amount of income tax.

The eligible household can follow into one of four groups depending on age and number of people in the household:

A. Single person household ($nPersInUnit=1$) aged under state pension age ($dag < \$PenAge$)

C. Multiperson household ($nPersInUnit \geq 2$) in which more than half of income is received by persons under state pension age on 1/1/2018. The latter condition is assumed to be satisfied if the head is younger than the state pension age in 2018.

E. Single person ($nPersInUnit=1$) elderly (above state pension age on 1/1/2018) household ($dag \geq \$PenAge$).

G. Multiperson elderly household ($nPersInUnit \geq 2$) in which more than half of income is received by persons above state pension age on 1/1/2018 ($dag \geq \$PenAge$)

- **Income test**

The rent allowance is a means-tested benefit as it depends on income as described in the next section.

Asset test: no rent subsidy is paid if tax payable on income in Box 3 is nonzero.

Income disregard: for children younger than 23 up to € 4827 of their income is not taken into account. This income disregard is not taken into account in Euromod.

Table 2.13 Rent allowance: disregarded child income

	2018	2019	2020	2021
Disregarded child income	4827	4885	4964	5044

- **Benefit amount**

Computation of rent subsidy (amounts per month): If the actual rent is below €710.68 (up_rent_lt) per month in 2018, the monthly rent subsidy is calculated as follows:

Table 2.14 Rent allowance: relevant amounts

	2018	2019	2020	2021
up_rent_lt	710.68	720.42	737.14	752.33
$rent1_lt$	417.34	424.44	432.51	442.46
$rent21_lt$	597.30	607.46	619.01	633.25
$rent22_lt$	640.14	651.03	663.40	678.66
$subsidy2_rt$	0.75	0.75	0.75	0.75
$subsidy3_rt$	0.5	0.5	0.5	0.5

1) norm rent < actual rent \leq €417.34 ($rent1_lt$):

$$\text{subsidy} = \text{actual rent} - \text{norm rent}$$

2) (norm rent < actual rent) & (€417.34 < actual rent \leq B).

(B= €597.30 (1,2pers), ($rent21_lt$), B= € 640.14 (3+ pers) ($rent22_lt$)):

$$\text{subsidy} = 0.75(\text{subsidy2_rt}) * (\text{actual rent} - \max(\text{norm rent}, 417.34)) + \max(0, 417.34 - \text{norm rent})$$

3) norm rent < actual rent & Actual rent > B:

$$\text{subsidy} = 0.5(=\text{subsidy3_rt}) * (\text{actual rent} - \max(\text{B}, \text{norm rent})) + 0.75 * \max(0, \text{B} - \max(\text{norm rent}, 417.34)) + \max(0, 417.34 - \text{norm rent})$$

Notably, the *subsidy3_rt* of 0.5 reduces to zero unless the household is a single person household or one of the household members is aged above the state pension age.

Norm rent calculation: it depends on the age and the number of persons in the household (groups A, C, E and G as mentioned above) and the taxable income. Since 2008, the monthly norm rent is calculated on the basis of a formula: $a * \text{income} * \text{income} + b * \text{income} + c$ where income is annual taxable income. There is a minimum norm rent, and a maximum income threshold above which no rent allowance is received. The minimum norm rent holds for incomes below the minimum threshold. No subsidy is awarded if income is higher than highest amounts (maximum income) or if actual rent above €710.68 (*up_rent_lt*) or below the minimum norm rent. The relevant parameters are presented in Table 2.15. Notably, starting in 2020, the maximum income threshold has been abolished.

Table 2.15 Parameters used for the calculation of norm rent

2018	A	C	E	G
A	0.0000006843660	0.000000387746	0.000000985639	0.000000587777
B	0.002171484	0.002116316	-0.005167396	-0.00482133
C	16.94	16.94	16.94	16.94
minimum rent	225.08	225.08	223.26	221.45
minimum thr	15925	20600	17325	23200
maximum income	22400	30400	22375	30400
2019	A	C	E	G
A	6.59485E-07	3.769E-07	9.2064E-07	5.5592E-07
B	0.00223689	0.00207961	-0.0047161	-0.00458143
C	16.94	16.94	16.94	16.94
minimum rent	228.62	228.62	226.8	224.99
minimum thr	16300	21100	17875	23900
maximum income	22700	30825	22675	30800
2020	A	C	E	G
A	6.37464E-07	3.6736E-07	8.71018E-07	5.34258E-07
B	0.00234178	0.002072355	-0.004327048	-0.004410802
C	16.94	16.94	16.94	16.94
minimum rent	232.65	232.65	230.83	229.02
minimum thr	16650	21575	18350	24475
maximum income	-	-	-	-
2021	A	C	E	G
A	6.23385E-07	3.61614E-07	8.40817E-07	5.19036E-07
B	0.002453085	0.002075391	-0.004129344	-0.00431555
C	16.94	16.94	16.94	16.94
minimum rent	237.62	237.62	235.8	233.99
minimum thr	16950	22000	18775	25025
maximum income	-	-	-	-

Rent allowance is not taxable. It is not included in the means test for social assistance and other benefits.

2.5.6 Unemployment benefit (*bunct_s*)

- **Brief description**

The (contributory) unemployment insurance benefit comprises two types of benefits:

- General (short-term) benefit;
- Extended (earnings related) benefit

The unemployment insurance scheme covers all employees under the state pension age. *Self-employed* are not covered.

- **Definitions**

The unit of analysis is an individual person.

- **Eligibility conditions**

Short term benefit: eligible are persons who have been at least 26 weeks in paid employment during the last 36 weeks. Notably, short term benefit is received only if one is not eligible for extended benefit.

Extended benefit: eligible persons are those who have been at least 26 weeks in paid employment during the last 36 weeks plus they have worked at least 52 days or more during at least four of the last five years.

- **Benefit amount**

Short term and extended benefit: 75% of previous earnings up to a maximum daily wage of €209.26 during the first two months, 70% thereafter.

Table 2.16 Characteristics of the unemployment benefit

		2018	2019	2020	2021
Eligibility	Contribution period	at least 26 weeks out of last 36	at least 26 weeks out of last 36	at least 26 weeks out of last 36	at least 26 weeks out of last 36
	Other conditions	younger than pension age	younger than pension age	younger than pension age	younger than pension age
	Eligibility of self-employed	no	no	no	no
Payment	Contribution base	il_sic	il_sic	il_sic	il_sic
	Basic amount	70%	70%	70%	70%
	Additional amount	5% (1 st 2 months)	5% (1 st 2 months)	5% (1 st 2 months)	5% (1 st 2 months)
	Floor	0	0	0	0
	Ceiling	70%/75% * €209.26#d (max. daily wage)	70%/75% * €214.28#d (max. daily wage)	70%/75% * €219.28#d (max. daily wage)	70%/75% * €223.4#d (max. daily wage)
Duration	Standard (in months)	3-28 months dep. on age /	3-24 months dep. on age /	3-24 months dep. on age /	3-24 months dep. on age /

		employment period	employment period	employment period	employment period
	Special cases (in month)	-	-	-	-
Subject to	Taxes	yes	yes	yes	yes
	SIC	yes	yes	yes	yes

Payment duration:

Short term benefit: three months

Extended benefit: duration in months equals the number of years worked (employment record), with a maximum of 28 (the minimum being four months with a minimum employment record of four years). From January 2016, the maximum duration decreased by one month per quarter until it reached 24 months in 2019. Moreover, where the number of years worked exceeds 10, the benefit duration increases by half a month instead of a full month before 2016¹⁰.

Employment record (when relevant)

The employment record includes each of the previous five years in which the recipient has been employed 52 or more days¹¹ plus the number of calendar years since 18th birthday minus five¹² if he/she is age >22. Moreover, for people who were not in paid employment in the last five years, calendar years spent taking care of children younger than 6 are taken into account, as well as half of the years in which he/she took care of children aged between 6 and 12.

Previous earnings: is defined as gross employment income minus pension contributions.

Notably, when the total net household income (defined according to the means test for Social Assistance) is below the Social Assistance level, persons entitled to Unemployment Benefit are entitled to a supplement to reach the SA-level without an asset test, according to the *Toeslagenwet* ('extra allowances act') (this is comparable to the way the IOAW benefit is calculated). During at most two years (or until the state pension age when having become unemployed when older than 57.5 years) part of the income from work may not be taken into account when computing this extra allowance: all if less than 5% of the minimum wage, 30% up to 15% of the minimum wage.

No extra allowance is granted to single persons younger than 21 living with their parent(s), and to persons with a partner, when born after 31/12/1971 and not having a child younger than 12.

Minimum wage for persons younger than 23:

AGE	22	21	20	19	18	17	16	15
%	85	72.5	61.5	52.5	45.5	39.5	34.5	30
As of July 1, 2017	100	85	70	55	47.5	39.5	34.5	30
As of July 1, 2019	100	100	80	60	50	39.5	34.5	30

¹⁰ This reduction of the benefit duration is compensated by private insurance for a considerable part of the work force.

¹¹ From 1st January 2013, years in which the number of paid working hours exceeding 208 are counted instead of the number of years with 52 or more paid working days.

¹² Notably, since 1st January 2005, if possible, the actual number of years worked is taken into account. In practice, the number of years from age 18 until 1997 is added to the actual number of years worked from 1997.

Unemployment benefit is taxable. It is included in the means test for social assistance and other benefits.

- **EUROMOD modelling**

In EUROMOD, eligibility is assessed chiefly by checking who is actually in receipt of unemployment benefits in the data. But rather than simply using the observed receipt as part of the eligibility criteria, all eligibility rules are covered. However, as not all required information (e.g. detailed work or unemployment history) is available; several assumptions are made, among else considering some rules automatically fulfilled for those in receipt. This approach is chosen so that the benefit can be also modelled for those currently *employed* if needed (e.g. to simulate their entitlement to unemployment support if they become unemployed from the current year, for replacement rates calculations).

Therefore, EUROMOD distinguishes individuals into three groups:

- Those currently employed ($yem \neq 0$ & $lunmy_s = 0$ & $bunct = 0$)
- Those currently unemployed ($lunmy_s > 0$) and in receipt ($bunct > 0$)
- Those currently unemployed ($lunmy_s > 0$) and not in receipt ($bunct = 0$)

Both general and extended unemployment benefits are simulated. Which benefit one is entitled to depends on its employment history duration.

Unemployment duration (lunmy_s): it is set equal to the maximum between the observed unemployment duration (*lunmy*) and the observed benefit receipt (*bunctmy*) for the unemployed.

Contributory history (liwmy_s): is based on the reported number of weeks in employment (*liwmy*) subject to be maximum equal to the total number of weeks in work (*liwwh*). The qualifying period is computed for the three groups described above making sure that individual currently unemployed and in receipt of the benefit satisfy the qualifying condition (taking the maximum between their time in work and the limit of 26 weeks necessary to qualify for the UB). For people currently unemployed and not in receipt of the benefit, qualifying period is set to zero.

Short term unemployment benefit duration (*bunctmy_s*) is calculated according to the rules above, using modelled contribution history (*liwmy_s*), while also controlling for the unemployment duration (*lunmy_s*). It is set to be equal to the unemployment duration subject to the maximum benefit duration (three months).

