

# **EUROMOD**

## **COUNTRY REPORT**



## **GREECE (EL)**

### **2016-2019**

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

EUROMOD has been enlarged to cover 28 Member States and is updated to recent policy systems using data from the European Union Statistics on Income and Living Conditions (EU-SILC) as the input database, supported by DG-EMPL of the European Commission.

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

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The results presented in this report are derived using EUROMOD version I2.0. EUROMOD is continually being improved and the results presented here may not match those that would be obtained with later versions of EUROMOD.

For more information, see: <https://www.euromod.ac.uk>

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## 1. BASIC INFORMATION

### 1.1 Basic information about the tax-benefit system

- The tax-benefit system is a unified, national system.
- The fiscal year runs from 1<sup>st</sup> January to 31<sup>st</sup> December.
- The public pension system in Greece is the cumulative product of a series of fragmentary measures and legislative initiatives. This fragmentation can be seen in terms of the following dimensions:
  - *Organisational arrangements by sector of employment.* The provision of pension varies by occupation or profession of the insured. They are provided by a multiplicity of social insurance agencies or “funds”. The conditions of pension provision (retirement ages, replacement rates, contributions etc.) vary significantly, chiefly by pension fund, though there remains considerable variability within funds by occupational subgroups. In 2017 all funds providing main pensions were consolidated into one (*ΕΦΚΑ*).
  - *Differences by date of first contact with the system.* A new system was created for those entering the labour market after 1<sup>st</sup> January 1993, which is essentially uniform for the non-rural social insurance sector. Another system is also created for those entering the labour market after 1<sup>st</sup> January 2016. The general retirement age for those who began working after this date is 67 for both men and women.
- Minimum school leaving age is 15.
- The definition of dependent children varies. Two examples are listed below:
  - dependent children for non-contributory large family benefits are defined as (a) unmarried, aged under 23, (b) suffering from any kind of disability over 67% irrespective of age.
  - dependent children for taxation purposes are defined as: (a) unmarried, aged under 18, (b) unmarried, aged under 20 and registered in ΟΑΕΔ as unemployed, (c) unmarried, aged under 25 and enrolled in post-secondary or tertiary education or fulfilling their military service, (d) unmarried, aged under 27, enrolled in post-secondary or tertiary education and registered in ΟΑΕΔ as unemployed, (e) suffering from any kind of disability over 67% irrespective of age.
- Any single person living with one or more children defined as dependent for taxation purposes is considered to be a lone parent.
- Even though spouses file a joint tax report, their income is taxed individually. Some tax allowances and tax credits are shared between spouses in proportion to their taxable income.
- Taxable income is reported under various categories namely employment, property, investments, commerce, agriculture and professions. These income sources are added together before allowances and deductions are taken into account in order to derive total taxable income. Corporate profits are taxed at a flat rate. Different rules and tax rates also apply to gains from the sale of real estate located in Greece.
- All employees and self-employed are required by law to file a tax return in spring of year *x* for fiscal year *x-1* (all persons except from those defined as dependent children

are required to file a tax return since 2013). When the tax return is cleared, a supplementary tax may be due. The supplementary tax can be negative (i.e. when one's tax withholdings exceed one's final income tax liability) but is usually positive. Tax withholdings are designed in such a way that taxpayers whose sole source of income is dependent employment with a single employer find that tax withheld matches their entire tax liability (i.e. their supplementary tax is zero).

- There is no single indexing regime for taxes and benefits. Indexation of benefits is usually ad hoc and sometimes skipped altogether. Revaluation policy is erratic, with some benefits receiving higher rises than others, for no apparent reason and with no explanation given.
- Income thresholds for some benefits often fail to keep pace with inflation or are left unchanged in nominal terms. Moreover, the income concept applied when assessing claims varies between benefit agencies. These practices often give rise to inconsistencies and distortions of the original benefits' design.
- All tax and benefit rates provided below are those valid in 30<sup>th</sup> June of each respective year.

### 1.2 Minimum wage

The system for setting wages is different for workers in the private sector and workers in the public sector. In the public sector pay is determined by law, according to the government's annual income policy. Various levels of minimum wage are set, depending on level of education, years of service and hierarchical grade etc.

In the private sector, collective agreements set wages at various levels (national, per sector, enterprise-level). The basis for setting wages is the National General Collective Labour Agreement (*ΕΓΣΣΕ*), which sets the overall minimum wages for white and blue-collar workers. The amount of minimum pay varies depending on a worker's years of service, level of education and family status. On the sectoral level, the industry-wide collective agreements set minimum levels for the workers that they cover. Finally, enterprise-level agreements set minimum wages for workers in individual enterprises. Sectoral and enterprise-level agreements are not allowed to contain less favourable provisions than the *ΕΓΣΣΕ*'s. In 2012 the government imposed a 22% cut on the standard minimum monthly wage of €751. For those under 25, the reduction was even more severe and reached 32%. The minimum wage remained frozen from 2012 until 2018 and was increased by 11% in February 2019; the sub-minimum wage for those under 25 was also abolished.

### 1.3 Social Benefits

***IKA old-age pension (σύνταξη γήρατος IKA):*** *IKA* is the social insurance fund for most dependent workers outside the civil service, banks and the utilities. The standard age of retirement is 67 for men and 62 for women, but various exceptions apply. Also, a *reduced pension* may be granted from the age of 57 for women or 62 for men, provided they meet the contributions requirement. A *minimum pension* is paid to retirees whose contributions record and pensionable earnings would have entitled them to an “organic amount” below a certain level. A new pension structure was established for new pensions provided since May 2016. The structure combines a tax-funded basic pension with a contributory proportional pension. Since January 2017 these pensions are provided by *ΕΦΚΑ*.

***IKA survivors' pension:*** in case of death of an insured worker or pensioner, the closest relatives may be entitled to a survivors' pension. Beneficiaries include: a) the surviving spouse;

b) the worker's or pensioner's children – provided they are unmarried, do not work, do not receive a pension and are aged below 18 years (24 if in full-time education); c) the worker's or pensioner's adult children – provided they are disabled or unfit for employment and whose disability started before they were 18; d) the worker's or pensioner's grandchildren – provided they are orphaned and were supported by the deceased; e) the worker's or pensioner's parents – provided they were supported by the deceased. The level of IKA survivor's pension depends on the person(s) entitled to it. For workers first insured *after 1<sup>st</sup> January 1993*, only the surviving spouse and orphaned children may be beneficiaries.

**OAEF old age pension (σύνταξη γήρατος OAEF):** OAEF is the social insurance fund for most self-employed workers, except those in the “liberal professions” of medicine, law and engineering. For workers first insured *before 1<sup>st</sup> January 1993*, the standard age of retirement is 67 (since 2013) for those with a contribution record of at least 15 years, or 60 for those with a contributions record of 35 years. From 2007 all self-employed workers insured with OAEF, irrespective of the date they were first insured, are placed in 14 insurance classes. Contribution rates and pension benefits rise with insurance class. For self-employed workers first insured *after 1<sup>st</sup> January 1993*, the standard age of retirement is 67 for both women and men. Pension benefits are calculated on the basis of (a) contributions record of at least 15 years, and (b) pensionable earnings calculated as the last five years prior to retirement. Furthermore, a *reduced pension* may be granted from the age of 62, for those with a contributions record of at least 15 years. A *minimum pension* is paid to retirees whose contributions record and pensionable earnings would have entitled them to an “organic amount” below a certain level, set at 70% of the minimum wage. In 2017 insurance classes were abolished and these pensions are also provided by ΕΦΚΑ.

**Civil servants old age pension (σύνταξη δημοσίων υπαλλήλων):** the standard age of retirement is 67 for both women and men. A *reduced pension* may be granted from the age of 62. A *minimum pension* is paid to retirees whose contributions record and pensionable earnings would have entitled them to an “organic amount” below a certain level, set at 70% of the minimum wage. Until May 2016 pension benefits were calculated on the basis of (a) contributions record of at least 15 years, and (b) pensionable earnings calculated as the last five years prior to retirement. After that, pension benefits are calculated on the basis of lifetime contributions.

**OΓA contributory pension (κύρια σύνταξη γήρατος OΓA):** active farmers are allocated to seven insurance classes. Contribution rates and pension benefits rise with insurance class. Since 2013 the age of retirement is 67 for both men and women. One more year of compulsory insurance was added every year until 2013, when the official minimum limit of 15 years was reached. The accrual rate is 2%. In 2017 insurance classes were abolished and these pensions are also provided by ΕΦΚΑ.

**OΓA basic pension (βασική σύνταξη γήρατος OΓA):** since 2013 this basic pension is paid on reaching the age of 67 to men and women who have worked as farmers for at least 25 years and do not receive a pension from any other social insurance fund. The basic pension is phased out as the new contributory pension for farmers (see above) is phased in.

**Social pension (σύνταξη ανασφαλιστών υπερηλίκων):** social pension is paid to the non-insured elderly, aged above 67 on a means-tested basis. Supplements are paid for a dependent spouse below 67 or children below 18. For more information, see section 2.4.1.

**Pensioners' social solidarity benefit (ΕΚΑΣ):** an income-tested supplement to low pensions, restricted to those receiving a contributory social insurance pension. Beneficiaries must be over 60 (65 since 2014) if in receipt of an old age pension or a survivor pension. The age condition does not apply to recipients of invalidity or orphans' pensions. The benefit amount is paid at four rates (five since 2011, just one since 2018) depending on the beneficiaries' level of income.



It is being gradually abolished since 2017 and will be fully abolished in 2020. It is not taxed (since 2008). For more information, see section 2.4.2.

**Pension benefits adjustments:** as of 2013, means-tested, lump sum Easter, Christmas and vacations bonuses that were paid to pensioners above 60 were abolished. In the period between September 2017 and December 2018 the personal monthly amount of pension income exceeding €2,000 was suspended. Additionally, an upper threshold equal to €3,000 per month was set on the sum of the net amount of all pension incomes. In 2019, a 13<sup>th</sup> pension instalment was again provided. For more information, see section 2.4.7.

**Temporary pension cuts:** since 1<sup>st</sup> November 2011, all pensioners below 55 with main old-age pensions exceeding €1,000 (after all solidarity contributions have been deducted) are subject to a 40% cut. Pensioners below 55 with main old-age pensions exceeding €1,200 are subject to a 20% cut. Since 1<sup>st</sup> January 2012, main old-age pensions exceeding €1,300 (after the deduction of solidarity contributions) are subject to a 12% cut. Supplementary pensions are subject to additional progressive cuts. For more information, see section 2.4.8.

**Supplementary pension recalculation:** in May 2016 supplementary pensions were recalculated for a part of pension recipients. Their new amounts depended on the fund providing the pension. For more information, see section 2.4.9.

**Main pensions recalculation:** in 2019 main pensions were recalculated for all pension recipients. For more information, see section 2.4.10.

**Unemployment insurance benefit (επίδομα ανεργίας):** dependent workers may be eligible for this benefit if they are involuntarily unemployed, capable and available for work, have an adequate contributory record and are registered with an *OAEA* employment office. Since 2012 the benefit rate is €360 per month. The rate is raised by 10% for each dependent family member. Since 2013 the benefit is also granted to self-employed workers. Its duration is a function of contributory record; it is payable for at most 12 months, average duration being seven months. A part of the benefit is still payable if the person finds an occasional or part-time employment of up to three non-consecutive days per week. For more information, see section 2.4.6.

**Unemployment assistance benefit (επίδομα μακροχρονίως ανέργων):** this benefit is paid to unemployed for more than 12 months who are aged 45-65 (22-66 since 2014) and are not receiving the unemployment insurance benefit (see above). It is means-tested and payable for a maximum period of 12 months. The level of the benefit is set at €200 per month (unchanged since 2003). For more information, see section 2.4.5.

**Seasonal unemployment benefit (εποχιακά βοηθήματα):** payable as a lump sum to occupational groups characterized by a pattern of seasonal employment (builders, tobacco workers, actors, ceramists, forest workers, musicians, etc). Different rates and conditions apply according to the occupational group a worker belongs.

**Benefit for young persons aged 20-29 (επίδομα σε νέους/ες 20-29 ετών):** payable to persons aged 20-29 only if they are out of work and remain in the unemployed record for one year. It was abolished in May 2017.

**Contributory family allowances:** they are automatically added to civil servants' and baking employees' pay. Lower allowances are also paid by *OAEA* to private sector employees irrespective of social insurance affiliation. They are taxed.

**Large family benefit (πολυτεχνικό επίδομα):** it is paid to families and lone parents with three or more children, (of any age and irrespective of whether they live together with their parents or not) as well as children orphaned from both parents if they are two or more. The benefit is

claimed by the mother, unless she is dead or has left the household, in which case it is drawn by the father. It is paid for every child of the family that is unmarried and aged less than 23 years old or suffering from any kind of disability over 67% irrespective of age. A means test and new eligibility conditions were added in 2013. In 2018 the benefit was reformed and integrated into child benefit. For more information, see sections 2.4.3 and 2.4.4.

**Child benefit (ενιαίο επίδομα τέκνων/ επίδομα παιδιού):** it was established in 2013. It is paid monthly to families with one or more children that are considered as dependent for taxation purposes. The benefit rates are related to the household's equivalent income. Three rates apply (full rate, 2/3 and 1/3 of the full rate). The benefit was substantially reformed in 2018. For more information, see section 2.4.3.

**Unprotected children benefit (επίδομα απροστάτευτων παιδιών):** this is a minor monthly means-tested benefit, paid to each unprotected child up to the age of 16. It was abolished in May 2017.

**Income support to families with children in compulsory education (σχολικό επίδομα):** it is a means-tested benefit paid to families with children aged 6 to 16 on the condition that they are in compulsory education. Since 2011 means-testing is (partly) done on a presumptive basis, not allowing for the simulation of the benefit. It was abolished in May 2017.

**Sickness / accident allowance (επίδομα ασθένειας / εργατικού ατυχήματος):** civil servants and workers insured with *IKA* (*ΕΦΚΑ* since 2017) are entitled to sickness allowance. The period of receipt is conditional on prior contributions. It is taxed as income. In case of an accident at work, they are also entitled to accident allowance with no eligibility conditions related to prior contributions. No benefit is paid for the first three days of absence. Workers insured with *OAEΕ* are entitled to accident allowance when an accident at work leaves them unfit for work for at least 30 days. The allowance can be paid for up to four months and it is taxed. *OAEΕ* pays no sickness allowance.

**Maternity or “pregnancy-confinement” allowance (επίδομα κνοφορίας-λοχείας):** it is paid to civil servants and to workers insured with *IKA* and *ΟΓΑ* (*ΕΦΚΑ* since 2017). It is not taxed. Working women insured with *IKA* are entitled to maternity allowance provided that they have accumulated a minimum of 200 insurance days in the 24 months before delivery. It is paid for 17 weeks (8 weeks before and 9 after child birth). Civil servants' maternity allowance is paid for a total of five months (two months before and three months after child birth). In the case of farmers, the allowance is paid as a lump-sum.

**Birth grant (επίδομα τοκετού):** since 2012 a lump-sum benefit equal to €900 is provided only if the childbirth does *not* take place in a (public or private) hospital.

**Death or “funeral expenses” grant (έξοδα κηδείας):** it is paid as a lump-sum by all social insurance funds in case of death of an insured employee, self-employed or pensioner. It is not taxed.

**Birth grant to non-insured (επίδομα μητρότητας ανασφαλιστών):** those unable to claim maternity benefit from an insurance fund, either because they failed to meet the contributory conditions or because they were uninsured, can apply for this grant, paid as a lump sum and administrated by local government at prefecture level. It is not taxed.

**Contributory disability benefits:** most social insurance funds provide contributory disability benefits and invalidity pensions, related to the contribution history or the employment status of their members. No contributory record is required for invalidity pensions paid to insured workers who suffered from an accident at work or an occupational disease, provided it resulted to a degree of disability of at least 50%. The most important disability benefit is the “extra-institutional benefit” (*εξωιδρυματικό επίδομα*), paid to pensioners suffering from quadriplegia -

paraplegia over 67% or other conditions with the same effects on mobility. Disability benefits are not taxable whereas invalidity pensions are subject to taxation.

**Non-contributory disability benefits:** they are administrated by local government at the prefecture level and funded out of general taxation. Although not explicitly income tested, most of them are reduced or withdrawn if the recipient is in employment, a pensioner, or in receipt of invalidity pension. They are highly heterogeneous by type of disability (i.e. blindness benefit, severe mental retardation benefit etc.) and sometimes by category of recipient, but almost 60% of beneficiaries are in receipt of ‘severe disability benefit’ (*επίδομα βαριάς αναπηρίας*). They are not taxed.

**Lump-sum benefit to low-paid pensioners (*έκτακτη οικονομική εισφορά σε χαμηλοσυνταξιούχους*):** this benefit was paid to low-paid pensioners as a lump-sum in 2011 and 2016. Its rate in 2016 varied from €300 to €850, depending on recipients’ pension level. For more information, see section 2.4.15.

**Rent allowance (*επίδομα ενοικίου*):** it is a means-tested benefit that was initially implemented from April to December 2015 and then expanded until the end of 2016. It is granted to low-income families who rent a house as their main residence. The benefit amount ranges from €70 up to €220 per month depending on the household composition. It is not taxed. For more information, see section 2.4.13.

**Housing benefit (*στεγαστικό επίδομα*):** it is a means-tested benefit that was legislated in 2019. It is granted to low-income/asset families who rent a house as their main residence. Its amount ranges from €70 up to €210 per month depending on the household composition. It is not taxed. For more information, see section 2.4.16.

**Housing benefit for non-insured elderly (*στεγαστική συνδρομή ανασφαλιστών*):** this is a non-contributory benefit, administrated by local government at prefecture level. It is paid directly to landlords on behalf of uninsured persons aged over 65 on low income. It is not taxed.

**Student housing benefit (*φοιτητικό στεγαστικό επίδομα*):** it is a means-tested benefit, paid for every dependent child enrolled in tertiary education residing in a town other than his/her family’s main residence.

**Emergency social help (*ειδικό επίδομα άμεσης προστασίας*):** paid as a lump sum for families suffering loss of life or whose home was damaged due to natural disasters.

**Special allowance for released prisoners (*επίδομα αποφυλακισμένων*):** this is paid to recently released non-reoffending prisoners within two months of their release for a period of three months. The allowance is indexed to unemployment benefit. Since 2010, it became means-tested.

**Special allowance for repatriated Greeks (*επίδομα παλλινιστούντων*):** this allowance is paid to political refugees who left Greece during the civil war or to ethnic Greeks from the countries of Eastern Europe, provided they are on the *ΟΑΕΔ* unemployed lists. It is indexed to unemployment benefit and it is paid thrice, once every four months.

**Benefit for households in less favoured areas (*εισοδηματική ενίσχυση ορεινών και μειονεκτικών περιοχών*):** it is paid to households residing in one of a list of ‘less favoured areas’. It is income-tested.

**Social dividend (*κοινωνικό μέρος*):** this benefit was awarded as a lump sum in 2014 to those on low incomes, on the basis of 2012 tax returns information. The government financed it using part of the primary budget surplus achieved in the previous year to support the poorest part of the population. It was provided again in 2017 and 2018. For more information, see section 2.4.11.

**Guaranteed minimum income (κοινωνικό εισόδημα αλληλεγγύης):** this benefit was established in 2017. It is a means-tested benefit given to low-income households on a monthly basis. It is not taxed. For more information, see section 2.4.14.

- *Not strictly benefits*

**Social contributions rebate for low earners (επιδότηση εργατικής εισφοράς χαμηλομίσθων):** it is targeted to minimum wage earners as a rebate of their *IKA* social contributions for pension insurance (6.67% of gross earnings).

**Food stamps (επιδότηση σίτισης):** it is a means tested benefit that was awarded to low income families from April 2015 to the end of 2016. The amount of benefit was ranged from €70 up to €220 per month depending on the household composition. For more information, see section 2.4.12.

#### 1.4 Social Insurance Contributions

**Pensioners:** pensioners' social insurance contributions (SIC) are levied at a flat 6% of pension income. Such contributions pay for sickness insurance and are deducted at source. For more information, see sections 2.5.5 and 2.6.4.

##### *EMPLOYED - UP TO 2016*

**Private sector employees (IKA):** the main social insurance fund for employees in the private sector is *IKA*. All workers insured with *IKA* pay contributions at a flat rate of their “reference earnings”. Reference earnings reflect the notional wage for every one of *IKA*'s 28 insurance classes, where private sector employees are placed according to their actual earnings. Employers' contributions are also charged at a flat rate of reference earnings. Hazardous occupations are subject to extra contributions. An upper earnings threshold applies. *IKA* contributions are deducted at source, and pay for pension and sickness insurance. In addition to *IKA* contributions, *IKA* workers (and their employers) also pay contributions for related benefits: to *OAEA* for family and unemployment benefits, to *OEK* for housing benefits, and to *OEE* for various other benefits. For more information, see sections 2.5.1 and 2.5.2.1.

