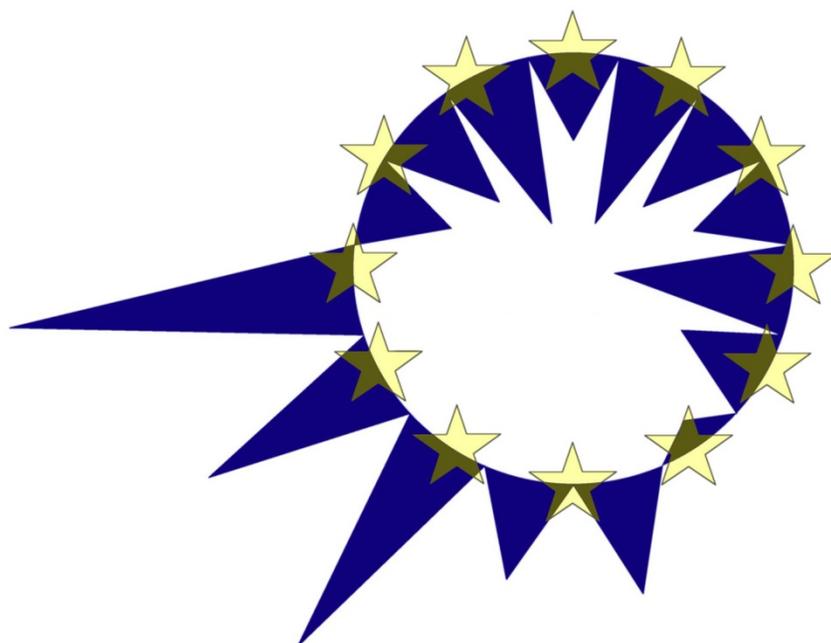


# **EUROMOD**

## **COUNTRY REPORT**



### **CYPRUS (2007-2010)**

**Christos Koutsampelas and Alexandros Polycarpou**

**July 2012**



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 27 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 Cyprus. 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 F6.0 EUROMOD is continually being improved and the results presented here may not match those that would be obtained with later versions of EUROMOD.

For more information, see: <http://www.iser.essex.ac.uk/research/euromod>

This document is supported by the European Union Programme for Employment and Social Solidarity – PROGRESS (2007-2013).

This programme is managed by the Directorate-General for Employment, social affairs and equal opportunities of the European Commission. It was established to finally support the implementation of the objectives of the European Union in the employment and social affairs area, as set out in the Social Agenda, and thereby contribute to the achievement of the Lisbon Strategy goals in these fields.

The seven-year Programme targets all stakeholders who can help shape the development of appropriate and effective employment and social legislation and policies, across the EU-27, EFTA-EEA and EU candidate and pre-candidate countries.

PROGRESS mission is to strengthen the EU contribution in support of Member States' commitment. PROGRESS is instrumental in providing analysis and policy advice on PROGRESS policy areas; monitoring and reporting on the implementation of EU legislation and policies in PROGRESS policy areas; promoting policy transfer, learning and support among Member States on EU objectives and priorities; and relaying the views of the stakeholders and society at large

For more information see: <http://ec.europa.eu/progress>

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



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## 1. BASIC INFORMATION

### 1.1 Basic figures

Table 1. Basic figures

	Pop. (m.)	pop. ≤ 15 (%)	pop. ≥ 65 (%)	Life expect. (years)	Fertility rate	Unemp rate	GDP per head (PPP)
2007	778.7	17.9	12.3	77.9/82.2	1.40	4.0	92
2008	789.3	17.4	12.5	78.5/83.1	1.46	3.6	99
2009	796.9	17.1	12.7	78.6/83.6	1.51	5.3	100
2010	803.1	16.9	13.1	n/a	n/a	6.2	99

Source: Eurostat online Database, Cyprus Statistical Service

### 1.2 The tax-benefit system

Table 2. Tax-benefit system and government budget

	Total general gov. revenue % of GDP	Total tax receipts <sup>[1]</sup> % of GDP	Total general gov. expenditure % of GDP	Social protection benefits % of GDP <sup>[2]</sup>
2007	44.8	40.1	41.3	17.8
2008	43.1	38.6	42.1	18.2
2009	40.1	35.3	46.2	20.6
2010	41.0	35.7	46.4	n/a

Notes: [1] Total receipts from taxes and social contributions (including imputed social contributions) after deduction of amounts assessed but unlikely to be collected, [2] Module: [spr\_exp\_sum]

Sources: Eurostat online database

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

	Sickness/ health care	Disability	Old age	Survivors	Family/ children	Unemployment	Housing	Social exclusion
2007	25.8	4.0	40.0	6.3	10.8	5.9	2.7	4.7
2008	25.2	3.7	40.6	6.1	10.8	4.8	3.5	5.2
2009	24.6	3.7	39.3	6.0	11.4	4.5	4.5	6.1
2010	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Eurostat Online Database



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

	Personal income tax	Corporate income tax	Social security contributions		Taxes on goods and services	Other taxes
			Employees	Employers		
2007	12.5	15.0	5.8	15.1	42.2	49.0
2008	15.1	16.6	5.5	12.5	39.4	47.9
2009	12.7	18.0	5.7	13.4	40.6	47.4
2010	n/a	n/a	n/a	n/a	n/a	n/a

Source: Taxation Trends in the EU, 2010 Addition, Annex A.

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

- The Cyprus tax-benefit system is a unified, national system.
- The Fiscal year starts the 1<sup>st</sup> of January and ends 31<sup>st</sup> of December.
- In the public sector, pension age is the age of 63.
- Minimum school leaving age is 15.
- Children are considered dependent if they fall into one of the following categories: (i) under the age of 18 years, (ii) aged 18-25 years engaged in the service in the National Guard, (iii) aged between 18-23 years if receiving full time education, (iv) boys aged between 23-25 years if receiving full time education for as long as the period served in National Guard, (v) children regardless of age, permanently deprived of their subsistence capability
- For benefit purposes lone parents are the unmarried father, widowed, separated or divorced with his wife or the unmarried mother, widowed, separated or divorced with her husband.
- The income tax system is an individual system, with the spouses being assessed independently.
- Income for tax purposes includes various income components namely employment income, self-employed income, pensions, rents etc. Allowances and deductions are taken into account in order to derive total taxable income. The personal income taxation is progressive, while corporate profits are taxed at a flat rate. Different rules and tax rates apply to gains in regard to real estate property.
- Minimum wage legislation applies only to eight occupation categories: sales staff, clerical workers, auxiliary healthcare staff, auxiliary staff in schools, security guards and caretakers.
- Earnings on which social insurance contribution is paid are divided in two bands. In 2007 the lower bands included yearly earnings up to €7345.3<sup>1</sup> (basic insured earnings); earnings above the basic amount are included in the upper band. The distinction is relevant for the provision of contributory benefit<sup>2</sup>: basic amount are calculated on the former and increase with the number of dependants; complementary amounts are calculated on insured earnings above the threshold and are not related to the number of dependants.

<sup>1</sup> Annual upper limit of basic insured earnings: €7668 (2008); €8012 (2009); €8435 (2010);

<sup>2</sup> See sections 1.3 and 2.3 for more information.



### 1.3 Social Benefits

**Public assistance benefit (δημόσιο βοήθημα):** This benefit is targeted to families with income that is not enough to cover their basic and special needs. The Social Welfare Services (SWS) calculate the income needed in order to cover the basic and specific need of the family members and compare it with the actual income. The difference is paid as public assistance benefit. The amount for basic needs (food, clothing and footwear, water supply, fuels, lighting, sanitary living) is fixed and recalculated every year, while special needs (housing, elderly care, child care and other needs) can be paid in cash or in-kind. See section 2.3.1 for more information.

**Unemployment benefit (ανεργιακό επίδομα):** Unemployment benefit is a contributory benefit payable to unemployed persons. The benefit consists of a basic part and a supplementary amount. See section 2.3.2 for more information.

**Maternity Benefit (επίδομα μητρότητας):** Maternity benefit is a contributory benefit given to women giving birth or adopting a child who has not reached the age of 12. The insured mother should be on maternity leave and not receiving her whole salary from her employer.

**Child Benefit (επίδομα τέκνου):** Child benefit is a non-contributory benefit paid to all families with children that reside permanently in Cyprus. It consists of a universal basic part and a supplementary means-tested part. The basic part is paid for each child that lives under the same household, while the supplementary part is payable only to families with annual gross income below a certain threshold which is set by the Law. See section 2.3.3 for more information.

**Mother Allowance (επίδομα μάνας):** Mother allowance is paid to mothers of four or more children after their youngest child become adult. Children are the legal children who are above 18 years old, and the unmarried children who are not able to support themselves independently of their age. This allowance is not taxable.

**Transportation for disabled benefit (επίδομα διακίνησης αναπήρων):** The benefit is targeted to persons with disabilities which work or study in Cyprus and are permanently disabled. The following forms of disability are covered: a) Paraplegic, tetraplegic, amputation or deformation or weakness of the lower ends in a degree larger than 39% and b) Reduced visual acuity of both eyes. The benefit is not provided to persons that receive old-age pension.

**Missing person allowance (επίδομα αγνοουμένου):** Eligible for missing person allowance are: a) The wife of a missing person<sup>3</sup> who during the year of disappearance satisfied the requirements for old-age pension as long as she was cohabitating with the missing person or was exclusively or mainly supported by him, b) The underage child whom both parents are missing or one of them is missing and the other died and c) Every underage child of a missing person when missing person allowance is not given based on 1 and 2 above as long as the missing person during the year of disappearance satisfied the contribution requirements.

**Military Service Grant (χορήγηση εθνικής φρουράς) :** Eligible for the military service grant is every soldier and officer cadet during his military service. The military service duration in 2007 was 25 months. Under certain circumstances the duration of military service is reduced.

**Students Grant (φοιτητική χορηγία):** Students grant is paid for every student in tertiary education. The grant is universal and increases for families with 4 or more children. See section 2.3.4 for more information.

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<sup>3</sup> Missing person is the person that disappeared during or after the coup of the 15<sup>th</sup> July 1974, due to the circumstances of the 15<sup>th</sup> July 1974 or due to the 20<sup>th</sup> July 1974 Turkish invasion and for which the Government of the Republic of Cyprus had no positive information that he is alive.



**Special Grant to blind persons (ειδική χορηγία σε τυφλούς):** The grant is provided to blind persons. If the blind person is below 18 years old, then the grant is payable to his/her family. If not, then the grant is paid to the blind person. The grant is not taxable.

**Sickness Benefit (επίδομα ασθενείας):** Eligible for the sickness benefit are all insured persons between 16 and 63 years old irrespective of the category of insurance. The requirements for the payment of sickness benefit are: 1) The insured person cannot not work due to sickness and does not take the whole salary from his/her employer during that period, 2) To have passed at least 26 weeks from the day of his/her insurance up to the date that the incapacity for labour begun and during this period the total amount of insured earnings has to be at least equal to 26 times the weekly amount of the basic insured earnings; and 3) To have paid or been credited with contributions during the previous contributions. The insured earnings should not be lower than 20 times the weekly amount of the basic insurable earnings.

**Employment accidents Benefits (παροχές εργατικών ατυχημάτων):** As employment accident is considered to be every accident that happens to an employee in the workplace during work time and its causes are job-related. Employment accident is considered also to be any accident that occurs when the employee is going to his/her labour or returns from it.

**Physical injury benefit (επίδομα σωματικής βλάβης):** Eligible for physical injury benefit is every employee, independently of age. The requirements for the payment are: a) Not to be able to work due to employment accident or employment disease; and b) Not receiving the whole salary from the employer for the period that he/she is not working. No contributions conditions are required.

**Disability Pension (σύνταξη αναπηρίας):** Disability pension is paid to employees with disability caused by employment accidents or diseases and suffer from degree of disability 20% or more. As in the case of physical injury benefit, there are not any contribution conditions. The disability pension is payable either from the day that the beneficiary stopped taking the physical injury benefit or from the 4<sup>th</sup> day after the day of the accident. The disability pension is being paid for a lifetime unless the beneficiary is cured.

**Disability Benefit (επίδομα αναπηρίας):** Disability benefit is paid to employees with disability degree between 10% and 19% caused by employment accident or employment disease.

**Widow/widower Pension (σύνταξη χηρείας):** Widow Pension is paid to the widow of an employee who died from employment accident or employment disease. The requirements to receive widow pension is that the applicant must have lived with her husband until the day of his death or supported by him. In the case of a widower, he must be permanently incapable of self-supporting and prove that he is supported by his wife. There are no contribution conditions. The widow/widower pension is paid for a lifetime unless the widow/widower gets married again, in which case the pension stops.

**Orphan Benefit (επίδομα ορφάνιας):** Orphan benefit is paid to every underage child<sup>4</sup> that: 1) Both parents died and at least one died from employment accident; 2) The parent who supported the child (if the parents were not cohabitating) died from employment accident; 3) One parent died from employment accident and the other is not allowed to receive widow/widower pension. There are no requirements for contributions as long as one of the parents died from employment accident or employment disease. The benefit is paid until the child satisfies age requirements. In case that the orphan is permanently incapable for self-supporting then the benefit is paid for a lifetime.

**Parent Pension (σύνταξη πατρός):** Parent pension is payable to the parents of an employee who died from employment accident or employment disease. The requirements for the payment of a parent

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<sup>4</sup> Underage child is a child under 15 years old; unmarried son age between 15 and 25 who is under full time education or on military service; unmarried daughter age 15 to 23 who is under full time education and unmarried person independently of age who is permanently incapable for self-supporting.



pension are that the lost person did not have wife or children and that his/her parent was financially supported by him/her. There are no requirements for contributions for the payment of parent pension.

**Birth Grant (βοήθημα τοκετού):** The birth grant is paid to the mother of a newborn child if she or her husband is insured. The requirements for the payment of the birth grant are: 1) the birth to have been realised; 2) the applicant has to be insured for not less than 26 weeks. The total amount of insured earnings should be at least equal to 26 times the weekly amount of the basic insured earnings; and 3) the applicant has paid or has been credited with contributions in the previous contribution year. During this period the insured earnings should not be lower than 20 times the weekly amount of the basic insurable earnings. See section 2.3.5 for more information.

**Wedding Grant (βοήθημα γάμου):** The wedding grant is paid to both spouses from half to each one independently of the category of insurance. The usual contribution conditions should be satisfied.