Extended unemployment benefit duration (*bunctmy01_s*) is also set to be equal to the unemployment duration (*lunmy_s*) subject to the maximum benefit entitlement period.

Although it is possible that some unemployment spells had started before the beginning of the reference year, SILC does not record information on unemployment history. Setting the UB duration to *bunctmy_s* or *bunctmy01_s* it is like assuming that unemployment spells always start from the reference year (*lunmy_s* varies between 0-12 months and refers only to the reference year). Although this is a strong assumption, we think this assumption becomes acceptable when considering that the main aim of the unemployment policy simulation is to simulate variation in the current employment status of employees.

When applying the upper daily threshold to previous gross earnings, we assume that there are 30.38 days per month and $52/12 = 4.34$ weeks per month.

At this point, working age people who are unemployed ($lunmy_s > 0$), have sufficient contribution history and are not self-employed (i.e. have employment earnings or no self-employment status as defined by *temp_tinyse* (income from self-employed work represents more than 60% of

earnings)) are considered eligible. It is assumed that all of them are involuntary unemployed and capable and available for work (there is a variable in the SILC data identifying the latter but only filled in for those currently unemployed).

Benefit amount is calculated based on previous earnings and benefit duration, subject to the lower and upper thresholds. For those currently employed, current earnings are used. For those currently unemployed and in receipt, previous earnings are used which have been imputed by reversing unemployment insurance benefit rules. For those currently unemployed and not in receipt, imputed wage is set to zero. Finally, the benefit amount is adjusted with the number of months in receipt (*bunctmy_s* and *bunctmy01_s*).

EUROMOD simulates the contributory part of the unemployment benefit in the Netherlands, but when this policy is switched off, income lists using simulated contributory unemployment benefit *bunct_s* should replace this with the observed SILC variable *bunct*. This is done by making use of EUROMOD's *fnct_SetDefault* which sets *bunct_s=bunct* (from SILC) when *bunct_s* is not found because the UB policy is switched off.

2.5.7 Care allowance (*bhlmt_s*)

- **Brief description**

This benefit provides partial compensation for the obligatory private health insurance premium for residents aged 18+ with a Dutch health insurance and low taxable income.

- **Definitions**

Tax unit is the individual with his/her 'allowance partner' which could be:

- 1) the spouse in a married or registered couple
- 2) the fiscal partner
- 3) the spouse with a cohabitation contract
- 4) the other parent of a child
- 5) last year's allowance partner
- 6) the pension partner
- 7) the co-owner of the accommodation (with shared responsibility for the mortgage) or
- 8) a household member with a child younger than 18 living in the household

Family members can be fiscal partners if one of the other conditions applies. In addition, for parent and child to be allowance partners, both have to be aged 27 or older.

- **Eligibility conditions**

All residents aged 18 or over with a Dutch health insurance are eligible if their total taxable income (Box 1, Box 2 and Box 3) passes the income test. Notably, assets in Box 3 exceeding € 83,415 plus the tax-free asset allowance of both tax partners (see 2.6.5) reduce the care allowance to zero.

- **Income test**

There are separate income tests for single tax payers and for tax payers with allowance partners. In 2018, eligibility was limited to single tax payers with total taxable income less than € 28,720 per year and tax payers with allowance partners with total taxable income less than € 35,996 per year.

Table 2.17 Income and asset limits health care allowance

	2018	2019	2020	2021
Single tax payers	28,720	29,562	30,481	31,138
Tax payers with allowance partners	35,996	37,885	38,945	39,979
Asset threshold	83,415	84,416	85,767	118,479 ¹³

- **Benefit amount**

The benefit is calculated as follows: the norm premium is calculated as $0.1349 * \max(0, \text{total taxable income} - 20,451) + 971 * (1 \text{ if person with allowance partner, } 0 \text{ otherwise}) + 407 * (1 \text{ if person without allowance partner, } 0 \text{ otherwise})$.

The health care allowance is then calculated as $(3,083 - \text{norm premium})$ in the case of persons with allowance partners, and $(1,535 - \text{norm premium})$ in the case of persons without allowance partners.

Norm premium = $A * \max(0, \text{total taxable income} - B) + C * (1 \text{ if person with allowance partner, } 0 \text{ otherwise}) + D * (1 \text{ if person without allowance partner, } 0 \text{ otherwise})$

Health care allowance = $(E - \text{norm premium})$ for persons with allowance partners

= $(F - \text{norm premium})$ for persons without allowance partners

Table 2.18 Parameters used in calculation of health care allowance

	2018	2019	2020	2021
A	0.1349	0.1352	0.1355	0.1358
B	20,451	20,941	21,431	21,835
C	971	903.6	887.24	915.98
D	407	419.87	392.19	411.59
E	3,083	3,207.6	3,275.24	3,399.98
F	1,535	1,607.87	1,640.19	1,695.59

¹³ This is the total threshold (including tax free allowance) for earners without an allowance partner. For earners with an allowance partner the threshold amount is €149,819.

2.5.8 Child related budget (*bch_s*)

- **Definitions**

The child related budget was introduced in 2008 as child allowance (see CHALL_nl), instead of the previously existing child tax credit. The main difference with the child tax credit is that the child related budget is also payable in the case of low or zero income.

- **Eligibility Conditions**

Presence of (at least one) child aged below 18.

- **Income test**

The child related budget is a means tested benefit of which the amount depends on total taxable income of the tax payer (including the income of their fiscal partner where applicable).

- **Benefit Amount**

The allowance amounts to $C - D * \max(0, (\text{income} - B))$ where ‘income’ is the sum of taxable income in Box 1, 2 and 3 net of all deductions (tax allowances) of the tax payer and his/her fiscal partner ($i_{l_taxable_box1} + i_{taxbase_box3}$). The amount C is differentiated by the number of children for whom there exists entitlement to child benefit.

The child related budget is only received by one allowance partner. In EUROMOD, the allowance is awarded to the partner with the highest taxable income – in the case where both partners have the same taxable income, it is received by the oldest – where the partner’s age is the same, the male will receive the allowance.

Table 2.19 Income related child allowance parameters

	2018	2019	2020	2021
Income threshold				
B	20,451	20,941	21,431	21,835
C	1,152	1,166	1,185	1,204
D	6.75%	6.75%	6.75%	6.75%
C 2 kids	2,129	2,155	2,190	2,226
C 3 kids	2,417	2,447	2,487	3,145
C 4 kids	2,705	2,739	2,784	4,064
C 5+ kids, extra per child	288	292	297	919
Increase 12-15	236	239	243	247
Increase 16-17	421	427	434	441
Single parent supplement	3,101	3,139	3,190	3,242
Asset threshold	83,415	84,416	85,767	87,139

Single parents receive a supplement of at most €3,101 per year (as a compensation for the abolishing of various single parent benefits as of 2015: the single parent allowance in the income tax, the single parent supplement in the social assistance and the half-orphan benefit).

In 2013, an asset test was introduced: in 2018 assets in Box 3 exceeding € 83,415 plus the tax-free asset allowance of both tax partners (see 2.6.5) reduce the child related budget to zero.

2.5.9 Pregnancy and Childbirth Allowance/Zwangerschaps- en bevallingsuitkering, (bma_s,)

- **Definitions**

This is a non-contributory benefit for the period of maternity leave. Available to employees, recipients of unemployment and disability benefits and self-employed persons. The allowance is paid for at least 16 weeks: 4-6 weeks before the childbirth (pregnancy allowance *bcbma01*) and 10 weeks after the childbirth (childbirth allowance *bcbma02*).

- **Eligibility conditions**

Giving birth while being an employee, recipient of unemployment or disability benefit, self-employed or partner of self-employed working in the family business.

- **Income test**

No.

- **Benefit duration**

The maternity leave begins 4-6 weeks before the expected birth and lasts a total of at least 16 weeks of which at least 10 weeks after the childbirth. For women who expect more than one child, the benefit period is extended by up to four weeks (as of 1st April 2016). Starting from the 1st April 2018, for women who expect twins, the benefit duration is at least 20 weeks.

- **Benefit amount**

For employees and recipients of earnings replacing benefits, the benefit equals 100% of the daily wage, with a maximum of €209.26 (2018). For self-employed, the benefit equals the minimum wage.

Table 2.20 Maximum benefit amounts

	2018	2019	2020	2021
Maximum daily wage	209.26	214.28	219.28	223.40

- **Subject to taxes/SIC**

Yes

- **Take up**

Nearly all mothers in paid employment take maternity leave.

- **EUROMOD modelling**

We assume that the maternity leave (for those eligible) commences 4 weeks before the birth and lasts the maximum length possible. Since the month of birth is unavailable, we assume that the child is born in the second month of the year (February). For women who expect more than one child, we assume that the benefit period is 20 weeks starting from 2018.

By default the simulation is switched off in the baseline, but could be included switching on the policy. Due to data limitation, in the input dataset, we can identify the pregnancy allowance (*bcbma01*) and the childbirth allowance (*bcbma02*) only for employees. Indeed, to avoid double counting, if the policy is turned on, the benefit is simulated only for employees and *bcbma01* and *bcbma02* are set to 0.

2.5.10 Monetary compensation for employers (*bmcer_s*)

- **Definitions**

In order to mitigate the economic impact of the COVID-19 crisis, the Dutch government implemented the policy NOW (Noodmaatregel Overbrugging Werkgelegenheid, Emergency measure bridging employment).

In phase 2 (June-September 2020), NOW subsidized up to 90% of the wage cost of employers in case of loss of revenue of more than 20%. In phase 3.1 (October-December 2020) the subsidy was reduced to 80% and in phase 3.2 (January-March 2021) and 3.3 (April-June 2021) it was 85%.

- **Benefit amount**

The monthly amount in phase 2, as implemented in EUROMOD, is calculated on the basis of the following formula:

$$A \times B \times 1.3 \times 0.9$$

where A is the expected percentage loss of turnover, B is the monthly wage bill, 30% is supposed to cover employer SICs (simulated in Euromod) but also employer pension contributions (not simulated in Euromod), and non-monthly components like holiday allowance (in Euromod included in *yem*). A maximum wage of 9,538 euro per month is taken into account. Employers are assumed to continue to pay 100% of the wages.

In phase 3.1 (October-December 2020) NOW is calculated as

$$A \times B \times 1.4 \times 0.8$$

where a maximum wage of 9,616 euro per month is taken into account, and in phase 3.2 (January-March 2021) and 3.3 (April-June 2021) it is

$$A \times B \times 1.4 \times 0.85$$

with a maximum wage of 9,718 euro per month.

- **EUROMOD modelling**

The amount of this policy is reported as “Government expenditure on social transfers” in the statistic presenter. Since it is a subsidy for employers, it has no impact on household income. Notably, in the baseline, this policy is switched off, but it can be switched on if the model is run in combination with the LMA add-on. The individuals that are selected to undergo transitions to monetary compensation schemes are defined in the *TransLMA_nl* policy, 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.

2.6 Social insurance contributions

Social contributions for unemployment and disability insurance are paid by employees and employers. However, from 2009 employees' contributions were set to zero. In addition, all recipients of earnings and benefits pay peoples' insurance contributions. Statutory health insurance contributions consist of flat rate private insurance contributions and income related health insurance contributions. Self-employed do not pay separate social contributions since before 2006.