**Self-employed workers (OAEE):** the main social insurance fund for self-employed workers is *OAEE*. Social contributions for self-employed workers are set at fixed amounts per insurance class, according to a schedule revised annually. *OAEE* contributors are allocated to 14 insurance classes (ten compulsory and four optional). *OAEE* members are placed in the 1st (lowest) class, then transferred to the next after three years. Contributions were also (partly) harmonised for those first insured before 1st January 1993. For more information, see section 2.5.3.

**Civil servants:** civil servants, with the exception of public enterprise employees, pay social contributions for pension and sickness insurance. Pension insurance includes primary and supplementary pension, plus a separation benefit paid as a lump sum and some additional benefits. For more information, see section 2.5.2.2.

**Public enterprise workers:** persons working in (formerly) public utilities are insured in a variety of enterprise-specific insurance schemes. Compared to *IKA*, these schemes generally levy higher contributions and provide more generous benefits. In 2008 public enterprise workers' social insurance funds were merged with *IKA*. For more information, see section 2.5.2.3.

**Banking employees:** employees of (formerly) state-controlled banks are insured in separate social insurance schemes, generally levying higher contributions and providing more generous

benefits. In 2008 banking employees' social insurance funds were merged with IKA. For more information, see section 2.5.2.4.

**Liberal professions:** medical doctors, lawyers, journalists and engineers are considered as liberal professions. The relevant social insurance funds insuring these categories are collectively known as “noble funds” for the high level of benefits and quality of services they usually provide. For more information, see sections 2.5.2.5.

**Farmers (ΟΓΑ):** persons active in agriculture and related occupations such as fishing, as well as those active in other sectors but resident in rural areas (defined as settlements with a population below 2,000) are all insured with the farmers' social insurance fund ΟΓΑ. Persons insured with ΟΓΑ voluntarily choose to be placed in one of the seven available insurance classes. Contributions for pensions and sickness insurance are set as a proportion of the notional income that corresponds to each insurance class. For more information, see section 2.5.4.

### **EMPLOYED - SINCE 2017**

A Unified Social Security Institution (**ΕΦΚΑ**) was established on 1 January 2017. **ΕΦΚΑ** operates as a single administrative and financial organisation, and those insured by it (i.e. those previously insured in **ΙΚΑ**, **ΟΑΕΕ**, **ΟΓΑ**, banking employees, civil servants, public enterprise workers and liberal professions) are subject to uniform rules and contributions and receive unified benefits. For more information, see section 2.6.

## **1.5 Taxes**

**Personal income tax (φόρος εισοδήματος φυσικών προσώπων):** it applies to income from dependent employment, liberal profession, commercial activities, agricultural activities, property, investment etc. With the exception of some cases that are treated separately, all income is added together before allowances and deductions are taken into account. Married couples fill in a joint tax return, even though each spouse's income is taxed separately. The list of tax allowances and tax credits is revised on an annual basis. Taxable income is subject to a progressive tax schedule. An important personal income tax reform took place in 2016, changing the tax rates of different tax brackets and altering employment income tax credit. For more information, see section 2.7.

**Corporate income tax (φορολόγηση εισοδήματος νομικών προσώπων):** companies registered as *Sociétés Anonymes (S.A.)*, other than banks and insurance companies, are taxed on their total net income or profit derived from business activities in Greece or abroad. Distributed profits are net of corporate income tax.

**Interest income tax (φόρος επί τόκων καταθέσεων):** interest on bank deposits is taxed at 15% since 2013. For more information, see section 2.8.1.

**Value added tax (φόρος προστιθέμενης αξίας):** two VAT rates apply: a *lower rate* (13% from 1<sup>st</sup> January 2011), applicable to some basic commodities and services; and a *higher rate* (23% in 2015 and 24% from 1<sup>st</sup> June 2016), applicable to all other items. Books and print are subject to half the lower rate.

**Self-employed and liberal professions contribution (τέλος επιτηδεύματος):** a special levy paid since 2010 by self-employed and liberal professionals. The amount of tax depends on where the business activity takes place and its duration. For more information, see section 2.8.4.

**Joint tax on the ownership of real estate (Ενιαίος Φόρος Ιδιοκτησίας Ακινήτων ΕΝΦΙΑ):** In 2014, the emergency property tax was replaced by a joint tax on the ownership of real estate. The tax is divided into a “primary” and a “supplementary” part. For more information, see section 2.8.5.



**Real estate transfer tax (φόρος μεταβίβασης ακινήτου):** the transfer of property is taxed according to *cadastral values*. A progressive tax schedule applies. A 3% *municipality tax* on real estate transfer tax is also applicable. The real estate transfer tax is paid only by the buyer of the property in any transaction of the property.

**Pensioners' solidarity contribution (εισφορά αλληλεγγύης συνταξιούχων):** since 1<sup>st</sup> August 2010 main pensions exceeding €1,400 per month are subject to taxation. The tax rates vary from 3% to 14%. Since 1<sup>st</sup> August 2011 pensioners below 60 with main pensions exceeding €1,700 per month are subject to an additional solidarity contribution. Its rates vary from 6% to 10%. Since 1<sup>st</sup> August 2011 supplementary pensions exceeding €300 per month are also subject to taxation. The tax rates vary from 3% to 10%. For more information, see section 2.8.2.

**Temporary pension reductions (προσωρινές περικοπές συντάξεων):** since 1<sup>st</sup> November 2011, all pensioners below 55 with main old-age pensions exceeding €1,000 are subject to a 40% reduction. Pensioners below 55 with main old-age pensions exceeding €1,200 are subject to a 20% reduction. Since 1<sup>st</sup> January 2012, main old-age pensions exceeding €1,300 (after the deduction of solidarity contributions) are subject to a 12% reduction. Supplementary pensions are subject to additional progressive cuts. Since 1<sup>st</sup> January 2013 if the sum of main and supplementary pensions exceeds €1,000, they are further reduced. For more information, see section 2.8.6.

**Solidarity contribution (εισφορά αλληλεγγύης):** this emergency measure applied retrospectively from 2010 onwards. Individuals with taxable incomes exceeding €12,000 are taxed; the tax rates vary from 2.2% to 10% in 2016-19. For more information, see section 2.8.3.

**Inheritance tax (φόρος κληρονομιάς):** property and other assets transferred as gifts and bequests are subject to inheritance tax. The tax rates vary according to the amount of inheritance and the degree of the relationship between taxpayer and donor.

**Regional and municipal taxes (δημοτικά τέλη ακίνητης περιουσίας):** a number of individual flat taxes and duties are paid to local authorities, at rates set locally. They are collected with electricity bills, and apply to the cadastral values of flats and houses.

**Excise duties (φόροι κατανάλωσης):** special consumption taxes apply for alcohol, tobacco, fuel and luxury goods.

## 2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

### 2.1 Scope of simulation

EUROMOD is a cross-country comparative benefit-tax model. The model simulates a variety of taxes and benefits. However, not all taxes and benefits mentioned in section 1 are simulated. Some are entirely beyond the scope of the model, and are not included either in the EUROMOD input database or as output variables, while others are included as output variables, as it is impossible to be simulated. Tables 2.1 and 2.2 classify the main tax and benefit instruments according to how each is treated in EUROMOD, and provide a brief explanation as to why the instrument is not fully simulated when this is the case.

#### 2.1.1 Part-simulated tax-benefit components

The unemployment benefit (bunct\_s) is part-simulated; as not all required information (e.g. unemployment history) is available in the SILC data, benefit recipients are imputed using information on the reported receipt of the respective benefit in the SILC data. Therefore, the benefit simulation is conditional on the reported benefit receipt in the micro-data. Also, the 2019

ENFIA (tpr\_s) is part-simulated, as the tax itself is taken directly from the data and only its reduction is simulated in the model.

Table 2.1 Simulation of benefits in EUROMOD

	Variable name	Treatment in EUROMOD				Why not fully simulated?
		2016	2017	2018	2019	
<b>Retirement benefits/pensions</b>						
Main old age pension	poa00	I	I	I	I	1
Supplementary old age pension	poacm	I	I	I	I	1
Other minor old age pensions	poaot	I	I	I	I	
Survivors pension	psuwd	I	I	I	I	1
Orphans pension	psuor	I	I	I	I	1
Pensioners' social solidarity benefit	boact_s	S	S	S	S	
Social pension	boanc_s	S	S	S	S	
Abolishment of 13 <sup>th</sup> and 14 <sup>th</sup> pension and compensations	pxp_s	S	S	S	S	
Temporary pension reductions	prd_s	S	S	S	S	
Supplementary pension recalculation	poacm_s	S	S	S	S	
Gross pensions cap	penscap_s	-	S	S	-	
Main pensions recalibration	pxp03_s	-	-	-	S	
<b>Unemployment benefits</b>						
Unemployment insurance	bunct_s	PS	PS	PS	PS	1
Unemployment assistance for older workers	bunnc_s	S	S	S	S	
Other (minor) unemployment benefits	bunot	I	I	I	I	2
<b>Family benefits</b>						
Large family benefit	bfa1g_s	S	S	-	-	
Child benefit	bch_s	S	S	S	S	
Civil servants family benefit	bfacs	I	I	I	I	2
Income support to families with children in compulsory education	bched	I	I	-	-	2
Other (minor) family benefits	bfao1	I	I	I	I	2
<b>Sickness – maternity benefits</b>						
Sickness benefits	bhl	I	I	I	I	1
Maternity benefits	bmact	I	I	I	I	1
Maternity leave benefit	bfama_s	S	S	S	S	
Parental leave benefit	bfapl_s	S	S	S	S	
<b>Disability benefits</b>						
Disability pensions (contributory)	pdi	I	I	I	I	1
Disability benefits (non-contributory)	bdi	I	I	I	I	2
<b>Housing benefits</b>						
OEK housing benefits	bho	I	I	I	I	2
Rent allowance	bho_s	S	-	-	-	
Housing benefit	bho00_s	-	-	-	S	
<b>Scholarships and grants</b>						
Scholarships and grants	bed	I	I	I	I	2
<b>Social assistance benefits</b>						
Social dividend	bsamttm_s	-	S	S	-	

Food stamps	bsamt_s	S	-	-	-	
Guaranteed minimum income	bsa00_s	-	S	S	S	
Lump-sum benefit to low-paid pensioners	boaxp_s	S	-	-	-	
Other social assistance benefits	bsaot	I	I	I	I	2
<b>Minimum wage</b>	yem	S	S	S	S	

Notes: “-”: policy did not exist in that year;  
 “E”: *excluded* from the model as it is neither included in the micro-data nor simulated;  
 “I”: *included* in the micro-data but not simulated;  
 “PS”: *partially simulated* as some of its relevant rules are not simulated;  
 “S”: *simulated* although some minor or very specific rules may not be simulated;  
 “1”: no data on contribution history;  
 “2”: data available not sufficient to simulate all eligibility conditions.

Table 2.2 Simulation of taxes and social insurance contributions in EUROMOD

	Variable name(s)	Treatment in EUROMOD				Why not fully simulated?
		2016	2017	2018	2019	
<b>Taxes</b>						
Personal income tax	tin00_s	S	S	S	S	<i>except for some tax credits</i>
Corporate income tax	-	E	E	E	E	1
Interest income tax	tinktdt_s	S	S	S	S	
Value added tax	-	E	E	E	E	1
Real estate transfer tax	-	E	E	E	E	1
Solidarity contribution	txc00_s	S	S	S	S	
Pensioners’ solidarity contribution	txcpe_s	S	S	S	S	
Additional taxes on pensions	txcpe00_s	S	S	S	S	
Self-employed and liberal professions contribution	txcse_s	S	S	S	S	
Joint tax on ownership of real estate	tpr_s	IO	IO	IO	PS	
Capital gains tax	-	E	E	E	E	1
Regional and municipal taxes	-	E	E	E	E	1
Excise duties	-	E	E	E	E	1
<b>Social insurance contributions</b>						
Employers	tscer*_s					
Private sector		S	S	S	S	<i>IKA</i>
Employees	tscee*_s					
Private sector		S	S	S	S	<i>IKA</i>
Civil servants		S	S	S	S	<i>civil servants scheme</i>
Public enterprise workers		S	S	S	S	<i>TAII-OTE</i>
Banking employees		S	S	S	S	<i>ETE</i>
Liberal professions		S	S	S	S	<i>TΣAY</i>
Self-employed	tscse*_s					
liberal professions		S	S	S	S	<i>TΣAY</i>
own account workers		S	S	S	S	<i>TEBE</i>
other self-employed		S	S	S	S	<i>TAE</i>
Farmers	tscfr*_s	S	S	S	S	<i>OFA</i>
Pensioners	tscbesi_s	S	S	S	S	

Notes: “-”: policy did not exist in that year;  
 “E”: policy is *excluded* from the model’s scope as it is neither included in the microdata nor simulated by EUROMOD;



- “PS”: policy is *partially simulated* as some of its relevant rules are not simulated;
- “S”: policy is *simulated* although some minor or very specific rules may not be simulated.
- “IO”: *included* in the micro-data, simulated but switched off in the baseline.

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

As of 01/01/2017, all social insurance contributions are provided by one fund (*EΦKA*). The rules for individuals earning employment and, especially, self-employment income have changed considerably. For more information see section 2.5.

Food stamps and rent allowances were abolished and guaranteed minimum income (GMI) was introduced on a national basis. Pensioners' social solidarity benefit (*EKAS*) amount was halved and a €2,000 cap was imposed on gross pensions (October 2017). Finally, a social dividend was paid in 2017 as a lump-sum.

- ***Structural changes between 2017 and 2018***

In 2018 the child benefit policy was revised substantially. The large family benefit was integrated into child benefit. The contribution basis for self-employed social insurance contributions (SIC) was also modified and *EKAS* was reduced to €35 per month. Finally, the 1.5% tax credit for employment and pension income was abolished.

- ***Structural changes between 2018 and 2019***

In 2019 minimum wage was substantially increased; this led to an increase in the unemployment insurance benefit, which is linked to the minimum wage. *EKAS* was further reduced to €12 per month, a new housing benefit was introduced, and no social dividend was paid out. Main pensions were recalculated and (slightly) increased for those with a positive personal difference. The €2,000 cap on gross pensions was abolished and a 13<sup>th</sup> pension instalment was provided. Employer's main pension contributions were halved for individuals aged less than 24, the contribution base for self-employed and farmers SIC was increased, and their SIC rates for main pensions were decreased. Finally, *ENΦIA* was reduced up to 30%.

## 2.2 Order of simulation and interdependencies

The following table shows the order of policies' simulation in the Greek system in 2016-2019. The policy spine starts with various 'switches', such as tax compliance, benefit non take-up and minimum wage. The latter changes employment income for those observed below the legal limit and is switched off in the baseline scenario. More information on switches is provided in the following section. After minimum wage, the model simulates an upper limit in civil servants' pay, the suspension of OEK housing benefit, the abolishment of 13<sup>th</sup> and 14<sup>th</sup> pensions and compensations. Employer and employee SIC – which are levied on employment income – self-employed (including farmers) SIC are simulated afterwards. Unemployment insurance benefits and family benefits are simulated before the income tax, as, since 2010, they are potentially taxable. Pensioners' solidarity contributions – which are levied on pension income – are also simulated before the income tax. The last elements of the spine include untaxed benefits and additional taxes.

Further characteristics which affect the order of simulations:

- Unemployment insurance benefit is included in the means-test of social pension and affects the calculation of unemployment assistance for older workers. It is also included

in the tax base for solidarity contribution and income concept for social dividend and property tax means test.

- Child benefit is included in the means-test of social pension.
- EKAΣ is included in the tax base for solidarity contribution and income concept for social dividend and property tax means test.
- EKAΣ, 3<sup>rd</sup> child benefit, child benefit and large family benefit are included in the means-test of unemployment assistance for older workers. The latter became taxable in 2010, therefore, requiring the income tax policy to be run twice.
- Pensioners' solidarity contributions, temporary pension reductions and pensioners' SIC are run twice, once before and once after the main and the supplementary pensions recalculation.

Table 2.3 EUROMOD Spine: order of simulation

Policy	2016	2017	2018	2019	Description of policies
SetDefault_el	on	on	on	on	DEF: Default values for variables
Uprate_el	on	on	on	on	DEF: Uprating factors
ConstDef_el	on	on	on	on	DEF: Constants
InitVars1_el	on	on	on	on	DEF: Initialise variables
ilsdef_el	on	on	on	on	DEF: Standardised income lists
ilsUDBdef_el	on	on	on	on	DEF: UDB-related standardised income lists
ildef_el	on	on	on	on	DEF: Non-standardised income lists
tundef_el	on	on	on	on	DEF: Assessment units
InitVars2_el	on	on	on	on	DEF: initialise variables used in switches
TCA_el	switch	switch	switch	switch	SWITCH: Tax compliance adjustments
BTA_el	switch	switch	switch	switch	SWITCH: Benefit take-up adjustments
yem_el	switch	switch	switch	switch	DEF: minimum wage
pxp_el	on	on	on	on	BEN: 13th/14th pensions & compensations
paycap_el	on	on	on	on	INC: civil servants' pay cap
bhocut_el	on	on	on	on	BEN: suspension of OEK housing benefit
neg_el	on	on	on	on	DEF: recode negative self-employment income to zero
InitVars3_el	on	on	on	on	DEF: (re-)calculate variables
txcpe_el	on	on	on	on	TAX: pensioners' solidarity contributions (εισφορές αλληλεγγύης συνταξιούχων)
prd_el	on	on	on	on	BEN: temporary pension reductions
poacm_el	on	on	on	on	BEN: supplementary pension recalculation- since May 2016
penscap_el	n/a	on	on	off	BEN: gross pensions cap
tscbesi_el	on	on	on	on	SIC: pensioners
mainpens_el	n/a	n/a	n/a	on	BEN: main pensions 2019 recalibration
txcpe_el	on	on	on	on	TAX: pensioners' solidarity contributions (repetition)
prd_el	on	on	on	on	BEN: temporary pension reductions (repetition)
tscer_el	on	on	on	on	SIC: private sector employers (IKA) - all employers since 2017 (ΕΦΚΑ)

tscee_el	on	on	on	on	SIC: private sector employees (ΙΚΑ) - all employees since 2017 (ΕΦΚΑ)
tscee01_el	on	n/a	n/a	n/a	SIC: liberal professions employees (ΤΣΑΥ) - up to 2016
tscee02_el	on	on	on	on	SIC: banking employees (ΕΤΕ)
tscee03_el	on	on	on	on	SIC: public enterprise employees (ΤΑΠ-ΟΤΕ)
tscee04_el	on	on	on	on	SIC: civil servants
tscseA_el	n/a	n/a	n/a	n/a	SIC: self-employed ΤΕΒΕ up to 2006
tscse02_el	n/a	n/a	n/a	n/a	SIC: self-employed ΤΑΕ up to 2006
tscseB_el	on	on	on	on	SIC: self-employed ΟΑΕΕ (= ΤΕΒΕ+ΤΑΕ) from 2007 to 2016
tscse01_el	on	on	n/a	n/a	SIC: self-employed liberal professions (ΤΣΑΥ) – up to 2016
tscfr_el	on	on	n/a	n/a	SIC: farmers (ΟΓΑ) – up to 2016
tscse_el	n/a	on	on	on	SIC: self-employed and farmers (ΕΦΚΑ) - since 2017
tscbesi_el	on	on	on	on	SIC: pensioners (repetition)
bunct_el	on	on	on	on	BEN: unemployment insurance benefit (επίδομα ανεργίας) – Part simulated
bchlg_el	n/a	n/a	n/a	n/a	BEN: third child benefit (επίδομα τρίτου παιδιού)
bfalg_el	on	on	n/a	n/a	BEN: large family benefit (πολυτεχνικό επίδομα)
bchba_el	n/a	n/a	n/a	n/a	BEN: Lump sum €2000 birth grant (εφάπαξ παροχή €2,000)
bch_el	on	on	on	on	BEN: child benefit (ενιαίο επίδομα στήριξης τέκνων / επίδομα παιδιού)
boanc_el	on	on	on	on	BEN: social pension (σύνταξη ανασφάλιστων υπερηλικών)
tin00_el	on	on	on	on	TAX: personal income tax (φόρος εισοδήματος)
bfama_el	switch	switch	switch	switch	BEN: Maternity benefit (επίδομα κυοφορίας/λοχείας)
bfapl_el	switch	switch	switch	switch	BEN: Parental leave benefit (άδεια θηλασμού και φροντίδας παιδιών)
boact_el	on	on	on	on	BEN: pensioner's social solidarity benefit (ΕΚΑΣ)
txcse_el	on	on	on	on	TAX: self-employed and liberal professions contribution (τέλος επιτηδεύματος)
txc00_el	on	on	on	on	TAX: solidarity contribution (εισφορά αλληλεγγύης)
bunnc_el	on	on	on	on	BEN: unemployment assistance for long-term unemployed (επίδομα μακροχρονίως ανέργων)
tin00_el	on	on	on	on	TAX: personal income tax (φόρος εισοδήματος) (repetition)
tinwh_el	n/a	n/a	n/a	n/a	TAX: withholding tax on benefits
bched_el	n/a	n/a	n/a	n/a	BEN: income support to families with children in compulsory education (σχολικό επίδομα)
tinktdt_el	on	on	on	on	TAX: interest income tax (φόρος επί τόκων καταθέσεων)
tinrt_el	n/a	n/a	n/a	n/a	TAX: additional tax on rental income (συμπληρωματικός φόρος εισοδήματος από μισθώματα)

txcpr_el	n/a	n/a	n/a	n/a	TAX: emergency property tax (ΕΕΤΗΔΕ)
tpr_el	off	off	off	on	TAX: real estate (ΕΝΦΙΑ) - switched off up to 2018, part-simulated since
bhoxp_el	n/a	n/a	n/a	n/a	BEN: lump sum heating benefit (επίδομα θέρμανσης)
bcsxp_el	n/a	n/a	n/a	n/a	BEN: lump sum benefit to civil servants
boaxp_el	on	n/a	n/a	n/a	BEN: lump sum benefit for low-paid pensioners
txcxt_el	n/a	n/a	n/a	n/a	TAX: extraordinary contribution
bsamttm_el	n/a	n/a	n/a	n/a	BEN: Social Dividend 2014 (κοινωνικό μέρισμα 2014)
bsamt_s	on	n/a	n/a	n/a	BEN: Food Stamps (επιδότηση σίτισης)
bho_s	on	n/a	n/a	n/a	BEN: Rent allowance (επίδομα ενοικίου)
bsa00_s	n/a	on	on	on	BEN: Guaranteed minimum income (KEA)
bsacm_el	n/a	on	on	n/a	BEN: 2017-2018 social dividend (κοινωνικό μέρισμα 2017-2018)
bho00_el	n/a	n/a	n/a	on	BEN: Housing benefit (since 2019)
output_std_el	on	on	on	on	DEF: Standard output individual level
parben_output_std_el	switch	switch	switch	switch	DEF: Standard output individual level
output_std_hh_el	off	off	off	off	DEF: Standard output household level

### 2.3 Policy switches

As mentioned above, the policy spine starts with various ‘switches’ (or ‘extensions’), that enable the model to choose whether to account for issues that seriously affect the implementation of most policies. They are indicated by little coloured symbols in the row-number column of the spine. Switchable policies can be turned ON or OFF through the run dialog box without changing the model itself. In the baseline a switchable policy is set to its default (ON or OFF) as specified in this documentation. The following global extensions are applicable for the case of Greece.