**Funeral Grant (βοήθημα κηδείας):** The funeral grant is paid to the widow or widower of the dead person. If there is no widow or widower then the grant is paid to the person who paid the funeral expenses. The usual contribution conditions should be satisfied. When the insured dies from an employment related accident or disease then the funeral grant is paid irrespective if the contribution conditions hold or not.

**Widow pension for public employees (σύνταξη χηρείας για δημόσιους υπάλληλους):** Widow Pension is paid to the spouse from the day of spouse death for lifetime. Widow pension is not paid if the widowed person gets married again after the spouse dead and the pension ends on the day of marriage.

**Children pension for public employees (σύνταξη τέκνου για δημόσιους υπάλληλους):** Children of a deceased public employee or the children of his/her spouse are allowed to receive children pension. Children pension is not allowed to children of the deceased person who had been born 10 months or being adopted after he/she retired from work.

**Old age pension (σύνταξη γήρατος):** Eligible for old age pension are all insured persons, independently of the insurance category. The requirements for the payment of the old age pension are: 1) The insured should have completed the pensionable age (65 year of age); 2) at least 3 years should have passed from the day of insurance and the day that the person completed the pensionable age. During this period the applicant should have paid contributions on earnings that on their total are not less than 156 times the monthly amount of basic insurable earnings; and 3) To have weekly mean of paid or credited insured earnings equal to at least ¼ of the weekly amount of basic insurable earnings.

**Social pension (κοινωνική σύνταξη):** Eligible for social pension are the persons that: 1) Completed the age of 65; 2) After the completion of this age satisfy the requirements for residence in Cyprus; and 3) Are not allowed to receive pension from any other source or any other similar payment equal or higher than the monthly amount of the social pension. The requirements for residence are: 1) Permanent stay in Cyprus during a period of at least 20 years since the day the applicant completed the age of 40 years old; or 2) Permanent stay in Cyprus during a period of 35 years since the day the applicant completed the age of 18 years old.

**Incapacity pension (σύνταξη ανικανότητας):** Incapacity pension is allowed to receive all insured employees, self-employed and optionally insured in the services of a Cypriot employer abroad that have not completed the age of 63. It is required that the insured to be incapable for work for at least 156 days and be expected to stay permanently incapable for work, that is not being able to earn from labour reasonably expected to perform above from the 1/3 of the amount that usually a healthy employee of the same profession category and education in the same region earns or above ½ of this amount if the persons age is between 60 and 63. Several other contribution conditions (as described by the Law) are required.



**Minimum wage (κατώτατος μισθός):** The minimum wage in Cyprus is set at 835 euro at hiring and 887 euro after six months of employment. Not all occupations are covered by the minimum wage legislation. Minimum wages are applied to eight categories: sales staff, clerical workers, auxiliary healthcare staff, auxiliary staff in schools, security guards and caretakers.

- *Scope and scale*

The following tables provide an indication of the relative scale and coverage of each benefit by showing the number of recipients and the expenditure on each benefit.

Table 5. Social benefit: recipients

	2007	2008	2009	2010
<b>Annual expenditure</b>				
contributory benefits recipients as % of total population				
Old-age pension	10.2	10.6	11.0	11.1
Widow pension	3.7	3.7	3.7	3.6
Invalidity pension	1.0	1.0	1.0	0.9
Disability pension	0.2	0.2	0.2	0.1
Orphan Allowance	0.2	0.2	0.2	0.2
Missing person's Allowance	0.0	0.0	0.0	0.0
Unemployment benefit	3.6	3.4	4.5	n/a
Sickness benefit	5.1	5.2	5.4	n/a
Maternity benefit	0.8	1.0	1.0	n/a
Physical injury benefit	0.3	0.3	0.3	n/a
Marriage grant	0.4	0.5	0.4	n/a
Birth grant	0.8	1.0	0.9	n/a
Funeral grant	0.6	0.6	0.6	n/a
Other old-age benefits	12.6	12.6	12.7	5.23
non-contributory benefits recipients as % of total population				
Child benefit	13.8	13.8	13.8	13.9
Subsidy for purchasing a house or flat	0.5	0.5	0.5	0.6
Student grant	4.5	4.5	4.5	4.6
Mother's allowance	2.6	2.6	2.6	2.6
Special grant to blind persons	0.3	0.3	0.3	0.4
Social pension	2.0	2.0	2.0	1.9
Financial Assistance to cover the special needs of the disabled	0.0	0.0	0.0	0.0
Public assistance	3.6	4.2	4.7	5.4

Source: Social Insurance Services, Grants and Benefit Service



Table 6. Social benefit: expenditure

	2007	2008	2009	2010
<b>Annual expenditure</b>				
contributory benefits and pensions as % of total expenditure				
Old-age pension	17.28	17.94	19.77	19.13
Widow pension	4.66	4.67	4.90	4.58
Invalidity pension	1.62	1.58	1.61	1.44
Disability pension	0.16	0.15	0.16	0.14
Orphan Allowance	0.11	0.11	0.12	0.11
Missing person's Allowance	0.04	0.04	0.04	0.03
Unemployment benefit	1.89	1.73	2.48	n/a
Sickness benefit	1.04	1.07	1.18	n/a
Maternity benefit	0.59	0.74	0.81	n/a
Physical injury benefit	0.07	0.07	0.08	n/a
Marriage grant	0.06	0.07	0.07	n/a
Birth grant	0.09	0.11	0.11	n/a
Funeral grant	0.08	0.08	0.08	n/a
Other old-age benefits	3.0	3.5	3.5	1.61
non-contributory benefits as % of total expenditure				
Child benefit	5.60	5.90	6.19	6.11
Subsidy for purchasing a house or flat	1.40	2.19	2.41	2.78
Student grant	2.59	3.41	3.27	3.40
Mother's allowance	0.38	0.60	0.67	0.68
Special grant to blind persons	0.57	0.69	0.67	0.69
Social pension	1.81	1.72	1.79	1.65
Financial Assistance to cover the special needs of the disabled	0.07	0.09	0.10	0.09
Public assistance	4.63	5.55	7.01	6.78

Source: Eurostat Online Database

#### 1.4 Social contributions

**Employee social contributions (ασφαλιστικές εισφορές εργαζομένων):** For the category of employees the total contribution is 16.6% where 6.3% is paid by the employer, 6.3% by the employee and the rest 4% by the state. When the employee is covered by a pension plan from the employer without any contribution from the part of the employee then the social security contribution paid by the employer is 9.4% and by the employee 3.2%. In cases of trainees that work without earnings, the employer has to pay both the contribution of the employer and the employee, that is, a total of 12.6%.

**Self-employed social contributions (ασφαλιστικές εισφορές αυτοεργοδοτούμενων):** The total contribution of self-employed is 15.6% of their insured earnings. From this percentage, 11.6% is paid by the self-employed person and the rest 4% by the state. The insured earnings of self-employed, that is, the earnings for which their contributions are calculated, are set based on their profession and their workplace. For every professional category there is an obligatory minimum amount of insured earnings. The self employed is allowed to pay contributions on a higher amount of insured earnings up to the maximum limit of social earnings. If the real income of a self employed person is lower than the minimum amount of the corresponding professional category y then he/she can ask to pay contributions based on his/her real income.



**Optionally insured person social contributions (προαιρετικές ασφαλιστικές εισφορές):** The contribution of optionally insured persons is 13.5% from which 10% is paid by the optionally insured person and 3.5% by the state. The amount of insured earnings for which the optionally insured person is paying social contributions is chosen by him/herself but it cannot be higher than the weekly amount of insured earnings that he/she had during the previous year or the mean insured earnings he/she had during the three previous years. Persons working abroad under the services of a Cypriot employer can pay contributions on the salary received from their work up to the maximum amount of insured earnings. Their contributions will be 16.6% where 12.6% is paid by the optionally insured person and 4% by the state.

**Employer social contributions (ασφαλιστικές εισφορές εργοδοτών):** Every employer has to pay contributions to the Funds (Social Insurance, Annual Holidays with Pay, Redundancy, Human Resource Development and Social Cohesion) for each of his/her employees whose earnings are at least €1.71 per week or €6.83 euro per month. For trainees/apprentices the employer has to pay contributions to the Social Insurance Fund even if the employee has no earnings. The liability of the employer for paying contributions to the above Funds exists even if the employee is working for another employer for the same period or he/she works as a self-employed person. The liability of the employer for paying contributions to the Social Insurance Fund ceases on the day the employee reaches the pensionable age, i.e. the age of 65. In the case the employee reaches the pensionable age and does not satisfy the contribution conditions for old age pension, the employer is obliged to continue to pay contributions until the employee is entitled to old-age pension. Under no circumstances contributions are payable after the age of 68.

**Credited social contributions (πιστωμένες ασφαλιστικές εισφορές):** Besides the periods for which contributions are paid, every insured person is allowed to be credited by insured contributions: 1) For any period after the age of 16 for which he/she studies full time or is attending training courses; 2) For any period he/she receives sickness benefit, unemployment benefit, maternity benefit, physical injury benefit or incapacity pension from the Social Insurance Fund; 3) For any period of declared unemployment or sickness for which the person is not allowed to receive a benefit. In such case the credit period cannot exceed the six months and 4) For the period starting on the 1<sup>st</sup> day of the contributions year prior to the contribution year during which the person was insured and ends the last week before the week the person insured.

**Provident fund contributions (ασφαλιστικές εισφορές ταμείων πρόνοιας):** The legislation of provident fund covers all Provident Funds or Pension Schemes which: a) provide for cash benefits to employed persons in case of termination of employment, permanent incapacity for work, retirement or death, and b) are financed by periodical contributions of the employed persons or the employed persons and their employers. All Funds or schemes which have been established by virtue of a special Law are exempted from the provisions of the Law. The provident fund law does not specify the rate of contribution that should be paid to the Provident Fund. The percentage of contribution and whether the calculation will be based on the whole or part of the wage/salary are agreed upon by the employer and his employees. The percentages can be changed from time to time and vary from one provident fund to another.



- *Scope and scale*

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

	2007	2008	2009	2010
<b>Employees</b>	0.50	0.52	0.53	0.53
Private sector <sup>1</sup>	0.43	0.45	0.46	0.46
Public sector	0.07	0.07	0.07	0.07
Self-employed	0.04	0.04	0.04	0.04
Optional insured	0.00	0.00	0.00	0.00

Notes: <sup>1</sup>It includes employees of the semi-public sector

Source: Social Insurance Services

Table 8. Social contributions: (as % of total revenues)

	2007	2008	2009	2010
Private sector employees <sup>1</sup>	43.1	42.3	47.9	n/a
Public sector employees	14.7	13.9	15.9	n/a
Self-employed	4.5	3.9	4.2	n/a
Optionally insured	0.1	0.1	0.1	n/a
State contributions	19.9	19.3	21.6	n/a
Interests	16.0	19.0	8.4	n/a
Other revenues	1.7	1.6	1.9	n/a

Notes: <sup>1</sup>It includes employees of the semi-public sector

Source: Social Insurance Services

## 1.5 Taxes

**Personal Income Tax (φόρος εισοδήματος):** There are two kinds of income tax: the personal income tax and the corporation tax. The personal income tax applies to all Cyprus tax residents for their income accrued or derived from all sources in Cyprus and abroad and to individuals who are not tax residents of Cyprus but have income accrued or derived from sources in Cyprus. Subject to income tax is income derived from employment, business activities, rent and all pensions except widow's pension. The social benefits provided in the form of a lump sum or for a short period of time (i.e. sickness benefit) are not included in the tax base. This is valid since 2003 and onwards due to the fact that the tax credits which were used to be in force have been replaced by the social benefits excluded from the tax base.

**Special Contributions for defence (ειδική εισφορά για την άμυνα):** Special contribution for defence is imposed on interest, dividend and rental income of Cyprus tax resident individuals and companies. The following persons are obliged to pay special contribution for defence: 1) Every person that is a resident of the Republic of Cyprus and receives dividends (at a rate of 15% of the dividend), 2) Every person that is a resident of the Republic of Cyprus and receives income from interest (at a rate of 10% the amount of interest). Persons whose total annual income (including income from interest) does not exceed the amount of €11,960 has the right of refunding the amount of the withhold social contribution for defence on interest that exceeds the amount that corresponds to the 3%, 3) Every person that is a resident of the Republic for interest paid or credited from Cypriot savings certificates, Cypriot development bonds and interest from provident fund on a rate of 3% and 4) Every resident of



the Republic which has income from rents pays 3% on the amount of gross rental income (only 75% of the rental income is subject to the contribution).

**Real Property Tax (φόρος ακίνητης περιουσίας):** Any person who has real property located in the Republic is liable to pay tax on property. Immovable property tax is imposed on the market value of real property

**Value Added Tax (φόρος προστιθέμενης αξίας):** Value added tax is imposed on the provision of goods and services in Cyprus, on the acquisition of goods from the European Union and on the importation of goods into Cyprus. In most cases, the VAT is 15%, but there are also reduced rates of VAT of 5% and 8% for several basic goods.

**Capital Gains Tax (φόρος κεφαλαιακών κερδών):** The capital gain, according to the Capital Gains Tax Law, is liable to tax at the rate of 20%. Individuals may claim several deductions from the applicable taxable gain: if the disposal relates to a private residence, if the disposal is made by a farmer or if it relates to agricultural land.

Table 9. Taxes: revenue (‘000)

	2007	2008	2009	2010
<b>Annual revenue</b>				
<b>Income tax</b>				
Employees	407,833	450,012	496,787	524,052
Self-employed	60,845	62,929	61,660	59,098
Legal persons	748,046	821,732	735,101	675,438
Immovable property tax	12,512	11,743	10,768	14,123
Capital gains tax	467,127	302,350	74,469	86,811
Special contribution to defence	314,259	385,342	366,977	395,619
Stamp duty	70,345	64,649	42,644	50,082
Other taxes	8,993	7,146	8,799	6,386

Source: Inland Revenue Department

Note: Tax revenues refer to the revenues collected that particular year of reference.

## 2. SIMULATION OF TAXES AND BENEFITS IN EUROMOD

### 2.1 Scope of simulation

Not all the taxes and benefits mentioned in the previous section are simulated by EUROMOD. Firstly, some are beyond its scope entirely and are neither included in the EUROMOD database nor in its output income variables. Secondly, some are not possible to simulate accurately with the available data. They are included in the database and may be chosen as components of output variables, but the rules governing them may not be changed by the model. Thirdly, other benefits contain complicated rules and/or available data does not provide enough information in order to simulate fully the instrument. Tables 11 and 12 classify each of the tax-benefit instruments into one of these three groups and provide a brief explanation why the instrument is not fully simulated if this is the case.

