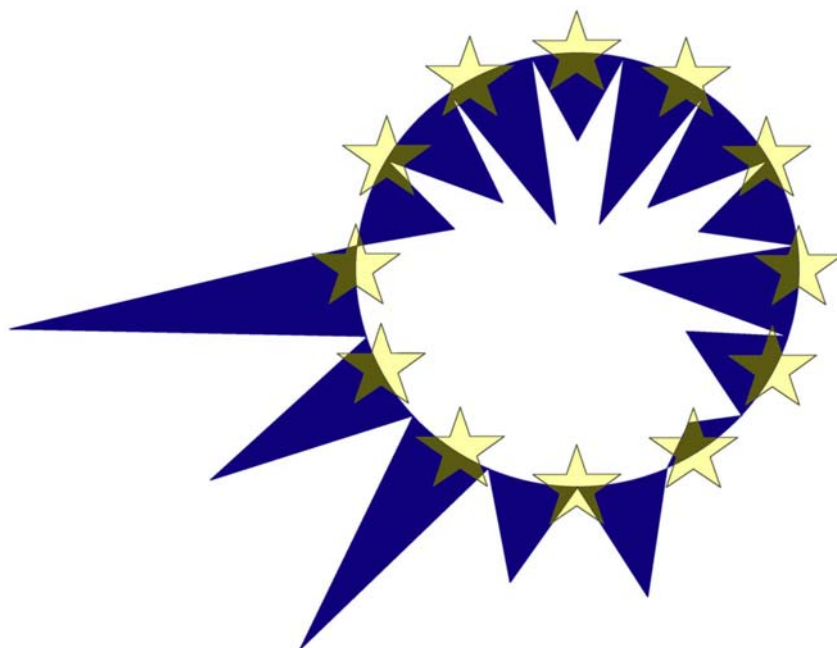


EUROMOD

COUNTRY REPORT



ESTONIA (EE)

2005

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1. BASIC INFORMATION

1.1 Basic figures

Table 1. Basic figures

	Pop. (m.)	pop. < 18 (%) ^[1]	pop. ≥ 65 (%) ^[1]	Life expect. (years)	Fertility rate	Unemp. rate	GDP per head (PPP) ^[1]	Currency	
								Name	Exch. rate
2003	1.356	21.3	15.9	71.59	1.37	10.0	54.6	Kroon	15.6466
2005	1.348	20.3	16.5	72.82	1.50	7.9	62.8	Kroon	15.6466

Source: Statistics Estonia, on-line database, last accessed Nov 6, 2007;

^[1]Eurostat, on-line database, last accessed Nov 6, 2007.

Notes: Population figures on 1st January; Unemployment rate for age group 15-74; GDP per head in Purchasing Power Standards (EU-27=100); Exchange rate between Euro and Estonian Kroon is fixed 1 EUR= 15.6466 EEK

1.2 The tax-benefit system

Table 2. Tax-benefit system and government budget

	Total general government revenue ^[1] % of GDP	Total tax receipts ^[1] % of GDP	Total general government expenditure ^[1] % of GDP	Social protection expenditure? ^[1] % of GDP
2003	36.4	31.6	34.6	12.6
2005	35.4	31.0	33.4	12.5

Source: ^[1]Eurostat, on-line database, last accessed Jan 28, 2008.

Eurostat tables: Government revenue, expenditure and main aggregates - Total general government expenditure, Total general government revenue; Main national accounts tax aggregates - Total receipts from taxes and social contributions (including imputed social contributions) after deduction of amounts assessed but unlikely to be collected; Total expenditure on social protection, Current prices (% of GDP)

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
2003	31.4	9.2	43.4	0.8	9.8	1.8	0.6	1.6
2005	31.5	9.2	42.5	0.8	12.0	1.3	0.2	1.0

Source: Eurostat, on-line database, last accessed Feb 2, 2008. Social protection expenditure by function (% of total expenditures)