**Tax compliance adjustments (TCA):** the tax compliance switch controls which set of gross earnings variables – see section 3.3.3 for more information – are used to derive disposable income and whether to limit the tax bases and benefit means-test to reported earnings only. In the baseline scenario, it is set to on (i.e. accounting for tax evasion).

**Benefit take-up adjustments and random assignment adjustments (BTA):** benefit take-up switch controls non take-up modelling for certain benefits, such as child benefit and unemployment assistance for older workers. It also controls for random assignment adjustments. These adjustments, performed in the simulation of the social dividend, food stamps, rent allowance and guaranteed minimum income, restrict benefit receipt to the total amounts allocated to them, according to administrative data. This switch is set to on in the baseline scenario.

**Full-year adjustments (FYA):** while EUROMOD in general simulates policies as of 30<sup>th</sup> June in the respective year, it is also possible to simulate within year policy changes. This switch was considered as important because since 2010 the implementation of a number of policies took place after 30<sup>th</sup> June. More precisely, pensioners’ solidarity contribution was introduced in 2010 after 30<sup>th</sup> June (see section 2.8.2). The 2011 policies implemented after 30<sup>th</sup> June were additional pensioners’ solidarity contribution (see section 2.8.3), pensioners’ solidarity contribution for supplementary pensions (see section 2.8.4) and some of the temporary pension reductions (see section 2.8.). Moreover, in August 2011, the rates for pensioners’ solidarity

contribution changed (they now vary from 3% to 14%), there was a 0.5% increase in employees' and employers' social insurance contributions for unemployment insurance and the introduction of a social insurance contribution for unemployment insurance for self-employed workers (€10 per month It is switched off in the baseline scenario. In December 2013, the harmonization of ETEA supplementary pension contributions rates, contribution base and contribution base upper limit was implemented. In July 2014, the family benefits contribution paid by employees was abolished and employers' sickness and other benefits social insurance contributions were reduced. In May 2016 supplementary pensions were recalculated. In July 2016, pensioners' social contributions for health were increased. In October 2017 gross pensions were capped at €2,000. In June 2019 employees' and employers' social insurance contribution for supplementary pensions were decreased. This switch is set to off in the baseline scenario.

## 2.4 Social benefits

### 2.4.1 Social pension (boanc\_s)

This is a non-contributory, income-tested pension. Since 2013 it is reserved for people over 67 years of age who lack independent means of support.

- *Definitions*

The unit of analysis comprises the head, the spouse and own children aged up to 18.

- *Eligibility conditions*

Beneficiaries must be 67 years old and over. They must not be in receipt of any other pension or, irrespective of the fund or the pension's amount.

- *Income test*

The benefit is granted if personal income does not exceed the benefit amount itself (i.e. €4,320 per year) and if the couple's income does not exceed twice the benefit amount itself (i.e. €8,640 per year).

For the calculation of personal (and couples') income the following income sources are taken into account: employment, self-employment and other market income, income from rent, private pensions, investment income, maintenance payments received, family and child benefits, sickness and maternity benefits, disability pensions, main old-age pension and all sorts of retirement benefits/pensions apart from *EKAΣ*.

- *Wealth test*

In 2016 a wealth threshold was also established. Specifically, the annual wealth threshold corresponds to the total taxable immovable property of the beneficiary which should not exceed €90,000. Note that in EUROMOD we have only been able to approximate the cadastral value of beneficiaries' main residence.

- *Benefit amount*

The pension is payable 12 times a year to all eligible beneficiaries. In 2016 it was equal to €360 per month. Since 2017 the benefit rate became variable, equal to the difference between a recipient's sum of pensions and €360 per month (amounts below €20 are not paid out). Supplements are paid for a dependent spouse aged less than or equal to 65 and children aged less than or equal to 18. These supplements were abolished in 2017.

## 2.4.2 Pensioners' social solidarity benefit (boact\_s)

This is an income-tested supplement aimed at recipients of old age and survivor pension aged 60 and over (65 and over since 2014), or recipients of invalidity pension or orphan's pension irrespective of age. It is restricted to those receiving a contributory social insurance pension; *OΓA* pensioners are thus excluded.

- **Definitions**

The income concept used for the first income condition comprises employment earnings, sickness benefits, civil servants' family benefits and social insurance pensions of all types except farmer basic pension and social pension; net of employee social insurance contributions and income tax.

The income concept used for the second and third condition is the tax base. The tax base is defined as taxable income less employee and self-employed social insurance contributions.

The family unit is the same as for income tax purposes, i.e. it comprises the head, the spouse and dependent children. The latter are defined as: (a) unmarried, aged under 18, (b) unmarried, aged under 20 and registered in OAEΔ as unemployed, (c) unmarried, aged under 25 and enrolled in post-secondary or tertiary education or fulfilling their military service, (d) unmarried, aged under 27, enrolled in post-secondary or tertiary education and registered in OAEΔ as unemployed, (e) suffering from any kind of disability over 67% irrespective of age.

- **Eligibility conditions**

Beneficiaries must be 65 and over if in receipt of an old age pension or a survivor pension. There is no age condition if in receipt of an invalidity or orphans pension. Recipients of a farmer basic pension or a social pension are excluded.

- **Income test – benefit amount**

Four income concepts are assessed separately:

1. personal net income from pensions, benefits and employment earnings
2. personal taxable income from all sources
3. family taxable income
4. gross main & supplementary pensions and benefits

The annual income thresholds and the monthly benefit rates to which they corresponded in 2016-19 are shown in Table 2.4. The benefit is payable 12 times a year.

Table 2.4 *EKAΣ* income thresholds and benefit rates (2016-2019)

Pension income thresholds (€per year)	2016	2017	2018	2019
(a) Pension income, earnings and benefits for:				
Full rate	7,216.00	7,216.00	7,216.00	7,216.00
Reduced rate A	7,518.00	7,518.00	7,518.00	7,518.00
Reduced rate B	7,720.00	7,720.00	7,720.00	7,720.00
Reduced rate C	7,972.00	7,972.00	n/a	n/a
(b) All personal income	8,884.00	8,884.00	8,884.00	8,884.00
(c) Family taxable income	11,000.00	11,000.00	11,000.00	11,000.00
(d) Gross pensions and benefits	7,968.00	7,968.00	7,716.00	7,716.00
<b>Benefit rates (€per month)</b>				
Full rate	230.00	115.00	35.00	12.00

Reduced rate A	172.50	86.25	35.00	12.00
Reduced rate B	115.00	57.50	35.00	12.00
Reduced rate C	57.50	28.75	n/a	n/a

- **EUROMOD notes**

Dependent child definition used in the model is simplified and excludes military condition and condition (d) (the latter is not considered to be followed in practice anyway).

Note that income assessment is based on tax returns of the year before the application, for incomes earned two years before the application (that is the most recent year for which a tax return is available). For this reason, incomes used in means-testing are being multiplied with the average of the two-year lagged uprating factors for employment incomes and GDP growth.

### 2.4.3 Child benefit (bch\_s)

This benefit was established in 2013. It is paid to low-income families with dependent children regardless of the number of children.

- **Definitions**

The family unit comprises the head, the spouse and dependent children. The latter are defined as: (a) unmarried, aged under 18, (b) unmarried, aged under 23 and enrolled in post-secondary or tertiary education or fulfilling their military service, (c) suffering from any kind of disability over 67% irrespective of age.

- **Eligibility conditions**

Beneficiaries are families with one or more dependent children.

- **Income test – benefit amount**

#### *Up to 2017*

An equivalence scale is used for the purposes of means-testing. This assigns the value of 1 to the household head, 1/3 to the spouse and 1/6 to each dependent child of the tax unit. Equivalent family taxable income is calculated by dividing family taxable income by the sum of the weightings. The 2016-2017 income thresholds and monthly benefit rates are shown in Table 2.5. The benefit is paid 12 times per year. It is not taxable.

Table 2.5 Child benefit income thresholds and benefit rates (2016-2017)

<b>Equivalent income thresholds</b> (€per year)	<b>2016 - 2017</b>
Equivalent income for:	
Full rate	6,000
Reduced rate A	12,000
Reduced rate B	18,000
<b>Benefit rates</b> (€per month per dependent child)	
Full rate	40.00
Reduced rate A	26.67
Reduced rate B	13.33



*Since 2018*

The equivalence scale now assigns the value of 1 to the household head, 1/2 to the spouse and 1/4 to each dependent child of the tax unit. Equivalent family taxable income is calculated by dividing family taxable income by the sum of the weightings. The 2018-19 income thresholds and monthly benefit rates are shown in Table 2.6. It is not taxable.

Table 2.6 Child benefit income thresholds and benefit rates (2018-19)

<b>Equivalent income thresholds (€per year)</b>	<b>2018-19</b>
Equivalent income for:	
Full rate	0 - 6,000
Reduced rate A	6,001 - 10,000
Reduced rate B	10,001 - 15,000
<b>Benefit rates (€per month)</b>	
Full rate for	
...the first dependent child	70
...the second dependent child	70
...the third dependent child and beyond	140
Reduced rate A for	
...the first dependent child	42
...the second dependent child	42
...the third dependent child and beyond	84
Reduced rate B	
...the first dependent child	28
...the second dependent child	28
...the third dependent child and beyond	56

- *Accounting for non take-up*

The Council of Economic Advisors of the Greek Ministry of Finance has calculated that the non take-up rate of the benefit is 18% (for 2015). This rate was applied for the whole period of the benefit's implementation.

#### 2.4.4 Large family benefit (bfalg\_s)

This benefit is targeted to families with three or more children of any age and irrespective of whether they live together with their parents or not. Since 2013 it is provided to families with three or more dependent children. In 2018 it was integrated in child benefit.

- *Definitions*

Since 2013, the family comprises the head, the spouse and own dependent children (i.e. children up to 18 years old or under 20 and registered as unemployed or 25 if they are enrolled in tertiary education or under 25 and enrolled in post-secondary or tertiary education fulfilling their military service and registered as unemployed or suffering from any kind of disability over 67% irrespective of age).



- ***Eligibility conditions***

Beneficiaries are families with three or more dependent children.

- ***Income test***

An income test was introduced in 2013; the annual taxable income of the family must not exceed €45,000. The amount is raised by €3,000 for families with three dependent children. A further €4,000 increase in the income threshold is applicable for each subsequent child after the fourth.

- ***Benefit amount***

The benefit equalled €500 per year per dependent child (2016-2017).

- ***EUROMOD notes***

Due to the fact that the benefit is provided to beneficiaries irrespective of whether their children lived in the same household or not, large family benefit is also granted to persons with observed but not simulated benefit receipt that pass the income test.

#### **2.4.5 Unemployment assistance for long-term unemployed (bunnc\_s)**

This benefit is paid to long-term unemployed, as eligibility for contributory unemployment insurance expires after 12 months. There is no general unemployment assistance scheme.

- ***Definitions***

The unit of analysis comprises the head, the spouse and own children aged up to 18.

- ***Eligibility conditions***

The benefit is targeted to long-term unemployed workers aged 22-66 on low incomes.

- ***Income test***

Since 2014, the threshold is €10,000 plus €87 for every child. Once family income is equal or higher than that, the benefit is fully withdrawn. Incomes that are taken into account for the calculation of the threshold are: employment and self-employment income, other market income (received by children), income from rent and private transfers, education allowances, civil servants' family benefit, disability pensions, large family and child benefit as well as all sorts of retirement benefits/pensions apart from social pension.

- ***Benefit amount***

The monthly benefit rate in 2016-2019, paid 12 times per year, is €200.

- ***Accounting for non take-up***

Non take-up for this benefit is known to be rife.<sup>1</sup> In order to account for that fact, a user can activate the function in the policy sheet which restricts the benefit receipt to a fraction of simulated recipients. The non take-up rates used vary according to EUROMOD's underlying dataset. They are calculated on the basis of data on the number of actual recipients, provided by

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<sup>1</sup> When the benefit was first introduced (2002), the official prediction was that the beneficiaries would amount to 35,000; the benefit reached 711 persons instead.

*OAEA*. This adjustment is switched on in the baseline scenario. The benefit's take-up rates for 2016-19 are indicated below:

Table 2.7 Unemployment assistance for older workers take-up rates (2016-2019)

Dataset	2016	2017	2018	2019
el_2008*	0.15	0.15	0.15	0.15
el_2010*	0.12	0.12	0.12	0.12
el_2012*	0.04	0.04	0.04	0.04
el_2014*, el_2015*, el_2016*, el_2017*	0.02	0.02	0.02	0.02

- ***EUROMOD notes***

Being long-term unemployed is modelled as being unemployed in the current year ( $lunmy > 0$ ) and not in receipt of the contributory unemployment benefit ( $bunct\_s = 0$ ). Benefit amount is additionally adjusted with the number of months in receipt ( $lunmy\_s$ , defined in the contributory unemployment benefit policy).

#### 2.4.6 Unemployment insurance benefit ( $bunct\_s$ )

This benefit is paid to dependent workers who are involuntarily unemployed, capable and available for work and registered with an *OAEA* employment office. In order to receive the benefit, they have to be insured and have a specific contributions history. Since 2013 it is also paid to self-employed workers under strict eligibility conditions.

- ***Definitions***

The definition of family members includes: a) the spouse, b) unmarried children up to 18 or up to 26 if in full time education or up to 24 if unemployed, c) the parents of the beneficiary, d) unmarried, orphan grandchildren and siblings up to 18. In order to be considered as dependent, the person has to be registered to the family health booklet of the unemployed.

- ***Eligibility conditions***

Dependent workers must have been insured with any social insurance fund, and have accumulated the following contribution days:

- First-time claimants need to have worked and paid contributions for either (i) 80 days per year over the last two years, of which at least 125 days must be in the last 14 months excluding the last two months, or (ii) 200 days in the last two years excluding the last two months, of which at least 80 days in each of the last two years.
- Second-time claimants need to have worked and paid contributions for 125 days over the last 14 months excluding the last two months.
- Seasonal workers need to have worked and paid contributions for 100 days over the last 12 months.
- Construction workers and fishermen need to have worked and paid contributions for 100 days over the last 14 months.

- ***Benefit amount - Benefit duration***

In March 2012 unemployment insurance benefit was reduced by 22% to €360 per month and remained in this level for the period 2016-2018. It was raised to €399.25 in 2019, along with the increase in the minimum wage. The rate is raised by 10% for each dependent family member. The benefit is payable for at most 12 months, average duration being seven months. A part of

the benefit is still payable if the person finds an occasional or part-time employment of up to three non-consecutive days per week.

The benefit's duration is a function of contributory record according to the table below:

Table 2.8 Duration of unemployment insurance benefit

General category	Number of contributory days		Benefit duration in months
	Seasonal workers	Construction workers	
Over the last 14 months excl. the last 2 months	Over the last 12 months	Over the last 14 months	
125-149 <sup>[a]</sup>	100-149 <sup>[a]</sup>	100-149 <sup>[a]</sup>	5
150-179 <sup>[b]</sup>	150-179 <sup>[b]</sup>	150-179 <sup>[b]</sup>	6
180-219 <sup>[c]</sup>	180-219 <sup>[c]</sup>	180-219 <sup>[c]</sup>	8
220-249	220-249	220-249	10
250+	250+	250+	12
210+ if aged 49+	210+ if aged 49+	210+ if aged 49+	12

Notes: [a] or 200 days over the last 2 years  
 [b] or 250 days over the last 2 years  
 [c] or 300 days over the last 2 years

• **EUROMOD notes**

The benefit is modelled in such a way that those currently employed can be also covered if needed (e.g. to simulate their entitlement if they become unemployed, for replacement rates calculations).

Unemployment duration (*lunmy\_s*) is set equal to the observed unemployment duration (*lunmy*) or observed number of months in receipt of unemployment benefit (*bunctmy*), whichever is longer. If modelling unemployment benefit for those currently employed, unemployment duration is set equal to the reported number of months in employment in the current year (*liwmy*), once contribution history (see the next step) is modelled. It is effectively also assumed that unemployment spells start in the reference year. Simulated unemployment duration is also used for unemployment assistance for older workers.

Modelled contribution history is based on the reported number of months in employment (*liwmy*), controlling for the total number of months in work (*liwwh*).

- For those currently employed, *liwmy* is used.
- For those currently unemployed (*lunmy\_s* > 0) and in receipt (*bunct* > 0), this is set at least equal to the minimum qualifying period.
- For those currently unemployed (*lunmy\_s* > 0) and not in receipt (*bunct* = 0), this is set to zero.

At this point, people who are unemployed (*lunmy\_s* > 0) and with sufficient contribution history are considered eligible. It is assumed that all of them belong to the general category, are involuntarily 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 duration (*bunctmy\_s*) is derived from the underlying dataset. For currently employed, a further cap is imposed corresponding roughly to the average duration observed.

The condition for dependent family member (being registered to the family health booklet) is proxied by the lack of certain sources of income (employment income, self-employment income and income from state pensions).

The benefit amount is adjusted with the number of months in receipt. In special cases, Christmas and Easter bonuses are also provided. These are not simulated due to lack of information (i.e. beneficiaries must be in receipt during specific months of the year).

Finally, since the unemployment benefit to self-employed workers suffers from severe non take-up and its receipt depends on conditions that cannot be simulated due to lack of information (i.e. beneficiaries must not have any debts to social insurance funds and the income test in period t depends on people’s incomes in periods t-1 and t-2), it has not been simulated.

Table 2.9 Unemployment benefit: basic information

		2016-2019
<b>Eligibility</b>	Contribution period	(i) 80 days p.y. over the last two years, of which at least 125 days in the last 14 months excluding the last two months; (ii) 200 days in the last two years excluding the last two months, of which at least 80 days in each of the last two years
	Other conditions	n/a
	Eligibility of self-employed	yes, under strict conditions (not simulated)
<b>Payment</b>	Contribution base	statutory minimum wage
	Basic monthly amount	€60 in 2018-18; €99.25 in 2019
	Additional amount	n/a
	Floor	n/a
	Ceiling	n/a
<b>Duration</b>	Standard (in months)	5 to 12 months
	Special cases (in months)	n/a
<b>Subject to</b>	Taxes	only for individuals with (other) taxable income over €30,000
	SIC	no

#### 2.4.7 Pension benefits adjustments (*pxp\_el* and *penscap\_el*)

After the abolishment of the 13<sup>th</sup> and 14<sup>th</sup> pension instalments in 2010, means tested, lump sum Easter, Christmas and vacations bonuses were also abolished in 2013.