2.6.1 Employee social insurance contributions

a) Employee contributions to unemployment insurance

Employees in the private sector aged below the state pension age are insured against (loss of income as a result of) unemployment. On average they pay a total contribution of x% on wages between y and z per month: $0.01 * x * (\text{wage} > y) * \min(\text{wage} - y, z - y)$. Similar rules apply for public sector employees who are not identified separately in EUROMOD.

The basis for the calculation of unemployment insurance contributions (*il_sic*) includes next to gross wages net of (occupational) pension contributions, also wage replacement benefits such as unemployment and disability benefits. The relevant tax unit is the *individual*.

From 2009 the employees unemployment contribution was (not abolished, but) set to zero.

Table 2.21 Parameters employee contribution to unemployment insurance

	2018	2019	2020	2021
x	0%	0%	0%	0%
y				
z				

2.6.2 Employer social insurance contributions

Employers pay social contributions divided into unemployment insurance contribution and disability insurance contribution¹⁴.

a) Employer contributions to unemployment insurance (*tscerui_s*)

Employers of employees in the private sector aged below the state pension age on average pay a total contribution of 4.13% on wages between €0 and €4,551.17 per month: For public sector employees rules are the same.

The income basis for the employer contribution to unemployment insurance is the same as for the employee contribution to unemployment insurance (*il_sic*).

Starting in 2020, the employer contribution to unemployment insurance is differentiated between a high rate for employees with a temporary/flexible contract and a low rate for employees with a fixed contract¹⁵.

¹⁴ In addition, most employers pay occupational pension fund contributions, differing by sector or firm (not modelled in EUROMOD)

¹⁵ Due to data limitations, we cannot make an exact distinction between both groups in EUROMOD. Instead, an average contribution rate (3.49% in 2020, 3.25% in 2021) is used.

Table 2.22 Parameters employer contribution to unemployment insurance

	2018	2019	2020	2021
rate	4.13%	4.37%	2.94%	2.7%
			7.94%	7.7%
uplim	4,551.17	4,660.58	4,769.33	4,859.25

b) Employer contributions to disability insurance (*tscerdi_s*)

Employers of employees in the private sector aged below the state pension age pay, on average, a total contribution of 6.77% on wages with a wage limit of €4,551.17 per month: $0.0677 * \min(\text{wage}, 4,551.17)$. For public sector employees rules are the same.

The income basis for the employer contribution to disability insurance is the same as for the employee contribution to unemployment insurance (*il_sic*).

Table 2.23 Parameters employer contribution to disability insurance

	2018	2019	2020	2021
rate2	6.77%	6.96%	7.27%	7.81%
Maxbase2	4,551.17	4,660.58	4,769.33	4,859.25

c) Employer contributions to health insurance

See section 2.5.4

As mentioned in section 2.5.4, all residents are obliged to take out private health insurance. For wage earners (and recipients of most benefits), the employer (or the benefit agency) pays the income related health insurance contribution.

2.6.3 Self-employed social insurance contributions

a) Self-employed contributions to disability insurance

Not in force in 2017.

b) Self-employed contributions to health insurance

Similar to other residents, self-employed pay a flat rate health insurance premium as well as an income related contribution. See section 2.5.4.

2.6.4 Other social insurance contributions

a) Peoples' insurances (*tsceepi_s*)

The so-called peoples' insurances or national insurances include the State pension insurance (AOW), the Survivor benefit insurance (ANW) and the Act on long-term care (WLZ). All income tax payers contribute to these insurances where the taxable income (Box 1) (see section 2.6.4) acts as the basis for the calculation of these contributions (*tsceepi_s*). In other words: all persons with income in Box 1 are subjected to these contributions. Therefore in EUROMOD we do not

distinguish between employees and self-employed because the contributions are the same for both groups.

The contribution rates are reported for each year in Table 2.24 below. In 2018 they are 17.9%, 0.1% and 9.65% respectively for AOW, ANW and WLZ. Hence, the total contribution in 2018 amounts to 27.65%. Persons aged above the state pension age do not pay AOW contributions and their contribution rate is 9.75%.

The maximum base for the calculation of these contributions is €33,993 per year (€34,403 for persons born before January 1, 1946). Note that tax credits apply to income tax and peoples' insurance contributions as a whole. They reduce the income tax and peoples' insurance contributions proportional to the tax/contribution rates on the lowest income tax bracket¹⁶.

Table 2.24 Contribution rates and maximum base peoples' insurances

	2018	2019	2020	2021
AOW	17.9%	17.9%	17.9%	17.9%
ANW	0.1%	0.1%	0.1%	0.1%
WLZ	9.65%	9.65%	9.65%	9.65%
pi_maxbase	33,993	34,300	34,713	35,130
pi_maxbase when born before 1-1-1946	34,403	34,817	35,376	35,942

- **EUROMOD modelling**

As tax credits apply both to income tax and people's insurance contribution, in EUROMOD the calculation of this contribution is divided into two parts. The first policy sheet is PEOPLESIC_NL which calculates a "gross" amount of the contribution just applying the rates in the table above to the taxable income from Box 1 (*il_taxable_box1*).

After the calculation of tax credits in TINTC_nl and social assistance by BSAnet_nl, EUROMOD computes the final people's insurance liability (*tscepi_s*) in BSAgross_nl.

b) Health insurance contributions (*tschl_s*)

All residents are obliged to take out private health insurance. Part of this is financed by flat rate health insurance premiums paid by the individual and part of this is financed by income related contributions. For wage earners, these income related contributions are paid by the employer. None of the health insurance contributions are deductible from taxable income.

In 2018, the average flat rate health insurance premium (*tschlfx_s*) amounted to €1,341 per adult (aged 18+) per year.

¹⁶ In 2018, the lowest income tax rate was 8.9%. The peoples insurance contribution rate is (17.9 + 0.1 + 9.65 =) 27.65% (9.75% for persons aged above the state pension age). So 8.9/(8.9+27.65) of the tax credit is to be subtracted from the income tax (8.9/(8.9+9.75) if above state pension age) and the remainder from the peoples insurance contributions. (Notably, in cases where this leads to zero income tax and insurance contributions in Box 1 all of the remaining amount of tax credit can be subtracted from income tax in Box 3).

The earnings related contribution amounts to 6.9% of gross earnings and benefits, paid by employer or benefit agency. On the state pension, self-employment income and supplementary pensions the contribution rate is 5.65%, paid by the individual. The maximum tax base is €54,614 per year.

Table 2.25 Parameters health insurance contribution

	2018	2019	2020	2021
Average flat rate	1,341	1,420	1,436	1,495
Contribution rate:				
Earnings etc	6.9%	6.95%	6.7%	7%
Self-employment etc	5.65%	5.7%	5.45%	5.75%
maxbase	54,614	55,927	57,232	58,311

In the case of multiple sources of income, the contribution is calculated as follows: Firstly, as indicated above, the total maximum base is €54,614 per year. This maximum base consists of three possible components.

The first component (*tschl01_s*) is wages, unemployment benefits, disability benefits and social assistance benefits and other earnings replacing benefits (except pensions). Here the contribution is 6.9%. As of 2013, this contribution *tschl01_s* is paid by the employer or benefit agency, and no longer included in the tax base for income tax and peoples insurance contributions.

The second possible component (*tschl02_s*) is the state pension, with a contribution rate of 5.65%. Contribution: *tschl02_s*.

The third possible component (*tschl03_s*) consists of other pensions (*poacm*) as well as self-employment income (*yse*), with a contribution rate of 5.65% on *poacm* + max(0, *yse*). Contribution: *tschl03_s*.

So a person with €30,000 in wages and €30,000 in self-employment income would owe 6.9% of €30,000 (paid by his employer) + 5.4% of €24,614.

From 2012, the maximum threshold for the computation of the health insurance contribution is harmonized with (i.e. raised to) the maximum threshold for the unemployment and disability insurance contributions.

2.7 Direct taxes

2.7.1 Tax unit

In general, the tax unit for income taxation is the individual. Income of other members in the household is taken into account in the calculation of the income tax credits (section 2.6.6). It is also important for the decision on who is paying taxes on components of household income such as imputed income from owner-occupied housing and for the decision on who can deduct expenditures such as mortgage interest, gifts etc. Fiscal partners may choose how to distribute non-personal income components and deductions between both partners.

Two persons living in the same household are fiscal partners

- if they are married,

- registered partners,
- two adults living together under a legally binding contract,
- two persons with a child,
- two persons, one of whom has recognized the other person’s child,
- two pension partners,
- two persons who are co-owner of the accommodation in which they live,
- two persons with the same address as the child of one of them aged below 18,
- two persons living at the same address who were fiscal partners last year.

2.7.2 Exemptions

Following Verbist (2004), we define exemptions as “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)”.

Child benefits, rent allowance, care allowance, child related budget and child care allowance are not included in taxable income, as are child maintenance payments made by the former spouse.

2.7.3 Tax allowances

Here, we define tax allowances as any amount subtracted from pre-tax income (including social insurance contributions). Differently from 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).

The most important tax allowance is formed by mortgage interest payments (*xhcmomi*), both in terms of the number of tax payers concerned and the amounts involved. Mortgage interest payments are deducted from personal income in Box 1 (see below).

From personal income (earnings, benefits, pensions) the amounts to be paid as occupational pension contributions and employee contributions to unemployment insurance are also deducted.

Alimony paid to the ex-spouse is also tax deductible.

Self-employed are entitled to self-employment deduction (*tinta00_s*). Amounts and thresholds:

Table 2.26 Parameters self-employment deduction

	2018	2019	2020	2021
amt_1	7,280	7,280	7,030	6,670
Starters	2,123	2,123	2,123	2,123
Above state pension age	50%	50%	50%	50%
Rate	14%	14%	14%	14%

Notably, the self-employed in question needs to have worked a minimum number of hours in his/her own firm: more than 1,225 hours per year and more than 50% of the total time worked¹⁷. Starters get an extra deduction during the first three years of self-employment. This starter

¹⁷ This hours criterion was not implemented in the earliest versions of EUROMOD. In the current version we approximate it by the condition that self-employment income makes up more than 60% of income from work and the number of hours worked exceeds 23 hours per week.

deduction is not implemented in EUROMOD because of missing information on when employment spells start.

From 2012, the amount of self-employment deduction is no longer income dependent. Instead it is a fixed amount (but not higher than the self-employment income).

In addition, recipients of self-employment income are allowed an additional deduction of 14% on self-employment income minus the self-employment deduction (the so-called *mkb-vrijstelling* (= tax allowance for medium and small firms)).

Starting in 2020, the self-employment deduction (including the tax allowance for medium and small firms) will be reduced for tax payers in the highest tax bracket. This reduction will be similar to the reduction in the tax deduction of mortgage interest payments for tax payers in the highest tax bracket (see 2.6.4.)

2.7.4 Tax base

The tax base for the income taxation is divided in three components (boxes).

Box 1. Income from work and house (including benefits)

Box 2. Income from substantial interest (income received by shareholders owning more than 5% of the shares in a company) (ignored in EUROMOD)

Box 3. Income from saving and investment

Box 1.