Table 10. Simulation of benefits in EUROMOD

Benefit name	Output variable	Treatment in Euromod				Why not fully simulated?
		2007	2008	2009	2010	
Public assistance benefit	bsa_s	PS	PS	PS	PS	Not possible to simulate eligibility conditions fully, relevant minimum income threshold depends on special needs which cannot be identified from the data.
Unemployment benefit: From National Insurance Fund	bunct_s	PS	PS	PS	PS	Impossible to define the length of social contributions in previous year and average wage.
Unemployment: other	bunot	I	I	I	I	Not information to define eligibility and amount of the benefit
Maternity benefit	bfamh	I	I	I	I	Paid social insurance contributions cannot be defined perfectly, not available information to define the amount of the benefit perfectly.
Child benefit	bch_s	S	S	S	S	Relevant income may not be defined exactly
Mother allowance	bfamh	I	I	I	I	Eligibility cannot be defined.
Transportation for disable benefit	pdi	I	I	I	I	Eligibility cannot be defined.
Missing person allowance	bsa	I	I	I	I	Eligibility cannot be defined.
Military service grant	bml	I	I	I	I	Not enough information to define the exact amount of the grant.
Students grant	bedet_s	S	S	S	S	-
Special grant to blind persons	pdi	I	I	I	I	Eligibility cannot be defined.
Sickness benefit	bhl	I	I	I	I	Eligibility cannot be defined.
Physical injury benefit	bhl	I	I	I	I	Eligibility cannot be defined.
Disability benefit	pdi	I	I	I	I	Eligibility cannot be defined.
Widow/widower pension	psuwd	I	I	I	I	Depend on the social insurance contributions of the deceased, the minimum amounts are used.
Orphan benefit	psuor	I	I	I	I	Eligibility cannot be defined.
Parent pension	psuot	I	I	I	I	Eligibility cannot be defined.
Birth grant	bchba_s	S	S	S	S	-
Wedding grant	bfamh	I	I	I	I	Eligibility cannot be defined.
Funeral grant	bfamh	I	I	I	I	Eligibility cannot be defined.
Benefits for public employees	poa	I	I	I	I	Eligibility cannot be defined.
Widow pension for public employees	psuwd	I	I	I	I	Eligibility cannot be defined.
Child pension for public employees	psuor	I	I	I	I	Eligibility cannot be defined.
Old age pension	poa	I	I	I	I	The amounts of the pension depends on the social insurance contributions which are not known.



Social pension	poasp	I	I	I	I	Eligibility cannot be simulated
Incapacity pension	pdi	I	I	I	I	Eligibility cannot be defined.

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

Table 11. Simulation of taxes and social contributions in EUROMOD

Benefit name	Output variable	Year				Treatment in Euromod
		2007	2008	2009	2010	
Social Insurance Contributions						
Employee social insurance contributions	tscee_s	S	S	S	S	The social contributions of trainees were not simulated
Employer social insurance contributions	tscer_s	S	S	S	S	
Employer social insurance contributions: Annual Holidays Fund	tscer00_s	S	S	S	S	The contributors were identified randomly among non civil servants.
Employer social insurance contributions: Redundancy Fund	tscer01_s	S	S	S	S	
Employer social insurance contributions: Human Resources Fund	tscer02_s	S	S	S	S	
Employer social insurance contributions: Social Insurance Fund	tscer03_s	S	S	S	S	
Employer social insurance contributions: Social Cohesion	tscer03_s	S	S	S	S	
Self-employed social insurance contributions	tscse_s	S	S	S	S	
Optionally insured person social insurance contributions	-	E	E	E	E	Non-sufficient information available from data
Credited social contributions	-	E	E	E	E	Non-sufficient information available from data
Provident fund contributions	-	E	E	E	E	Non-sufficient information available from data
Income taxes						
Personal Income Tax	tin_s	S	S	S	S	
Corporate income tax	-	E	E	E	E	Out of scope of the model
Income tax on non-residents	-	E	E	E	E	No information available on non-residents
Property tax	-	E	E	E	E	No information about the value of property
Special contribution for defence	txc_s	PS	PS	PS	PS	Can not separate income from dividends and interest, the same rate used for both.
Indirect taxes						
Value Added Tax	-	E	E	E	E	No information available, out of scope of the model
Excise duties	-	E	E	E	E	No information available,



Other indirect taxes	-	E	E	E	E	out of scope of the model No information available, out of scope of the model
Indirect taxes	-	E	E	E	E	No information available, out of scope of the model

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.

Table 12. Simulated policies

Section	Policy	Description	Year			
			2007	2008	2009	2010
2.3.1		Public assistance benefit	X	X	X	X
2.3.2		Unemployment benefit	X	X	X	X
2.3.3		Child benefit	X	X	X	X
2.3.4		Students grant	X	X	X	X
2.3.5		Birth grant	X	X	X	X
2.4.1		Employee social insurance contributions	X	X	X	X
2.4.2		Employer social insurance contributions	X	X	X	X
2.5		Personal Income Tax	X	X	X	X
2.6		Special contribution for defence	X	X	X	X



## 2.2 Order of simulation and interdependencies

The following tables show the order in which instruments of the Cypriot tax-benefit system are simulated. Employee social insurance contributions are simulated first, followed by employer social insurance contributions. Employee's SIC finance the Social Insurance Fund, while employer's SIC finance Annual Holidays Fund, Human Resources Fund, Social Cohesion Fund, as well as the Social Insurance Fund. Income taxes and the special contribution to defence are deducted from income. Next in the simulation order, are the student grant, the birth grant, the public assistance and, finally, the child benefit.

- *Order of simulation in [2007]*

Table 13. EUROMOD Spine: order of simulation, [2007]

Policy	Description	Main output
tscee_cy	Employee social insurance contributions	tscee_s
tscer_cy	Employer social insurance contributions	tscer_s
tscse_cy	Self-employed social insurance contributions	tscse_s
tin_cy	Income Tax	tin_s
txc_cy	Special contribution to defense	txc_s
bedet_cy	Student grant	bedet_s
bchba_cy	Birth grant	bchba_s
bunct_cy	Unemployment benefit (from SIF) <sup>a</sup>	bunct_s
bsa	Public Assistance	bsa_s
bch	child benefit	bch_s

Note: <sup>a</sup> This policy is switched off in the baseline.



- *Order of simulation in [2008]*

Table 14. EUROMOD Spine: order of simulation, [2008]

Policy	Description	Main output
tscee_cy	Employee social insurance contributions	tscee_s
tscer_cy	Employer social insurance contributions	tscer_s
tscse_cy	Self-employed social insurance contributions	tscse_s
tin_cy	Income Tax	tin_s
txc_cy	Special contribution to defense	txc_s
bedet_cy	Student grant	bedet_s
bchba_cy	Birth grant	bchba_s
bunct_cy	Unemployment benefit (from SIF) <sup>a</sup>	bunct_s
bsa_cy	Public Assistance	bsa_s
bch_cy	child benefit	bch_s

Note: <sup>a</sup> This policy is switched off in the baseline.

- *Order of simulation in [2009]*

Table 15. EUROMOD Spine: order of simulation, [2009]

Policy	Description	Main output
tscee_cy	Employee social insurance contributions	tscee_s
tscer_cy	Employer social insurance contributions	tscer_s
tscse_cy	Self-employed social insurance contributions	tscse_s
tin_cy	Income Tax	tin_s
txc_cy	Special contribution to defense	txc_s
bedet_cy	Student grant	bedet_s
bchba_cy	Birth grant	bchba_s
bunct_cy	Unemployment benefit (from SIF) <sup>a</sup>	bunct_s
bsa_cy	Public Assistance	bsa_s
bch_cy	child benefit	bch_s

Note: <sup>a</sup> This policy is switched off in the baseline.



- *Order of simulation in [2010]*

Table 16. EUROMOD Spine: order of simulation, [2010]

Policy	Description	Main output
tscee_cy	Employee social insurance contributions	tscee_s
tscer_cy	Employer social insurance contributions	tscer_s
tscse_cy	Self-employed social insurance contributions	tscse_s
tin_cy	Income Tax	tin_s
txc_cy	Special contribution to defense	txc_s
bedet_cy	Student grant	bedet_s
bchba_cy	Birth grant	bchba_s
bunct_cy	Unemployment benefit (from SIF) <sup>a</sup>	bunct_s
bsa_cy	Public Assistance	bsa_s
bch_cy	child benefit	bch_s

Note: <sup>a</sup> This policy is switched off in the baseline.

## 2.3 Social benefits

### 2.3.1 Public assistance benefit (*bsa\_s*)

- *Definitions*

The public assistance benefit is a non-contributory benefit designed to compensate any person legally residing in Cyprus, whose income is not enough to cover his/her basic or special needs and satisfies the conditions set by the Public Assistance Law,

- *Eligibility conditions*

Recipients should be legal residents of Cyprus, as well as to the following special categories of third country nationals: asylum seekers, recognized refugees, immigrants granted protection for humanitarian reasons and victims of sexual harassment or human trafficking. The recipient should satisfy the following requirements:

- 1) He or she should be either unemployed, work part-time or economically inactive. In case of a couple, both spouses should be unemployed, work part-time or economically inactive.
- 2) The family income should be below a minimum threshold set annually by the law.

An exemption to the employability condition are the single parents and the disabled who can work full time and still be eligible for the benefit.

If the public assistance recipient or his/her spouse/cohabitant becomes employed after a period of at least six months in unemployment, then the recipient will continue to receive public assistance benefit for the next year as follows: full amount for the first 4 months after the day of employment; 2/3 of the amount for the next 4 months and the 1/3 for the last 4 months.



Under some conditions (which cannot be simulated) related with the health /disability conditions or the schooling needs of the children, recipients do not lose their right for public assistance benefit even if they do not satisfy some of the eligibility conditions.

The benefit is not paid: for every period that the applicant is employed full-time, except if the person is disabled or single parent or gets special exemption from the Director of the Service. Also the benefit is not paid to voluntary unemployed or underemployed persons or to those that refuse to attend training programs or take gainful employment. Also, the benefit can be paid in kind in cases where it is suspected that cash would not be spent to satisfy basic needs.

Finally, the Public Assistance Law defines as dependents: a) the unmarried children aged under 18, b) the unmarried children in military service and c) the unmarried children enrolled in higher education (only for the normal duration of studies).

**Notes on Euromod Implementation:** due to difficulties in checking all above requirements, this benefit is attributed; (1) to families if both of the spouses are either non-employed or work part-time, (2) single-parents even if they work full-time, (3) single person households if the recipient is non-employed or work part-time. Also, the gradual reduction of the public assistance after the recipient becomes employed is not simulated in the model.

- *Income test*

In order to compute the family income for the purposes of the means-testing, the Social Welfare Services do not take into account the following income components:

1. Net monthly income up to 85 euro when it comes from employment of the recipient or up to 513 euro when it comes from employment and the recipient or his/her spouse is a disable person or up to 170 euro when it comes from employment and the recipient is above the age of 63 or mentally ill;
2. Income of dependent children;
3. The wedding benefit;
4. Benefits received according to the Suffering Persons' Relief Law<sup>5</sup>;
5. Any contribution of the children of the recipient that stay abroad or contribution of a charity institution;
6. 50% of the net income from employment of the recipient or up to 256 euro, whichever is the larger, if the recipient is a single parent and has dependent children;
7. The severe mobility disability benefit;
8. The transport benefit offered to disable persons;
9. The special honorary grant paid to incapable persons of the spirit and arts;
10. The special grant paid to blind persons;
11. Any compensation paid due to harm or damage from an accident, excluding the interests from these compensations; and

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<sup>5</sup> Eligible for these benefits that take the form of periodical income support are persons considered as "suffering" by the Suffering Persons' Relief Law and have obtained the relevant certificate issued by the Committee for the Relief of Suffering Persons. These include spouses or offspring of persons that fall during the anti-Colonial struggle or the 1974 Turkish invasion, soldiers that were severely injured during their military service and other special cases.



12. The child benefit;

**Notes on Euromod implementation:** The income list for the income test of the public assistance benefit includes; primary income net of taxes and social insurance contributions, alimonies, military grant, unemployment benefit, widows, orphans and other survivor benefits, student grant, education related benefits, mother allowance (plus other family-related benefits) and old-age pensions.

- **Benefit amount**

The amount of the benefit is equal to the positive difference between the minimum threshold set by the law and the family income.

Table 17. Monthly Minimum treshold

Year	Head	Dependent >14	Dependent <14
July 1 <sup>st</sup> 2007 - June 30 <sup>th</sup> 2008	€379.31	€189.66	€113.79
July 1 <sup>st</sup> 2008 - June 30 <sup>th</sup> 2009	€425	€12.5	€27.5
July 1 <sup>st</sup> 2009 - June 30 <sup>th</sup> 2010	€452	€26	€35.6
July 1 <sup>st</sup> 2010 - June 30 <sup>th</sup> 2011	€452	€26	€35.6

The amount of public assistance benefit cannot be less than €8.54 euro per month. If it is estimated less than €8.54 then €8.54 is paid to the recipient.

### 2.3.2 Unemployment benefit (*bunct\_s*)

- **Definitions**

The unemployment benefit is payable to insured employees or voluntary contributors that work abroad in the services of a Cypriot employer. Insured persons should be between 16 and 63 years old in order to be eligible for the benefit. Yet, the age limit of 63 can be expanded to 65 years old, in case that the applicant is not eligible for old-age pension. Any insured person may apply for unemployment benefit for the days he/she is unemployed, able to work and willing to accept employment. But he/she is not considered to be unemployed:

1. When he/she is incapable for work due to sickness;
2. On Sundays;
3. When he/she is on leave



4. The days during which he/she works in any occupation that he/she practiced in addition to his/her usual work and from which he/she receives salary at least equal to 1/12 of the amount of basic insurable earnings.
5. On any day for which the employer pays for employee's contributions.

Dependents of the insured person are considered: the spouse, the children aged below 15, unmarried daughter aged 15-23 if she is student, unmarried son age 15-25 if he is student or soldier, unmarried child if he/she is permanently incapable of self-support independently of his/her age, the disabled spouse if he/she is supported by the spouse, the father/mother of the insured person if he/she is incapable of employment and financially supported by him or her and the underage younger brother or sister if he/she is financially supported by the insured person.