In 2019 a 13<sup>th</sup> pension instalment was reintroduced (to be paid each May). This is equal to:

- (a) 100% of the monthly main pension, for main pensions up to €500 per month (pm)
- (b) 70% of the monthly main pension, for main pensions ranging from €500.01 to €600 pm
- (c) 50% of the monthly main pension, for main pensions ranging from €600.01 to €1,000 pm
- (d) 30% of the monthly main pension, for main pensions higher than €1,000.01 pm

If a person is receiving more than one main pensions, her 13<sup>th</sup> pension is defined according to the sum of all main pensions received. These adjustments are simulated in policy *pxp\_el*.

In October 2017 an upper limit of €2,000 per month was set on every gross main pension (i.e. old age, disability, orphans and survivors) received by existing pensioners, while the sum of all net pension incomes can no longer exceed €3,000 per month (note that the latter is not simulated in EUROMOD). The cap, which is simulated in policy *penscap\_el*, was abolished in 2019.

- **Definitions**

The unit of analysis comprises individuals.

### 2.4.8 Temporary pension reductions (prd\_s)

These are reductions on main and supplementary pensions, introduced in November 2011, January 2012 and January 2013.

- *Tax unit*

The unit of analysis is individual.

- *Tax schedule*

Since 1<sup>st</sup> January 2012 all main old-age pensions exceeding €1,300 are subject to a 12% cut. Note that the cut applies to the pension amount exceeding €1,300 after the deduction of the above mentioned solidarity contribution. Pensions are not allowed to fall below €1,300.

Since 1<sup>st</sup> November 2011 all pensioners below 55 with main old-age pensions exceeding €1,000 are subject to a 40% cut. The cut applies to the pension amount exceeding €1,000 after all other solidarity contributions concerning main pensions have been deducted. Persons aged above 55 with main old-age pensions exceeding €1,200 are subject to a 20% cut. The cut applies to the pension amount exceeding €1,200 after all other solidarity contributions concerning main pensions have been deducted.

Since 1<sup>st</sup> January 2012 all supplementary pensions are subject to a cut as shown in Table 2.30. Note that the rates apply to the entire pension amount minus the solidarity contribution for supplementary pensions. Supplementary pensions are not allowed to fall below the amounts shown in Table 2.10.

Table 2.10 Additional cut on supplementary pensions (2016-2019)

Tax band	Pension bracket (€/per month)		Low Limit	Cut rate (%)
1	0	250	200	10
2	250.01	300	225	15
3	301.01	...	255	20

Since 1<sup>st</sup> January 2013 if the sum of main and supplementary pensions received by pensioners exceeds €1,000 they are subject to a cut as shown in Table 2.11.

Table 2.11 Additional cut on main and supplementary pensions (2016-2019)

Tax band	Pension bracket (€/per year)		Low Limit	Cut rate (%)
1	0	1,000	-	0
2	1,000.01	1,500	1,000	5
3	1,500.01	2,000	1,425	10
4	2,000.01	3,000	1,800	15
5	3,000.01	...	2,550	20

Note that the cut rates apply to the entire pension amount after the deduction of all pensioners' solidarity contributions and temporary cuts. The sum of main and supplementary pensions is not allowed to fall below the amounts shown in Table 2.11 (i.e. low limit amounts).

### 2.4.9 Supplementary pension recalculation (poacm\_el)

In May 2016 supplementary pensions were recalculated. Their increase/reduction depended on the fund providing the pension.

- **Definitions**

The unit of analysis comprises individuals.

- **Eligibility conditions**

The recalculation applied to individuals who satisfied the following condition:

*(gross main pensions + supplementary pensions - temporary pension cuts) > €1,300 per month*

- **Increases/reductions per pension fund (%)**

The (average) increases/reductions of supplementary pensions are shown in Table 2.12.

Table 2.12 Supplementary pension increases/reductions (%)

<b>pension fund</b>	<b>change (%)</b>
Private sector employees	-12.9
Own-account workers	-29.4
Employees in public enterprises	+0.2
Banking employees	-36.4
Civil servants	-31.0
Lawyers, doctors, engineers	-25.5

In case of pension reductions, an upper limit applies so that total gross pensions do not fall below €1,300. Note that temporary cuts related to supplementary pensions are set to zero for those that are eligible for the recalculation.

#### 2.4.10 Main pensions recalculation (*pxp03\_el*)

In 2019 main pensions were recalculated according to the provisions of law 4387/2016, which established a two-tier pension benefit (national pension + contributory part). A ‘personal difference’ was calculated for all pensioners (i.e. the difference between the new and the old pension amount). In case of resulting negative personal differences, no pension reduction was made; in the case of positive personal difference, 1/5 of it is added every year (until 2023) to the old pension amount.

#### 2.4.11 2017 and 2018 social dividend (*bsacm\_s*)

This is a lump sum benefit awarded to those on low incomes. The benefit was awarded in 2017 and 2018, as the government decided to distribute part of the primary budget surplus achieved to support the poorest part of the population.

- **Definitions**

The unit of analysis comprises the whole household. Minor individuals are defined as individuals up to the age of 18.

- **Eligibility conditions**

Eligibility depends on household income.

- **Income test**

The income test applies to total gross household income minus social insurance contributions. An equivalence scale is used for the purposes of means-testing. This assigns the value of 1 to the household head, 1/2 to each additional adult and 1/4 to minors, plus another 1/2 to lone parents and another 1/2 to each disabled member of the household. Equivalent family taxable income is calculated by dividing household taxable income by the sum of the weightings and it should not exceed €9,000 per year.

- **Wealth test**

The total value of immovable assets of the household should be less than €120,000 for single taxpayers, increased by €15,000 for each additional member of the household, subject to an overall ceiling of €180,000.

- **Deposits test**

The maximum household's income from deposits is the following:

$$\text{Max deposit income} = 9,000 * \text{equ. household size} * \text{average 2016 deposit} / 100$$

The average 2016 deposit used in the calculation was 0.6.

- **Benefit amount**

The benefit amounts are shown in Table 2.13.

Table 2.13 Social dividend (2017-18)

<b>Equivalent income thresholds (€per year)</b>	<b>2017</b>	<b>2018</b>
<b>(a) Max equ. income for:</b>		
Rate 1	5,000	5,000
Rate 2	7,000	7,000
Rate 3	9,000	9,000
<b>Benefit rates (€ per year)</b>		
Rate 1	450 * equ. household size	400 * equ. household size
Rate 2	350 * equ. household size	300 * equ. household size
Rate 3	250 * equ. household size	200 * equ. household size

- **Random assignment adjustments**

Benefit receipt is restricted to the amount of the primary budget surplus that was allocated to the social dividend, i.e. approximately €730 million.

#### 2.4.12 Food stamps (bsamt\_s)

This means-tested benefit was established in April 2015 and abolished in January 2017. It is granted as a debit card in which a monthly amount is credited depending on household composition. This amount is not taxed and can only be used in order to buy food products.

- **Definitions**

The family unit is the same as for personal income tax purposes, i.e. it comprises the head, the spouse, dependent parents and dependent children. The latter are defined as: (a) unmarried, aged

under 18, (b) unmarried, aged under 25 and enrolled in post-secondary or tertiary education or fulfilling their military service or being unemployed, and their taxable income does not exceed €3,000/year (c) suffering from any kind of disability over 67% irrespective of age and their taxable income does not exceed €6,000/year. Dependent parents are defined as parents of the household's head or his/her partner with taxable income less than €3,000/year.

- ***Eligibility conditions***

Beneficiaries are low-income families. However, the final recipients come up from a point system which gives some extra weight to families with children, lone-parent families, low-income families and families with unemployed members.

- ***Income test***

The income which is assessed comprises the taxable income of the family unit, all taxable pensions and benefits received excluding disability benefits, minus income taxes and social insurance contributions.

The annual income threshold is €2,400 for single-person tax units increased by €1,200 for each additional adult and by €600 for each dependent minor of the tax unit. The upper limit of the annual income threshold is €6,000/year. Additionally, in a lone-parent family unit, the first dependent minor is counted as an adult thus the annual income threshold increases by €1,200 instead of €600. If the assessed income is equal or higher than the threshold, the benefit is fully withdrawn.

- ***Asset test***

In addition to the income threshold, a wealth threshold is also defined by law. Specifically, the annual wealth threshold corresponds to the total taxable property which should not exceed €90,000 per person increased by €15,000 for each adult and by €10,000 for each minor member of the tax unit. The upper limit of the annual wealth threshold is €200,000. Finally, the tax unit's income from investments should be less than the double of the annual income threshold.

- ***Benefit amount***

The monthly benefit amount is €70 for single-person family units increased by €30 for each additional tax unit member up to a maximum of €220 per month. This benefit was paid for 6 months in 2015 and it has been expanded to January 2017 under the same conditions.

- ***Random assignment adjustments using a point system***

Income assessment is based on tax returns of the year before the application, for incomes earned two years before the application (that is the most recent year for which a tax return is available). For this reason, incomes used in means-testing are being multiplied with the average of the two-year lagged uprating factors for employment incomes and GDP growth. Additionally, a point system was implemented in order to select those recipients who are mostly in need. This is described in the following table.



Table 2.14 Point system of food stamps

Criteria	Points
Lone parent	3
Family units with 3 or more dependent children	3
Family units with 2 dependent children	2
Family units with 1 dependent child	1
Assessed income up to 1/3 of income threshold	2
Assessed income from 1/3 to 2/3 of income threshold	1
Family units with one long-term unemployed adult member	2
Family units with one short-term unemployed adult member	1

The number of potential beneficiaries without implementing the point system was about 855,296 in 2015. Applying the point system, beneficiaries are classified as those who are mostly in need depending on the number of points they collect. In order to be consistent with the actual number of recipients reported by the Ministry of Social Solidarity, a random selection of those who had 4 or more points was applied, ending up with 145,416 recipients.

#### 2.4.13 Rent allowance (bho\_s)

This benefit was established in April 2015 and while it was initially scheduled to end in December 2015, it was extended to January 2017. It is a means-tested benefit given to low-income tenants on a monthly basis. It is not taxed.

- *Definitions*

The family unit is the same as for personal income tax purposes.

- *Eligibility conditions*

Beneficiaries are low-income families living in rented dwellings.

- *Income and asset test*

The income and asset tests of this benefit are the same as those used for food stamps.

- *Benefit amount*

The monthly benefit amount is €70 for single-person family units increased by €30 for each additional unit member up to a maximum of €220 per month. It was paid for 6 months in 2015, 12 months in 2016 and 1 month in 2017 (the latter is not simulated in EUROMOD).

- *Random assignment adjustments using a point system*

Income assessment is based on tax returns of the year before the application, for incomes earned two years before the application (that is the most recent year for which a tax return is available). For this reason, incomes used in means-testing are being multiplied with the average of the two-year lagged uprating factors for employment incomes and GDP growth. As with food stamps, the same point system has also been applied to the case of rent allowance (see Table 2.9).

#### 2.4.14 Guaranteed minimum income (bsa00\_s)

After two pilot programmes, a nation-wide guaranteed minimum income (GMI) scheme was introduced in February 2017. This means-tested benefit is given to low-income households on a monthly basis. It is not taxed.

- **Definitions**

The assessment unit is the household. In actual practice, the assessment unit can be made up of single individuals, married or cohabiting couples, and dependents (as defined for income tax purposes). Individuals declaring themselves to be 'guests' (i.e. grown up children of the household head) are subject to additional eligibility conditions and a lower income threshold. However, 'guests' cannot be identified in the EU-SILC dataset. In view of that, our simulations assume that all members of a given household apply as a single assessment unit.

Children are defined as individuals aged < 18 for the purposes of determining eligibility (incomes and assets test) and the benefit rate. Older persons are treated as adults, even when they are considered as 'dependent children' for tax purposes.

- **Eligibility conditions**

Beneficiaries are low-income households.

- **Income and asset test**

The income which is assessed comprises the taxable income of the family unit, all taxable pensions and benefits received excluding non-contributory disability benefits, minus social insurance contributions. Assessed incomes also exclude 20% of earnings from dependent employment, reducing the resulting benefit withdrawal rate for salaries and wages to 80%.

The incomes test provides that an assessment unit's assessed income must be below €2,400 per annum (for single-person assessment units), increased by €1,200 per annum for each additional adult, plus €600 per annum for each child. In the case of single-parent families, the eligibility threshold for the first child is increased by €1,200 (rather than by €600) per annum. The maximum annual income of an assessment unit, irrespective of the number of the members it comprises, is €10,800.

The assets test provides that the taxable value of the main residence must be below €90,000 (for single-person assessment units), increased by €15,000 for each additional member of the household, subject to an overall ceiling per assessment unit of €150,000. The taxable value of the main residence is approximated using the average cadastral value (per square meter) of urban vs. rural areas, multiplied by the size of the residence (per square meter). The taxable value of any secondary residence is calculated more precisely, as there is also information on its cadastral value. Other aspects of the taxable value of the main residence (e.g. the location and age of dwelling), are not simulated because the relevant information is unavailable in the underlying dataset.

Finally, the tax unit's income from investments should be less than the double of the annual income threshold. Information on incomes from liquid assets such as deposits, bonds, shares and so on is available in the underlying dataset and, therefore, drawn upon to simulate the relevant part of asset testing. Nevertheless, such incomes are severely under-reported, as a result of which our estimates of costs and participation will be conservative.

- **Benefit amount**

The benefit rate is variable, equal to the difference between a recipient unit's assessed income and the eligibility income threshold (adjusted for the size and composition of each recipient unit), with a benefit withdrawal rate of 100%. The maximum benefit rate is €90 per month and the minimum is €10 per month.

- **Random assignment adjustments**

Benefit receipt is restricted to the amount of the budget that was agreed to be allocated to GMI, i.e. approximately €760 million. Its receipt is simulated for a period of 12 months (11 months in 2017).

#### **2.4.15 Lump sum benefit to low-paid pensioners (2016) (*boaxp\_s*)**

This is a means-tested emergency benefit, paid in 2016 as a lump-sum. Another version of it was also paid in 2011.

- ***Definitions***

The tax unit for this benefit is individual.

- ***Eligibility conditions***

The benefit was reserved for people in receipt of any kind of pension (i.e. old age, disability and survivors).

- ***Income test - benefit amount***

The sum of all pensions received net of pensions' SIC had to be less than €850 per month. The benefit was calculated as the difference between recipients' assessed pension income and the threshold of €850. The minimum benefit rate was €300. It was paid as a lump-sum.

#### **2.4.16 Housing benefit (*bho00\_s*)**

This is a benefit awarded to low incomes renters, introduced in 2019.

- ***Definitions***

The unit of analysis comprises the whole household. Minor individuals are defined as individuals up to the age of 18.

- ***Eligibility conditions***

Eligibility depends on household income and assets. Moreover, beneficiaries should live in rented accommodation and must have been legal and permanent residents of the country during the last five years preceding the submission of the application.

- ***Income test***

To be eligible for the benefit the total annual income of a single-person household cannot exceed €7,000, while for each additional household member (adult or child) this amount is increased by €3,500. Irrespective of the composition of the household, the total eligible annual income cannot exceed €21,000.

- ***Movable and immovable assets test***

The total value of immovable assets of the household should be less than €120,000 for single-member households, increased by €15,000 for each additional household member, subject to an overall ceiling of €180,000.

The total amount of bank deposits or/and the current value of shares, bonds, etc. of the single-person household cannot exceed €7,000, increased by €3,500 for each additional household member (adult or child) and up to a maximum of €21,000.

- **Benefit amount**

The benefit amount is set at €70 for single-person households, while for each additional household member (adult or child) this amount is increased by €35 per month. The total amount of the rent subsidy cannot exceed €110 per month, irrespective of the composition of the household. If the actual amount of the rent paid by the household is lower than the amount of the housing benefit for which the household is eligible, the total amount of the benefit paid is equal to the actual rent.

#### 2.4.17 Maternity leave benefit (*bfama\_s*)

In the EUROMOD Public Release of 2020 (I2.0) this benefit is only simulated from 2015 to 2019. The simulation is, however, switched off as part of the baselines, i.e., non-simulated components (*bmact*) are being used.

##### A. Employees in the private sector

- **Brief description**

The benefit is received by a working mother who is employed, 8 weeks before and 9 weeks after the birth of a child (children).

- **Definitions**

The unit of analysis is the family, which consists of partners (or lone parents) and own dependent children aged 0.

- **Eligibility conditions**

The beneficiary must have been insured for 200 days (i.e. 8 months) during the previous two years.

- **Benefit amount**

The benefit is equal to the beneficiary's average net wage, obtained during the 30-days period preceding work-leave, with a maximum of €2,373.5 per month. It is paid by (a) the employer, (b) the employee's social insurance fund and (c) the Hellenic Manpower Employment Organisation (OAEA).

- **EUROMOD notes**

Note that the exact month of birth is not available in the data; only the quarter of the year is known in SILC. Hence, it was assumed that children born in the first, second, third, fourth quarter of the year are born on 1<sup>st</sup> February, 1<sup>st</sup> May, 1<sup>st</sup> August, 1<sup>st</sup> November respectively. We also assume that a month has 4.3 weeks so 8 and 9 weeks correspond to 1.9 and 2.1 months respectively.

The benefit duration (depending on the child's month of birth) in 2016-2019 is described in the following table:

Table 2.15 Duration of maternity leave benefit (number of months)

<i>for mothers of...</i>	born in February	born in May	born in August	born in November
children aged 0	3.1	4	4	3.9
children aged 1	0	0	0	0.1

Due to the very short period of receipt, the benefit is not simulated for children aged 1.

**B. Employees in the public sector**

- **Brief description**

The benefit is received by a working mother who is employed, 2 months before and 3 months after the birth of a child. For every child after the third, the length of the post-natal leave is equal to 5 months. In case of twins, triplets etc. the length of the post-natal leave is extended by 1 month per child (i.e. 4 months for twins, 5 months for triplets etc.).

- **Definitions**

The unit of analysis is the family, which consists of partners (or lone parents) and own dependent children aged 0 or 1.

- **Benefit amount**

The benefit is equal to the beneficiary’s net wage, obtained during the 30-days period preceding the leave.

- **EUROMOD notes**

The benefit duration (depending on the child’s month of birth) in 2016-2019 is described in the following table.

Table 2.16 Duration of maternity leave benefit (number of months)

<i>for mothers of..</i>	<b>born in February</b>	<b>born in May</b>	<b>born in August</b>	<b>born in November</b>
<= 3 children, youngest aged 0	4	5	5	4
<= 3 children, youngest aged 1	0	0	0	1
> 3 children, youngest aged 0	6	7	7	4
> 3 children, youngest aged 1	0	0	0	3

In cases of twins and triplets the above-mentioned months are increased by 1 and 2 respectively.

**C. Self-employed**

- **Definitions**

The unit of analysis is the family, which consists of partners (or lone parents) and own dependent children aged 0.

- **Benefit amount**

The benefit is equal to €600 and is paid in four equal instalments. It is paid to the mother and it is not taxed.

**D. Farmers**

- **Definitions**

The unit of analysis is the family, which consists of partners (or lone parents) and own dependent children aged 0.

- **Benefit amount**

The benefit is equal to €486.77 and is paid as a lump-sum. In case of twins, triplets etc. it is increased by 50% for each additional child. It is paid to the mother and it is not taxed.

#### ***E. Uninsured mothers***

- ***Definitions***

The unit of analysis is the family, which consists of partners (or lone parents) and own dependent children aged 0.

- ***Income test***

The maximum monthly income (from all sources) of the tax unit should be €86.94.

- ***Benefit amount***

The benefit is equal to €440.2 and is paid in two instalments.

- ***EUROMOD notes***

The benefit is only provided to mothers who can prove that are working regularly, but without any insurance coverage. As social insurance coverage is compulsory in Greece, this benefit is only given in very rare cases and is thus not simulated in EUROMOD.

#### **2.4.18 Parental leave benefit (*bfapl\_s*)**

In the EUROMOD Public Release of 2020 (I2.0) this benefit is only simulated from 2015 to 2019. The simulation is, however, switched off as part of the baselines, i.e., non-simulated components (*bmact*) are being used.

- ***Brief description***

The benefit is received by employees in the public or private sector taking care of small children.

- ***Definitions***

The unit of analysis consists of partners (or lone parents) and own dependent children aged 0 to 2.

- ***Benefit duration***

##### ***a. Private sector***

A parent can take 3.75 months of parental leave with full payment as an alternative option to a scheme which allows parents to work reduced hours (i.e. one hour less per day or up to 30 months after maternity leave or two hours less per day for the first 12 months and one hour less per day for another six months). The leave is paid by the employer and funded through general taxation and is granted after the maternity leave. Legally, it can be used by either or both parents, but in practice it is almost solely used by mothers.

A **special parental leave** of 6 months is also granted to private sector workers after maternity leave and before the beginning of the use of flexible working (reduced hours of daily work). In case mothers decide not to use flexible working and take the 3.75 months of leave, the special parental leave is granted after the end of these 3.75 months.

##### ***b. Public sector***

A parent can take 9 months of parental leave with full payment as an alternative option to a scheme which allows parents to work reduced hours (i.e. two hours less per day if he/she has children of less than two years old and one hour less per day if he/she has children between two and four years old), with full earnings replacement. The leave is paid by the employer and funded through general taxation, and is granted after maternity leave. Legally, it can be used by either or both parents within the total nine month period, but in practice it is almost solely used by mothers. In the case of multiple births, an extra six month is provided for each additional child. For a parent who is unmarried, widowed, divorced or severely disabled, the leave is extended by one month.