Included in the income tax base are personal income components such as earnings from labour, (earnings replacing) benefits and pensions. If an employee drives a car provided by the employer, a percentage of the catalogue value of the car is to be added. The percentage depends on the fuel type and the CO₂ emission per kilometer. This component of taxable income is not modelled within EUROMOD, but read directly from the data (variable *kfb*).

Income from abroad is also included in the tax base, but usually to the extent that it had not been taxed abroad.

Alimony received from the ex-spouse (not: alimony paid for the maintenance of children) is taxable as well.

Next to these personal income components, the tax base also includes imputed income from owner occupied housing, and some categories of allowances from life insurances. Imputed income from owner occupied housing (per year) is calculated as a percentage (in most cases 0.7%) of the value of the house as determined by the Act on Immovable Objects (WOZ)¹⁸.

¹⁸ In earlier versions of EUROMOD, the imputed income from owner occupied housing was read directly from the data (variable *kivho*). However, this variable overestimated the taxable imputed income. Therefore we have chosen to simulate the taxable imputed income from owner occupied housing (*kivhooo_s*) on the basis of (approximations of) the WOZ value of the owned accommodation.

Table 2.27 Parameters calculation of taxable imputed income from owner occupied housing

	2018	2019	2020	2021
WOZ value < €12,500	0	0	0	0
€12,500-€25,000	0.30%	0.25%	0.20%	0.20%
€25,000-€50,000	0.40%	0.35%	0.35%	0.30%
€50,000-€75,000	0.55%	0.50%	0.45%	0.40%
€75,000-villa threshold	0.70%	0.65%	0.60%	0.50%
villa threshold	1,060,000	1,080,000	1,090,000	1,110,000
WOZ > villa threshold: A + B*				
(WOZ – villa threshold)	7,420	7,020	6,540	5,550
A				
B	2.35%	2.35%	2.35%	2.35%

To the extent that the imputed income from owner occupied housing exceeds the mortgage interest tax allowance, it is exempt from taxation. As a result, home owners with low or zero mortgage interest payments do not pay income tax on the imputed income from owner occupied housing. Notably, starting in 2019, the exemption of imputed income from owner occupied housing for home owners with low or zero mortgage interest payments will gradually be abolished (over a period of 30 years). In 2019, 3.33% of the (positive) difference between imputed income from owner occupied housing and mortgage interest payments is added to taxable income (2020: 6.67%, 2021: 10%).

Starting in 2014, the tax deduction of mortgage interest payments is reduced with 0.5% per year for tax payers in the highest income tax bracket. In 2017, instead of 51.95%, their income tax is reduced with at most 49% of their mortgage interest payments. In 2041, the maximum mortgage interest deduction was scheduled to reach 38%. Starting in 2021, the reduction of the tax deduction of mortgage interest payments will be speeded up to 3% per year.

- ***EUROMOD modelling***

In EUROMOD, the reduction of the tax deduction of mortgage interest payments in the highest income tax bracket is implemented by an additional tax on mortgage interest payments (2% in 2017, 2.45% in 2018, 2.75% in 2019, 3.5% in 2020, 6.5% in 2021). As a result, the effective income tax deduction of mortgage interest payments in the highest income tax bracket amounts to $(52 - 2 =) 50\%$ in 2017, $(51.95 - 2.45 =) 49.5\%$ in 2018, $(51.75 - 2.75 =) 49\%$ in 2019, $(49.5 - 3.5 =) 46\%$ in 2020 and $(49.5 - 6.5 =) 43\%$ in 2021.

2.7.5 Tax schedule

Box 1

The income tax schedule, applied to taxable income minus all deductions in Box 1, is as follows:

Table 2.28 Parameters income tax schedule

	2018	2019	2020	2021
tax_rate1	8.9%	9.0%	9.7%	9.45%
tax_rate2	13.2%	10.45%	9.7%	9.45%

tax_rate3	40.85%	38.1%	37.35%	37.1%
tax_rate4	51.95%	51.75%	49.5%	49.5%
band1 up to	20,141	20,384		
band2 up to	33,993	34,300	34,713	35,130
band2 (born before 1-1-1946)	34,403	34,817	35,376	35,942
band3 up to	68,506	68,507	68,508	68,507

Hence for a tax payer born after 1-1-1946 in 2017:

Tax band		Per year	Per month		Tax-rate
1	0	20,141	1,678.42	<i>tax_band1</i>	<i>tax_rate1</i> : 8.9%
2	20,141	33,993	2,832.75	<i>tax_band2</i>	<i>tax_rate2</i> : 13.2%
3	33,993	68,506	5,708.83	<i>tax_band3</i>	<i>tax_rate3</i> : 40.85%
<i>nbands</i> : 4	68,506			<i>tax_band4</i>	<i>tax_rate4</i> : 51.95%

Box 2

Income from substantial interest is taxed with a flat rate of 25%. In EUROMOD, information on this income component is not available.

Box 3

Income from capital is generally taxed in Box 3. For that purpose assets (*afc*) (savings, shares, value of 2nd accommodation etc) minus max (0, debts¹⁹ minus €3,000) are calculated on 1st January. (Mortgages on owned (1st) accommodation are excluded from debts but mortgage interest is taken into account in Box 1). From this taxable asset base a tax free asset allowance is deducted. The remaining taxable amount (if positive) is assumed to have generated taxable income, with a tax rate of 30%.

The general tax free asset allowance is €30,000 per person. Couples may choose which part of their assets is reported by which spouse. They can also transfer the full amount of tax free asset allowance to their spouse.

From 2012, the asset allowance for minor children is abolished. Starting in 2016, the additional asset allowance for persons above the state pension age on 31st December has been abolished.

Table 2.28 Parameters tax free allowance

	2018	2019	2020	2021
Debts ignored	3,000	3,100	3,100	3,200
General t.f.a.	30,000	30,360	30,846	50,000

Starting in 2017, the income assumed to be generated from the taxable amount in Box 3 is differentiated²⁰. In 2018, the first € 70,800 is assumed to generate 2.017%, the next € 907,200 generates 4.326%, and the amounts exceeding € 978,000 generate 5.38%. The tax levied on this income remained constant at 30% upto 2020 and was increased to 31% in 2021.

¹⁹ Notably, in EUROMOD, debts are not taken into account.

²⁰ Before 2017, every euro of the taxable amount in Box 3 was assumed to generate 4% of income.

Table 2.29 Thresholds and parameters differentiated income from Box 3

	2018	2019	2020	2021
Income in Band1 upto	70,800	71,650	72,798	50,000
generates an income of	2.017%	1.935%	1.799%	1.898%
Income in Band2 upto	978,000	989,736	1,005,573	950,000
generates an income of	4.326%	4.4513%	4.223%	4.501%
Remainder generates an income of	5.38%	5.6%	5.33%	5.69%
Tax rate	30%	30%	30%	31%

2.7.6 Tax credits

The amount resulting from adding all taxable income components and subtracting all deductions described in the first part of section 2.6.4 is taxable income in Box 1 (*il_taxabley_box1*), upon which the tax schedule as described in section 2.6.5 is applied. In addition, (imputed) taxable income from saving and investing (Box 3) (*temp_taxbase_box3*) is taxed with a constant rate of 30%. However, tax credits are deducted from the full amount of taxes and peoples' insurance contributions (in proportion to the rates on the lowest tax bracket in Box 1).

The tax credits may consist of several components:

- a) general tax credit (*tintc00_s*)

All tax payers receive a general tax credit of at most €2,265 per year or €188.75 per month (*amount1*). For persons aged above the state pension age, the general tax credit is at most €1,157 per year (€96.42 per month). In principle, tax credits are not transferable between spouses. However, the general tax credit is also paid to a spouse with a low (or zero) income if his/her spouse pays income tax and peoples' insurance contributions. In that case the tax credit is not higher than the amount of income tax and peoples' insurance contributions paid by the spouse (after deducting his/her own tax credits): total tax/contributions paid by a couple is never negative.

Starting in 2009, the payment of the general tax credit to a spouse with a low or zero income is being reduced to zero in 15 years (i.e. by 6.67% per year). In 2018, the payment of the general tax credit to a spouse with low or zero income is reduced by 66.67% of the maximum general tax credit.

Starting in 2014, a reduction of the general tax credit is applied when taxable income in Box 1 exceeds a threshold. From 2016 the general tax credit is fully income dependent and it reduces to zero for high incomes. In 2018, the reduction amounted to 4.683% of taxable income above €20,142 with a maximum of €2,265 per year (see Table 2.30 for more details).

- b) work credit (*tintcee_s*)

Tax credit on income from work (*il_taxabley_work*) (including self-employment income): normally, at most €3,249 per year (above state pension age: €1,659 per year).

The work credit amounts to 1.764% (*band_rate 1*) on the first €9,468 (*band_uplim 1*) of income from work plus 28.064% (*band_rate 2*) of the remainder; the maximum amount being €3,249 (*uplim*). Income from work (*il_taxabley_work*) includes: employment income (*yem*), self-employment income (*yse*), income from employer provided car, minus the occupational pension contributions (*tpcpe*) and minus the unemployment insurance contribution paid by the employee (*tsceui_s*). Sickness benefits (*bhl*) should also be counted as income from work.

For persons aged above the state pension age, the work credit is 0.901% on the first €9,468 of income from work plus 14.32% of the remainder, with a maximum of €1,659.

Starting in 2020, a third band was introduced in the calculation of the work credit.

For persons with income from work higher than €32,444, the work credit is reduced by 3.6% of the income above €32,444 with a maximum of €3,223 (above state pension age: 1.837%, with a maximum of €1,645).

c) child credit (*tintch_s*)

As of 2008, the child credit was replaced by an income related child allowance, renamed child related budget in 2009 (see section 2.4.8).

d) supplementary child credit

The supplementary child credit had already been abolished before 2006.

e) income related combination credit (*tintch00_s*)

As of 2009, the earlier combination credit and supplementary combination credit were replaced by the income related combination credit. In 2018, the income related combination credit amounts to $€1,052 + 0.06159 * (\text{income from work} - 4,935)$ with a maximum of €2,801. It is received if earnings from paid employment exceed €4,935 and a child under 12 is present. In the case of a couple it is received only by the lower earning spouse. If the earnings of both spouses are equal, only the older spouse receives the credit. For persons above the state pension age, the amount is $€538 + 0.03143 * (\text{income from work} - 4,935)$ with a maximum of €1,431 per year.

f) single parent credit (*tintclp_s*)

The single parent credit was abolished in 2015. As a compensation, single parents were entitled to a supplement to child related budget (see section 2.4.8).

g) supplementary single parent credit (*tintclp00_s*)

The supplementary single parent credit was also abolished in 2015.

h) old age credit (*temp_tcOA*)

Tax payers aged above the state pension age (*\$PenAge*) on 31/12/2018 are entitled to an additional tax credit: €1,418 per year if total taxable income ('verzamelinkomen') from Box 1, 2 and 3 net of all deductions is lower than € 36,346 per year, and €72 if total taxable income is higher. Starting in 2019, the old age credit is gradually reduced to zero (by 15% of taxable income) above the threshold of €36,783.

i) old age credit single persons (*temp_SuppOA*)

Tax payers entitled to an old age credit and to the state pension for single persons or single parents (section 2.1.3) with total taxable income below € 36,346 obtain the old age credit for single persons of €423 per year next to the old age credit.

j) temporary credit early retirement (from 2013 to 2015: *temp_ERTc*)

This temporary credit has been abolished from 2016.