- ***Eligibility conditions***

The requirements needed for the payment of unemployment benefit are:

1. At least 26 weeks must have passed between the day when the person became insured and the day on which he or she became unemployed. During that period, the total amount of insured earnings has to be at least equal to 26 times the weekly amount of the basic insured earnings.
2. The applicant has paid<sup>6</sup> or been credited<sup>7</sup> with contributions in previous contributions year<sup>8</sup>. During this period insured earnings should not be lower than 20 times the weekly amount of basic insurable earnings.

In the requirements mentioned above the contributions of the self employed are not taken into consideration while the contributions of optionally insured persons are taken into consideration only if they are for work abroad with a Cypriot employer.

**Notes on Euromod implementation:** The model controls for the first condition using a variable on working history. As far as the second is concerned, it is used the employment income.

The benefit is payable for 156 working days in each period of interruption of employment

Unemployed person who has exhaust his right to unemployment benefit can be allowed to it again if he/she works and pay contributions on earnings that on their total are not less than 26 times the weekly amount of basic insured earnings and at least 26 weeks have passed since the last day that the person received the benefit.

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<sup>6</sup> The paid insured earnings are the earnings for which contributions had been paid.

<sup>7</sup> Every insured person is allowed to be credited with insured earnings for every period of full time education after the age of 16, for the period under military service and for the period for which he/she is receiving sickness benefit, unemployment benefit, maternity benefit, physical injury benefit or incapability pension from the Social Insurance Fund and for the period that he/she is absent from his/her employment with parental leave or leave due to force majeure.

<sup>8</sup> For the first semester of every year, the previous contributions year is the penultimate calendar year and for the second semester is the last calendar year, i.e. for the first semester of 2006 the previous contributions year is 2004 while for the second semester of 2006 is the 2005.



In the case where the unemployed person is above 60 years old and is not allowed to pension from any professional plan, he/she gains the right to unemployment benefit if he/she worked and has paid contributions on earnings that on their total are not less than 26 times the weekly amount of basic insured earnings and at least 13 weeks have passed since the last day that the person received the unemployment benefit.

**Notes on Euromod implementation:** The rules described in the two paragraphs above are not simulated in the model.

The applicant loses entitlement of the unemployment benefit for up to six weeks if he/she:

1. Loses his/her employment by his/her own blame or abandons it without excuse;
2. Refuses or omit to submit application for proper employment or to accept proper employment offer to him/her;
3. Fails or neglects to be employed in a suitable job;
4. Refuse or omit, without excuse, to attend professional training lessons.

**Notes on Euromod implementation:** Euromod model does not control for these conditions.

- *Benefit amount*

The amount of the unemployment benefit is calculated on the basis of the weekly mean of paid and credited insured earnings of the insured person during the previous contribution year. The unemployment benefit includes a basic and a supplementary benefit. The weekly amount of the basic benefit is equal to 60% of the weekly mean of the basic insurable earnings of the beneficiary during the previous contribution year and increases by 1/3 for the dependent spouse and by 1/6 for every child or other dependant<sup>9</sup> (the maximum number of dependent children/ other dependants is 2)<sup>10</sup>. The increase for the dependent spouse is paid only when the earnings of the spouse from his/her work or the level of the benefit that the dependent spouse is getting for the Social Insurance Fund does not exceed the amount that corresponds to the increase of the benefit for dependants. In case that both spouses are allowed to receive unemployment benefits, the increase for dependents is paid only to the spouse that is allowed the highest increase. The weekly amount of the complementary benefit is equal to 50% of the weekly mean of insurable earnings of the beneficiary that exceeds the basic insured earnings, but the complementary benefit should not be higher than the weekly amount of basic insured earnings.

In case that the insured person is entitled not only to unemployment benefit but also to other provisions of the Social Insurance Fund, then only the benefit with the higher rate is paid. This rule does not hold if the beneficiary is entitled to unemployment benefit and widow pension or missing person allowance. In that particular case, both provisions are paid to the person.

**Note on Euromod implementation:** Dependants other from children of spouse and children of the recipient were not taken into account in the implementation. However, these cases are very rare in practice [see, footnote (9)]. The link between SIF benefits and Unemployment Benefit is implemented as follows: if the latter is smaller than the former, than it is set to 0. No action is taken in the opposite case, since it would imply to change the values of recorded but not simulated instruments.

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<sup>9</sup> Other dependants refer to the cases of a) recipient's younger brothers, b) recipient's parent(s) if he/she or they are incapable of work. In both cases a) and b) the dependants should prove that they are financially supported by the recipient.

<sup>10</sup> The usual definition of dependent child applies.



### 2.3.3 Child benefit (*bch\_s*)

- **Definitions**

Child benefit is given to all families that have their residence in Cyprus regardless of their marital status. The benefit is conditional to the presence of children that cohabit with their parents. The Law considers as “children” the following persons:

- children aged below 18
- children aged 18-25 in military service
- children 18-23 enrolled in higher education
- male children 23-25 still enrolled in higher education for as much as they have spent time in military service.
- disabled children irrespective of age

The amount of the benefit depends on the number of children and the total gross annual family income. It consists of a basic part and a supplementary part. . The benefit is paid to the mother or, in absence of the mother, to the father or guardian.

Finally, the child benefit is not taxable.

- **Eligibility conditions**

Every family with children that has its residence in Cyprus is eligible for the child benefit.

- **Income test**

For the purposes of the calculation of the supplementary part of the child benefit the Child Benefit Law considers the total annual gross income acquired three years before the application for the benefit. Primary income, alimonies, military grant, unemployment benefit, widows, orphans and other survivor benefits, student grant, education related benefits, mother allowance (plus other family-related benefits) and old-age pensions are included in the income test. Labour incomes from dependent children are excluded from the relevant income. The child benefit is paid annually and it is not taxable. The benefit rates are updated yearly by the Grants and Benefits Services of the Ministry of Finance.

- **Benefit amount**

The amount of the benefit for 2007 is shown in the table that follows:

Table 18. Child Benefit Amount (2007)

No of children	Basic annual benefit (in euro)	Supplementary annual benefit for families with gross income during 2004:	
		Up to 17.086 euro	Between 17.086 and 34.172
1 child	382,59	95,65	47.82
2 children	765,20	382,59	286.94
3 children	2295,56	860,84	717.36
4+ children	1147,79 per child	382,59 per child	239,12 per child

The amount of the benefit for 2008 is shown in the table that follows:



Table 19. Child Benefit Amount (2008)

No of children	Basic annual benefit (in euro)	Supplementary annual benefit for families with gross income during 2005:	
		Up to 17.086 euro	Between 17.086 and 34.172
1 child	391,70	97,92	48,96
2 children	783,41	391,70	293,77
3 children	2250,20	881,34	734,43
4+ children	1292,62 per child	430,86 per child	269,29 per child

The amount of the benefit for 2009 is shown in the table that follows:

Table 20. Child Benefit Amount (2009)

No of children	Basic annual benefit (in euro)	Supplementary annual benefit for families with gross income during 2006:	
		Up to 17.086 euro	Between 17.086 and 34.172
1 child	409.99	102.49	51.25
2 children	820	409.98	307.49
3 children	2459.94	922.50	768.72
4+ children	1352.98 per child	450.99 per child	281.87 per child

The amount of the benefit for 2010 is shown in the table that follows:

Table 21. Child Benefit Amount (2010)

No of children	Basic annual benefit (in euro)	Supplementary annual benefit for families with gross income during 2007:	
		Up to 18,367 euro	Between 18,367 and 36,734
1 child	411.30	102.82	51.41
2 children	822.62	411.3	308.47
3 children	822.61	308.48	257.06
4+ children	1,357.31 per child	452.43 per child	282.77 per child

**Notes on Euromod implementation:** Current values of relevant income are used for the implementation. The benefit is given to the head of the tax unit.

### 2.3.4 Students grant (*bedet\_s*)

- **Definitions**

Student grant is a universal benefit given to families having children in higher education.

Students should be either Cypriot citizens or EU citizens that have their permanent residence in Cyprus. In case that the student is a non-EU citizen, then he/she is eligible for the grant if at least one of his/her parents is Cypriot or EU citizens. Furthermore, he/she should have graduated from a secondary school in Cyprus.

Permanent residence is considered for persons that had been staying in Cyprus for at least 30 months the last 3 years before the beginning of their studies

The student grant is given to the parents of the student to the person who pays the student's expenses.

The Law considers the following family units:



1. Couples and their children
2. Lone father (irrespective of the marriage condition) and his children.
3. Lone mother (irrespective of the marriage condition) and her children.
4. Any adult person and abandoned child/children if the former can prove that he/she supports financially the child/children.
5. Orphans.

Children should either live under the same household with their parents or live separately but are financially supported by their parents.

- ***Eligibility conditions***

The student should be enrolled in a recognized higher education institution. The grant is paid only for the normal duration of studies which may vary across faculties, but the period of payment may be extended in special cases (health reasons). Note that the student grant is not paid for student that:

1. Attend language learning programmes that are prerequisites for entering the educational institution;
2. Attend tertiary foundation certificate or similar courses
3. Attend distance learning courses or open university courses;
4. Attend courses as external students and not as normal students;

- ***Income test***

In academic year 2006/07 and afterwards, the income of the student from employment in the public or private sector or from teaching or research work provided to an educational institution should be below €17,086 in order to be eligible for the grant. In 2006/07, the threshold was set at €17,086.

- ***Benefit amount***

The annual amount of the grant is €1708 per student during the normal period of studies. If the student pays fees then the grant is increased by €354.30, annually. Multi-child families also receive a supplementary amount of €354.30. Since 1<sup>st</sup> September 2007, 3-children families are also eligible for the supplementary amount.

If the student ends his/her studies during the first semester of the year then the family is allowed to half of the grant and half of the grant paid for fees. No grant is paid for studies smaller in duration than one semester (6 months).

In cases of part time studies the grant is paid when the period for a full time study that corresponds to one year of normal study is completed.



Table 22. Student grant amount (2007-2010)

Year	Annual student grant (in euro)	Additional amount equal to	
		If pay fees	If multi-child family
2007	1708	854.30	854.30 (if 4+ children)
2008	1708	854.30	854.30 (if 3+ children)
2009	1708	854.30	854.30 (if 3+ children)
2010	1708	854.30	854.30 (if 3+ children)

**Note on Euromod implementation:** The model cannot fully control the provisions of the Law. According to the implementation, the grant is attributed to families with dependent children that attend an educational programme that corresponds to the ISCED values 5 or 6. Since it is not possible to control for the payment of any fees, the only additional amount simulated is the one for multi-child families.

### 2.3.5 Birth grant (bchba\_cy)

- *Definitions*
- *Eligibility conditions*

The birth grant is paid to the mother of a newborn (if she or her husband is insured), independently of the category of insurance (employee, self employed, optionally insured).

The requirements for the payment of the birth grant are:

1. The birth of an alive child or a child born dead after at least 28 weeks of pregnancy;
2. The applicant has to be insured for not less than 26 weeks. The total amount of insured earnings has to be at least equal to 26 times the weekly amount of the basic insured earnings.
3. The applicant has paid or been credited with contributions in the previous contribution year. During this period, the insured earnings should not be lower than 20 times the weekly amount of the basic insurable earnings.

- *Benefit amount*

The amount of the birth grant (per child in the case of twins) in 2007 was €427.15 and increased at €446, €466 and €491 in 2008, 2009 and 2010, respectively.

Table 23. Birth grant Amount (2007-2010)

Year	Amount
2007	€427.15
2008	€446
2009	€466
2010	€491



**Notes on Euromod implementation:** this benefit is given to all heads of families with children aged 0 where at least one of the parents has working history at least equal to 6.5 months (26 weeks) and annual earnings equal at least to 20 times the weekly amount of basic insured earnings.

## 2.4 Social contributions

The participation in the Social Insurance Scheme is mandatory for all working population. The insured persons are divided into two categories: the employees and the self-employed. Voluntary insurance is allowed to persons that are willing to continue insurance after a prescribed period of compulsory insurance.

The social insurance contributions are estimates as a proportion of insurable earnings. Insurable earnings are earnings on which contributions are calculated and include any remuneration from employment as well as contributions paid to the Central Holiday Fund. The insured person, the employer and the state each pay a portion of the overall contribution.

The obligation for social insurance contribution payment both for the employee and the self-employee stops the day the insured person reaches pensionable age, i.e. 65 years. An insured person who has completed the age of 65 and does not satisfy the contribution requirements for old-age pension can continue to pay contributions until these requirements are satisfied until the age of 68. .

The insurable earnings include a lower limit known as the basic insurable earnings<sup>11</sup>; the basic insurable earnings separate the basic part and the earnings-related part of the scheme.

For this reason the insured earnings are converted into insured units. One insured unit is equal to the annual amount of basic insured earnings.

Every year a study is conducted to calculate the increase of earnings in general; if this found to be at least 5% then the insured earnings of every insured person for the previous year's increase by this percentage and the provisions are calculated on the increased earnings.

### 2.4.1 Employee social contributions (tscee\_cy)

In case of employed persons the social insurance contribution is 16.6% on their insurable earnings, of which 6.3% is paid by the employer, 6.3% by the employee and 4% by the state. When the employee is covered by a pension plan from the employer without any contribution from the employee, then 9.4% of the contribution is paid by the employer and 3.2% by the employee. Liability for paying contributions arises, when the employed person receives no less than €1.71 in the contribution week (or equivalently no less than €6.83 in the calendar month).

Since 1<sup>st</sup> April 2009 the total contribution rate increased at 17.9% of insurable earnings, of which 6.8% is paid by the employer, 6.8% by the employee and the rest 4.3% by the state. When the employee is covered by a pension plan from the employer without any contribution from the part of the employee then the social security contribution paid by the employer is 10.15% and by the employee 3.45%. In cases of trainees working without earnings, the employer has to pay both the contribution of the employer and the employee, i.e. 12.6%.

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<sup>11</sup> The amount of annual basic insured earnings is set every year and in 2007 the amount is 7345.3 euro per year or 141.25 euro per week, for 2008 the amount is 7668 euro per year or 147.45 euro per week and for 2009 the amount is 8012 euro per month or 154.07 euro per week



The insurable earnings of the employee include anything paid to the employee for his/her labour, i.e. basic salary, cost of living allowance, overtime, commissions, 13<sup>th</sup> salary, 53<sup>rd</sup>/56<sup>th</sup> week, the contribution of the employer to the Central Holiday Fund and holiday unions' funds etc. Only ex gratia payments are not included.

Also, the Law sets a maximum amount of earnings for contribution purposes which is revised annually. In 2007, the maximum amount was €885 per week or €836 per month. In 2008, 2009 and 2010 the maximum amount was €885, €924 and €973 euro per week or €836, €4004 and €4216 per month respectively. In case that the employee's earnings are higher than the maximum amount then contributions are not paid for the extra amount.