- **Benefit amount**

The benefit is equal to the beneficiary’s average wage obtained during the 30-days period preceding work-leave.

The monthly amount of the special parental leave is equal to the minimum wage of workers aged above 25 (i.e. €86.08). It is subject to health and pension-related contributions (i.e. 12.72% for 2016-2019).

- **EUROMOD notes**

The benefit duration (depending on the child’s month of birth) in 2016-2019 is described in the following tables. Note that the special rules for lone parents, parents with disabilities, twins, triplets, etc. that apply to the public sector are not simulated in EUROMOD.

Table 2.17 Duration of parental leave benefit (number of months): private sector

<i>for mothers of...</i>	born in February	born in May	born in August	born in November
children aged 0	3.75	3.75	2.9	0
children aged 1	0	0	0.85	3.65

Table 2.18 Duration of special parental leave benefit (number of months): private sector

<i>For mothers of...</i>	born in February	born in May	born in August	born in November
children aged 0	5.15	2.15	0	0
children aged 1	0	3.85	6	6

Table 2.19 Duration of parental leave benefit (number of months): public sector

<i>for mothers of...</i>	born in February	born in May	born in August	born in November
children aged 0	8	5	2	0
children aged 1	1	4	7	9

## 2.5 Social insurance contributions: 2016

Social insurance in Greece, as explained earlier, was highly fragmented until 2017, when *EΦKA* was created. Because of this, the simulation of all possible cases would be rather futile. Instead, each occupational category is represented by the largest social insurance fund for that category. This is shown in Table 2.2. Pensioners’ social contributions are also simulated.

Note that identifying contributors in the “old” and “new” regimes, contributors in hazardous occupations, as well as the procedure for placing contributors in insurance classes for all self-



employed workers is explained in section 2.5.3. Reference earnings are equated to employment earnings reported in EU-SILC.

### 2.5.1 Employers (tscer\_s)

- *Liability to contributions*

All private sector employers are required to pay social insurance contributions according to IKA rules. Employers' contributions are paid as a proportion of their reference earnings.

- *Income base used to calculate contributions*

The rates above are related to “reference earnings”. Reference earnings reflect the notional wage for every one of IKA’s 28 insurance classes where private sector employees are placed according to their actual earnings. Civil servants, employees in public enterprises and banking employees are covered by separate schemes. Additionally, occupations that are officially classified as “hazardous” are subject to extra contributions at 2.15% of reference earnings. The upper earnings threshold for all workers in 2016 was equal to €5,860.

- *Contribution rates*

Table 2.20 Employer social insurance contributions (2016)

Social insurance contributions	% of reference earnings
	2016
<b>Case 1: general regime</b>	
Primary pension	13.33
Supplementary pension	3.50
Sickness insurance	4.55
Unemployment insurance	3.17
Housing and other benefits	0.51
Total SIC: general regime	<b>25.06</b>
<b>Case 2: hazardous occupations</b>	
Primary pension (extra SIC)	1.40
Supplementary pension (extra SIC)	0.75
Extra SIC: hazardous occupations	2.15
Total SIC: hazardous occupations	<b>27.21</b>

- *EUROMOD notes*

IKA contribution rules are applied to all private sector employees and seamen (lpmfc=1). Upper threshold on earnings is adjusted with the number of months receiving employment income (yemmy).

### 2.5.2 Employee social contributions (tscee\*\_s)

#### 2.5.2.1 Private sector employees

- *Liability to contributions*

Workers insured with IKA pay social contributions at a flat rate equal to 16% of their reference earnings. As mentioned above, there are additional contributions for “hazardous” occupations.

- *Income base used to calculate contributions*

Contribution rates are related to ‘reference earnings’. The monthly upper earnings thresholds are the same for both employers’ and employees’ social insurance contributions and are equal to €5,860. In May 2016, an increase in the rate of supplementary pension was applied (from 3% to 3.5%).

- *Contribution rates*

Table 2.21 Private sector employees’ social insurance contributions (2016)

Social insurance contributions	% of reference earnings
<b>2016</b>	
<b>Case 1: general regime</b>	
Primary pension	6.67
Supplementary pension	3.50
Sickness insurance	2.55
Unemployment insurance	1.83
Housing and other benefits	1.45
Total SIC: general regime	<b>16.00</b>
<b>Case 2: hazardous occupations</b>	
Primary pension	2.20
Supplementary pension	1.25
Extra SIC: hazardous occupations	3.45
Total SIC: hazardous occupations	<b>19.45</b>

- *EUROMOD notes*

IKA contribution rules are applied to all private sector employees and seamen ( $lpmfc=1$ ). Upper threshold on earnings is adjusted with the number of months receiving employment income (*yemmy*).

### 2.5.2.2 Civil servants

- *Liability to contributions*

All civil servants are subject to social insurance contributions.

- *Income base used to calculate contributions*

Civil servants’ total wage is the sum of the basic wage and of various allowances (for seniority etc). It is thought that such allowances comprise approximately 20% of a civil servant’s total earnings.<sup>2</sup> Reference earnings (RE) are civil servants’ total wage. Different contribution rates apply for the basic wage (assumed to be equal to 80% of RE) and for the additional allowances (assumed to be equal to 20% of RE). The upper earnings threshold is equal to €5,860 per month.

- *Contribution rates*

Table 2.22 Civil servants’ social insurance contributions (2016)

% of reference earnings		
	<b>2016</b>	<b>Derivation</b>
<b>Case 1: contributors to the “old” regime</b>		
Primary pension	5.34	$6.67\% \times (80\% \text{ of RE})$
Supplementary pension ( <i>TEAAY</i> )	3.50	$3.50\% \times \text{RE}$
Other benefits ( <i>MTIY</i> )	3.40	$4\% \times (80\% \text{ of RE}) + 1\% \times (20\% \text{ of RE})$
Sickness benefits ( <i>OIIAA</i> )	2.55	$2.55\% \times (100\% \text{ of RE})$
Separation payment ( <i>THAY</i> )	3.20	$4\% \times (80\% \text{ of RE})$

<sup>2</sup> “The salaries of civil servants in EU countries”, Journal of *INE-ΓΣΕΕ*, issue 79, Jan 2002.

Unemployment benefits ( <i>OAEA</i> )	2.00	2% × (100% of RE)
<b>Total SIC</b>	<b>19.99</b>	
<b>Case 2: contributors to the “new” regime</b>		
Primary pension	6.67	6.67% × (100% of RE)
Supplementary pension ( <i>TEAAY</i> )	3.50	3.50% × RE
Other benefits ( <i>MTIYY</i> )	3.40	4% × (80% of RE) + 1% × (20% of RE)
Sickness insurance ( <i>OIIAA</i> )	2.55	2.55% × (100% of RE)
Separation payment ( <i>THIAY</i> )	4.00	4% × (100% of RE)
Unemployment benefits ( <i>OAEA</i> )	2.00	2% × (100% of RE)
<b>Total SIC</b>	<b>22.12</b>	

### 2.5.2.3 Public enterprise workers

- *Liability to contributions*

Those working in the public utilities are insured in a variety of enterprise-specific insurance schemes. *IKA*, these schemes generally levy higher contributions and provide more generous benefits. The rules simulated here are those applying to the social insurance fund of *TAII-OTE*. In 2008 the vast majority of public enterprise workers’ social insurance funds were merged with *IKA*. However, the merger did not affect contributions paid or benefits received.

- *Income base used to calculate contributions*

For the computation of social insurance contributions, reference earnings are also used. Table 2.23 presents the social contribution rates for those working in public utilities. The income base for supplementary pensions contribution in 2016 was subject to the upper earnings ceiling of €5,860 per month.

- *Contribution rates*

Table 2.23 TAII-OTE social contributions simulated (2016)

Social insurance contributions (SIC)	% of reference earnings
	2016
<b>Case 1: contributors to the “old” regime</b>	
Primary pension	8.835
Supplementary pension	3.500
Sickness insurance	2.550
Additional benefits	7.000
<b>Total SIC</b>	<b>21.885</b>
<b>Case 2: contributors to the “new” regime</b>	
Primary pension	6.67
Supplementary pension	3.50
Sickness insurance	2.55
Separation payment	4.00
Unemployment insurance	1.83
Housing and other benefits	1.45
Extra SIC: hazardous occupations	3.45
<b>Total SIC: non hazardous occupations</b>	<b>20.00</b>
<b>Total SIC: hazardous occupations</b>	<b>23.45</b>

#### 2.5.2.4 Banking employees

- *Liability to contributions*

Employers of (formerly) state-controlled banks are insured in separate social insurance funds. The rules simulated here are those pertaining to the social insurance fund of the National Bank of Greece (*ETE*). In 2008 banking employees' social insurance funds were merged with IKA. However, the merger did not affect contributions paid or benefits received.

- *Income base used to calculate contributions*

Social insurance contributions of banking employees are computed on the basis of reference earnings. In 2016 the income base for the supplementary pension contribution was subject to the monthly upper earnings ceiling of €5,860.

- *Contribution rates*

Table 2.24 *ETE* social contributions simulated (2016)

Social insurance contributions	% of reference earnings 2016
<b>Case 1: contributors to the “old” regime</b>	
Primary pension	8.835
Supplementary pension	3.50
Sickness insurance	2.55
Unemployment insurance	1.83
Housing and other benefits	1.45
Separation payment	4.50
<b>Total SIC</b>	<b>22.665</b>
<b>Case 2: contributors to the “new” regime</b>	
Primary pension	6.67
Supplementary pension	3.50
Sickness insurance	2.55
Unemployment insurance	1.83
Housing and other benefits	1.45
Separation payment	4.00
Extra SIC: hazardous	4.70
<b>Total SIC: non-hazardous occupations</b>	<b>20.00</b>
<b>Total SIC: hazardous occupations</b>	<b>24.70</b>

#### 2.5.2.5 Liberal professions

- *Liability to contributions*

The liberal professions mainly include medical doctors, lawyers and engineers. The relevant social insurance funds insuring these categories are collectively known as “noble funds” for the high level of benefits and quality of services they usually provide. The rules simulated here are those applying to the social insurance fund of medical doctors (*ΤΣΑΥ*). *ΤΣΑΥ*'s 2016 social contribution rates for employees are presented in Annex 3.

- *EUROMOD notes*

Fixed amounts paid by employees are adjusted with the number of months receiving employment income (yemmy).

### 2.5.3 Self-employed workers (*tscse\*\_s*)

#### 2.5.3.1 Self-employed workers

- *Liability to contributions*

Social contributions of own-account workers are simulated on the basis of *OAEE*.

- *Income base used to calculate contributions*

There is no income base for contributions' calculation. Instead, contributors are allocated to insurance classes. For those first insured in *TEBE* before 1<sup>st</sup> January 1993 there were 10 insurance classes (A to J). Contributors were first allocated to insurance class E. After a year they moved to insurance class F, after another five years to insurance class G, and after another four years to insurance class H, the highest compulsory one. For those first insured in *TEBE* after 1<sup>st</sup> January 1993 there are 14 insurance classes (1 to 14); the first five are compulsory, the next nine optional. Contributors are first allocated to insurance class 1. Every two years contributors move up one class, until they reach insurance class 5 where they can remain until retirement, unless they choose to be insured according to an optional class. From 2007 all self-employed workers insured with *OAEE* (merger of *TEBE*, *TAE* and *TΣA*), irrespective of the date they were first insured, are placed in 14 insurance classes (1-10 compulsory, 11-14 optional). *OAEE*'s 2016 social contribution rates are presented in Annex 3.

- *EUROMOD notes*

For 2016, *OAEE* contributions are modelled in policy *tscseB\_el*.

#### 2.5.3.2 Liberal professions

- *Liability to contributions*

The rules simulated here are again those applying to the social insurance fund of medical doctors (*TΣAY*). *TΣAY*'s 2016 social contribution rates for self-employed are presented in Annex 3.

### 2.5.4 Farmers (*tscfr\*\_s*)

- *Liability to contributions*

Most farmers are considered as self-employed, but they do not pay the same social contributions as self-employed. Farmers' contributions are defined in proportion to a notional income in seven insurance classes, revised annually.

- *Income base used to calculate contributions*

The social contributions rate corresponding to each insurance class is set at 7% of notional income for pension insurance (10% since 01/07/2015) and 2.5% of notional income for sickness insurance. Since 2013, farmers falling the first five insurance classes pay a fixed amount for sickness insurance (€6.64 per month). Fixed amounts per insurance class are paid for additional benefits. Contributors can choose freely which insurance class to place themselves in. Farmers' 2016 social contribution rates are presented in Annex 3.

### 2.5.5 Pensioners (tscbesi\_s)

Pensioners' social contributions were levied at a flat rate of 4% of pension income (i.e. main old age pensions, minor old age pensions, orphans' and widows' pensions and disability pensions). Until 2016, in case of individuals receiving multiple pensions the contribution was applied to only one pension (we assume it applies to the lowest one, as individuals were free to choose). Since 2017 it is applied to the sum of all pensions. Such contributions pay for sickness insurance and are deducted at source. As of 1<sup>st</sup> July 2016, the flat rate rose to 6% and is levied upon supplementary old age pensions too.

## 2.6 Social insurance contributions: 2017 - 2019

In 2017 all funds providing main pensions were consolidated into one, called *EΦKA*. Rules became uniform for employees previously insured in IKA, public sector employees and employees previously insured in “noble” funds (proxied here by TSAY) and by 2020 this will also be the case for public enterprise workers and banking employees.

### 2.6.1 Employers (tscer\_s)

- *Liability to contributions*

All private sector employers are required to pay social insurance contributions.

- *Income base used to calculate contributions*

Employers' contributions are paid as a proportion of their employee's earnings. An upper and a lower earnings threshold applies.

Table 2.25 Employers' upper and lower earnings thresholds (2017-2019), €per month

	2017-2018	2019
Lower earnings threshold	586.08	650.00
Upper earnings threshold	5,860.80	6,500.00

- *Contribution rates*

Table 2.26 Employer social contributions simulated (2017-2019)

Social insurance contributions	% of earnings
2017-2019	
<b>Case 1: general regime</b>	
Primary pension	13.33
Supplementary pension	3.50
Sickness insurance	4.55
Unemployment insurance	3.17
Housing and other benefits	0.51
Total SIC: general regime	<b>25.06</b>
<b>Case 2: hazardous occupations</b>	
Primary pension (extra SIC)	1.40
Supplementary pension (extra SIC)	0.75
Extra SIC: hazardous occupations	2.15
Total SIC: hazardous occupations	<b>27.21</b>

In 2019 employers pay 50% of primary pension SIC (i.e. 6.67%) if they employ workers aged less than 24. Since June 2019, supplementary pension SIC are set to 3.25%.

- *EUROMOD notes*

Upper threshold on earnings is adjusted with the number of months receiving employment income (yemmy).

## 2.6.2 Employees (tscee\*\_s)

- *Liability to contributions*

Employees previously insured in IKA, public sector employees and employees previously insured in “noble” funds (proxied here by TSAY) pay social contributions at a flat rate equal to 16% of their earnings. Additional contributions for “hazardous” occupations also apply.

- *Income base used to calculate contributions*

Contribution rates are related to gross earnings. Note that the income base of civil servants is described in section 2.5.2.2. The upper and lower earnings thresholds are the same for both employers’ and employees’ social insurance contributions and are presented in Table 2.25.

- *Contribution rates*

Table 2.27 Employees’ social insurance contributions (2017-2019)

Social insurance contributions	% of earnings
	2017-2019
<b>Case 1: general regime</b>	
Primary pension	6.67
Supplementary pension	3.50
Sickness insurance	2.55
Unemployment insurance	1.83
Housing and other benefits	1.45
Total SIC: general regime	<b>16.00</b>
<b>Case 2: hazardous occupations</b>	
Primary pension (extra SIC)	2.20
Supplementary pension (extra SIC)	1.25
Extra SIC: hazardous occupations	3.45
Total SIC: hazardous occupations	<b>19.45</b>

Since June 2019, supplementary pension SIC are set to 3.25%. Public enterprise workers and banking employees’ social insurance contributions are gradually adjusted and they will become the same as the above by 2020. In 2017-19, they were as follows:

Table 2.28 Public enterprise workers and banking employees’ social contributions (2017-2019)

Social insurance contributions	% of earnings		
	2017	2018	2019
<b>Case 1: general regime</b>			
Primary pension	8.29	7.75	7.22
Supplementary pension	3.50	3.50	3.50
Lump-sum pension	4.00	4.00	4.00
Sickness insurance	2.55	2.55	2.55
Unemployment insurance	1.83	1.83	1.83
Housing and other benefits	1.45	1.45	1.45



Total SIC: general regime	<b>21.62</b>	<b>21.08</b>	<b>20.55</b>
<b>Case 2: hazardous occupations</b>			
Primary pension (extra SIC)	2.20	2.20	2.20
Supplementary pension (extra SIC)	1.25	1.25	1.25
Extra SIC: hazardous occupations	3.45	3.45	3.45
Total SIC: hazardous occupations	<b>28.52</b>	<b>27.98</b>	<b>27.45</b>

- *EUROMOD notes*

IKA contribution rules are applied to all private sector employees and seamen (lpmfc=1). Upper threshold on earnings is adjusted with the number of months receiving employment income (yemmy).

### 2.6.3 Self-employed workers (tscse\_s)

In January 2017 all own-account workers (previously insured in *OAE*), self-employed liberal professions and farmers (previously insured in *OΓA*) were also insured in ΕΦΚΑ. Their contributions rates will be gradually equalised by 2020.

- *Liability to contributions*

All individuals earning self-employment income from more than two clients are subject to the below-mentioned social insurance contributions. Individuals earning self-employment income from up to two clients are considered as employees. However, due to lack of relevant information this cannot be simulated in EUROMOD.

- *Income base used to calculate contributions*

2017 contributions were paid as a proportion of self-employment earnings minus 2016 social insurance contributions. In 2018 the contributions basis was 85% of self-employment earnings; in 2019 it was raised to 100% of self-employment earnings. The upper and lower earnings thresholds are presented in Table 2.29.

Table 2.29 Self-employed upper and lower earnings thresholds (2017-2019), €per month

	<b>2017-2018</b>	<b>2019</b>
Lower earnings threshold		
own account workers, liberal professions	586.08	650.00
farmers	410.26	455.00
Upper earnings threshold	5,860.80	6,500.00

- *Contribution rates*

Table 2.30 Own account workers social insurance contributions (2017-2019)

	<b>2017-2018</b>	<b>2019</b>
--	------------------	-------------

Primary pension	20.00%	13.33%
Sickness insurance	6.95%	6.95%
Unemployment insurance	€10/month	€10/month

Table 2.31 Self-employed liberal professions social insurance contributions (2017-2019)

	2017-2018	2019
Primary pension	20.00%	13.33%
Supplementary pension	7.00%	7.00%
Lump-sum pension	4.00%	4.00%
Sickness insurance	6.95%	6.95%
Unemployment insurance	€10/month	€10/month

Since 2019, the monthly primary pension SIC resulting from the above tables (13.33% x monthly income) cannot be less than 20% of the minimum wage, i.e. €30 (20% x €50).

There is a transitional period of reduced contributions from 1 January 2017 to 31 December 2020 for self-employed liberal professions (previously insured in ETAA) whose annual income base ranges between €7,033.01 and €8,000. The reduction in 2017-19 is 50% of social insurance contributions (apart from unemployment insurance contributions) for income bases ranging from €7,033.01 to €13,000. The reduction is decreased by 1 percentage point for each additional €1,000 of incomes over €13,000 and becomes zero for incomes above €8,000.

Table 2.32 Farmers' social insurance contributions (2017-2019), %

	2017	2018	2019
Primary pension	14.00	16.00	12.00
Sickness insurance	6.95	6.95	6.95
Additional benefits	0.95	0.95	0.95

Since 2019, the monthly primary pension SIC resulting from the above table cannot be less than 18% of 70% of the minimum wage, i.e. €1.90 (18% x 70% x €50).

#### 2.6.4 Pensioners (tsccbesi\_s)

Pensioners' social contributions remained unchanged and are levied at a flat rate of 6% of pension income. For more information, see section 2.5.5.

### 2.7 Personal income tax (tin00\_s)

The most important tax simulated for Greece (from a fiscal point of view) is personal income tax. Personal income tax receipts amounted to €8,289 in 2016.

#### 2.7.1 Tax unit

Tax unit for personal income tax is individual. Spouses file a joint income tax return, but their incomes are entered separately and taxed individually.