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

	Personal income tax	Corporate income tax	Social security contributions		Indirect taxes	Other taxes
			Employees	Employers		
2003	21.0	5.1	0.9	33.1		
2005	18.2	4.7	0.9	32.2	43.7	

Source: Eurostat. Taxation trends in the EU. 2007 edition, Annex A: Tables

http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_structures/taxation_trends_2007_annex.xls

1.2.1 Basic information about the tax-benefit system

- The tax system is largely a unified, national system consisting of income tax, value added tax, excise taxes, social tax and social insurance contributions. There are a few taxes set by local governments, such as land tax, motor vehicle tax, sales tax, but the share of these taxes in overall taxation is negligible.
- The benefit system is also a unified, national system. Municipalities provide a few local benefits, such as additional family and child benefits, and additional social assistance benefits, but the share in overall social expenditures is small. Social benefits and pensions are usually assessed and delivered on a monthly basis. Amounts are referred to in monthly terms.
- The fiscal year is 1 January - 31 December. The tax system generally changes in 1 January each year. Main benefit changes happen at the same time, but may also be implemented in April (indexation of state pensions takes place in 1 April each year), or other times in year, e.g family benefits have been changed in July and September.
- State pension age in 2005 was 59.5 for women and 63 for men. The pension age for women gradually increases also to 63 by 2016. Both early retirement and postponement is possible, also various occupational pensions exist.
- Children are subject to the obligation to attend school from age 7 and until they acquire basic education or attain 17 years of age.
 - Dependent children for family benefits are defined as aged under 16, or under 19 and enrolled in basic school, upper secondary school or vocational school in daytime study or another form of study for medical reasons.
 - In case of subsistence benefit, dependent children are defined as aged under 18.
 - For taxation purposes, dependent children are aged up to 17. One of the parents may deduct additional basic allowance from his or her income in the period of taxation for the third and subsequent child, starting counting from the eldest child.
- For benefit purposes single parents are the parents of resident dependent children whose birth registration certificate does not have an entry concerning the father or an entry has been made on the basis of a statement by the mother or whose parent has been declared to be a fugitive.
- The income tax system is an individual system, but a married couple may also file a joint tax report if they wish (beneficial if one has unused tax allowances which the other one could claim for). There are some income sources on which income tax is immediately



withheld when they are paid out; final tax liability is based on the tax report after the tax year has ended (taking into account tax already withheld).

- Liability of income tax is based on annual income and allowances are referred to in annual terms, although 1/12 of the annual basic, pension and sickness allowance can be applied monthly to calculate withholding income tax. In order to make use of the other allowances and deductions these have to be declared in the following year (by 31st March) when filing the tax report. Overall, there are a few allowances and deductions in the system. Different income sources are taxed uniformly.
- The means-tested benefit system assesses entitlement according to household income. Household consists of persons living together and share their income and expenditures. Income is assessed on monthly basis. Total income, with a few exceptions, of the previous month is taken into account.
- Taxes and benefits are not indexed, with the exception of old-age pensions, which are indexed to weighted average of inflation and social tax revenues. Usually taxes and benefits are changed in ad hoc manner. Some thresholds of benefits (i.e. minimum or maximum levels) are linked to past minimum wage or average contribution base.
- Social tax is a payroll tax and is paid by employers, although all tax payments are linked to individuals when calculating pensions, sickness benefits or maternity benefits. There are a few additional social contributions paid by employees: unemployment insurance benefits and contributions to the mandatory pension scheme.

1.3 Social Benefits¹

1.3.1 Pensions

The Estonian pension system is based on three pillars:

- state pension insurance (the 1st pillar) – pay-as-you-go scheme;
- mandatory funded pension scheme (the 2nd pillar) – introduced in 2002;
- supplementary (voluntary) funded pension scheme (the 3rd pillar) – introduced in 1998.

As the funded pension components were introduced only lately, only pensions from the state pension insurance scheme were paid out in 2005.