Table 24. Maximum amount of earnings for contribution purposes

Year	Monthly	Weekly
2007	€671.78	€847.47
2008	€836	€885
2009	€4004	€924
2010	€4216	€973

**Notes on Euromod implementation:** From the data is not possible to understand if the employee is covered by a pension plan from the employer. For this reason the reduced contribution of 3.2% is applied only to civil servants.

#### 2.4.2 Employer social contributions (tscer\_cy)

Every employer has to pay contributions to the Funds (Social Insurance, Annual Holidays with Pay, Redundancy, Human Resource Development and Social Cohesion) for every one of his/her employees whose earnings are at least €1.71 per week. As far as trainees and apprentices are concerned, the employer has to pay contributions to the Social Insurance Fund even if the employee has no earnings.

The liability of the employer for paying contributions to the above Funds exists even if the employee is working for another employer or as a self-employed person at the same time.

The liability of the employer for paying contributions to the Social Insurance Fund ceases on the day the employee reaches pensionable age, i.e. the age of 65. In the case the employee does not satisfy the contribution conditions for old age pension when he/she reaches pensionable age, the employer is obliged to continue to pay contributions until the employee is entitled to old-age pension. Under no circumstances contributions are payable after the age of 68.

The employer is obliged to pay contributions to the Central Holiday Fund, the Redundancy Fund, the Human Resource Development Fund and the Social Cohesion Fund even if the employee receives old age pension and irrespective of his age.

The employer is not obliged to pay contributions to the Central Holiday Fund if he obtains exemption from the Minister of Labour and Social Insurance, after the employer has filed an application. Exemption is granted in the cases where the employer provides annual holidays to his employees on more favourable terms than those provided under the Annual Holidays with Pay legislation.



The earnings taken into consideration for the purpose of payment of contributions to the Social Insurance, Annual Holidays with Pay, Redundancy and Human Resource Development Funds have a maximum that is revised annually. For the Social Cohesion Fund the total earnings are taken into consideration without a maximum. Earnings include the basic salary, the cost of living allowance, commissions, the 13th and 14th salary or the 53rd/56th week, overtime etc. For the purpose of payment of contributions, the gross amount of earnings (i.e. before the deduction of taxes and contributions) is taken into consideration.

The amount of contributions paid by the employer to the Central Holiday Fund is considered as part of the earnings for the purpose of payment of contributions to the Social Insurance Fund, the Redundancy Fund, the Human Resource Development Fund and the Social Cohesion Fund.

Earnings payable to the employee for periods exceeding one week or one month, such as the 13th salary, earnings of the 54th week, commissions etc., are taken into consideration for the purpose of payment of contributions to the Social Insurance, Central Holiday, Redundancy and Human Resource Development and Social Cohesion Funds, up to the amount that when added to the earnings of the employee for the period in question, these are not higher than the maximum amount for that period.

Table 25. Amount of annual basic insured earnings

Year	Annually	Weekly
2007	€7345.3	€141.25
2008	€7668	€147.45
2009	€8012	€154.07
2010	€8435	€162.22

Contributions payable by the employers to the above mentioned Funds are calculated as a percentage on the earnings of the employee as explained below:

**(a) Social Insurance Fund**

- For the rate of 12.6% the employer and employee pay 6.3% each. In case an employer implements an occupational pension scheme without payment of contributions by the employees, then the employer pays 9.4% and the employee 3.2%. Since 1<sup>st</sup> April 2009 the respective percentages are 6.8% and 6.8%, 10.15% and 3.45%.

**(b) Central Holiday Fund**

- The rate of contribution to the Central Holiday Fund varies according to the length of annual leave to which the employed person is entitled, as shown in Tables



Table 26. Rate of contribution to the Central Holiday Fund (5-day working week)

<b>Duration of annual leave</b>	<b>Rate of contribution (%)</b>
20	8
21	8.5
22-23	9
24	9.5
25	10
26	10.5
27-28	11
29	11.5
30	12
31	12.5
32-33	13
34	13.5
35	14
36	14.5
37-38	15
39	15.5
40	16

Table 27. Rate of contribution to the Central Holiday Fund (6-day working week)

<b>Duration of annual leave</b>	<b>Rate of contribution (%)</b>
24	8
25-26	8.5
27	9
28-29	9.5
30	10
31-32	10.5
33	11
34-35	11.5
36	12
37-38	12.5
39	13
40-41	13.5
42	14
43-44	14.5
45	15
46-47	15.5
48	16

The rate of contributions for leave longer than 40 days for 5-days working week and 48 days for 6-days working week are increased accordingly.



The contribution to the Central Holiday Fund is payable wholly by the employer.

**Notes on Euromod implementation:** The same contribution rate (8%) was used for all the employers.

**(c) Redundancy Fund**

- The contribution to the Redundancy Fund (rate 1.2%) is payable wholly by the employer.

**(d) Human Resource Development Fund**

- The contribution to the Human Resource Development Fund (rate 0.5%) is payable wholly by the employer.

**(e) Social Cohesion Fund**

- It was introduced on 1.1.2003. The contribution to the Social Cohesion Fund (rate 2%) is payable wholly by the employer.

The contributions under A, B, C, and D are computed on earnings up to the maximum amount specified above. The contributions under E are computed on actual earnings without any upper limit.

The rates under C, D, and E apply to trainees with low earnings and are applied to their actual earnings.

**Notes on Euromod implementation:** From the data is not possible to understand if the employee is covered by a pension plan from the employer. For this reason the reduced contribution of 9.4% to the social insurance fund is applied only to civil servants. The eligibility to pay contribution to the Central Holiday Fund is randomly simulated among the non civil servants (According to external statistics 21% of employees are covered by the Central Holiday Fund<sup>12</sup>). Since trainees cannot be identified in the dataset, the special rules applying to them are not simulated.

### 2.4.3 Self-employed social contributions (tscse\_cy)

The total contribution of self-employed persons is 15.6% of their insured earnings. From this percentage, 11.6% is paid by the self-employed and 4% by the state. Since 1<sup>st</sup> April 2009 the total contribution of self-employed is 16.9% of their insured earnings. From this percentage, 12.6% is paid by the self-employed person and the rest 4.3% by the state.

The insured earnings of the self-employed (the earnings for which their contributions are calculated) are set on the basis of their profession and workplace. Furthermore, the self-employed should be younger than 65.

For each professional category there a compulsory minimum amount of insured earnings is prescribed, but the self-employed is allowed to pay contributions on a higher amount of insured earnings up to a maximum. If the real income of a self employed person is lower than the minimum corresponding to his/her professional category then he/she can ask to pay contributions based on his/her real income.

When an insured person is simultaneously working as an employee and a self-employed then he has to insure himself for both. In case where the insured person has two or more

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<sup>12</sup> Archived Statistical Data of Social Insurance Services.

Link: [http://www.mlsi.gov.cy/mlsi/sid/sid.nsf/dmlstatistical\\_Archive\\_en?OpenForm](http://www.mlsi.gov.cy/mlsi/sid/sid.nsf/dmlstatistical_Archive_en?OpenForm)



professions as self-employed then he/she can be insured only for the profession with the higher amount of insured earnings.

The minimum amounts of insured earnings for the self-employed differ by professional category (Doctors, managers, teachers, farmers etc.) and are used in the simulation as maximum amounts, since we assume that if the real income of a self employed person is lower than the minimum corresponding to his/her professional category pays contributions based on his/her real income and if his/her real income is higher than the minimum amount then the paid contributions are based on the minimum amounts reported in the following table.

Table 28. Minimum weekly amount of insured earnings for the self-employed

Year	Weekly Amount
2007	€10.97
2008	€25
2009	€40
2010	356.9

**Notes on Euromod implementation:** The minimum amounts used in the implementation are calculated as the mean of the professional category specific minimums.

#### 2.4.4 Government social contributions (tscgv\_cy)

The Social Insurance Scheme is also financed by contributions paid by the State. In both cases of employed and self-employed persons, the contribution paid by the government is 4.0% on their insurable earnings. Since 1<sup>st</sup> April 2009, the contribution rate paid by the State increased at 4.3% of insurable earnings. Note also that contributions to the Annual Holidays Fund are part of the earnings that are considered for the estimation of government contributions.

#### 2.5 Personal income tax (tin\_cy)

Every citizen of the Republic of Cyprus is subject to income tax for incomes from sources inside and outside the country that concern:

1. profits or other benefits from any company for any time period that the company operates;
2. profits or other benefits from any paid services;
3. dividends and interests;
4. pension, incomes paid from a will or contract and annual incomes;
5. incomes, copyrights, patents rights and other incomes from ownership; and
6. any amount or counter-provision for reputation and goodwill decreased by any amount paid for buying such reputation and goodwill.



Persons permanently settled in the Republic can choose to be treated as citizens of the Republic as concerns income taxation. Note also that contributions paid by the employer to the Annual Holidays Fund are part of the tax base.

### 2.5.1 Tax unit

Income tax in Cyprus is individual.

### 2.5.2 Exemptions

The following types of income are exempt from income tax:

1. the official salary of the President of the Republic, the pension of the President of the Republic, part of the pension of the President of the Parliament, any benefit paid to the President of the Republic and the President of the Parliament and representation expenses of the Ministers and the President of the Parliament;
2. the benefit paid to public employees for service abroad;
3. the pensions and benefits paid according to the Suffering Relief Law;
4. widow pensions paid from Social Insurance;
5. any amount paid as lump sum, pension, compensation due to death or physical injury;
6. income from scholarship or any other educational grant;
7. payments to persons arising from tax deductions;
8. earnings of foreign officers of any institution that operates in the Republic;
9. income of any religious, charitable or educational institution with a public character;
10. income of a registered cooperative bank arising from transactions with its members;
11. income of any Local Administration authority;
12. income of any Insurance Fund of the Republic;
13. income of a company that operates in order to promote art, science or sports;
14. earnings of foreign diplomatic representatives; and
15. whole income from interests and 50% of the income of a company from interests.

**Notes on Euromod implementation:** the tax base is computed as the sum of employment income, self employment income, pensions and 80% of rent income<sup>13</sup>.

### 2.5.3 Tax allowances/deductions

In order to find taxable income the following amounts are deducted from a person's income:

1. any amount spent for the repair of premises, machines, plants and transport equipment or for the renewal or repair or transformation of any tool, utensil or other objects used in order to raise income;

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<sup>13</sup> See Tax allowances section



2. the annual contributions paid by the employee to the various Funds;
3. Bad debts;
4. expenditure for scientific research;
5. expenditure in order to acquire a patent or copyright;
6. charity payments or contributions to educational institutions or payments for other charity purposes;
7. expenditures for the maintenance of a building for which a maintenance order is issued and for the maintenance of an ancient monument;

An amount equal to 20% is deducted from the income acquired from renting buildings before anything else is deducted from this.

Deductions are offered for the decrease of value and damages on assets due to usage from personal income from the operation of a company.

An amount equal to the annual amount of the paid premiums and contributions is deducted in order to find the taxable income of any person who has:

1. insured his/her life or the life of the spouse for an amount payable on his/her death;
2. paid contributions to a pension, widow and orphan fund;
3. paid contributions to a pension or provident or any other insurance fund;
4. paid premia or any other contributions to an insurance company for the issuance of a specific insurance contract;
5. paid premia or any other contributions to an insurance company for a pension or the medical plan; and
6. paid contributions to the general health plan;

In the case of a life insurance contract where the insured person will receive a payment of a predetermined amount on his/her death then the amount of the deduction cannot exceed 7% of this amount. The total deduction for contributions and premiums cannot exceed 1/6 of the taxable income. In case of encashment of a life insurance contract within 3 years from the date of the contract then 30% of the premium paid for which a deduction was given is added to the income of the person. This is reduced to 20% if the encashment is made on the 4<sup>th</sup> or 5<sup>th</sup> or 6<sup>th</sup> year of the contract.

For 2006 income up to 17086 euro is not taxable.

**Notes on Euromod implementation:** due to data limitations, the only deductions taken into account in the implementations are those of the social insurance contributions, as well as the contributions to individual private pension plans up to an amount that cannot exceed 1/6 of the taxable income.

#### 2.5.4 Tax base

The tax base is defined as taxable income minus the various deductions. Taxable income is total income minus the various exemptions.



### 2.5.5 Tax schedule

Income taxation is progressive, with higher marginal tax rates applying to higher income brackets. The tax rates and income tax brackets are shown in the table. For 2006 income up to 17086 euro was not taxable, income between 17086 and 25629 euro was taxed with a rate of 20% , income between 25629 and 34172 euro was taxed with a rate of 25% and income above 34172 euro is taxed with a rate of 30%.

In 2007 income up to 18367 euro is not taxable, every euro between 18367 and 26910 euro is taxed with a rate of 20%, every euro between 26910 and 35197 euro is taxed with a rate of 25% and every euro above 35197 is taxed with a rate of 30%.

From 2008 until present (2010) income up to 19500 euro is not taxable, every euro between 19500 and 28000 euro is taxed with a rate of 20%, every euro between 28000 and 36300 euro is taxed with a rate of 25% and every euro above 36300 is taxed with a rate of 30%.

Table 29. Tax rates and income tax brackets

Tax rate	2007	2008	2009	2010
0%	0 – 18,367	0 – 19,500	0 – 19,500	0 – 19,500
20%	18,367 – 26,910	19,501 – 28,000	19,501 – 28,000	19,501 – 28,000
25%	26,910 – 35,197	28,001 – 36,300	28,001 – 36,300	28,001 – 36,300
30%	35,197 -	36,301 -	36,301 -	36,301 -

Furthermore, different rules apply for specific categories of income; the income that stems from ship management is taxed at 4.25% and no deductions or exemptions are allowed, the income of a Cypriot resident from a pension offered from abroad that exceeds the amount of 3417 euro is taxed with a rate of 5%; the income from patents, copyrights and compensations acquired in the Republic from a person not residing in the Republic is taxed with a rate of 10%; the income acquired in the Republic from a person not residing in the Republic from entertainment activities is taxed with a rate of 10%. These cases are not simulated in the model.

### 2.5.6 Tax credits

Tax credits exist in case of double taxation and are not considered in the simulations within Euromod.

## 2.6 Special contribution for defence

Every person residing in the Republic of Cyprus is obliged to pay special contribution for defence as follows:

1. 15% on income from dividends.