However, there is a partial exception to this rule: some tax allowances and/or tax credits are jointly assessed. The tax unit for the joint assessment of tax allowances/credits is broader as it includes both spouses and dependent children. The latter are defined as: (a) unmarried, aged under 18, (b) unmarried, aged under 20 and registered in OAEA as unemployed, (c) unmarried, aged under 25 and enrolled in post-secondary or tertiary education or fulfilling their military

service, (d) unmarried, aged under 27, enrolled in post-secondary or tertiary education and registered in OAEΔ as unemployed, (e) suffering from any kind of disability over 67% irrespective of age. Note that once such allowances/credits (e.g. child tax allowance) are determined these are shared between (relevant) adults only. Since 2013 the tax unit definition was slightly modified to include parents and disabled siblings as dependent members in the household. Furthermore, any member (including children) of the household earning more than 3,000 euro per year (6,000 euro if disabled) cannot be considered as dependent.

- ***EUROMOD notes***

Dependent child definition used in the model is simplified and excludes military condition and condition (d) (the latter is not considered to be followed in practice anyway).

### **2.7.2 Exemptions**

Unemployment benefits, social assistance and some family benefits provided by local government at the prefecture level (such as unprotected children benefit and single parent benefit) are not included in taxable income. Employment or pension income of persons suffering from any kind of disability over 80% is also tax-exempted. From 1<sup>st</sup> January 2010, unemployment benefits, large family benefit, disability benefits are taxed for individuals with (other) taxable over €30,000 (€10,000 since 2014).

### **2.7.3 Tax allowances**

Tax allowances here are defined as deductions from taxable income and most of them are per tax unit. In 2016-2019 they only include social insurance contributions. Note that tax allowances are usually shared between the main taxpayer and his/her spouse.

#### ***2.7.3.1 Social insurance contributions tax allowance***

All social insurance contributions are fully deducted from taxable income.

### **2.7.4 Tax base**

Taxable income includes reported employment and self-employment income, other market income (received by children in SILC), income from rent, private transfers received, education allowances, civil servants family benefit, sickness benefits, disability pensions, main old age pensions (and supplementary since 2014), minor old age pensions, orphans' and widows' pensions). Unemployment benefits are also part of the tax base for individuals with (other) taxable income over €10,000. The tax base is defined as taxable income minus the tax allowances described above.

### **2.7.5 Tax credits**

Tax credits are defined as deductions from tax due.

#### ***2.7.5.1 Maintenance payments tax credit***

The tax reduction is 10% of alimonies up to a maximum tax credit of €1,500 per year. This tax credit no longer applies in 2017.

#### ***2.7.5.2 Medical expenses and expenses for elderly care tax credit***

Medical expenses and expenses for elderly care are partly deducted from tax due. Since 2011, the tax credit for medical expenses is calculated 10% of the total medical expenses and this tax credit cannot exceed €3,000 annually per taxpayer. Medical expenses for elderly care tax credit is calculated as the 10% of half the expenditure on care for the old. The upper limit for this credit is also €3,000 per taxpayer. The tax credit was abolished in 2017.

#### 2.7.5.3 Charitable donations tax credit

Since 2013 charitable donations tax credit is calculated as 10% of donations greater than 100 per annum but less than 5% of tax base.

#### 2.7.5.4 Disability tax credit

In 2016-2019 the tax credit was €200 annually per eligible taxpayer.

#### 2.7.5.5 Employment & pensions income tax credit

It was established in 2013. Since 2016, it applies to the sum of employment, pensions and farming income (EPF incomes). It is equal to €1,900/€1,950/€2,000/€2,100 for tax payers with zero/one/two/three or more dependent children and EPF incomes up to €20,000 per year and it is capped to the amount of people's actual tax liability. The tax credit is decreased by €10 for each additional €1,000 of EFP incomes over €20,000.

#### 2.7.5.6 1.5% tax credit for employment and pension income

This tax credit was established in 2005. It consists of a 1.5% reduction on tax withheld with respect to employment and pension income. It was abolished in 2018.

- **EUROMOD notes**

Maintenance payments and medical expenses are reported at the household level in the original data, but assigned to the person whose age is closest to 45. If there is more than one such person then it is assigned to the one who appears first in the household (by idperson). Hence these credits are simulated for that person.

In EUROMOD, as no detailed information about the nature of medical expenditure is available, it is all treated as hospital expenditure, and is thus deducted from tax due.

### 2.7.6 Tax schedule

Income taxation is graduated, with progressively higher marginal tax rates applying to higher income brackets.

In 2016, Law 4389/2016 introduced significant changes to personal income tax. A new tax schedule with four tax brackets was introduced for the sum of income deriving from employment, pensions and (non-farming) self-employment. Farming income is taxed *separately* but according to the same schedule. Property income is also tax separately using a different schedule. The tax schedules applicable for the period 2016-2019 are shown in the following tables.

Table 2.33 Tax schedule: employment, pension, self-employment & farming income (2016-19)

Tax band	Income bracket (€per year)		Tax rate (%)
	Lower limit	Upper limit	
1	0	20,000	22
2	20,001	30,000	29

3	30,001	40,000	37
4	40,001	...	45

Table 2.34 Tax schedule: property income (2016-19)

Tax band	Income bracket (€per year)		Tax rate (%)
	Lower limit	Upper limit	
1	0	12,000	15
2	12,001	35,000	35
3	35,000	...	45

- *EUROMOD notes*

The tax rate of the first tax band is 50% reduced for self-employed who started their business activity in 2013. This reduction holds for a period of three years. Note that this cannot be simulated in EUROMOD due to lack of relevant information.

## 2.8 Other taxes

### 2.8.1 Interest income tax (tinktdt\_s)

- *Tax unit*

The unit of analysis is individual.

- *Tax schedule*

Since 2013, the tax rate is 15%.

- *EUROMOD notes*

Investment income reported in EU-SILC includes both interest and dividend income. However, since their disentanglement is not possible due to data constraints, investment income is treated as interest income. Note that, since 2016 dividend income is also taxed at 15% (in 2015 it was taxed at 10%).

### 2.8.2 Pensioners' solidarity contributions (txcpe\_s)

The first solidarity contribution on main pensions (old age, survivors, orphans and disability) was introduced in August 2010.

- *Tax unit*

The unit of analysis is individual.

- *Tax schedule*

Main pensions exceeding €1,400 per month are subject to taxation as shown in Table 2.30. Note that the tax rates apply to the entire pension amount.

Table 2.35 Pensioners' solidarity contribution (2016-2019)

Tax band	Pension bracket (€per year)	Tax rate (%)
----------	-----------------------------	--------------

1	0	1,400	0
2	1,401	1,700	3
3	1,701	2,000	6
4	2,001	2,300	7
5	2,301	2,600	9
6	2,601	2,900	10
7	2,901	3,200	12
8	3,201	3,500	13
9	3,501	...	14

An additional solidarity contribution on main pensions was introduced in August 2011.

- **Tax schedule**

The contribution applies to pensioners below 60 (except from mothers of underage children) with main pensions exceeding €1,700 per month. The contributions' rates are shown in Table 2.36. Note that the tax rates apply to the entire pension amount.

Table 2.36 Additional pensioners' solidarity contribution (2016-2019)

Tax band	Pension bracket (€per year)		Tax rate (%)
1	0	1,700	0
2	1,701	2,300	6
3	2,301	2,900	8
4	2,901	...	10

A solidarity contribution for supplementary pensions was introduced in September 2011.

- **Tax schedule**

In 2016-2019 supplementary pensions exceeding €300 per month are subject to taxation as shown in Table 2.37. Note that the tax rates apply to the entire pension amount. Pensions of the second tax band are not allowed to fall below €300 per month.

Table 2.37 Pensioners' solidarity contribution for supplementary pensions (2016-2019)

Tax band	Pension bracket (€per year)		Tax rate (%)
1	0	300	0
2	301	350	3
3	351	400	4
4	401	450	5
5	451	500	6
6	501	550	7
7	551	600	8
8	601	650	9
9	651	...	10

### 2.8.3 Solidarity contribution (txc00\_s)

This is another emergency tax introduced in 2010, paid by individuals with net taxable incomes exceeding €2,000 per year.

- *Tax unit*

The unit of analysis is individual.

- *Tax schedule*

The contribution rates applied in the period 2016-2019 are shown in Table 2.38.

Table 2.38 Solidarity contribution (2016-2019)

Tax band	Income bracket (€per year)		Tax rate (%)
1	0	12,000	0
2	12,001	20,000	2.2
3	20,001	30,000	5.0
4	30,001	40,000	6.5
5	40,001	65,000	7.5
6	65,001	220,000	9.0
7	220,001	...	10.0

The tax is not applicable to long-term unemployed with zero self-employment, property and investment incomes.

#### 2.8.4 Self-employed and liberal professions' contribution (txcse\_s)

This is a special levy on self-employed and liberal professions aged less than 63 who are professionally active for more than 5 years, introduced in 2010.

- *Tax unit*

The unit of analysis comprises individuals. The concept used for the eligibility condition was individuals' social insurance fund (lpmfc=3,6,8).

- *Tax schedule*

Since 2012, the tax is set to €50 per year regardless the working area's population.

#### 2.8.5 Joint Tax on the Ownership of Real Estate (tpr\_s)

- *Tax unit*

The unit of analysis is individual.

- *Tax schedule*

As of 1 January 2014, full ownership titles to real estate, including other property rights, such as usufruct, bare ownership etc., became subject to the so-called Joint Tax on the Ownership of Real Estate (*Ενιαίος Φόρος Ιδιοκτησίας Ακινήτων, ΕΝΦΙΑ*). The tax is divided into a 'primary' and a 'supplementary' part.

The 'primary' tax is computed based on an elaborate formula which, amongst other parameters, takes account of the geographic position of the property, its surface, use and age as well as the floor it is located at (where applicable). Accordingly, the law includes a social provision which grants discounts of 50% or even 100% on the tax assessed to taxpayers with low family income, families of 3 dependent kids or with members suffering serious disabilities. In particular, tax payers who have annual income up to €2,000 (increased by €1,000 per dependent member) and own property of a total area of up to 150 square meters are fully exempted. Similarly, tax payers



who have annual income up to €9,000 (increased by €1,000 per dependent member), own property of a total area of up to 150 square meters and the value of this property is up to €85,000 (€150,000 for childless couples and lone parents with one child, €200,000 for couples with children and lone parents with two or more children) get a 50% discount.

The ‘supplementary’ tax is computed based on the value of the full ownership rights, bare ownership and usufruct on buildings and land within the urban plans. It is calculated in proportion of the total value of the property which exceeds €200,000, with rates ranging from 0.1% to 1.15%. In addition, buildings or land which are used for own- business purposes were taxed in 2016 at a tax rate of 0.1%.

- ***EUROMOD notes***

In EUROMOD the age factor was set to 1 for all of the tax payers due to lack of information about the age of buildings. The tax rates per square meter used were the average rates for urban and rural/ semi-rural areas according to tax data provided by the Greek authorities (i.e. €3.91 per square meter for those residing in urban areas and €2.63 per square meter for those residing in rural/ semi-rural areas). Note that the supplementary part of the tax has not been simulated in EUROMOD. Due to all these limitations, the policy is switched off in the baseline.

In 2019 *ENΦIA* was reduced, as shown in table 2.39. This tax reduction is simulated in EUROMOD.

Table 2.39 ENFIA reduction (2019)

band	Immovable property value bracket (€)		ENFIA reduction
1	0	60,000	30%
2	60,001	70,000	27%
3	70,001	80,000	25%
4	80,001	1,000,000	20%
7	1,000,001	...	10%

### 3. DATA

#### 3.1 General description

The Greek database is drawn from both the national PDB (detailed) and the Eurostat UDB (aggregate) versions of EU Statistics on Income and Living Conditions (EU-SILC). EU-SILC is a rotating panel that provides quality, timely cross-sectional information on household incomes and social exclusion.

Table 3.1 EUROMOD database description

EUROMOD database	EL_2017_a2
Original name	UDB_cEL17* (UDB) SILC_2016_RAW_FILES (PDB)
Provider	El.Stat., Eurostat
Year of collection	2016
Period of collection	May – June
Income reference period	1.01.2016 - 31.12.2016
Sampling	Stratified multi-stage sampling
Unit of assessment	Households
Coverage	Private household
Sample size	Indiv: 53,942 / HH: 22,743

#### 3.2 Data adjustment

This section summarises the most important adjustments performed to make data suitable for the purposes of EUROMOD.

#### 3.3 Imputations and assumptions

##### 3.3.1 Time period

In the SILC user database, the income reference period is a 12-month period. Information on earnings refers to the last tax year (1<sup>st</sup> January 2016 – 31<sup>st</sup> December 2016). Similarly, information about pensions and benefits refers to the calendar year before the interview. Self-employment income is based on this reference period too.

EU-SILC's User Database Description clarifies that the interval between the end of the income reference period and the time of the interview for the respondent concerned shall be limited to 8 months as far as possible.

All monetary amounts in the SILC are expressed in annual terms. These are converted into monthly terms (dividing by 12) for the EUROMOD database.

### 3.3.2 Dropped observations

People with year of birth equal to 2016 (99 cases) were excluded from EUROMOD's database, as they were not born in SILC's income reference period.

### 3.3.3 Gross incomes

The income information available in the survey used to be net of income tax and social insurance contributions. Since 2007 gross incomes are also provided. However, the latter were not used; in order to obtain gross figures, a procedure has been developed *ad hoc*, taking into account legislation on income tax and social insurance contributions in 2016.

In common with most tax-benefit models, EUROMOD usually works under the default assumption of full compliance (i.e. that taxes are fully adhered to). However, under-reporting of incomes for the purposes of tax evasion is known to be rife in Greece. As a consequence, ignoring this behaviour would seriously undermine the validity of our results.

Hence, in trying to account for tax evasion we use the assumption that individuals reveal their real total net income (say  $N_i$ ) to survey interviewers, where  $i$  = employment income, self-employment income and farming income. Let  $G_i$  denote individuals' real gross income (which includes the part of income which is not reported to the tax authorities), and  $r$  the rates of income under-reporting. Further, let  $T(G_i, r_i)$  denote the personal income tax function for incomes earned in 2013. In the presence of tax evasion, it follows that:

$$G_i = N_i + T((1-r_i) * G_i)$$

The stylised rates of income under-reporting applied here, drawn from ongoing research, were as follows:

$r_w = 6\%$  for employment income,

$r_{se} = 24\%$  for self-employment income

$r_f = 37\%$  for farming incomes

By solving this recursive problem iteratively and for each income source separately, we obtain the values of real gross income,  $G$ . The rates of under-reporting are then used to separate the reported income ( $yemre/yse$ ) from the unreported part of gross income ( $yemnr/yse$ ). EUROMOD treats the former as subject to income tax and social insurance contributions (and as used in resource assessment for means-tested benefits), while it adds the latter to individuals' disposable income. However, the input dataset also includes an alternative set of gross earnings variables ( $yem/yse$ ) which is derived assuming full compliance.<sup>3</sup>

### 3.3.4 Social contributions

As explained earlier, a large number of social insurance funds exist in Greece. The national SILC dataset contains information on the social insurance affiliation to all of them. For this

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<sup>3</sup> The same procedure was also applied to the 2008, 2010, 2012, 2014 and 2015 EUROMOD datasets. Note that the rates of income under-reporting, drawn from Matsaganis & Flevotomou (2010), were 1% for employment income, 33% for self-employment income and 45% for farming income in the 2008 and 2010 datasets.

reason, we constructed EUROMOD variable *lpmfc* where contributors were allocated to the largest representative fund of their category. The categories created and the funds selected to represent them are described in Table 2.1. In cases where people stated they were insured in two different funds, the allocation rules used are shown in Table 3.2:

Table 3.2 Allocation of persons insured in two social insurance funds

1 <sup>st</sup> fund	2 <sup>nd</sup> fund	Allocated fund
Liberal professions	Own account workers	Own account workers
Liberal professions	Civil servants	Liberal professions
Private sector workers	Own account workers	Own account workers
Private sector workers	Farmers	Private sector workers
Private sector workers	Other self-employed workers	Other self-employed workers
Private sector workers	Banking employees	Private sector workers
Other self-employed workers	Farmers	Other self-employed workers

Several other issues also arise:

- (a) contributors must be allocated to the “old” or to the “new” regime,
- (b) employees must be allocated to “standard” or “hazardous” occupations,
- (c) *OFA* and *OAEF* must be allocated to insurance classes.

#### 3.3.4.1 Identifying contributors in the “old” and “new” regimes

In order to distinguish the contributors to the “old” regime (i.e. those first employed before 1<sup>st</sup> January 1993) from contributors to the “new” regime (i.e. those first employed after 1<sup>st</sup> January 1993), the difference in years between a person’s age at the time of the interview and the age he/she began his/her first regular job or business was calculated (*int\_lpm*). In view of the above, contributors were allocated to the “old” or to the “new” regime as shown in Table 3.3. Note that this process was only applied to people with missing data information.

Table 3.3 Contributors in the “old” and the “new” regime (*lpm*)

Contributors first employed	<i>int_lpm</i>	<i>lpm</i>
Before 1 <sup>st</sup> January 1993 (“old” regime)	>24	0
After 1 <sup>st</sup> January 1993 (“new” regime)	<=24	1

#### 3.3.4.2 Identifying contributors in hazardous occupations (*lochz*)

In 2008, 32.3% of all *IKA* contributors and a lower proportion of other employees worked in occupations officially designated as “hazardous”. Workers in “hazardous” occupations have the right to retire on a full pension up to five years before others (i.e. those in “standard” occupations). On the other hand, as explained in section 2.5.2.1, workers in “hazardous” occupations (and their employers) pay social contributions at a higher rate. It is for this reason that identifying those contributors is important for the purposes of modelling the tax-benefit system of Greece.

The following conditions were specified to identify workers in “hazardous” occupations:

- person is an active contributor, i.e. “directly insured”,

- social insurance fund is “IKA” ( $lpmfc=1$ ) or “banking employees” ( $lpmfc=5$ ) or “public enterprise workers” ( $lpmfc=4$ ),
- labour economic status is “employee” ( $les=3$ ) or “unemployed” ( $les=5$ ),
- occupation is “technician or associate professional” ( $loc=3$ ) or “craft or trades worker” ( $loc=7$ ) or “plant or machine operator” ( $loc=8$ ), or
- occupation is “skilled agricultural” ( $loc=6$ ) or “elementary occupation” ( $loc=9$ ), except when industry is “agriculture” ( $lindi=1$  was excluded).

Note that this process was only applied to people with missing data information.

### 3.3.4.3 Allocating self-employed contributors to insurance classes

Since reference earnings are not known in advance in the case of self-employment, social contributions are set at fixed amounts per “insurance class”, according to a schedule revised annually. This is the case with self-employed workers (*OAE*) and farmers (*OFA*).

Therefore, before social insurance contributions could be modelled, self-employment earnings were used to allocate contributors to insurance classes. To mimic the quasi-proportional effect intended, the higher one’s earnings the higher their insurance class. Income brackets were chosen so that the resulting distribution of contributors between insurance classes matched the actual one. Note that this process was only applicable to people with missing data information. The 2016-2017 distributions for own own-account workers, other self-employed workers and farmers are presented in Annex 3.

### 3.3.5 Other data issues

For the construction of EUROMOD variables *bmac* (contributory maternity benefits), *bho* (housing benefits) and *bdi* (non-contributory disability benefits) both the UDB and the PDB versions of the national SILC were used in order to aggregate all relevant variables in the most accurate way. Hence, the definition of the above variables is as follows:

$bmac = \text{maternity allowance} + \text{birth grant} + \text{parental leave benefit}$  (PDB variables included in *hy050n*)

$bho = \text{housing allowances (hy070n)} + \text{housing benefit for students in tertiary education}$  (PDB variable included in *hy050n*)

$bdi = \text{benefit for persons with special needs} + \text{care allowance for incapacitated persons} + \text{care allowance for incapacitated children} + \text{nutrition allowance for people suffering from kidney’s disease} + \text{other disability benefits/ allowances} + \text{disabled child care allowance}$  (PDB variables included in *hy050n* and *py130n*)

Moreover, negative self-employment incomes have been set to zero. Note that this adjustment is applied in the model and not in the input dataset and thus can be easily omitted from model calculations by switching off the corresponding function in the policy sheet (i.e. policy *yse\_el*).

## 3.4 Updating

To account for any time inconsistencies between the input dataset and the policy year, updating factors are used. Each monetary variable (i.e. each income component) is updated so as to account for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax-benefit system. Updating factors are generally based on

changes in the average value of an income component between the year of the data and the policy year.

As a rule, updating factors are provided both for simulated and non-simulated income components present in the input dataset. Note however that in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the updated original variables in the dataset. Updating factors for simulated variables are provided so as to facilitate the use of the model in cases when the user wishes to turn off the simulation of a particular variable. The list of updating factors as well as the sources used to derive them can be found in Table 3.4.