Table 2.30 Parameters tax credits

	2018	2019	2020	2021
general tax credit	2,265	2,477	2,711	2,837
reduction: threshold	20,142	20,384	20,711	21,053
reduction: rate	4.683%	5.147%	5.672%	5.977%
reduction: maximum	2,265	2,477	2,711	2,837
above state pension age	1,157	1,268	1,413	1,469
reduction: rate	2.389%	2.633%	2.954%	3.093%
reduction: maximum	1,157	1,268	1,413	1,469
work credit:				
band_rate 1	1.764%	1.754%	2.812%	4.581%
band_uplim 1	9,468	9,694	9,921	10,108
band_rate 2	28.064%	28.712%	28.812%	28.771%
band_uplim 2			21,430	21,835
band_rate 3			1.656%	2.663%
uplim	3,249	3,399	3,819	4,205
work bonus 60-63: maximum	0			
minimum threshold				
rate				
decrease starts from				
rate of decrease				
reduction %	3.6%	6%	6%	6%
max	3,249	3,399	3,819	4,205
from	33,112	34,060	34,954	35,652
Work credit s.p.a. ¹⁺ :				
band_rate 1 s.p.a.+	0.901%	0.898%	1.464%	2.371%
band_rate 2 s.p.a.+	14.32%	14.689%	15.004%	14.89%
band_rate 3 s.p.a.+			0.862%	1.378%
uplim s.p.a.+	1,659	1,740	1,989	2,178
reduction %	1.837%	3.069%	3.124%	3.105%
max	1,659	1,740	1,989	2,178
from	33,112	34,060	34,954	35,652
Income related				
Combination credit				
Earnings threshold	4,935	4,993	5,072	5,153
Minimum	1,052	0	0	0
Rate	6.159%	11.45%	11.45%	11.45%
Maximum	2,801	2,835	2,881	2,815
Max inc	33,331	29,753	30,233	29,738
Minimum s.p.a.+	538	0	0	0
Rate s.p.a.+	3.143%	5.86%	5.963%	5.926%
Max s.p.a.+	1,431	1,452	1,500	1,458
Old age credit	1,418	1,596	1,622	1,703
threshold	36,346	36,783	37,372	37,970
reduction %		15%	15%	15%

	2018	2019	2020	2021
Upto		47,423	48,185	49,323
Higher income credit	72	0	0	0
Single persons	423	429	436	443

¹s.p.a. = state pension age

As mentioned earlier, tax credits are not transferable between spouses and the amount of income tax and peoples' insurance contributions paid cannot be negative. However, some tax credits are also paid to a spouse with a low (or zero) income if his/her spouse pays income tax and peoples' insurance contributions. In that case the tax credit is not higher than the amount of income tax and peoples' insurance contributions paid by the spouse (after deducting his/her own tax credits): total tax/contributions paid by a couple is never negative. The tax credits for which this holds are: the general tax credit, work credit and (supplementary) combination credit.

- ***EUROMOD modelling***

In EUROMOD simulated values for income tax and peoples' insurance contributions may be negative at the individual level as long as the total amount for the couple is not negative.

Tax credits not taken into account in EUROMOD

a) young disabled credit

Persons receiving the benefit for young disabled persons 'Wajong' are entitled to the young disabled credit of €728 per year

b) parental leave credit

From 2015, the parental leave credit has been abolished

c) credit for investment in venture capital, and green/ethical investment funds

Some categories of investments which are normally subject to the capital gains taxation (Box 3) are tax exempt up to certain limits.

- ***EUROMOD modelling***

As mentioned above, starting in 2009, the payment of the general tax credit to a spouse with a low or zero income is to be reduced to zero in 15 years (i.e. by 6.67% per year). Initially, this reduction did not hold if the spouse in question was born before 1st January 1972 or had a child living at home who was younger than 6 years at 31st December 2008. In previous EUROMOD versions this reduction was not implemented before 2011. In that year the reduction amounted to 20%. By 2012 the reduction was 26.66% for persons born after 1st January 1972 without a child younger than 6 years living at home, and 13.33% for persons born between 1st January 1963 and 1st January 1972 and for persons born after 1st January 1972 with a child younger than 6 years living at home. In 2013, these percentages were increased to 33.33% and 26.66%, respectively. In 2014, 2015, 2016, 2017, 2018, 2019, 2020 and 2021 the reduction was further increased (to 40%, 46.66%, 53.33%, 60%, 66.67%, 73.33%, 80% and 86.67%) for persons born after 1962.

EUROMOD does not take into account a number of possible tax allowances, such as public transportation costs (home-work), gifts to charities, specific health care expenditures, and study costs.

3. DATA

3.1 General description

The Dutch database consists of the Dutch part of the European Union Statistics on Income and Living Conditions (EU-SILC). This is a rotating panel survey (4 rotational groups), aimed to be representative of the Dutch population in private households. The sampling frame is the Dutch Population register (Basisregistratie Personen (BRP)). The sampling design can be classified as a stratified random sampling design. The unit of assessment is the household. The data consist of register data, supplemented by interview data (CATI/CAWI). Notably, although the original data is a panel, the User Data Base is not. This means that it is not possible for users to follow the same people over time.

From 2021 onwards, a new database prepared by Eurostat - EUROMOD SILC database (EMSD) - is used to derive EUROMOD input dataset. The EMSD includes:

- all UDB (User Database) variables (each variable is described in the doc 65 available online);
- national data supplied by the National Statistical Institute (NSI);
- EUROMOD variables created and imputed inside Eurostat because of restricted data access or knowledge in-house.

Based on the EMSD, the national team derives additional variables requiring a deep understanding of country specificities (for instance national tax-benefit rules). The final EUROMOD input dataset is therefore made of variables created by both Eurostat and the national team.

Some of the EUROMOD variables produced by Eurostat are created and/or imputed with PDB (Production Database) variables. The reason being that the modalities of the PDB variables are more detailed than in UDB. According to the agreement between the NSI and Eurostat, the national team is allowed to use the more detailed information coming from the PDB to derive some EUROMOD variables or to use them as intermediate variable to impute other EUROMOD variables.

However, in the final EUROMOD input dataset, the same disclosure rules as in the UDB are applied. Nevertheless, when imputing variables, these disclosure rules are not applied, so the values might still differ from the one that a user could obtain when replicating the imputation based on the UDB data set. Table 3.1 EUROMOD database description

EUROMOD database	
Original name	EU-SILC UDB
Provider	Eurostat
Year of collection	2019
Period of collection	February-June
Income reference period	2018
Sample size	13,764 hh

Response rate	53%
---------------	-----

Table 3.1 presents some information from the report on EU-SILC 2019, published in the series of National Quality Reports on EU-SILC by the European Commission²¹. The household response rate of EU-SILC 2019 is 53%. In order to improve the timeliness and the oncoming revision of EU-SILC, Statistics Netherlands has redesigned the data collection in the first wave. From 2016 onwards, the first wave was conducted as a stand-alone survey with a new sampling design and mixed mode data collection (CAWI and CATI) as a main feature. Sampled persons were invited to fill in the questionnaire by means of CAWI. Subsequently, non-respondents had been contacted by phone to conduct the interview by means of CATI. The timeliness of the data transmissions was also taken into account in the redesign, as the starting date of the field work changed from July to March.

The sampling frame is the Dutch Population register (Basisregistratie Personen - BRP). The sampling design can be classified as a stratified random sampling design. In the new sampling design for the first wave in 2016, a stratified sampling frame of persons aged 16 and over was constructed. Sample persons were divided into 21 strata. These strata were defined on the basis of household income, age and number of household members. For a detailed description we refer to the Quality Report.

Cross-sectional weights were calculated in compliance with the Eurostat recommendations for these calculations. The final cross-sectional weights were obtained by a calibration of the joint cross-sectional and longitudinal sample. The following variables were included in the calibration scheme: sex, age, household size, region, tenure status, disposable income, low income category, at risk of poverty rate, ethnic background, degree of urbanisation, activity status, household income decile.

As income data are based on register information most income variables do not suffer from item non-response. Only the inter-household transfers (paid and received) and the income from rental of a property or land are partly derived from the EU-SILC questionnaire. Notably, part of the labour market information, such as the number of years worked, is asked from the selected household member only. As a result, this information suffers from considerable item non-response.

3.2 Data adjustment

In order to guarantee consistency between demographic variables and income variables, which refer to the previous year (and on which EUROMOD simulation are based), all children born between the end of the income reference period and the date of interview (37 children) have been dropped from the sample. The final sample includes 29,862 individuals in 13,764 households.

Except for a very small number of corrections of negative income components, no further adjustments to variables have been made.

²¹<http://ec.europa.eu/eurostat/web/income-and-living-conditions/quality/eu-and-national-quality-reports>.

3.3 Imputations and assumptions

3.3.1 Time period

The EU-SILC information on demographic variables mainly refers to the time of data collection (February-June 2019). However, some information also indicates the status quo at the end of the income reference period (2018). If possible, the demographic, labour and socio-economic information in the EUROMOD dataset was based on the EU-SILC variables referring to the income reference period.

The EU-SILC UDB information on incomes refers to the calendar year of 2018, based on a 12 months receipt period. All monetary incomes in the EUROMOD database are converted into monthly terms. In most of the EUROMOD calculations it is implicitly assumed that income is received at the same rate throughout the year.

3.3.2 Gross incomes

Only gross incomes are available in the EU-SILC UDB database. Therefore, no net to gross imputations have been made.

3.3.3 Disaggregation of harmonized variables

The following imputations of key variables (not available in the EU-SILC UDB survey) are produced:

- Financial capital is imputed, assuming that investment income reflects the annual rates of return on capital amounts exceeding the tax free allowance in Box 3 of € 25,000 implicit in the tax schedule in Box 3 (see Table 2.29) and 0.1% on capital amounts below this threshold.
- Pension income is disaggregated into state pension and complementary pension income, by using additional information provided by Statistics Netherlands.
- Social assistance is disaggregated into general social assistance and other social assistance by using additional information provided by Statistics Netherlands
- Unemployment benefits are disaggregated into contributory unemployment benefits and non-contributory unemployment benefits by using additional information provided by Statistics Netherlands.
- Employee (occupational) pension contributions are determined using additional information provided by Statistics Netherlands. Other imputations

As noted in section 3.1, part of the labour market information in the Dutch EU-SILC UDB databases suffers from considerable item non-response. One key variable used in the simulation of unemployment benefits is the labour market history: the number of years in paid employment (*liwwh*). In cases where this variable is missing, an imputation procedure is used, in which the number of years in paid employment is based on a regression with age, gender and household composition as explanatory variables.

3.4 Updating

To account for any time inconsistencies between the input dataset and the policy year, uprating factors are used. Each monetary variable (i.e. each income component) is updated so as to account

for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax-benefit system. Uprating 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 uprating factor as well as the sources that have been used, see Annex 1.