2. 10% on income from interest (paid or credited). Interest received by a person from the normal operation of his/her company is not considered as interest. Persons with annual income (including interest) not exceeding 11960 euro (12000 euro from 1/1/2008 and onwards) have the right to be refunded amounts withheld as contribution for defence on interest income above 3% of this income.
3. 3% on income from Cypriot savings certificates, Cypriot development bonds and interest from provident fund.
4. 3% on gross rents decreased by 25%.

Money paid as special contribution for defence is taxable.

**Notes on Euromod implementation:** contributions under point 1 and 3 are not simulated. The contributions of legal entities are out of the scope of the model; therefore special contributions for defence are partly simulated.

### 3. DATA

#### 3.1 General description

The Cypriot database is the European version (UDB) of the Community Statistics on Income and Living Conditions (EU-SILC). EU-SILC is a rotating panel representative of the population and provides cross-sectional information on household incomes and social exclusion. The sampling units are the households selected using simple random sampling within strata (9 strata based on districts). The sample consists of 3335 households or 9998 individuals. The response rate was high at 92%. Table 17 provides a short description of the database.

Table 30. EUROMOD database description

Year 2006	
Euromod Database	CY_2008_A1.txt
Original name	UDB_c08_ver 2008-1 from 01-03-10
Provider	EUROSTAT
Year of collection	2008
Period of collection	March-July
Income reference period	1.01.2007-31.12.2008
Sampling	Stratified simple random sampling
Unit of assessment	Households
Coverage	Private Households
Sample size	3335 households or 9998 individuals
Response rate	92%



## 3.2 Sample quality and weights

### 3.2.1 Non-response

Overall non-response rate was calculated at 8%, whereas averaged across all countries is equal to 22%. Non-response at the three stages (address contact, household interview and personal interview) composes to the overall response rate. The address contact rate (the ratio of the number of addresses successfully contacted, to the number of valid addresses selected) was 100%, the household response rate (the ratio of the number of households interviews completed to the number of eligible households at the contacted addresses) was 92% and finally the individual response rate (the ration of the number of personal interviews completed to the number of eligible individuals in completed households) was 100%.<sup>14</sup>

### 3.2.2 Weights

The sample consists of 3335 households and 9998 individuals. The weights provided by the survey are household weights and are projected to a reference population of XX individuals. In the sample, no income unit was found with zero income from all and re-weighting process was not necessary. The following table reports several descriptive statistics for the grossing-up weight variable (dwt).

Table 31. Descriptive Statistics of the Grossing-up weight

Number	9,998
Mean	78.26
Median	71.16
Maximum	189.77
Minimum	1.59
Max/Min	119.35
Decile 1	16.10
Decile 9	148.25
Dec 9 / Dec1	9.2

### 3.2.3 Item non-response and under-reporting

According to the Statistical Service of Cyprus, the average gross monthly earnings from employment were €1702 in 2007. When broke down by gender, the average gross monthly earnings for males were €1884 and for females €1472. The respective EU-SILC estimates are €1689, €2003 and €1332. There is an indication of over-reporting for males and under-reporting for females, however there is not enough information about the strict comparability of administrative records and EU-SILC income variables.

## 3.3 Data adjustment

Few adjustments were done. All monetary values in the EU-SILC database are expressed in annual terms. For the purposes of the EUROMOD database, all the annual amounts were converted into monthly basis for the purposes of EUROMOD model. Finally, children born after the income-reference period were dropped from the sample.

<sup>14</sup> Comparative Intermediate EU Quality Report 2007, Version 5-October 2009.



### 3.4 Imputations and assumptions

The variables shown in Table 19 were imputed from SILC aggregated variables.

In EU-SILC data, soldier's allowance (bml) is recorded as employee cash or near cash income, (variable py010g). We set bml equal to py010g/12 if the individual has never work as employee, spend a positive number of months in compulsory military service and has employee cash or near cash income. For individuals who spend a positive number of months working as employees and in compulsory military service we set bml equal to the basic monthly soldier's allowance (120 euro) times the months spend in the army divided by 12.

Table 32. List of imputed variables

Variable name	Description
bml	BENEFIT/PENSION : Soldier allowance
psuwd	BENEFIT/PENSION : Survivors : widow
psuor	BENEFIT/PENSION : Survivors : orphan
psuot	BENEFIT/PENSION : Survivors : other
bedet	BENEFIT/PENSION : Education : student grant
bedsl	BENEFIT/PENSION : Education : scholarship
bch	BENEFIT/PENSION : child benefit
bchba	BENEFIT/PENSION : Maternity : birth grant
bfamh	BENEFIT/PENSION : Family : Family related allowances
poasp	BENEFIT/PENSION : Social Pension - Old Age
poatx	BENEFIT/PENSION : Taxable old Age
poant	BENEFIT/PENSION : Non taxable old Age
bunct	BENEFIT/ SIC: unemployment benefit
bunot	BENEFIT: Other unemployment benefit
yempv	INCOME: monthly wage from previous work
lcs	LABOUR: Civil servant

In EU-SILC all survivor's benefits are included in one variable (py110g). We split this variable into three parts, survivor's benefit to widow (psuwd), survivor's benefit to orphan (psuor) and other survivor's benefits (psuot). We set psuwd equal to py110g/12 if py110g is positive, the marital status (pb190) of the individual's is widow(er) or if individual is married but with no partner's id (rb240) recorded in the data. We set psuor equal to py110g/12 if py110g is positive, the individual is not a widow(er) and is aged less than 25. Finally we set psuot equal to py110g/12 if py110g is positive and both psuwd and psuot are zero.

In EU-SILC variable py140g includes all education related allowances for tertiary education (student grant and scholarships). Based on this variable we impute two variables, one for student grant (bedet) which is given to parents with children in tertiary education and scholarships (bedsl) which are received by the students. If the individual with positive py140g is a tertiary student means that this is an income from scholarships and thus bedsl is equal to



py140g. On the other hand, if the individual with positive py140g is not a tertiary student i.e. is the parent of a tertiary student then bedet is equal to py140g.

All child and family related variables are recorded in variable hy050g. We split this variable into child benefit (bch), birth grant (bchba) and other family related allowances (bfamh). We impute the received family birth grant by multiplying the amount of birth grant (420 euro) with the number of children in family aged less than 1. If the imputed birth grant is lower or equal to hy050g then we set bchba equal to the imputed birth grant. In case that the imputed birth grant is higher than hy050g then we set bchba equal to hy050g. The imputation of child benefit (bch) is based on the child benefit policy for eligibility and amount. We simulate the amount of child benefit for each eligible family and we compare it with the hy050g excluding the bchba amount received by the family. If hy050g (subtracting bchba) is more than the simulated child benefit then bch is set equal to the simulated child benefit. If hy050g (subtracting bchba) is less than the simulated child benefit then bch is set equal to hy050g-bchba. We set bfamh equal to hy050g minus bch minus bchba .

All old aged benefits are included in variable py100g. We split this variable into three parts, the social pension (poasp), the taxable old aged pension (poatx) and the non-taxable old aged pension (poant). We set poasp equal to py100g if the amount of py100g is close to the amount of social pension (347.93 euro per month). For imputing poatx and poant we compare the net and gross amount of py100 variable. The difference of py100g and py100n give us the tax paid and by reversing the income tax policy we found the taxable amount. Given that the individual has poasp=0, we set poatx equal to this taxable amount and the difference of py100g and the taxable amount is set equal to poant (poant=py100g-poatx).

In EU-SILC data the unemployment benefits are recorded in variable py090g. We split this variable into two parts the unemployment benefits paid by the Social Security Fund (bunct) and from other sources (bunot). Using the unemployment benefit policy we find the maximum monthly amount an individual with positive py090g can receive as unemployment benefit. We compare this maximum unemployment benefit amount with the monthly unemployment benefits reported in the data i.e. py090g divided by the reported numbers of months in unemployment but constraining this duration to be up to six months (individual can receive unemployment benefits for up to six months). If the maximum monthly unemployment benefit amount is lower than reported monthly unemployment benefit then we set bunot equal to the difference of the two amounts (multiplied with the duration of unemployment and divided by 12) and bunct equal to the maximum monthly unemployment benefit amount (multiplied with the duration of unemployment and divided by 12). If the maximum monthly unemployment benefit amount is equal or higher than the reported monthly unemployment benefit then we set bunot equal to zero and bunct equal to the reported monthly unemployment benefit (multiplied with the duration of unemployment and divided by 12). Since now we know the unemployment benefits paid by the Social Security Fund (bunct) we can reverse the unemployment benefit policy to find the monthly wage before unemployment (yempv).

In EU-SILC data we do not have the information whether someone is a civil employee or private employee. We impute if someone is a civil servant (variable lcs) using the economic activity (pl110) and status in employment. If the individual is employee working in the sector of Public administration and defense, compulsory social security or in the sector of Education then we assume he/she is a civil servant.



### 3.4.1 Time period

The income reference period is the year. Information on income refers to the calendar year before the interview (1<sup>st</sup> January 2007-31<sup>st</sup> December 2007). Accordingly, the same reference period applies for taxes on income and social insurance contributions, as well as taxes on wealth.

### 3.4.2 Gross incomes

The EU-SILC survey contains information on gross monetary income. In the very few cases where gross income was impossible to collect, net income was recorded and converted to gross by applying the tax as well as social insurance contributions rules of the system<sup>15</sup>.

### 3.5 Updating

The following table reports the factors that were used to update monetary variables from 2007 to 2010. The dataset used is the EU-SILC 2008, which provides information on income, pensions and benefits of the previous calendar year (2007). Therefore, all the update factors for 2007 are equal to unity. Update factors for the other years are provided in the respective columns.

Table 33. Updating factors

Index	Income Source/index type	2007	2008	2009	2010
yivwg	INCOME : Imputed value : Wage/Salary	1	1.074	1.119	1.146
yem	INCOME : Employment	1	1.074	1.119	1.146
ypp	INCOME:Private Pension	1	1.047	1.050	1.076
yse	INCOME:Self Employment	1	1.034	1.067	1.094
yyi	INCOME : Investment	1	1.047	1.050	1.076
ypr	INCOME : Property	1	1.128	1.132	1.160
yprrt	INCOME : Property : Rent	1	1.128	1.132	1.160
ypt	INCOME:Private Transfers	1	1.047	1.050	1.076
yot	INCOME : Other	1	1.047	1.050	1.076
yds	INCOME : Disposable	1	1.047	1.050	1.076
bch	BENEFIT/PENSION: Child	1	1.024	1.072	1.0742
bed	BENEFIT/PENSION:Education	1	1	1	1
bun	BENEFIT/PENSION:Unemployment	1	1.074	1.131	1.146

<sup>15</sup> Eurostat, Comparative Intermediate EU Quality Report 2007, Version 5-October 2009.



bhl	BENEFIT/PENSION : Health	1	1.074	1.131	1.146
bsa	BENEFIT/PENSION:Social Assistance	1	1.082	1.18	1.216
bho	BENEFIT/PENSION : Housing	1	1.047	1.050	1.076
pdi	BENEFIT/PENSION : Disability	1	1.044	1.091	1.148
poa	BENEFIT/PENSION : Old Age	1	1.044	1.091	1.148
tpr	TAX : Property tax	1	1.047	1.050	1.076
tad	TAX : Repayments/Receipts	1	1.047	1.050	1.076
tis	TAX : Income tax and SICs	1	1.067	1.110	1.137
tpr	TAX : Property tax	1	1.047	1.050	1.076
kfb	IN KIND : Fringe Benefit	1	1.047	1.050	1.076
kivho	IN KIND : Imputed value : Housing	1	1.047	1.050	1.076
afc	ASSETS : Financial Capital	1	1.047	1.050	1.076
xmp	EXPENDITURE : Maintenance Payment	1	1.047	1.050	1.076
xpp	EXPENDITURE : Private Pension (voluntary)	1	1.047	1.050	1.076
xhc	EXPENDITURE : Housing cost	1	1.047	1.050	1.076
xhcert	EXPENDITURE : Housing cost : Rent	1	1.047	1.050	1.076
xhcmomi	EXPENDITURE : Housing cost : Mortgage Payment:	1	1.047	1.050	1.076
xhcot	EXPENDITURE : Housing cost : Other	1	1.047	1.050	1.076
bml	BENEFIT/PENSION: military grant	1	1.143	1.225	1.225
psuwd	BENEFIT/PENSION: survivors: widows	1	1.039	1.086	1.142
psuor	BENEFIT/PENSION: survivors: orphans	1	1.039	1.086	1.142
psuot	BENEFIT/PENSION : Survivors : other	1	1.047	1.050	1.076
bedet	BENEFIT/PENSION: education: student grant	1	1	1.000	1.000
bedsl	BENEFIT/PENSION: education: student scholarship	1	1.00	1.000	1.000
bfamh	BENEFIT/PENSION: Family related allowances	1	1.047	1.050	1.076



bchba	BENEFIT/PENSION : Maternity : birth grant	1	1.044	1.091	1.149
poasp	BENEFIT/PENSION : Social Pension - Old Age	1	1.044	1.091	1.149
poatx	BENEFIT/PENSION : Taxable old Age	1	1.044	1.091	1.149
poant	BENEFIT/PENSION: Non taxable old Age	1	1.044	1.091	1.149
yempv	–INCOME: monthly wage from previous work	1	1.037	1.114	1.161
bunct	BENEFIT/PENSION : SIF unemployment benefit	1	1.074	1.119	1.146
bunot	BENEFIT/PENSION : Other unemployment benefit	1	1.074	1.119	1.146

Sources: Statistical Service of Cyprus, EUROSTAT, Social Insurance Services, Grants and Benefits Service.

## 4. VALIDATION

### 4.1 Aggregate Validation

Tables 34-37 and tables 38-41 compare non-simulated incomes and simulated instruments with external data provided from various administrative sources. In general, the results of the simulation are in accordance with external statistics but in several cases they should be interpreted with caution as we explain in the next paragraph.

Several disparities emerge between EU-SILC variables and administrative data. These are attributed to a lack of comparability between EU-SILC figures and external data. Disparities arise also between simulated instruments and administrative data. Overestimation or underestimation of means-tested benefits may be partly the result of administrative practices that cannot be simulated or an indication of targeting errors. An example of an administrative practice that is very difficult to simulate is that usually the assessment of the applications of the potential beneficiaries is based on incomes earned two years before the application. Obviously, this practice is very difficult to simulate. Furthermore, imperfect targeting may explain differences between simulated results and administrative data. Welfare programs are usually plagued by Type I and Type II errors (as they are termed in the relevant literature). Type I errors arise from “false” negatives, meaning that the benefit is not attributed to an eligible individual or household. On the other hand, Type II errors arise from “false” positives, when the benefit is attributed to non-eligible persons.