**Table 3.4 Raw indices for deriving EUROMOD uprating factors (2016-2019)**

Index	Constant name	Values of raw indices				Source	Income components uprated by the index
		2016	2017	2018	2019		
Harmonised Index of Consumer Prices	\$HICP	100.02	101.15	101.94	102.75	EUROSTAT; AMECO forecast for 2019	
CPI (non harmonised)	\$f_cpi	104.65	105.82	106.48	105.1	ElStat (2019: average of the first 2 months) [a]	afc, amolv, kivho, xcd, xed, xhcmomi, xhl, xhl01, xht, xog, yds, ypp
GDP	\$f_gdp	0.9904	1.0067	1.0055	1.0055	ElStat (2019: same as in 2018) [b]	xmpam, xmpot, ydses_o, yds01
employment earnings: all employees	\$f_yem	99.7244	101.8519	103.4675	103.4675	Bank of Greece, 2014 Governors' Report [c] until 2016; Eurostat since 2017	yem, yemnr, yemre, tad, tis, xpp, yivwg, yem00, yse, ysenr, ysere, ypt, kfb, yot, bmacro, bhl, kfbcc, kcc, yem_a
employment earnings: public enterprises workers	\$f_yem4	95.519	96.1339	99.4097	99.4097	Bank of Greece, 2014 Governors' Report [c] until 2016; Eurostat since 2017	yem, yemnr, yemre
employment earnings: banking employees	\$f_yem5	96.807	98.8723	100.4406	100.4406	Bank of Greece, 2014 Governors' Report [c] until 2016; Eurostat since 2017	yem, yemnr, yemre
employment earnings: civil servants	\$f_yem7	106.5056	107.1913	110.8439	110.8439	Bank of Greece, 2014 Governors' Report [c] until 2016; Eurostat since 2017	yem, yemnr, yemre
employment earnings: other private sector employees	\$f_yem189	99.2857	101.4038	103.0123	103.0123	Bank of Greece, 2014 Governors' Report [c] until 2016; Eurostat since 2017	yem, yemnr, yemre
self-employment income: farming	\$f_yse_farm	85.638	90.7535	90.1952	90.1952	ElStat [b], [d]	yse, ysenr, ysere
property income	\$f_ypr	81.0241	79.2237	76.6778	76.6778	ElStat [a]	ypr
investment income	\$f_yiy	117.3038	119.8469	119.9273	120.2465	ElStat [a]	yiy
social solidarity benefit	\$f_boact	230	115	35	12	EKAΣ upper rate	boact
pensions	\$f_pen	111.446	111.446	111.446	111.446	Ministerial decisions	poa00, poacm, poaot, psuwd, psuor, pdi
social pension	\$f_boanc	360	360	360	360	OGA (pension amount)	boanc
unemployment insurance benefit	\$f_bunct	360	360	360	360	OAED (benefit amount)	bunct, bunot
family benefits	\$f_famben	108.137	108.137	108.137	108.137	based on large family benefit	bchlg, bflag, pfa



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disability benefits	\$f_bdi	783.3	783.3	783.3	783.3		bdi
unemployment assistance for long-term unemployed	\$f_bunnc	200	200	200	200		bunnc
civil servants family benefit	\$f_bfac	100	100	100	100		bfacs
income support to families with children in compulsory education	\$f_bched	300	300	300	300		bched
minor family benefits	\$f_bfaot	100	100	100	100		bfaot
housing benefits	\$f_bho	109.5	109.5	109.5	109.5	based on OEK subsidy dates	bho
education allowances	\$f_bed	100	100	100	100		bed
minor social assistance benefits	\$f_bsaot	100	100	100	100		bsaot
property tax	\$f_tpr	100	100	100	100		tpr
housing cost (rent)	\$f_xhcert	81.0241	79.2237	76.6778	76.6778	ElStat (2019: average of the first 2 months) [a]	xhcert, xhcnhrt
housing cost	\$f_xhc	117.3038	119.8469	119.9273	120.2465	ElStat (2019: average of the first 2 months) [a]	xhc, xhcot
one	\$f_one	1	1	1	1		

Notes: The links for the statistical sources are the following:

- [a] <https://www.statistics.gr/statistics/-/publication/DKT87/>
- [b] <https://www.statistics.gr/statistics/-/publication/SEL84/>
- [c] <http://www.bankofgreece.gr/BogEkdoseis/ekthdkth2014.pdf>
- [d] <http://www.statistics.gr/el/statistics/-/publication/SJO01/>

## 4. VALIDATION

### 4.1 Aggregate Validation

EUROMOD results are validated against external benchmarks. Detailed comparisons of the number of people receiving a given income component and total yearly amounts are shown in Annex 2. Both market incomes and non-simulated taxes and benefits in the input dataset as well as simulated taxes and benefits are validated against external official data. The main discrepancies between EUROMOD results and external benchmarks are discussed in the following subsections. Factors that may explain the observed differences are also discussed.

#### 4.1.1 Components of disposable income

In this section, the main differences between the definition of disposable income in EUROMOD and EU-SILC are presented. According to EU-SILC, company car is included in the definition of disposable income and pension from individual private plans is not included. The former is not included in EUROMOD whereas the latter is included.

Table 4.1 Components of disposable income

	EUROMOD	EU-SILC
	<b>ils_dispy</b>	<b>HY020</b>
Employee cash or near cash income	+	+
Employer's social insurance contribution	0	0
Company car	0	+
Contributions to individual private pension plans	0	0
Cash benefits or losses from self-employment	+	+
Pension from individual private plans	+	0
<i>Unemployment benefits</i>	+	+
<i>Old-age benefits</i>	+	+
<i>Survivor' benefits</i>	+	+
Sickness benefits	+	+
<i>Disability benefits</i>	+	+
Education-related allowances	+	+
Income from rental of a property or land	+	+
<i>Family/children related allowances</i>	+	+
Social exclusion not elsewhere classified	+	+
<i>Housing allowances</i>	+	+
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>Taxes on income and SIC</i>	-	-

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

In Table 4.1 of Annex 2 the number of employed and unemployed people in EUROMOD is validated with respect to the official statistics; the two estimates seem to be very much in line for 2016. The decrease in unemployment since then has resulted in EUROMOD overestimating the number of unemployed in 2017 and 2018 by 9% and 20% respectively.

In Tables 4.2 and 4.3 of Annex 2 selected market incomes are validated with respect to people in receipt and aggregate yearly amounts. Due to lack of external statistics on the number of recipients, the validation is only possible for annual amounts. EUROMOD input data capture gross employment earnings in 2016 with a high degree of accuracy. Reported self-employment earnings are overestimated by 7%.

The number of recipients and total expenditure of non-simulated benefits are shown in Tables 4.4-4.5 of Annex 2. Due to a lack of official external statistics, the validation was possible for a limited number of non-simulated benefits. Survivors' pension recipients are very well reported in the SILC 2017 data. Main old age pension recipients are overestimated by 10% in 2016. Disability pension recipients seem to be heavily underreported. This is mostly because SILC data only include disability pension recipients below 65, while administrative data include all disability pension recipients. Supplementary pensions are also heavily underreported. This is likely due to the fact that people report them together with their main pensions. With respect to expenditure, EUROMOD's dataset underestimates the annual amount of disability pensions by more than 60% in 2016. On the other hand, the annual amounts of main old age pensions and survivors' pensions are reported with a satisfactory degree of accuracy. The amount of property tax (ΕΝΦΙΑ) is underestimated by around 15%.

### 4.1.3 Validation of outputted (simulated) incomes

In Tables 4.6 and 4.7 of Appendix 2 simulated benefits, taxes and social insurance contributions are validated separately with respect to recipient and payer numbers, followed by a comparison of figures on aggregate expenditure. Expenditure estimates are generally in line with the estimates of recipient numbers and are thus not commented.

Compared to the administrative data, EUROMOD estimates with a satisfactory degree of accuracy the number of recipients of pensioners' social solidarity benefit in 2016, social pension and the lump-sum benefit for low-paid pensioners. The number of recipients of unemployment assistance for long-term unemployed, guaranteed minimum income, food stamps, rent allowance and 2017-18 social dividend is also simulated with a relatively high degree of accuracy due to the non-take-up adjustments and point systems that have been implemented in EUROMOD. These adjustments are taking into account the official statistics on benefits receipt (or total benefit expenditure). The aggregate expenditure on child benefits and large family benefits also seems to be broadly in line with administrative statistics.

As far as simulated taxes and SIC are concerned, the (adjusted for tax evasion) model underestimates by approximately 20% receipts from personal income tax, solidarity contribution and self-employed and liberal professions contribution, and by almost 30% the receipts from employees' and employers' SIC. Pensioners' and self-employed SIC are simulated with a satisfactory degree of accuracy.

## 4.2 Income distribution

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

### 4.2.1 Income inequality

As a whole, EUROMOD estimates on income inequality seem to be in line with the existing external source estimates for 2016 and 2017. Compared to the EU-SILC figures, EUROMOD estimates show slightly lower income inequality indices. The higher income share of the bottom decile in EUROMOD is the main reason behind this discrepancy.

### 4.2.2 Poverty rates

As a whole, EUROMOD estimates on poverty (using the 60% poverty line) also seem to be in line with the external source estimates for the period 2016-2017.

The biggest discrepancy is observed for people aged 65+, where EUROMOD estimates a poverty rate equal to 8.2% and 8.9% in 2016 and 2017 compared to a poverty rate of 12.4% and 11.6% shown in the EU-SILC data for the same period. This is mostly due to the simulation of a high number of people receiving the lump-sum benefit for low-paid pensioners in 2016 and the social dividend in 2017.

### 4.2.3 Validation of minimum wage

The impact of simulating the minimum wage regulations is presented in Table 4.10 of Annex 2.

Adjustments for minimum wage increase reported earnings by approximately 3% 2016-2018 and 5% for 2019. The impact on poverty and inequality is mildly reducing, with poverty declining by half a percentage point in 2016 and inequality by approximately 1.7%.

## 4.3 Validation of full compliance scenario

In this section we give a brief overview of what is the impact of assuming full compliance in the net-to-gross income process and tax-benefit modeling in EUROMOD (i.e. no income under-reporting).

As we can see in Table 4.11 of Annex 2, adjustments for tax evasion decrease reported earnings by 8%. Personal income tax and employees SIC are also decreased by approximately 25% and 7% respectively on average. The Gini index and poverty rates do not exhibit any significant discrepancies (note that tax evasion adjustments were done in a way so that disposable income remains approximately the same under the two sets of assumptions).

## 4.4 Summary of “health warnings”

A certain amount of caution is called for when interpreting the above results. The severe crisis that the country is still undergoing has had a serious impact on the availability of data needed for macrovalidation purposes. The reduction of resources has led to major delays in the publication of administrative statistical data, while some of the publications (such as the Social Budget and *OΓA*'s statistical bulletin) have been completely abandoned.

Our approach to accounting for tax evasion is a clear improvement on standard practice. Nevertheless, it remains simplistic; assuming that everyone's income from a given source is under-reported by the same rate leaves much to be desired. In addition, simulations may be imperfect when e.g. income tax rules are too complex to be accurately simulated, or when eligibility for means-tested benefits depends on income in previous years.

Uprating incomes from an earlier date to the present amounts to assuming that everybody's income from a given source has risen by the same rate over the relevant period. This assumption clearly understates distributional changes. Moreover, uprating some incomes (e.g. self-employed earnings, incomes from farming etc.) is subject to an even greater degree of uncertainty due to the lack of reliable information.

## 5. REFERENCES

Bank of Greece (2015) "Annual Report 2014", Athens: Bank of Greece.

El.Stat. (2017) "Annual National Accounts, Gross value added by Industry Years 2000-2016", Athens: Hellenic Statistical Authority.

Leventi C., Matsaganis M., Mitrakos T. and Tsakloglou P. (2009) "Poverty targeting and the design of policies towards groups at high risk of social exclusion", Report submitted to the Greek Ministry of Labour and Social Security, Athens (in Greek).

Flevotomou M., Kanavitsa E., Leventi C., A., Matsaganis M. and Tsakloglou P. (2017) "EUROMOD Country Report: Greece 2013-2016", Institute for Social and Economic Research, University of Essex.

Matsaganis and Flevotomou M. (2010) " Distributional implications of tax evasion in Greece", Hellenic Observatory Papers on Greece and Southeast Europe GreeSE Paper no.31, The Hellenic Observatory, LSE, London, UK.

*INE-ΓΣΕΕ* Journal (2002) "The salaries of civil servants in EU countries", issue 79.

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

Sites of various social insurance funds and benefit agencies:

[www.efka.gov.gr/el](http://www.efka.gov.gr/el)

[www.oaee.gr](http://www.oaee.gr)

[www.oaed.gr](http://www.oaed.gr)

- ***Other sources of data***

[www.ec.europa.eu/eurostat/en](http://www.ec.europa.eu/eurostat/en)

[www.statistics.gr](http://www.statistics.gr)

## ANNEX 1: POLICY EFFECTS IN 2018-2019

In this section we analyse the direct tax-benefit policy effect on household disposable income in Greece between 2018 and 2019. We try to understand how changes (or non-changes) to tax-benefit policies have affected household incomes in the two periods, abstracting from changes in the population characteristics (e.g. increased unemployment) and the distribution of market/original gross incomes (e.g. reduction in wages).

Table A1 and Figure A1 show the policy effect measured in real terms by income component and income decile group. The effect is estimated as the difference between simulated household net income under the 2019 tax-benefit policies (deflating the tax-benefit monetary parameters by Eurostat's Harmonized Index of Consumer Prices, HICP which, for the case of Greece, equaled to 0.79% for the period in question) and net incomes simulated under 2018 policies, as a percentage of mean equivalised household disposable income in 2018. Households are ranked based on their equivalised household disposable income. The total policy effect on household incomes is decomposed into the different components: public pensions, means-tested benefits, non-means-tested benefits, employees and pensioners' social insurance contributions (SIC), self-employed SIC and direct taxes. We isolate the policy effect from changes in market/original income, i.e. changes to market/original incomes are not considered as part of the policy effect and so, they have no effect on disposable income.

Table A1 and Figure A1 account for all policies, including the 2018 social dividend (which, at the time of writing of this report, has not been provided in 2019). Policy changes in 2019 have a regressive effect on the income distribution. The overall disposable income increases by 1.1 percent but decreases for the poorest 20% of the population. This is mainly due to the fact that social dividend was only provided in 2018. Another (relatively minor) reason is the further reduction in pensioner's social solidarity benefit (EKAS) that took place in 2018 (from €35 to €12 per month). The increase in disposable income caused by direct taxes is due to the 10-30% reduction in the Greek property tax (ENFIA). Increases in household disposable income driven by public pensions are mainly due to the provision of the 13<sup>th</sup> monthly pension installment and, to a much lesser extent, to the pensions' recalculation that took place in 2019. These two policy changes are indirectly causing the losses in disposable income due to the increased pensioners' SIC. The changes in self-employed SIC are causing income losses to self-employed paid on the minimum wage (because of the increase in the contribution base); for self-employed paid above the minimum wage, these losses are completely offset by the decrease in the SIC rate for pensions (which went down from 20% to 13.33%). Finally, moving to the impact of non means-tested benefits, the increase in the unemployment benefit is to be held responsible for the small increases in the disposable income of deciles 1-8.

Note that the non-provision of the social dividend in 2019 casts a shadow over all other changes in means-tested benefits that took place in the same year. The situation changes drastically if this benefit is omitted from the analysis, as the introduction of the housing benefit had a highly progressive effect on the income distribution.



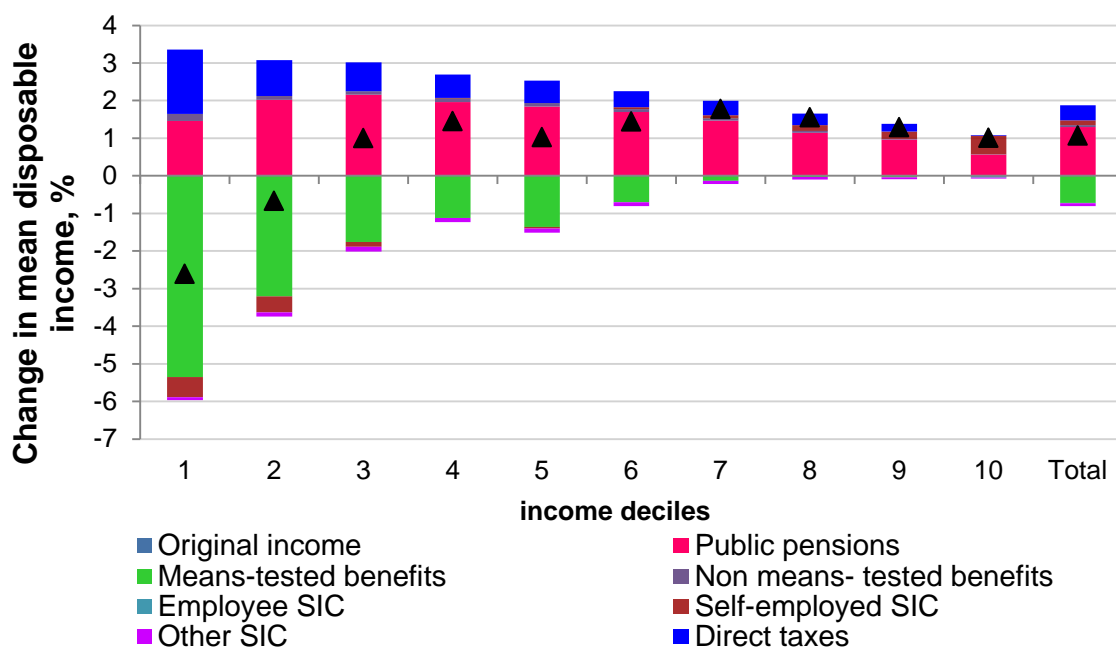
Table A1: Policy effects in 2018-2019, using the CPI-indexation, %

Decile	Original income	Public pensions	MTB	Non Employee MTB	Employee SIC	Self-empl. SIC	Other SIC	Direct taxes	Disp. income
1	0.0	1.46	-5.35	0.18	0.00	-0.53	-0.08	1.72	-2.61
2	0.0	2.02	-3.21	0.11	0.00	-0.42	-0.12	0.95	-0.67
3	0.0	2.16	-1.76	0.09	0.00	-0.12	-0.13	0.76	1.00
4	0.0	1.97	-1.12	0.09	0.00	0.02	-0.11	0.62	1.46
5	0.0	1.84	-1.36	0.10	0.00	-0.04	-0.11	0.60	1.03
6	0.0	1.70	-0.71	0.08	0.00	0.04	-0.10	0.43	1.45
7	0.0	1.47	-0.13	0.05	0.01	0.09	-0.08	0.38	1.78
8	0.0	1.15	-0.03	0.05	0.00	0.15	-0.06	0.30	1.56
9	0.0	0.97	-0.04	0.01	0.00	0.20	-0.05	0.20	1.29
10	0.0	0.56	0.00	0.01	-0.04	0.49	-0.03	0.02	1.01
<b>Total</b>	<b>0.0</b>	<b>1.30</b>	<b>-0.72</b>	<b>0.05</b>	<b>-0.01</b>	<b>0.13</b>	<b>-0.07</b>	<b>0.40</b>	<b>1.07</b>

Notes: MTB: Means-tested benefits; ‘Other SIC’ contain pensioners’ SIC.

Shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2018, using the modified OECD equivalence scale. Each policy system has been applied to the same input data, deflating monetary parameters of 2019 policies by Eurostat’s Harmonized Index of Consumer Prices (HICP).

Figure A1: Policy effects in 2018-2019, using the CPI-indexation, %



ANNEX 2 VALIDATION STATISTICS

Table 4.1-Number of employed and unemployed

	EUROMOD				External			Ratio	
	2016	2016	2017	2018	2019	2016	2017	2018	2019
Nr of employed	3,541,845	3,548,000	3,610,300	3,682,700		1.00	0.98	0.96	
Nr of unemployed	1,233,271	1,197,000	1,130,900	1,027,000		1.03	1.09	1.20	

Notes: EUROMOD number of employed and unemployed computed based on months in employment/unemployment - numbers computed as averages of monthly data over the year.

Source: EUROSTAT (LFS adjusted series)

Table 4.2-Market income in EUROMOD -Number of recipients

	EUROMOD				External				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
reported earnings	2,624,156	2,624,156	2,624,156	2,624,156								
reported self-employed earnings	1,192,967	1,192,967	1,192,967	1,192,967								
non-reported earnings	2,624,156	2,624,156	2,624,156	2,624,156								
non-reported self-employment income	1,071,502	1,071,502	1,071,502	1,071,502								
private pension	1,474	1,474	1,474	1,474								
income from rent	828,071	828,071	828,071	828,071								
other income	2,421	2,421	2,421	2,421								
private transfers received	458,440	458,440	458,440	458,440								
investment income	338,433	338,433	338,433	338,433								

Table 4.3-Market income in EUROMOD -Annual amounts (in mil.)

	EUROMOD				External				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
reported earnings	33,223	33,796	34,498	34,498	33,821				0.98			
reported self-employed earnings	14,022	14,432	14,593	14,593	13,075				1.07			
non-reported earnings	1,758	1,789	1,825	1,825								
non-reported self-employment earnings	4,221	4,365	4,401	4,401								
private pension	3	3	3	3								
income from rent	2,850	2,786	2,697	2,697								
other income	1	1	1	1								
private transfers received	1,401	1,431	1,454	1,454								
investment income	289	295	296	296								

Notes: 1. Eurostat gross wages and salaries also include employers' contributions and remuneration in kind.