As a rule, uprating factors are provided both for simulated and non-simulated income components present in the input dataset. Note however that in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the updated original variables in the dataset. Uprating factors for simulated variables are provided so as to facilitate the use of the model in cases when the user wishes to turn off the simulation of a particular variable. The list of uprating factors as well as the sources used to derive them can be found in Annex 1.

4. VALIDATION

4.1 Aggregate Validation

EUROMOD results are validated against external benchmarks. Detailed comparisons of the number of people receiving a given income component and total yearly amounts are shown in Annex 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 data. The main discrepancies between EUROMOD results and external benchmarks are discussed in the following subsections. Factors that may explain the observed differences are also discussed.

4.1.1 Components of disposable income

Table 4.1 compares the definition of disposable income in EUROMOD with the definition of the disposable income variable HY020 in EU-SILC. The EUROMOD definition does not include non-cash components such as the company car, and it does not include tax adjustments pertaining to tax years other than the reference year.

Table 4.1 Components of disposable income

	EUROMOD 2018-2021	EU-SILC 2018
	ils_dispy	HY020
Employee cash or near cash income	+	+
Employer's social insurance contribution		0
Company car		+
Contributions to individual private pension plans		0
Cash benefits or losses from self-employment	+	+
Pension from individual private plans		0
<i>Unemployment benefits</i>	+	+
<i>Old-age benefits</i>	+	+
<i>Survivor' benefits</i>	+	+
Sickness benefits	+	+
Disability benefits	+	+
Education-related allowances	+	+
Income from rental of a property or land	+	+
<i>Family/children related allowances</i>	+	+
Social exclusion not elsewhere classified	+	+
Housing allowances	+	+
Regular inter-household cash transfer received	+	+
Interests, dividends, etc.	+	+
Income received by people aged under 16	+	+
Regular taxes on wealth		-
<i>Regular inter-household cash transfer paid</i>	-	-
<i>Tax on income and social contributions</i>	-	-
<i>Repayments/receipts for tax adjustment</i>		+

Notes: Some variables in EUROMOD are aggregate variables. They consist of several components, some of which have been simulated in EUROMOD and some not.

4.1.2 Validation of incomes inputted into the simulation

a) Number of employed and unemployed

Table 4.2 compares the numbers of employed and unemployed as derived from EU-SILC and used in EUROMOD with external statistics. It should be noted that the comparability of these statistics is questionable as the EU-SILC statistics are based on the number of months in which the main activity consisted of full-time or part-time employment or self-employment (in the case of the employed) and unemployment (in the case of the unemployed). This is likely to cause ambiguity in the case of e.g. students with part-time jobs and partly disabled workers and unemployed. The external statistics count as unemployed persons without paid employment who have recently been looking for work and are directly available. In doing so, the number of unemployed may differ from the number of persons registered as unemployed²², and those entitled to an unemployment benefit.

All in all, the number of employed persons in EU-SILC approximates the external statistics fairly closely, whilst the number of unemployed appears to be considerably overestimated in 2018. Obviously, this is likely to be caused by the different definitions of unemployment. A cause for concern is the fact that unemployment in the Netherlands varied considerably between 2018, 2019

²² Only persons who would be entitled to benefits such as unemployment benefit or social assistance need to register themselves as unemployed.

and 2020, whilst it remains constant in the updated data used in the EUROMOD simulations. This is explained by the fact that the EUROMOD simulations are based on EU-SILC 2019 data. EUROMOD is a static microsimulation model which by nature does not impose changes in demographics and labour market conditions, but takes them from the underlying input dataset. Consequently the simulations presented here do not pick up changes in unemployment rate between 2018 and later years, but they reflect the scenario where no changes apply to people's demographic and employment status. Thus comparisons across years identify changes in policies rather than total changes including changes in the population or changes in the labour market.

b) Number of recipients of various types of market income

From table 4.3 we may infer that the number of households receiving employment income in 2018 as published by Statistics Netherlands is about 4% lower than the EU-SILC statistics for 2017. By contrast, the number of persons receiving self-employment income appears to be clearly underestimated in EU-SILC. This may suggest that the definition of self-employment income used by EU-SILC is somehow narrower than the definition used by Statistics Netherlands. The number of households reporting property income in EU-SILC in 2018 is about 33% higher than the figures reported by Statistics Netherlands and the number of households reporting investment income in EUROMOD in 2018 is about 28% higher than the official figure.

c) Amounts of various types of market income

Total employment income in 2018 as derived from EU-SILC is about two percentage points below the external statistics, as may be inferred from Table 4.4 in Annex 3. Self-employment income in EUROMOD falls below external statistics by about 26%. The degree of underestimation is clearly higher than the underestimation of the number of self-employed. This confirms the conclusion that the definitions in both sources may be different: it appears that EUROMOD counts relatively more persons with low self-employment incomes. Total property income in 2018 in EUROMOD is about 20% below the external statistics, which implies that in EU-SILC households with low property incomes are overrepresented. Investment income in EUROMOD in 2018 overestimates the amounts published by Statistics Netherlands by about 170%. We have no clear indication about the cause of these differences. Notably, investment income in EUROMOD is indexed by the wage index. This does not take into account that the rate of return on financial capital has decreased considerably since 2018. One possibility is that investment income in EU-SILC includes so-called income from substantial interest (Box 2 income, see section 2.6.4). Notably, a substantial share of the total amount of investment income in EU-SILC is received by a small number of recipients.

d) Number of recipients of various types of non-simulated benefits

Table 4.5 shows that the number of recipients of education benefits in EUROMOD is about 20% below the external statistics. The number of recipients of 'other social assistance benefits' appears to be underestimated by about 5%. Compared to previous years when we had to use an imputation procedure to separate out these benefits from regular social assistance, this constitutes a slight improvement. The number of recipient households of occupational pensions appears to be replicated quite nicely in EUROMOD. The number of recipients of disability benefits in EUROMOD is about 3% below the external statistics.

e) Amounts of various types of non-simulated benefits

The total amount of education benefits in EUROMOD in 2018 is more than 60% lower than the amount derived from the external statistics, as can be seen from Table 4.6 in Annex 3. Moreover, the extent to which EUROMOD replicates the external statistics varies considerably from year to year. This may at least partly be attributed to the fact that mainly for accounting reasons the amounts paid for public transport included in the education benefits show large differences from

year to year, whilst these amounts are probably not included in the EU-SILC definition of education benefits.

The aggregate amount of ‘other social assistance benefits’ is underestimated by 28% in 2018 and by similar percentages in later years. Notably, the imputation procedure used to separate out these benefits from regular social assistance benefits in earlier years resulted in a closer approximation to the external statistics. The total amount of occupational pensions in 2018 in EUROMOD exceeds the external statistic by about 10%. By contrast, disability benefits are underestimated by about 7%. This clearly exceeds the extent to which the number of recipients is underestimated.

4.1.3 Validation of outputted (simulated) incomes

a) Number of recipients

Table 4.7 shows that the number of recipients of family benefits is underestimated by about 4%. In 2017, the number of recipients of the (means tested) child allowance is underestimated by EUROMOD by about 2%, but EUROMOD does not replicate the increase in the number of recipients between 2019 and 2020, as revealed by the external statistics.

EUROMOD underestimates the number of recipients of care allowance by 3% in 2018, but overestimates this number by 5% in 2020. Notably, the external statistics on the number of recipients of care allowance are subject to revision because the final decisions of the tax authorities on awarding care allowance may differ from the initial eligibility decisions, on the basis of the final assessment of taxable income for the calendar year in question. This may also affect the number of recipients of housing benefit (rent allowance) for which reliable recent external statistics are hard to find anyway. Because the procedure used to update the data pertaining to 2018 to later years does not take into account structural changes, the numbers of recipients of social assistance, unemployment benefits²³ and state pensions remains fairly constant over the years. In contrast, the external statistics suggest some variation in the number of recipients of social assistance, a decrease in the number of recipients of unemployment benefits and an increase in the number of recipients of the state pension. With respect to the survivor benefits, the number of recipients in EUROMOD is underestimated by about 25%. Notably, the number of beneficiaries is so low that a difference of 1,000 equals 4%.

b) Amounts

From Table 4.8 in Annex 3 we infer that the total amount of family benefits and child allowances simulated by EUROMOD coincides quite closely with the amount derived from the original EU-SILC data. However, whilst the simulated amount of family benefits differs from the external statistics by about 4%, the child allowance as simulated in EUROMOD appears to be underestimated by about 30% in 2018, by about 34% in 2019 and by 47% in 2020. At least partly, this difference can be explained by the fact that the external statistics include a non-negligible amount that will have to be paid back to the tax authorities once the final assessment of taxable income has been completed.

The extent to which the total amount of care allowance appears to be underestimated in EUROMOD is larger than that of the number of recipients. This raises the suspicion that the number of recipients per household may be overestimated due to insufficient information to identify allowance partners. Some degree of underestimation is also, again, to be expected because the external statistics include payments which after the final assessment may have to be

²³ In contrast to earlier Country Reports, the external statistics now reflect the total number of recipients of unemployment benefits in a calendar year, rather than the (much lower) number of recipients at a certain point in time.

returned. The latter phenomenon is also likely to play a role with the rent allowance of which the amount is underestimated in EUROMOD by 3% in 2018 and 2019, and by 1% in 2020 .

The overestimation of the number of recipients of social assistance benefits is accompanied by a considerable underestimation of the amounts of 16% in 2018. This suggests that benefit units entitled to the full social assistance benefit, i.e., with no other sources of income, are underrepresented in the data. Notably, the degree of underestimation is clearly below the comparable figures in the previous Country Report, using EU-SILC 2018. To some extent, this may be attributed to the fact that in EU-SILC 2019 we have information to distinguish between general social assistance and other social assistance benefits..

The fact that developments after 2018 are not captured by the uprating factors applied is illustrated by comparing the simulated amounts of unemployment benefits with the external statistics: unemployment does not change in EUROMOD, and as a result, the simulated amounts of unemployment benefits do not reflect the decreasing trend in the external statistics.

In 2018, the amount of state pensions is overestimated by EUROMOD by about 3%. In view of the overestimation of the number of recipients and the fact that EUROMOD cannot take into account that recipients may not be entitled to the full state pension, as a result of having lived abroad during their working life, this degree of overestimation is unexpectedly low. In contrast to earlier years, the extent to which the amount of survival benefits is underestimated is not much larger than the extent to which the number of recipients is underestimated. This suggests that the number of widows receiving the more generous survivor benefits because they were widowed before the most recent reforms is clearly decreasing.

Income tax payments are overestimated by 3% in 2018 but underestimated by 11% in 2019 and 17% in 2020, whilst peoples' insurance contributions are underestimated by 7% in 2018 but overestimated by 3% in 2019 and by 7% in 2020. It should be noted that the external statistics on income tax payments reflect actual amounts paid in the calendar years²⁴.

Employer social insurance contributions are overestimated by about 5% in 2018 and 3% in 2019, but underestimated by 6% in 2020. This decrease may reflect the fact that the growth of employment income in EUROMOD is underestimated. Part of the initial overestimation of the social insurance contribution may be caused by the fact that the actual unemployment insurance contribution for public sector employees is notably lower than the private sector rate that is used for all employees in EUROMOD. Health insurance contributions appear to be replicated quite well in EUROMOD. Notably, the quality of the external statistics for these amounts is subject to some doubt²⁵.