#### 4.1.1 Non simulated incomes

Tables 34-37 report the number of recipients and total amounts of non-simulated benefits and incomes for years 2007, 2008, 2009 and 2010, while tables 38-41 report the same figures but for simulated benefits.

Note that statistics on old-age pensions are not strictly comparable. In particular, the EM variable (poa) is calculated using the EU-SILC variable py100g, which includes widows pensions, disability pensions and invalidity pensions if the recipient is older than 63 in all cases. If the recipient is below 63, the relevant pension is included in the survivors’ benefits (py110g). However, the administrative data do not separate recipients according to age. Furthermore, the



administrative data include only pensions provided by the Social Insurance Fund, while the EU-SILC data include, also, other pensions and lump-sums received by public employees.

Lastly, data on housing allowances are also not strictly comparable, since this category consists of several benefits for some of which there was not available information.

Table 34. EUROMOD validation: income sources and taxes and benefits included but not simulated, [2007]

	Recipients/Payers ('000)			Expenditure/Revenue (millions)		
	EM	Ext Source	Ratio	EM	Ext Source	Ratio
Average gross earnings				1690	1702	0.99
Average gross earnings (m)				2003	1884	1.06
Average gross earnings (f)				1333	1472	0.91
Unemployment benefit	23.64	n/a	n/a	99.04	n/a	n/a
Unempl. benefit: (from SIF)	23.64	27.9	0.85	47.67	54.9	0.87
Unempl. benefit: other	2.38	n/a	n/a	51.37	n/a	n/a
Military grant	12.32	8	1.54	15.22	14.92	1.02
Education related benefits	42.06	33.4	1.26	117.25	69.8	1.68
Student grant	35.02	33.4	1.05	91.43	69.8	1.31
Educ. related scholarship	7.04	n/a	n/a	25.81	n/a	n/a
Family related allowances	32.47	32.98	0.98	54.94	35.24	1.56
Sickness benefits	5.72	41.6	0.14	13.28	32.2	0.41
Housing allowances	9.13	2.7	3.38	32.85	37.6	0.87
Old age pensions	112.35	95.5	1.18	1294.99	552.3	2.34
Taxable old age pensions	61.59	n/a	n/a	737.83	n/a	n/a
Social pension	15.64	16	0.98	78.62	52.3	1.5
Non-taxable old-age pension	39.53	n/a	n/a	478.55	n/a	n/a
Windows pension	5.01	28.9	0.18	42.9	134.9	0.32
Orphan allowance	0.4	1.53	0.26	0.77	3.33	0.23
Survivor benefits	5.96	30.43	0.20	47.21	132.2	0.34
Other Survivor benefits	0.55	n/a	n/a	3.53	n/a	n/a
Disability benefit	15.46	12.1	1.28	109.07	105.48	1.03
Regular Tax on wealth	159.04	n/a	n/a	14.28	n/a	n/a

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.



Table 35. EUROMOD validation: income sources and taxes and benefits included but not simulated, [2008]

	Recipients/Payers ('000)			Expenditure/Revenue (millions)		
	EM	Ext Source	Ratio	EM	Ext Source	Ratio
Average gross earnings				1814	1828	0.99
Average gross earnings (m)				2152	2015	1.07
Average gross earnings (f)				1431	1593	0.90
Unemployment benefit	23.64	n/a	n/a	106.36	n/a	n/a
Unempl. benefit: (from SIF)	23.64	26.6	0.85	51.19	53.44	0.96
Unempl. benefit: other	2.38	n/a	n/a	55.17	n/a	n/a
Military grant	12.32	8.38	1.54	17.4	16.97	1.03
Education related benefits	42.06	35.7	1.26	117.25	92.0	1.27
Student grant	35.02	35.7	1.05	91.43	92.0	0.99
Educ. related scholarship	7.04	n/a	n/a	25.81	n/a	n/a
Family related allowances	32.47	44.2	0.98	57.51	50.3	1.14
Sickness benefits	5.72	43	0.14	14.26	36	0.40
Housing allowances	9.13	3.94	3.38	34.38	58.9	0.58
Old age pensions	112.35	99.4	1.18	1351.77	618.7	2.18
Taxable old age pensions	61.59	n/a	n/a	770.18	n/a	n/a
Social pension	15.64	16	0.98	82.06	54.2	1.51
Non-taxable old-age pension	39.53	n/a	n/a	499.53	n/a	n/a
Windows pension	5.01	29	0.18	44.78	146.8	0.31
Orphan allowance	0.4	1.55	0.26	0.81	3.61	0.22
Survivor benefits	5.96	30.55	0.20	49.29	150.41	0.33
Other Survivor benefits	0.55	n/a	n/a	3.7	n/a	n/a
Disability benefit	15.46	12.05	1.28	113.85	114.84	0.99
Regular Tax on wealth	159.04	n/a	n/a	14.28	n/a	n/a

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.



Table 36. EUROMOD validation: income sources and taxes and benefits included but not simulated, [2009]

	Recipients/Payers ('000)			Expenditure/Revenue (millions)		
	EM	Ext Source	Ratio	EM	Ext Source	Ratio
Average gross earnings				1891	1906	0.99
Average gross earnings (m)				2242	2093	1.07
Average gross earnings (f)				1491	1674	0.89
Unemployment benefit	23.64	n/a	n/a	110.84	96.51	1.15
Unempl. benefit: (from SIF)	23.64	35.7	0.66	53.34	77.91	0.68
Unempl. benefit: other	2.38	n/a	n/a	57.48	21.07	3.09
Military grant	12.32	8.38	1.50	18.64	17.3	1.08
Education related benefits	42.06	36.2	1.16	117.25	88.2	1.33
Student grant	35.02	36.2	0.97	91.43	88.2	1.04
Educ. related scholarship	7.04	n/a	n/a	25.81	n/a	n/a
Family related allowances	32.47	44.2	0.73	57.69	53.8	1.07
Sickness benefits	5.72	45.1	0.13	13.28	39.25	0.38
Housing allowances	9.13	4.38	2.08	32.85	64.9	0.53
Old age pensions	112.35	103.7	1.08	1412.45	676	2.09
Taxable old age pensions	61.59	n/a	n/a	804.76	n/a	n/a
Social pension	15.64	16.1	0.97	85.75	56.1	1.53
Non-taxable old-age pension	39.53	n/a	n/a	521.96	n/a	n/a
Windows pension	5.01	29.5	0.17	46.8	153.5	0.30
Orphan allowance	0.4	1.61	0.26	0.84	3.68	0.23
Survivor benefits	5.96	31.11	0.19	51.35	157.18	0.33
Other Survivor benefits	0.55	n/a	n/a	3.71	n/a	n/a
Disability benefit	15.46	12.25	1.26	118.97	125.86	0.95
Regular Tax on wealth	159.04	n/a	n/a	14.28	n/a	n/a

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.



Table 37. EUROMOD validation: income sources and taxes and benefits included but not simulated, [2010]

	Recipients/Payers ('000)			Expenditure/Revenue (millions)		
	EM	Ext Source	Ratio	EM	Ext Source	Ratio
Average gross earnings				1936	1952	0.99
Average gross earnings (m)				2296	2135	1.08
Average gross earnings (f)				1527	1731	0.88
Unemployment benefit	23.64	n/a	n/a	99.04	n/a	n/a
Unempl. benefit: (from SIF)	23.64	n/a	n/a	47.67	85.80	0.64
Unempl. benefit: other	2.38	n/a	n/a	51.37	n/a	n/a
Military grant	12.32	n/a	n/a	15.22	n/a	n/a
Educ. related benefits	42.06	n/a	n/a	117.25	n/a	n/a
Student grant	35.02	36.94	0.95	91.43	91.5	1.00
Educ. related scholarship	7.04	n/a	n/a	25.81	n/a	n/a
Family related allowances	32.47	n/a	n/a	59.09	n/a	n/a
Sickness benefits	5.72	n/a	n/a	15.21	n/a	n/a
Housing allowances	9.13	n/a	n/a	35.33	n/a	n/a
Old age pensions	112.35	n/a	n/a	1487.21	n/a	n/a
Taxable old age pensions	61.59	n/a	n/a	847.35	n/a	n/a
Social pension	15.64	15.1	1.04	90.29	59.80	1.51
Non-taxable old-age pension	39.53	n/a	n/a	549.58	n/a	n/a
Windows pension	5.01	n/a	n/a	49.27	n/a	n/a
Orphan allowance	0.4	n/a	n/a	0.83	n/a	n/a
Survivor benefits	5.96	n/a	n/a	53.96	n/a	n/a
Other Survivor benefits	0.55	n/a	n/a	3.8	n/a	n/a
Disability benefit	15.46	n/a	n/a	125.26	n/a	n/a
Regular Tax on wealth	159.0	n/a	n/a	14.28	n/a	n/a

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.

#### 4.1.2 Simulated tax and benefits

Tables 38-41 compare the simulated instruments to external data with respect to the number of recipients and total expenditures (or receipts/contributions collected).

The model overestimates the number of student grant recipients, as well as total expenditure for student grants. Yet, it should be noted that this benefit is also overestimated according to our splitting from the original EU-SILC dataset (see table 37), and that the comparison looks fine in later years.

Both number of recipients and total expenditures for the birth grant are overestimated for 2007, while the comparison with external statistics looks fine for the next years. Yet it should be noted that external statistics refer to the number of applications processed in a given year. According to Ministry of Labour and Social Insurance the number of applications received in 2007 was largely in line with those received in 2006 and 2008 and the discrepancy observed in 2007 data is attributed to reasons not related with the simulation of the instrument.



The model underestimates substantially the total expenditures for public assistance. There are three reasons that explain this discrepancy. First, the model simulates only the part of the public assistance which covers the basic needs of the household. However, in several cases the public assistance may be given in order to cover special needs of the households. The special needs component of the public assistance benefit depends on the particular circumstances of the applicant. It can include a rent allowance, a medically prescribed diet allowance, home-care, day-care, house equipment, house repairs, allowance for mortgage interest deriving from a house loan, transportation for work or treatment, etc. Obviously, these special cases cannot be simulated. Second, there are several categories of recipients of the public assistance that are not covered by the survey, namely asylum seekers, recognized political refugees, immigrants granted subsidiary protection and victims of sexual harassment or human trafficking. And lastly, there is the possibility that part of the discrepancy between EUROMOD and administrative data may be attributed to targeting errors. Possibly, the benefit is subject to Type II errors that arise from false positives (i.e. the benefit is attributed to non-eligible persons). This evidence calls for further investigation. Regarding child benefit, EUROMOD slightly overestimates the number of recipients, but underestimates total expenditures. Child benefit consists of two parts: a basic part which is universal and a supplementary part which is means-tested. Administrative data refer to total amounts (basic parts and supplementary parts are aggregated).

Child Benefit amount is underestimated by the model. The result is in line with our expectations: according to the law, means-testing is based on family income acquired three years before the day of application. On the contrary, EUROMOD model uses current income. Since current income is likely to be higher than past income (due to the strong economic growth of that period), the model is likely to underestimate the supplementary part of the benefit and hence the aggregated amount.

The number of employees paying social insurance contributions is overestimated when compared to external statistics, while the aggregate amount of contributions is in line with the official figures. It should be noted that the EUROMOD database contains 330.8 thousand people with positive employment income, and that this number is already smaller than the number of social insurance contribution payers reported in the external statistics. The EU-Labour force survey reports a number of employees even smaller, just above 300 thousand<sup>16</sup>. Hence, it is likely that external statistics on the number of social insurance contributors are not entirely comparable to the EUROMOD simulation.

Income taxes appear to be overestimated. However, it should be noted that the external data for income taxes are not directly comparable to model estimates. The administrative data report the total amount of taxes that the Inland Revenue Department collected in that year. This amount includes taxes that are levied not only on that year's income, but also on the income of previous years. A disentangling process of the administrative data is not possible. Apart from comparability issues, other factors, typical in most microsimulation models that contribute to the overestimation of income taxes are;

- a) The existence of tax evasion, and;
- b) The fact that EU-SILC data did not contain adequate information for the simulation of a number of tax allowances and deductions.

Overall, we found that the sum of income taxes and social insurance contributions simulated by the Euromod model is in line with EU-SILC.

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<sup>16</sup> Source: EU-LFS (table Ifsa\_eegais).

[http://epp.eurostat.ec.europa.eu/portal/page/portal/labour\\_market/introduction](http://epp.eurostat.ec.europa.eu/portal/page/portal/labour_market/introduction)



Table 38. EUROMOD validation: taxes and benefits simulated, [2007]

	Recipients/Payers ('000)			Expenditure/Revenue (million)		
	EM	Ext source	Ratio	EM	Ext source	Ratio
Student grant	43.44	33.4	1.30	93.0	69.8	1.33
Birth grant	8.28	5.9	1.40	3.7	2.66	1.40
Social Assistance	26.53	29.6	0.90	59.6	133.9	0.44
Child benefit	124.04	107.8	1.15	115.7	150.9	0.77
Child benefit (basic part)	50.78	n/a	n/a	13.0	n/a	n/a
Child benefit (suppl. part)	124.04	n/a	n/a	102.7	n/a	n/a
Income Tax	192.28	n/a	n/a	614.7	477.1	1.29
Special Contr. to defence	77.74	n/a	n/a	n/a	n/a	n/a
Employee SIC	330.32	385.84	0.86	337.6	310.6	1.09
Self-Employed SIC	74.32	34.5	2.16	94.5	55.1	1.72
Employer SIC	333.81	385.84	0.87	806.4	715.9	1.13
Annual Holidays Fund	67.72	80.9	0.83	90.9	89.1	1.02
Redundancy Fund	333.81	385.84	0.87	78.0	73.87	1.06
Human Resources Fund	333.81	385.84	0.87	32.5	31.1	1.05
Social Insurance Fund	330.32	385.84	0.86	475.0	399.2	1.19
Social Cohesion Fund	333.81	385.84	0.87	130.0	122.6	1.06
Government SIC	380.45	420.32	0.91	290.6	244.6	1.19

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.