Source: Greek Ministry of Finance: <http://www.aade.gr/menoy/statistika-deiktes/eisodema/etesia-statistika-deltia>

Table 4.4-Tax benefit instruments included but not simulated in EUROMOD -Number of recipients/ payers

	EUROMOD		External			Ratio			
	2016	2016	2017	2018	2019	2016	2017	2018	2019
<b>Benefits</b>									
disability benefits	140,592								
education allowances for students	5,627								
minor family benefits	11,052								
sickness benefits	13,171								
housing benefits	1,763								
maternity benefits	6,338								
minor social assistance benefits	180,239								
other unemployment benefits	15,936								
disability pension	100,735	267,100	258,758	251,003		0.39	0.38	0.40	
main old age pension	2,183,400	1,978,810	1,961,216	1,936,655		1.10	1.11	1.13	
supplementary old age pension	462,634	1,243,597	1,243,182	1,229,767		0.37	0.37	0.38	
minor old age pensions	87,295								
survivors' pensions	406,830	400,878	393,218	391,197		1.03	1.05	1.06	
orphan's pension	7,175								
income supp. to families with child. in comp. educ.	3,455		-	-	-		-	-	-
<b>Taxes and Social Insurance Contributions</b>									
property tax (ENFIA)	3,425,292								

- Notes:
1. Minor old age pensions include early retirement pensions due to resignation, national resistance pensions, deputy/ mayor pensions etc.
  2. Minor family benefits include unprotected child benefit, marriage grant, OAEΔ family allowance etc.
  3. Sickness benefits include pay sick leave, benefit for working accidents, assistance of movement of sick persons, benefit for spa therapy, airing etc.
  4. EUROMOD estimates include only disability pension recipients below 65, while administrative data include all disability pension recipients.
  5. Minor social assistance benefits include emergency social help, special allowance for released prisoners/ repatriated Greeks/ drug addicts/ alcoholics, benefit for households in less favoured areas etc. “-“: non-applicable.

Source: Own elaboration of data derived from various administrative sources.

Table 4.5-Tax benefit instruments included but not simulated in EUROMOD -Annual amounts (in mil.)

	EUROMOD				External				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
<b>Benefits</b>												
disability benefits	265	265	265	265								
education allowances for students	19	19	19	19								
minor family benefits	31	31	31	31								
sickness benefits	21	22	22	22								
housing benefits	3	3	3	3								
maternity benefits	5	5	6	6								
minor social assistance benefits	73	73	73	73								
other unemployment benefits	24	24	24	24								
disability pension	619	619	619	619								
main old age pension	21,366	21,366	21,357	21,366								
supplementary old age pension	976	976	976	976								
minor old age pensions	610	610	610	610								
survivors' pensions	2,861	2,861	2,861	2,861								
orphan's pension	31	31	31	31								
income support to families with children in compulsory education	2	-	-	-	2	-	-	-	1.27	-	-	-
<b>Taxes and Social Insurance Contributions</b>												
property tax (ENFIA)	2,311	2,311	2,311		2,713	2,704	2,643		0.85	0.85	0.87	

Notes: 1. Minor old age pensions include early retirement pensions due to resignation, national resistance pensions, deputy/ mayor pensions etc.

2. Minor family benefits include unprotected child benefit, marriage grant, OAEΔ family allowance etc.

3. Sickness benefits include pay sick leave, benefit for working accidents, assistance of movement of sick persons, benefit for spa therapy, airing etc.

4. EUROMOD estimates include only disability pension recipients below 65, while administrative data include all disability pension recipients.

5. Minor social assistance benefits include emergency social help, special allowance for released prisoners/ repatriated Greeks/ drug addicts/ alcoholics, benefit for households in less favoured areas etc. “-“: non-applicable.

Source: Own elaboration of data derived from various administrative sources.

Table 4.6-Tax benefit instruments simulated in EUROMOD -Number of recipients/ payers

	EUROMOD				SILC	Ratio	External				Ratio			
	2016	2017	2018	2019	2016	2016	2016	2017	2018	2019	2016	2017	2018	2019
<b>Benefits</b>														
child benefit	876,668	873,278	864,523	862,259	828,364	1.06								
large family benefit	162,556	162,033	0	0	123,295	1.32								
pensioners' social solidarity ben	291,302	298,153	289,554	281,676	87,634	3.32	303,729				0.96			
social pension	40,676	40,248	40,330	40,071	9,891	4.11	30,151	30,211	26,042		1.35	1.33	1.55	
unempl. assistance benefit	16,392	16,392	17,546	17,546	6,461	2.54								
rent allowance	18,663	0	0	0	1,763	10.59	20,116	-	-		0.93	-	-	-
food stamps	116,713	0	0	0	46,090	2.53	136,496	-	-		0.86	-	-	-
unempl. insurance benefit	161,950	161,950	161,950	161,950	161,950	1.00								
guaranteed minimum income	-	250,605	250,270	251,039	9,791	-		266,407		256,127	-	0.94		0.98
lump-sum for low-paid pens.	1,737,442	-	-	-	-	-	1,600,000	-	-	-	1.09	-	-	-
social dividend	-	1,637,573	2,059,715	-	-	-	-	1,313,993	1,684,968	-	-	1.25	1.22	-
housing benefit	-	-	-	391,687	-	-	-	-	-	-	-	-	-	-
13 <sup>th</sup> pension	-	-	-	2,590,596	-	-	-	-	-	-	-	-	-	-
<b>Taxes and Social Insurance Contributions</b>														
self-employed SIC	570,338	549,935	549,935	571,061										
farmers SIC	494,689	458,684	458,684	494,689										
employers' SIC	1,904,966	2,506,761	2,506,761	2,506,761										
employees' SIC	2,506,761	2,506,761	2,506,761	2,506,761										
pensioners' SIC	2,627,630	2,627,749	2,627,749	2,627,749			2,639,919	2,608,662	2,570,266		1.00	1.01	1.02	
personal income tax	3,626,229	3,682,461	3,699,312	3,808,998										
interest income tax	338,433	338,433	338,433	338,433										
pensioners' solidarity contrib.	287,689	287,689	287,689	339,761										
solidarity contribution	921,484	921,484	921,484	921,484										
self-employed & liberal professions contribution	1,862,943	1,959,430	1,997,226	2,022,110										
property tax (ENFIA)				3,425,292										

Notes: 1. Personal income tax payers: persons paying non-zero income tax.  
 2. The number of pensioners' social insurance contributors includes both main and supplementary pension recipients. "--": non-applicable.

Sources: Own elaboration of data derived from various administrative sources.

Table 4.7-Tax benefit instruments simulated in EUROMOD -Annual amounts (Mil.)

	EUROMOD				SILC	Ratio	External				Ratio			
	2016	2017	2018	2019	2016	2016	2016	2017	2018	2019	2016	2017	2018	2019
<b>Benefits</b>														
child benefit	507	497	996	992	539	0.94	468	466			1.08	1.07		
large family benefit	224	223	-	-	201	1.11	204	202	-	-	1.10	1.10	-	-
pensioners' social solidarity benefit	765	396	122	41	155	4.94	723	325			1.06	1.22		
social pension	176	173	173	187	17	10.20	130	127	127		1.35	1.36	1.37	
unempl. assistance for long-term unempl.	35	35	36	36	13	2.62	25	27			1.38	1.28		
housing benefits	31	-	-	-	3	9.34	29	-	-	-	1.06	-	-	-
food stamps	195	-	-	-	66	2.95	187	-	-	-	1.05	-	-	-
unemployment insurance benefit	370	370	370	410	371	1.00								
guaranteed minimum income	-	595	590	593	21	0.00	-	550	782	656	-	1.08	0.75	0.98
lump-sum for low-paid pensioners	666	-	-	-	-	-	630	-	-	-	1.06	-	-	-
social dividend	-	975	1,045	-	-	-	-	727	780	-	-	1.34	1.34	-
housing benefit	-	-	-	613	-	-	-	-	-	397	-	-	-	1.54
13 <sup>th</sup> pension	-	-	-	1,019	-	-	-	-	-	971	-	-	-	1.05
<b>Taxes and Social Insurance contributions</b>														
pensioners' SIC	1,370	1,497	1,497	1,565				1,612	1,635			0.93	0.92	
personal income tax	6,278	6,321	6,488	6,641			8,179	8,180			0.77	0.77		
solidarity contribution	538	523	539	553			725				0.74			
interest income tax	43	44	44	44										
pensioners' solidarity contributions	277	277	275	324										
tax on high pensions	1,228	1,228	1,225	1,207										
self-employed & liberal prof. contribution	322	322	322	322			396	386			0.81	0.83		
employee contributions	5,642	5,763	5,885	5,891			8,430	9,236	7,941		0.67	0.62	0.74	
self-employed contributions	2,647	2,727	2,950	2,877			2,886	2,584	2,521		0.92	1.06	1.17	
employer contributions	5,343	6,340	6,747	7,032			7,754	7,796	9,504		0.69	0.81	0.71	
property tax (ENFIA)				1,811										

Sources: Own elaboration of data derived from various administrative sources. "--": non-applicable.



Table 4.8-Distribution of equivalised disposable income

	EUROMOD				External				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
D1	2.46	3.13	3.22	3.07	2.20	2.50			1.12	1.25		
D2	4.60	4.92	4.96	4.86	4.40	4.70			1.05	1.05		
D3	5.99	6.11	6.14	6.13	5.90	5.90			1.02	1.03		
D4	7.08	7.17	7.15	7.20	7.00	7.00			1.01	1.02		
D5	8.25	8.20	8.16	8.17	8.00	8.10			1.03	1.01		
D6	9.39	9.24	9.18	9.24	9.30	9.30			1.01	0.99		
D7	10.71	10.53	10.51	10.59	10.70	10.60			1.00	0.99		
D8	12.46	12.30	12.29	12.35	12.50	12.80			1.00	0.96		
D9	14.89	14.70	14.69	14.72	15.10	14.90			0.99	0.99		
D10	24.18	23.71	23.70	23.67	25.00	24.60			0.97	0.96		
Median	8,125	8,161	8,162	8,298	7,600	7,863			1.07	1.04		
Mean	9,222	9,386	9,458	9,590	8,800	9,034			1.05	1.04		
Gini	31.9	30.3	30.1	30.4	33.40	32.30			0.96	0.94		
S80/S20	5.5	4.8	4.7	4.8	6.10	5.51			0.91	0.87		

Notes: Based on 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; computed at the individual level.

Source: Eurostat online database.

Table 4.9-Poverty rates by gender and age

	EUROMOD				External				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
<b>40% median HDI</b>												
Total	8.55	5.79	5.26	6.12	10.20	9.30	8.10		0.92	0.72		
Males	8.82	5.89	5.35	6.34	10.60	9.50	8.30		0.93	0.71		
Females	8.28	5.71	5.18	5.91	9.80	9.00	7.90		0.92	0.72		
<b>50% median HDI</b>												
Total	13.67	11.06	10.04	11.26	15.30	14.50	12.90		0.94	0.86		
Males	14.03	11.13	10.13	11.44	15.60	14.70	13.10		0.95	0.85		
Females	13.32	11.00	9.95	11.09	15.00	14.30	12.70		0.93	0.87		
<b>60% median HDI</b>												
Total	19.35	17.12	16.64	17.49	21.20	20.20	18.50		0.96	0.93		
Males	19.66	17.16	16.54	17.32	21.20	20.20	18.50		0.97	0.93		
Females	19.04	17.08	16.72	17.66	21.20	20.20	18.50		0.94	0.92		
<b>70% median HDI</b>												
Total	26.46	24.74	24.12	24.33	28.10	26.50	26.40		1.00	0.94		
Males	26.74	24.65	23.76	24.10	28.00	26.10	26.20		1.02	0.94		
Females	26.20	24.83	24.46	24.55	28.20	26.80	26.70		0.98	0.93		
<b>60% median HDI</b>												
0-15 years	24.28	21.61	19.57	20.43	25.60	24.00	21.70		1.01	1.00		
16-24 years	29.21	24.13	23.95	24.83	29.60	28.30	28.20		1.03	0.86		
25-49 years	21.41	18.45	17.46	18.32	23.00	21.50	19.50		1.00	0.95		
50-64 years	19.72	17.23	16.95	17.93	21.30	20.10	18.00		0.98	0.96		
65+ years	8.23	8.86	10.02	10.74	12.40	12.40	11.60		0.66	0.76		

Notes: 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 external statistics provided by EUROSTAT are shifted by one year in order to align with EUROMOD’s income reference periods.

Sources: Eurostat online database.

Table 4.10-Minimum wage validation

	Baseline				Min Wage Incl.				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
equivalised disposable income	65,993	67,052	67,460	68,453	66,957	67,894	68,244	69,756	0.99	0.99	0.99	0.98
reported earnings	33,223	33,796	34,498	34,498	34,411	34,887	35,521	36,251	0.97	0.97	0.97	0.95
personal income tax	6,278	6,321	6,488	6,641	6,318	6,361	6,527	6,747	0.99	0.99	0.99	0.98
employee contributions	5,642	5,763	5,885	5,891	5,804	5,910	6,022	6,135	0.97	0.98	0.98	0.96
employer contributions	5,343	6,340	6,747	7,032	5,592	6,570	6,961	7,409	0.96	0.96	0.97	0.95
Poverty rate (60% median HDI)	19.35	17.12	16.64	17.49	18.80	16.70	16.46	17.10	1.03	1.02	1.01	1.02
Gini coefficient	31.9	30.3	30.1	30.4	31.4	29.9	29.8	29.9	1.02	1.01	1.01	1.02

Table 4.11- No correction for tax evasion - validation

	Baseline				No correction for tax evasion Incl.				Ratio			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
equivalised disposable income	65,993	67,052	67,460	68,453	65,443	65,877	66,282	67,351	1.01	1.02	1.02	1.02
reported earnings	33,223	33,796	34,498	34,498	35,977	36,597	37,357	37,357	0.92	0.92	0.92	0.92
personal income tax	6,278	6,321	6,488	6,641	8,617	8,454	8,685	8,873	0.73	0.75	0.75	0.75
employee contributions	5,642	5,763	5,885	5,891	6,096	6,226	6,357	6,368	0.93	0.93	0.93	0.93
employer contributions	5,343	6,340	6,747	7,032	5,756	6,834	7,273	7,591	0.93	0.93	0.93	0.93
Poverty rate (60% median HDI)	19.35	17.12	16.64	17.49	19.62	17.21	16.70	17.62	0.99	0.99	1.00	0.99
Gini coefficient	31.9	30.3	30.1	30.4	32.2	30.5	30.3	30.6	0.99	0.99	0.99	0.99

**ANNEX 3 – SELF-EMPLOYED SOCIAL INSURANCE CONTRIBUTIONS (2016)**

**OAEE social insurance contributions**

Table A3.1 OAEE social contributions simulated (2016, €per year)

<b>Case 1: contributors to the “old” regime</b>			
<b>Insurance class</b>	<b>Pension insurance</b>	<b>Sickness insurance</b>	<b>Total</b>
1	1,828.92	1,113.48	2,942.40
2	2,233.68	1,113.48	3,347.16
3	2,666.40	1,113.48	3,779.88
4	2,910.96	1,113.48	4,024.44
5	3,357.72	1,113.48	4,471.20
6	3,787.08	1,113.48	4,900.56
7	4,049.52	1,113.48	5,163.00
8	4,378.80	1,113.48	5,492.28
9	4,674.60	1,113.48	5,788.08
10	4,970.64	1,113.48	6,084.12
11	5,266.44	1,113.48	6,379.92
12	5,562.24	1,113.48	6,675.72
13	5,858.28	1,113.48	6,971.76
14	6,154.20	1,113.48	7,267.68

<b>Case 2: contributors to the “new” regime</b>			
<b>Insurance class</b>	<b>Pension insurance</b>	<b>Sickness insurance</b>	<b>Total</b>
1	1,828.92	699.60	2,528.52
2	2,233.68	854.40	3,088.08
3	2,666.40	1,019.88	3,686.28
4	2,910.96	1,113.48	4,024.44
5	3,357.72	1,284.36	4,642.32
6	3,787.08	1,448.52	5,235.60
7	4,049.52	1,548.96	5,598.48
8	4,378.80	1,694.84	6,053.64
9	4,674.60	1,788.00	6,462.60
10	4,970.64	1,901.28	6,871.92
11	5,266.44	2,014.44	7,280.88
12	5,562.24	2,127.60	7,689.84
13	5,858.28	2,240.76	8,099.04
14	6,154.20	2,353.92	8,508.12

Note: Since August 2011 all contributors pay an additional amount of €10 per month for unemployment insurance.

**ΤΣΑΥ social insurance contributions**

Table A3.3 ΤΣΑΥ social contributions simulated (2016, €per month)

Social insurance contributions (SIC)	Contributors first employed before 1 January 1993		Contributors first employed after 1 January 1993	
	<5 years	>5 years	<5 years	>5 years
<b>Case 1: employees</b>				
<b>A. contributions paid as % of reference earnings</b>				
Primary pension	0.00	0.00	4.00	6.67
Sickness insurance	5.00	5.00	2.55	2.55
Additional benefits	0.00	0.00	4.00	4.00
<b>Total</b>	<b>5.00</b>	<b>5.00</b>	<b>10.55</b>	<b>13.22</b>
<b>B. contributions paid as a lump sum (€per month)</b>				
Primary pension	113.00	188.30	0.00	0.00
Sickness insurance	2.00	2.00	2.00	2.00
Additional benefits	2.93	2.93	0.00	0.00
<b>Total</b>	<b>117.93</b>	<b>193.23</b>	<b>2.00</b>	<b>2.00</b>
<b>Case 2: self-employed (€per month)</b>				
Primary pension	126.87	202.17	83.20	138.70
Sickness insurance	51.21	51.21	46.70	46.70
Additional benefits	5.70	5.70	27.70	27.70
<b>Total</b>	<b>183.78</b>	<b>259.08</b>	<b>157.60</b>	<b>213.10</b>

Note: Since August 2011 all ΤΣΑΥ self-employed contributors pay an additional amount of €10 per month for unemployment insurance.

**ΟΓΑ social insurance contributions**

Table A3.4 ΟΓΑ social contributions simulated (2016, € per year)

Insurance class	Pension insurance	Sickness insurance	Additional benefits	Total
1	584.12	319.68	24.60	928.40
2	724.04	319.68	24.60	1,068.32
3	871.26	319.68	24.60	1,215.54
4	1,075.10	319.68	24.60	1,419.38
5	1,278.94	319.68	36.96	1,635.58
6	1,481.35	370.33	36.96	1,888.64
7	1,682.23	420.57	36.96	2,139.76

Note: The 2016 contributions are applicable since July 2015.

## Distributions of self-employed contributors

Table A3.5 Distribution of OAAE contributors by insurance class (2014)

<b>Case 1: Contributors to the “old” regime</b>				
<b>Insurance class</b>	<b>2013</b>	<b>%</b>	<b>2014</b>	<b>%</b>
1	43,546	11	37,771	11
2	29,848	8	28,077	8
3	19,030	5	21,654	6
4	62,843	17	54,049	16
5	41,237	11	44,075	13
6	39,308	10	32,443	10
7	131,829	35	108,848	33
8	782	0	1,008	0
9	550	0	359	0
10	5,749	2	4,542	1
11	69	0	33	0
12	65	0	43	0
13	17	0	11	0
14	4,056	1	2,456	1
<b>Total</b>	<b>378,929</b>	<b>100</b>	<b>335,369</b>	<b>100</b>
<b>Case 2: Contributors to the “new” regime</b>				
<b>Insurance class</b>	<b>2013</b>	<b>%</b>	<b>2014</b>	<b>%</b>
1	138,137	35	163,002	41
2	90,445	23	79,122	20
3	58,449	15	68,360	17
4	35,691	9	34,006	9
5	26,250	7	23,934	6
6	20,845	5	13,092	3
7	20,686	5	18,277	5
8	79	0	78	0
9	30	0	30	0
10	45	0	42	0
11	18	0	14	0
12	5	0	4	0
13	2	0	1	0
14	66	0	49	0
<b>Total</b>	<b>390,748</b>	<b>100</b>	<b>400,011</b>	<b>100</b>

Note: No data available for OAAE’s distribution in 2016. Hence, 2014 data were used for the allocation of self-employed workers to insurance classes in 2016.

Table A3.6 Distribution of OGA contributors by insurance class (2009)

<b>2009</b>		
<b>Insurance class</b>	<b>No. of contributors</b>	<b>%</b>
1	567,407	81.6
2	26,689	3.8
3	28,781	4.1
4	17,849	2.6
5	12,304	1.8
6	3,218	0.5
7	39,190	5.6
<b>Total OGA</b>	<b>695,438</b>	<b>100.0</b>

Note: No data available for OGA's 2016 distribution. Hence, 2009 data were used for the farmers' allocation to insurance classes in 2016.