4.2 Income distribution

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

²⁴ In addition, the external statistics include an amount for dividend taxation which residents can deduct from their income tax liability but which is partly borne by foreign residents and companies.

²⁵ The external statistics include the sum of all payments of health insurance contributions made to private health insurance companies which appear to be based on fairly rough estimates.

4.2.1 Income inequality

Table 4.9 in Annex 3 presents a number of indicators of the income distribution and compares them to Eurostat figures on the basis of EU-SILC data on disposable income of the calendar year in question. Given that the data sources are the same, it is encouraging that the distributions of measured and simulated income in 2018 do not differ very much. As far as the income shares are concerned, the biggest difference is found in the share of the lowest decile, which in 2018 is overestimated by EUROMOD by about 10%. It is likely that this is mainly caused by the fact that EUROMOD assumes 100% take-up of benefits such as social assistance on the one hand, and 100% entitlement to (and take-up of) the state pension on the other. In 2018, EUROMOD underestimates median income and mean income by less than 0.5%, whilst the Gini indicator is underestimated by about 4% and the S80/S20 indicator by about 8%.

4.2.2 Poverty rates

Comparing the poverty rates resulting from EUROMOD with the Eurostat figures (Table 4.10 in Annex 3) we find that in 2018, EUROMOD underestimates extreme poverty (drawing the poverty line at 40% of median equivalized income) by about 26%. When the poverty line is drawn at a higher percentage of median equivalized income, poverty is also underestimated, albeit to a lesser extent. Differentiated by age group we see that using the 60% threshold poverty is overestimated by 6% in the 0-15 age group, and by 4% in the 16-24 age group, and underestimated by 4% in the 25-49 age group, by 10% in the 50-64 age group and by 42% among the elderly. Once again, this may at least partly be attributed to the fact that EUROMOD assumes 100% take-up of social assistance and 100% entitlement to the state pension.

4.3 Validation of minimum wage

In the Netherlands employees have been entitled to a minimum wage for several decades. However, the wage information as included in EU-SILC suggests that in some cases the wage received is below the minimum wage. Therefore, EUROMOD has an option to award the minimum wage to persons whose (hourly) earnings are below the minimum. Table 4.11 in Annex 3 compares a number of results of the baseline discussed so far with results including this minimum wage option. It can be seen that most statistics hardly differ when the minimum wage option is switched on. One exception concerns the amount of social assistance, which decreases by about 5% when the minimum wage option is switched on. Obviously, this causes a further increase in the degree of underestimation of social assistance, as compared to the external statistics. As a result, the degree of underestimation of the poverty rate also increases.

4.4 Summary of “health warnings”

- Care should be taken in interpreting results for small sub-groups.
- No adjustments are made for structural changes in the characteristics of the population between the data year (2017) and the simulation years.
- Non-takeup of benefits is not modelled. This has the effect of (a) inflating the simulated incomes of households who do not take up these benefits in reality and, possibly, reducing the number of people in very poor households, (b) inflating the cost of benefits and the cost of making them more generous, (c) diminishing the relative impact of benefits that do not have problems of non-takeup. In particular, means-tested benefits such as housing

benefits and social assistance are likely to be affected by non-takeup, for example when the entitlements would be small.

- The quality of the rent variable used to simulate entitlement to housing benefit is subject to doubt.
- In a number of cases, benefit disaggregation is only possible using fairly arbitrary choices, in particular where social assistance is concerned.
- Child care allowance is not modelled.
- A number of potential income tax deductions is not taken into account. Potential deductions include specific health care costs, study costs and gifts to charities.
- Uprating factors for 2019 and 2020 are still provisional.
- No account has been taken of the increase of the state pension age between 2017 and 2020. Instead, the state pension age is 66 in all the simulation results presented in this report.
- Pregnancy and childbirth allowance are simulated but switched off for policy years 2015-2020. EUROMOD simulations largely overestimate the number of recipients and the total annual amount compared to the external statistics.
- The simulation of monetary compensation schemes (bmcer_s) is triggered by the simulation of labour market transitions defined in policy TransLMA_nl. 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 to be higher than disposable income in previous years.

5. REFERENCES

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

- *Sources for tax-benefit descriptions/rules*

General sources for tax-benefit descriptions/rules

In Dutch: Kluwer Fiscale encyclopedie De Vakstudie; Kluwer Encyclopedie Sociale Verzekeringen; Kluwer Encyclopedie Sociale Voorzieningen; www.belastingdienst.nl; www.st-ab.nl; www.svb.nl; www.uwv.nl; wetten.overheid.nl

In English: www.svb.nl

ANNEX 1. UPRATING FACTORS

Table 1. Uprating factors

Index	Income Source/index type	2018-2019	2018-2020	2018-2021
<i>default</i>	Annual average inflation	1.0263	1.0406	1.0522
<i>yem</i>	INCOME : Employment	1.0237	1.0344	t.b.a.
<i>yfb</i>	INCOME : Fringe Benefits			
<i>yyi</i>	INCOME : Investment	see yem		
<i>ypr</i>	INCOME : Property	see yem		
<i>ypt</i>	INCOME : Private Transfers	1.0200	1.0455	1.0769
<i>yse</i>	INCOME : Self Employment	see yem		
<i>bed</i>	BENEFIT/PENSION : Education	1.0138	1.0311	1.0583
<i>bfa</i>	BENEFIT/PENSION : Family	1.0941	1.1017	1.1110
<i>bho</i>	BENEFIT/PENSION : Housing	-		
<i>bsa</i>	BENEFIT/PENSION : Social Assistance	see bun		
<i>bun</i>	BENEFIT/PENSION : Unemployment	1.0240	1.0479	1.0677
<i>pdi</i>	BENEFIT/PENSION : Disability	1.0240	1.0479	1.0677
<i>phl</i>	BENEFIT/PENSION : Health			
<i>poa00</i>	BENEFIT/PENSION : State pension	1.0349	1.0668	1.0961
<i>psu</i>	BENEFIT/PENSION : Survivors	1.0216	1.0426	1.0539
<i>tpcpe</i>	TAX/CONTR : Occ. pension contr. employees	see yem		

Notes: source: inflation: Eurostat (AMECO); yem: statline.cbs.nl; ypt: www.alimentatiewijzer.nl, bed, bun, pdi: www.overheid.nl, bfa, poa00, psu: www.svb.nl.

ANNEX 2. POLICY EFFECTS IN 2020-2021

Table 1 and Figure 1 show the effect of 2021 policies on mean equivalised household disposable income by income component and income decile group. This effect is estimated as the difference between simulated household net income under the 2021 tax-benefit policies (deflating monetary parameters by Eurostat's Harmonized Index of Consumer Prices, HICP) and net incomes simulated under 2020 policies, as a percentage of mean equivalised household disposable income in 2020.

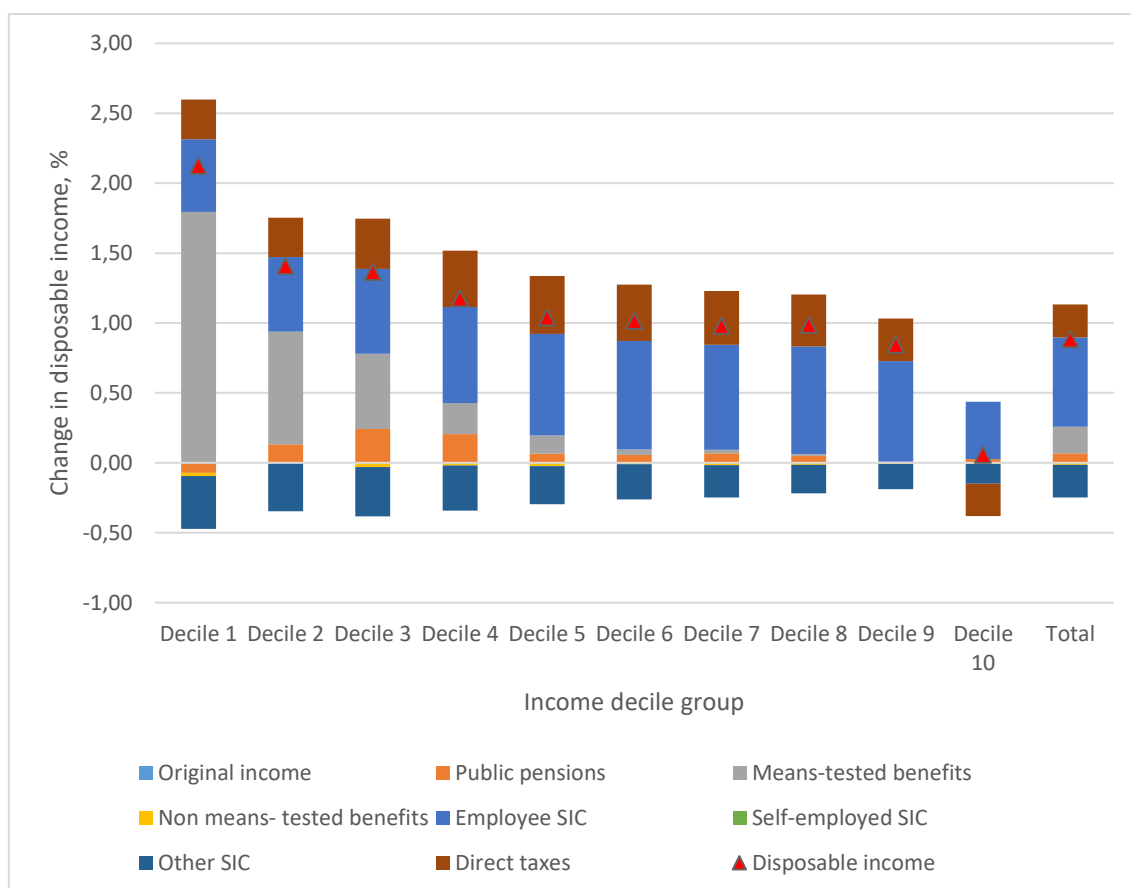
The total effect of (deflated) 2021 policies is an increase in disposable income of 0.88%. This is mainly driven by a decrease in employee SICs (0.64%). Although the policy effect across the income distribution is positive for all decile groups, the increase in disposable varies in a range between 0.06% and 2.12%, with the tenth decile seeing the lowest increase and the first decile the highest. For most decile groups, the increase in disposable income is mainly the result of decreases in direct income tax and employee SICs. In the lowest deciles, higher means tested benefits make up the largest part of the increase in disposable income. This is particularly true for the lowest decile where the policy effect of means-tested benefits alone is an increase in disposable income of 1.79%. In particular, this is likely to be caused by increases in the child allowance for households with more than two children and increases in the rent allowance,

Notably, the calculated policy effects are based on an increase in the HICP of 1.6%. The latest available inflation figures suggest that the actual inflation may be closer to 3%. Obviously, this would result in considerably lower figures for the policy effects, compared to Table 1.