Table 39. EUROMOD validation: taxes and benefits simulated, [2008]

	Recipients/Payers ('000)			Expenditure/Revenue (million)		
	EM	Ext source	Ratio	EM	Ext source	Ratio
Student grant	43.13	35.7	1.21	95.6	92	1.04
Birth grant	8.28	7.8	1.06	3.9	3.6	1.08
Social Assistance	26.22	33.6	0.78	60.0	174.7	0.34
Child benefit	124.04	108.9	1.14	117.0	158.9	0.74
Child benefit (basic part)	44.74	108.9	1.21	11.8	n/a	n/a
Child benefit (suppl. part)	124.04	n/a	1.06	105.3	n/a	n/a
Income Tax	194.12	n/a	n/a	667.9	525.7	1.27
Special Contrib. to defence	77.74	n/a	n/a	n/a	n/a	n/a
Employee SIC	330.32	413	0.80	361.3	351	1.03
Self-Employed SIC	74.32	33.1	2.24	98.7	60	1.64
Employer SIC	333.81	413	0.81	862.2	805.8	1.07
Annual Holidays Fund	67.2	93.8	0.72	97.3	102.1	0.95
Redundancy Fund	333.81	413	0.81	83.4	83	1.01
Human Resources Fund	333.81	413	0.81	34.8	34.9	1.00
Social Insurance Fund	330.32	413	0.80	507.7	448	1.13
Social Cohesion Fund	333.81	413	0.81	139.0	137.8	1.01
Government SIC	380.45	446.1	0.85	309.9	274.6	1.13

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.

Table 40. EUROMOD validation: taxes and benefits simulated, [2009]

	Recipients/Payers ('000)			Expenditure/Revenue (million)		
	EM	Ext source	Ratio	EM	Ext source	Ratio
Student grant	43.13	36.2	1.19	95.4	88.2	1.08
Birth grant	8.28	7.2	1.15	4.1	3.42	1.19
Social Assistance	28.55	38.0	0.75	70.3	219.7	0.32
Child benefit	124.04	110.1	1.13	122.9	166.72	0.74
Child benefit (basic part)	41.94	n/a	n/a	11.6	n/a	n/a
Child benefit (suppl. part)	124.04	n/a	n/a	111.3	n/a	n/a
Income Tax	202.68	n/a	n/a	726.3	571.3	1.27
Special Contr. to defence	77.74	n/a	n/a	n/a	n/a	n/a
Employee SIC	330.32	419.96	0.79	406.3	391.1	1.04
Self-Employed SIC	74.32	31.4	2.37	111.5	58.3	1.91
Employer SIC	333.81	419.96	0.79	940.7	856.41	1.10
Annual Holidays Fund	67.2	95.7	0.70	101.4	101.3	1.00
Redundancy Fund	333.81	419.96	0.79	86.9	82.6	1.05
Human Resources Fund	333.81	419.96	0.79	36.2	34.7	1.04
Social Insurance Fund	330.32	419.96	0.79	571.2	500.7	1.14
Social Cohesion Fund	333.81	419.96	0.79	144.9	137.1	1.06
Government SIC	380.45	451.35	0.84	347.1	302.5	1.15

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.



Table 41. EUROMOD validation: taxes and benefits simulated, [2010]

	Recipients/Payers ('000)			Expenditure/Revenue (million)		
	EM	Ext source	Ratio	EM	Ext source	Ratio
Student grant	42.97	36.94	1.16	95.1	88.2	1.08
Birth grant	8.28	n/a	n/a	4.3	3.4	1.19
Social Assistance	29.44	43.50	0.68	76.4	219.7	0.32
Child benefit	124.04	111.32	1.11	124.2	166.7	0.74
Child benefit (basic part)	45.48	n/a	n/a	12.5	n/a	n/a
Child benefit (suppl.part)	124.04	n/a	n/a	111.6	n/a	n/a
Income Tax	209.49	n/a	n/a	772.4	593.0	1.30
Special Contr. to defence	77.74	n/a	n/a	n/a	n/a	n/a
Employee SIC	330.32	424.79	0.78	417.7	n/a	n/a
Self-Employed SIC	74.32	30.09	2.47	116.2	n/a	n/a
Employer SIC	333.81	424.79	0.79	967.7	n/a	n/a
Annual Holidays Fund	67.2	95.48	0.70	104.2	101.2	1.03
Redundancy Fund	333.81	424.79	0.79	89.4	n/a	n/a
Human Resources Fund	333.81	424.79	0.79	37.3	n/a	n/a
Social Insurance Fund	330.32	424.79	0.78	587.8	n/a	n/a
Social Cohesion Fund	333.81	424.79	0.79	149.0	n/a	n/a
Government SIC	380.45	454.87	0.84	357.5	n/a	n/a

Sources: a) Social Insurance Services, Archived Statistical Data, Ministry of Labour and Social Insurance; b) Grants and Benefits Services, Ministry of Finance; c) Inland Revenue Department, Ministry of Finance; d) Eurostat (2009), Taxation trends in the European Union.

## 4.2 Income distribution

All income distribution results presented here are based on distributions of equivalised disposable income. The “modified OECD” equivalence scale was used for converting nominal incomes to equivalized. Household disposable income is 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.

EUROMOD estimates on inequality are very close to the estimates based on EU-SILC data. Comparisons of poverty estimates reveal larger discrepancies that vary according to the choice of the poverty line. The largest differences were observed for extreme values of the poverty line. On the contrary, the model appears to estimate precisely poverty rates when less extreme poverty lines are chosen. Children are defined as persons aged below 18 and the elderly as those aged above 64. Partly, the observed differences between the model and the external statistics are due to the fact that no adjustments were made for tax evasions and non take-up.

The former deserves special attention. Tax non-compliance is a common problem of tax authorities in most countries. Cyprus is no exemption. According to Pashardes and Polycarpou (2008) the size of black economy in Cyprus is around 6.7% - 8.1% of GDP. Income from self-employment is under-reported by 44.8% and capital income by 40.3%, while the highest under-reporting rate was estimated for agricultural income (59.9%). Tax evasion is likely to have distributional consequences insofar high income earners tax evade more than low-income earners in relative terms. Most probably, measures of poverty and inequality that does not take into account tax evasion underestimate the actual level of poverty and inequality.



#### 4.2.1 Poverty

Table 42. EUROMOD validation: poverty rates at different poverty lines, [2007]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.023	0.036	0.64
50% of median equivalent income	0.073	0.089	0.82
60% of median equivalent income	0.148	0.155	0.95
70% of median equivalent income	0.223	0.231	0.97

Sources: Eurostat Online Database

Table 43. EUROMOD validation: poverty rates at different poverty lines, [2008]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.023	0.029	0.79
50% of median equivalent income	0.076	0.080	0.95
60% of median equivalent income	0.151	0.162	0.93
70% of median equivalent income	0.228	0.228	1.00

Sources: Eurostat Online Database

Table 44. EUROMOD validation: poverty rates at different poverty lines, [2009]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.022	0.029	0.65
50% of median equivalent income	0.074	0.080	0.84
60% of median equivalent income	0.148	0.162	0.91
70% of median equivalent income	0.227	0.228	0.90

Sources: Eurostat Online Database

Table 45. EUROMOD validation: poverty rates at different poverty lines, [2010]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.021	n/a	n/a
50% of median equivalent income	0.068	n/a	n/a
60% of median equivalent income	0.146	n/a	n/a
70% of median equivalent income	0.228	n/a	n/a

Sources: Eurostat Online Database

Table 46. EUROMOD validation: child poverty rates at different poverty lines, [2007]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.007	0.021	0.33
50% of median equivalent income	0.041	0.058	0.71
60% of median equivalent income	0.12	0.124	0.97
70% of median equivalent income	0.203	0.208	0.98

Sources: Eurostat Online Database



Table 47. EUROMOD validation: child poverty rates at different poverty lines, [2008]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.007	0.015	0.41
50% of median equivalent income	0.042	0.059	0.68
60% of median equivalent income	0.123	0.136	0.99
70% of median equivalent income	0.210	0.212	0.91

Sources: Eurostat Online Database

Table 48. EUROMOD validation: child poverty rates at different poverty lines, [2009]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.007	0.017	0.41
50% of median equivalent income	0.041	0.060	0.68
60% of median equivalent income	0.119	0.120	0.99
70% of median equivalent income	0.210	0.231	0.91

Sources: Eurostat Online Database

Table 49. EUROMOD validation: child poverty rates at different poverty lines, [2010]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.007	n/a	n/a
50% of median equivalent income	0.042	n/a	n/a
60% of median equivalent income	0.119	n/a	n/a
70% of median equivalent income	0.211	n/a	n/a

Sources: Eurostat Online Database

Table 50. EUROMOD validation: Elderly poverty rates at different poverty lines, [2007]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.091	0.128	0.71
50% of median equivalent income	0.286	0.341	0.84
60% of median equivalent income	0.483	0.506	0.95
70% of median equivalent income	0.589	0.598	0.98

Sources: Eurostat Online Database

Table 51. EUROMOD validation: Elderly poverty rates at different poverty lines, [2008]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.094	0.098	0.96
50% of median equivalent income	0.309	0.286	1.08
60% of median equivalent income	0.493	0.483	1.02
70% of median equivalent income	0.599	0.594	1.01

Sources: Eurostat Online Database

Table 52. EUROMOD validation: Elderly poverty rates at different poverty lines, [2009]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.094	0.097	0.95
50% of median equivalent income	0.309	0.284	1.02
60% of median equivalent income	0.493	0.486	1.00
70% of median equivalent income	0.599	0.583	1.02

Sources: Eurostat Online Database



Table 53. EUROMOD validation: Elderly poverty rates at different poverty lines, [2010]

percentage of individuals below:	EUROMOD	Ext source	Ratio
40% of median equivalent income	0.085	n/a	n/a
50% of median equivalent income	0.254	n/a	n/a
60% of median equivalent income	0.475	n/a	n/a
70% of median equivalent income	0.579	n/a	n/a

Sources: Eurostat Online Database

#### 4.2.2 Income inequality

Table 54. EUROMOD validation: income inequality, [2007]

percentage of individuals below:	EUROMOD	Ext source	Ratio
Gini Coefficient	0.298	0.279	0.91
Decile Shares	4.0		1.1
1	5.4	3.8	1.1
2	6.5	5.2	1.0
3	7.4	6.4	1.0
4	8.4	7.4	1.0
5	9.4	8.4	1.0
6	10.5	9.5	1.0
7	11.9	10.5	1.0
8	13.9	12.0	1.0
9	22.5	14.1	0.9
10	4.0	22.8	1.1
Mean income (equivalised)	1575.58	1571	1.00
Median income (equivalised)	1406.93	1394	1.01

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.

Sources: Own calculations using EU-SILC

Table 55. EUROMOD validation: income inequality, [2008]

percentage of individuals below:	EUROMOD	Ext source	Ratio
Gini Coefficient	0.271	0.280	0.97
Decile Shares			
1	4.0	3.8	1.0
2	5.4	5.2	1.0
3	6.4	6.4	1.0
4	7.5	7.3	1.0
5	8.4	8.4	1.0
6	9.5	9.4	1.0
7	10.6	10.5	1.0
8	11.9	11.9	1.0
9	14.0	14.0	1.0
10	22.4	23.1	1.0
Mean income (equivalised)	1674.8	1571	1.07
Median income (equivalised)	1496.2	1394	1.07

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.

Sources: Own calculations using EU-SILC



Table 56. EUROMOD validation: income inequality, [2009]

percentage of individuals below:	EUROMOD	Ext source	Ratio
Gini Coefficient	0.271	0.284	0.97
Decile Shares			
1	4.0	3.7	1.1
2	5.4	5.1	1.1
3	6.4	6.3	1.0
4	7.5	7.3	1.0
5	8.4	8.3	1.0
6	9.4	9.5	1.0
7	10.5	10.5	1.0
8	12.0	11.8	1.0
9	13.9	14.2	1.0
10	22.5	23.3	1.0
Mean income (equivalised)	1727	n/a	n/a
Median income (equivalised)	1539	n/a	n/a

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.

Sources: Own calculations using EU-SILC

Table 57. EUROMOD validation: income inequality, [2010]

percentage of individuals below:	EUROMOD	Ext source	Ratio
Gini Coefficient	0.269	n/a	n/a
Decile Shares			
1	4.1	n/a	n/a
2	5.4	n/a	n/a
3	6.5	n/a	n/a
4	7.5	n/a	n/a
5	8.4	n/a	n/a
6	9.4	n/a	n/a
7	10.5	n/a	n/a
8	11.9	n/a	n/a
9	14.0	n/a	n/a
10	22.4	n/a	n/a
Mean income (equivalised)	1770.2	n/a	n/a
Median income (equivalised)	1579.9	n/a	n/a

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.

Sources: Own calculations using EU-SILC

#### 4.3 Summary of “Health warnings”

The model simulates a variety of policy instruments of the tax-benefit system of Cyprus. It is a valuable tool that enables the user to estimate the first-round distributional and fiscal effects of potential policy reforms. Nevertheless the following caveats should be taken into consideration in order to interpret the results meaningfully:



- Issues of data comparability

The validation of the model requires the comparison of both simulated and non-simulated policy instruments with external information provided by administrative or other sources. In some cases the observed disparities between EU-SILC variables, EUROMOD estimations and administrative data are the result of differences in the methodological settings between the various administrative sources and the model. These cases are discussed in the sections 4.1.1 and 4.1.2.

- Partly simulated instruments

Several instruments were not fully simulated due to data limitations. For example, the model simulates only the part of the public assistance which is designed to cover the basic needs of the recipient household. However, in several cases the public assistance may be given in order to cover special needs of the households (rent allowance, a medically prescribed diet allowance, home-care, day-care, house equipment, house repairs, allowance for mortgage interest deriving from a house loan, transportation for work or treatment, etc.). In other cases, it was not possible to fully simulate the administrative practices of an instrument. For example, a common contribution condition of the Social Insurance Scheme refers to insurable earnings of the previous contribution year<sup>17</sup>. Special notes in the document explain how each case was practically treated by the model.

- Imperfect targeting and tax evasion

The model does not take into account imperfect targeting of social benefits and tax evasion, thus we implicitly assume perfect targeting and tax compliance. This may cause differences between simulated and actual values. In practice, welfare programmes are subject to Type I and Type II errors. Type I errors arise from “false” negatives, meaning that the benefit is not attributed to an eligible recipient. On the other hand, Type II errors arise from “false” positives, if the benefit is attributed to non-eligible persons. Lastly, the existence of tax evasion may cause a downward bias to distributional statistics if high income earners tax evade more than low income earners do.

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<sup>17</sup> Contribution year differs from calendar year. For example, for the first semester of 2006 the previous contribution year is the year 2004 and for the second semester of 2006 is the year 2005.



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