The first pillar – the state pension insurance – provides protection against the risks of old age, disability and survivorship, and in fact comprises of two separate tiers:

- residence-based national pensions and
- employment-based old-age, work incapacity and survivors' pensions.

All economically active persons are compulsorily covered by the state pension insurance through the payment of an earmarked social tax (by employers). The state pays social tax on a

¹ The following description of social benefits cites and uses excerpts from the following sources.

- Ministry of Social Affairs. Social sector in figures 2005. Tallinn 2006.
- Ministry of Social Affairs. Social sector in figures 2006. Tallinn 2007.
- Lüksik, S., Paulus, A., Võrk, A. (2006) I-CUE Feasibility Study. Estonia (2005 tax-benefit system). EUROMOD Feasibility Study.
- Leetmaa, R., Võrk, A. "Social Insurance and Social Assistance in Estonia", report to World Bank, 2006.
- Leppik, L. (2004) "The Estonian pension system: challenges of adequacy and sustainability". PRAXIS Center for Policy Studies. Unpublished.



fixed rate on behalf of some economically non-active persons, e.g. persons on parental leave, conscripts, carers of disabled persons etc.

Entitled to old age pension are residents of Estonia who have attained a pension age and have at least 15 years of pensionable service obtained in Estonia. In 2005, the statutory pension age was 63 years for men and 59.5 years for women. The pension age of women is being increased and gradually equalised with the pension age of men, reaching the target level of 63 by 2016.

Since 1999 the acquisition of new pension rights is linked to the social tax paid on behalf of the person. That introduced an insurance element in the pension formula and counting of pension insurance periods on the basis of registered social tax payments.

The old-age pension (*vanaduspension*) from the state pension system (the 1st pillar) is calculated according to a formula, which consists of three additive elements:

- a flat-rate element;
- a length-of-service element (applies only to pensionable service until 31 December 1998);
- an insurance element applying to periods after 1 January 1999.

The pension components are indexed annually by an arithmetic weighted average of annual increases of consumer prices and social tax revenues. In 2005 the weights were equal (they were changed in 2008). However, additional increases are common. A flat-rate guaranteed minimum pension – national pension – is granted to all residents at the age of 63 provided they have resided in Estonia at least 5 years prior to claiming a pension. Both early retirement and postponement of pensions are possible (see below). Working is allowed while receiving pensions. If the person acquires additional pension insurance coefficients, the pension is recalculated each year.

The 2nd pillar is based on defined-contribution principle, meaning that the benefit depends on the total contributions paid into individual pension account and investment returns of the pension fund. As a rule, benefits are paid in the form of life-long annuities, while unisex life tables are used for calculation of annuities. The pension age in the second pillar is the same as in the first pillar. The first benefits will be paid out only in 2009.

Supplementary funded pension scheme (the 3rd pillar) is a voluntary scheme.

Early retirement pension (*ennetähtaegne vanaduspension*): Available up to 3 years before the legal pension age. The amount of pension calculated on the basis of pension formula is permanently reduced by 0.4% for every month of earlier retirement. Pensions are suspended when the person returns to work before pension age. Working while receiving early retirement pensions is allowed after person has reached statutory pension age. Pension is recalculated when the person has acquired additional pension insurance periods (but still applying the reduction factor). Eligibility: 15 years of pension insurance period.

Old age pension under favourable conditions (*soodustingimustel vanaduspension*): There are two possibilities. Under the *State Pension Insurance Act (Riikliku pensionikindlustuse seadus)*, one of the parents who has raised 3 or more children or a disabled child has the right to retire up to five years earlier before the legal pension age and there is no reduction in pension amount.

Old-age Pensions Under Favourable Conditions Act (Soodustingimustel vanaduspensionide seadus) states that persons who have worked with hazardous or hard working conditions (defined categories of professions) for a certain period of time have the right to retire up to ten years before the legal pension age. Also the value of a year of pensionable service is increased, the size depending on the profession. There is accumulation with earnings if the person does not work at the same profession that gave eligibility to the pension before the statutory pension age.