Table 1: Policy effects in 2020-2021, using the CPI-indexation, %

Decile group	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Employee SIC	Self-empl. SIC	Other SIC	Direct taxes	Disposable income
1	0.00	-0.07	1.79	-0.02	0.52	0.00	-0.38	0.28	2.12
2	0.00	0.13	0.80	0.00	0.53	0.00	-0.35	0.28	1.41
3	0.00	0.24	0.54	-0.03	0.61	0.00	-0.35	0.36	1.36
4	0.00	0.21	0.22	-0.02	0.69	0.00	-0.32	0.40	1.18
5	0.00	0.07	0.13	-0.02	0.73	0.00	-0.27	0.41	1.04
6	0.00	0.06	0.04	-0.01	0.77	0.00	-0.25	0.41	1.01
7	0.00	0.07	0.03	-0.02	0.75	0.00	-0.23	0.38	0.98
8	0.00	0.05	0.01	-0.01	0.77	0.00	-0.20	0.37	0.99
9	0.00	0.00	0.01	-0.01	0.72	0.00	-0.18	0.31	0.84
10	0.00	0.03	0.00	-0.01	0.41	0.00	-0.14	-0.23	0.06
<i>Total</i>	0.00	0.07	0.19	-0.01	0.64	0.00	-0.23	0.23	0.88

Figure 1: Policy effects in 2020-2021, using the CPI-indexation, %



ANNEX 3. VALIDATION TABLES.

Table 4.2 Number of employed and unemployed

	EUROMOD		External			Ratio		
	2018	2018	2019	2020	2021	2018	2019	2020
Number of employed	7877114	7685000	7839000	7817000	N/A	1.02	1.00	1.01
Number of unemployed	744902	350000	314000	357000	N/A	2.13	2.37	2.09

Note: In this and following tables 2021 official statistics from Statistic Netherlands are not yet available.

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

	EUROMOD	External				Ratio		
	2018	2018	2019	2020	2021	2018	2019	2020
Employment income	8623							
<i>households</i>	5203	5001	5059	N/A	N/A	1.04	1.03	N/A
Self-employment income	1622	1904	1951	N/A	N/A	0.85	0.83	N/A
Property income	1213							
<i>households</i>	695	524	521			1.33	1.33	
Investment income	11143							
<i>households</i>	6985	5455	5090	N/A	N/A	1.28	1.37	N/A

Table 4.4 Market income in EUROMOD -Annual amounts (in millions)

	EUROMOD				External				Ratio		
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020
Average employment income	33121	33905	34261	34261							
<i>households</i>	54894	56193	56783	56783	58112	60233	N/A	N/A	0.94	0.93	N/A
Employment income	285614	292371	295442	295442	290635	304715	N/A	N/A	0.98	0.96	N/A
Self-employment income	43284	44308	44774	44774	58213	61271	N/A	N/A	0.74	0.72	N/A
Property income	3336	3415	3451	3451	4195	4213	N/A	N/A	0.80	0.81	N/A
Investment income	8173	8366	8454	8454	3040	2836	N/A	N/A	2.69	2.95	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	2018	2019	2020
Benefits											
Education benefits	653	813	812	839	N/A	0.80	0.80	0.78			
Other social assistance	344	362	358	356	N/A	0.95	0.96	0.97			
Occupational pensions	3320	3317	3351	N/A	N/A	1.00	0.99	N/A			
Disability benefits	547	566	575	573	N/A	0.97	0.95	0.95			

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
Benefits											
Education benefits	1349	1368	1391	1428	3596	2651	2328	N/A	0.38	0.52	0.60
Other social assistance	2655	2719	2783	2835	3683	3701	3783	N/A	0.72	0.73	0.74
Occupational pensions	49149	49149	49149	49149	44850	46132	N/A	N/A	1.10	1.07	N/A
Disability benefits	8977	9192	9407	9585	9605	9957	10425	N/A	0.93	0.92	0.90

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
Benefits													
Family benefits	1833	1833	1834	1834	1886	0.97	1901	1891	1884	N/A	0.96	0.97	0.97
Child allowance	687	683	691	745	682	1.01	699	707	961	N/A	0.98	0.97	0.72
Care allowance	4260	4343	4425	4512	0	N/A	4400	4400	4200	N/A	0.97	0.99	1.05
Rent allowance	1442	1407	1631	1828	1608	0.90	1330	1310	N/A	N/A	1.08	1.07	N/A
General social assistance	557	553	558	565									
<i>households</i>	475	471	473	478	473	1.01	426	408	416	N/A	1.12	1.15	1.14
Social assistance self-employed (Covid)	0	0	42	44	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Unemployment benefit	556	556	556	556	557	1.00	664	599	578	N/A	0.84	0.93	0.96
State pension	3005	3005	3005	3005	2996	1.00	2908	2984	3055	N/A	1.03	1.01	0.98
Survival benefit	19	19	19	20	47	0.40	26	27	24	N/A	0.73	0.70	0.77
Taxes and Social Insurance contributions													
Income tax	11798	11583	11427	11088	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Social insurance contributions: peoples' insurances	11752	11533	11385	11051	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Employer social insurance contributions	8459	8459	8459	8459	9448	0.90	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Health insurance contributions	14011	14011	14011	14011	0	N/A	13561	13690	N/A	N/A	1.03	1.02	N/A

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
Benefits													
Family benefits	3224	3527	3558	3588	3202	1.01	3361	3636	3649	N/A	0.96	0.97	0.97
Child allowance	1499	1510	1547	1756	1455	1.03	2131	2298	2900	N/A	0.70	0.66	0.53
Care allowance	4488	4844	5147	5414	0	N/A	5295	5523	5801	N/A	0.85	0.88	0.89
Rent allowance	3829	3876	4191	4675	3483	1.10	3964	3997	4223	N/A	0.97	0.97	0.99
General social assistance	4862	4904	4983	5095	4702	1.03	5807	5659	5969	N/A	0.84	0.87	0.83
Social assistance self-employed (Covid)	0	0	305	319	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Unemployment benefit	4420	4525	4631	4718	4480	0.99	4115	3657	3458	N/A	1.07	1.24	1.34
State pension	36104	37172	38155	39063	33983	1.06	35075	36325	37935	N/A	1.03	1.02	1.01
Survival benefit	265	267	272	276	522	0.51	377	356	338	N/A	0.70	0.75	0.81
Taxes and Social Insurance contributions													
Income tax	66561	64307	62875	61079	0	N/A	64400	72100	75700	N/A	1.03	0.89	0.83
Social insurance contributions: peoples' insurances	39922	40601	39357	37392	0	N/A	42700	39400	36700	N/A	0.93	1.03	1.07
Employer social insurance contributions	26593	28299	27260	28173	71002	0.37	25313	27584	29071	N/A	1.05	1.03	0.94
Health insurance contributions	42745	44559	44206	46380	0	N/A	42000	44400	44700	N/A	1.02	1.00	0.99

Table 4.9-Distribution of equivalised disposable income

	EUROMOD				External				Ratio	
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019
D1	4.0	3.9	4.0	4.1	3.6	3.6	N/A	N/A	1.10	1.09
D2	5.8	5.7	5.8	5.8	5.6	5.5	N/A	N/A	1.03	1.04
D3	6.8	6.8	6.8	6.9	6.7	6.5	N/A	N/A	1.01	1.04
D4	7.7	7.7	7.7	7.7	7.6	7.5	N/A	N/A	1.01	1.02
D5	8.6	8.6	8.6	8.6	8.5	8.4	N/A	N/A	1.01	1.02
D6	9.5	9.5	9.5	9.5	9.5	9.4	N/A	N/A	1.00	1.01
D7	10.6	10.6	10.6	10.6	10.6	10.5	N/A	N/A	1.00	1.01
D8	11.9	11.9	11.9	11.9	12.0	11.8	N/A	N/A	0.99	1.01
D9	13.9	13.9	13.9	13.9	14.1	13.9	N/A	N/A	0.99	1.00
D10	21.4	21.4	21.4	21.2	22.0	22.8	N/A	N/A	0.97	0.94
Median	24490	25342	25980	26408	24612	25674	N/A	N/A	1.00	0.99
Mean	27260	28136	28865	29271	27352	28805	N/A	N/A	1.00	0.98
Gini	25.6	25.6	25.5	25.1	26.8	27.5	N/A	N/A	0.96	0.93
S80/S20	3.6	3.6	3.6	3.6	3.9	4.0	N/A	N/A	0.92	0.90

Table 4.10 Poverty rates by gender and age

	EUROMOD				External				Ratio	
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019
40% median HDI										
Total	2.6	2.7	2.6	2.5	3.5	3.3	N/A	N/A	0.74	0.83
Males	2.7	2.9	2.7	2.6	3.6	3.3	N/A	N/A	0.76	0.87
Females	2.4	2.6	2.5	2.4	3.4	3.3	N/A	N/A	0.72	0.78
50% median HDI										
Total	5.5	5.6	5.6	5.2	6.7	7.1	N/A	N/A	0.82	0.79
Males	5.6	5.8	5.7	5.3	6.7	7.0	N/A	N/A	0.84	0.82
Females	5.4	5.5	5.5	5.2	6.7	7.2	N/A	N/A	0.80	0.77
60% median HDI										
Total	12.0	12.2	12.0	11.6	13.2	13.6	N/A	N/A	0.91	0.90
Males	11.9	12.1	11.9	11.4	13.1	13.2	N/A	N/A	0.91	0.92
Females	12.1	12.4	12.2	11.8	13.4	14.0	N/A	N/A	0.91	0.88
70% median HDI										
Total	19.9	20.0	19.9	19.6	21.2	22.0	N/A	N/A	0.94	0.91
Males	19.3	19.4	19.4	19.1	20.4	21.1	N/A	N/A	0.95	0.92
Females	20.5	20.5	20.4	20.0	22.0	22.9	N/A	N/A	0.93	0.90
60% median HDI										
0-15 years	14.2	14.4	14.1	13.6	13.4	15.1	N/A	N/A	1.06	0.95
16-24 years	24.2	24.5	24.0	23.9	23.2	21.0	N/A	N/A	1.04	1.17
25-49 years	10.3	10.5	10.4	10.1	10.8	11.5	N/A	N/A	0.96	0.92
50-64 years	11.0	11.3	11.1	10.7	12.2	13.1	N/A	N/A	0.90	0.86
65+ years	6.8	7.0	6.8	6.1	11.8	11.6	N/A	N/A	0.58	0.60

Table 4.11 Minimum wage validation

	Baseline				Min Wage Incl.				Ratio			
	2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
Equivalised disposable income	323063	333481	342206	347189	324992	335490	344448	349599	0.99	0.99	0.99	0.99
Employment income	285614	292371	295442	295442	288129	294947	298278	298445	0.99	0.99	0.99	0.99
Total income tax	66561	64307	62875	61079	66630	64371	62941	61140	1.00	1.00	1.00	1.00
Social insurance contributions: peoples' insurances	39922	40601	39357	37392	40095	40759	39515	37532	1.00	1.00	1.00	1.00
General social assistance	4862	4904	4983	5095	4652	4694	4765	4870	1.05	1.04	1.05	1.05
Gini coefficient	25.6	25.6	25.5	25.1	25.3	25.3	25.2	24.8	1.01	1.01	1.01	1.01
Poverty rate (60% median HDI)	12.0	12.2	12.0	11.6	11.5	11.7	11.4	11.0	1.05	1.05	1.06	1.05