Table 5. Early retirement and number of children

Children	How many years allowed to retire earlier?
Disabled child under 18	5 years
5 or more children	5 years
4 children	3 years
3 children	1 year

Superannuated pension (*väljateenitud aastate pension*): For narrowly defined categories of professions (e.g. policemen, pilots, seamen, artists etc.) pension is available before normal retirement age, given that they have required length of service. The amount of the pension depends on the profession. Upon attaining the general pensionable age, the person may switch to the general old-age pension.

Pension for incapacity to work (*töövõimetuspension*, or disability pension): The percentage of the calculation basis corresponding to the loss of capacity for work. Calculation basis: represented by the higher of the 2 following amounts: old-age pension calculated on the basis of actual years of pensionable service and the pension insurance coefficient of the applicant, or old-age pension for a person with 30 years of pensionable service. There is no restriction on work, full accumulation with earnings is possible. Pension is granted from the age of 16 years for the period of work incapacity, which could be determined for 6 months, 1 year, 2 years, 5 years or until attaining the pensionable age depending upon claimant's condition. The pension is renewable. Upon attaining the pension age, the person is transferred to old-age pension. Qualification period depends on age at time of granting the pension, ranging from 1 year of insurance for persons from 21 to 23 years of age to 14 years of insurance for persons from 60 to 62 years of age. No qualification period for persons aged 16-20.

Survivor's pension (*toitjakaotuspension*): Upon the death of a provider, family members who were maintained by him or her have the right to receive a survivor's pension. They include: 1) a provider's child, brother, sister or grandchild who is under 18 years of age (or who is under 24 years of age and is a student enrolled in daytime or full-time study) or disabled. A brother, sister or grandchild has the right to receive a pension if he or she does not have parents with capacity for work; 2) a provider's parent who is of pensionable age or permanently incapacitated for work; 3) a provider's non-working widow who is pregnant (from the twelfth week of pregnancy) or who is permanently incapacitated for work or of pensionable age and whose marriage to the provider had a duration of at least one year; 4) a provider's divorced spouse who attained pensionable age or was declared permanently incapacitated for work before the divorce, or within three years after the divorce and whose marriage to the provider had a duration of at least twenty-five years; 5) a parent or guardian of a provider's child who is not employed and is raising the provider's child who is under 3 years of age in his or her family. Under certain additional conditions the above apply to stepchildren and foster-children, step-parents and foster-parents. If the provider had a necessary length of service to receive the old-age pension, then the greatest of the following old-age pensions shall be the basis for calculation of a survivor's pension: 1) the old-age pension earned by the provider until the date of his or her death; 2) the old-age pension if the person has completed thirty years of pensionable service. The amount of survivor's pension depends on the number of family members: 1) to one family member, 50 per cent of the basis; 2) to two family members, 80 per cent of the basis; 3) to three or more family members, 100 per cent of the basis.

National pension (*Rahvapension*): It is a minimum guaranteed pension for those persons who do not have necessary length of service to be eligible old-age pensions or pension for incapacity for work, or in case of survivor's pension a provider did not have necessary length of service.



The basis for national pension is the National Pension Rate (*rahvapensioni määr*), which in 2005 was 1,156 EEK.

Table 6. Minimum amount of national pension by pension type

Pension type	Minimum amount
Old-age pension	100% of the National Pension Rate (NPR, <i>rahvapensioni määr</i>) = 1,156 EEK in 2005
Pension for incapacity for work	Percentage of loss of capacity applied to the National Pension Rate (in case of total incapacity 100% of NPR)
Survivor's pension	1) to one family member, 50 per cent of the NPR; 2) to two family members, 80 per cent of the NPR in total; 3) to three or more family members, 100 per cent of the NPR in total.

Pensions are subject to income tax. Both basic income tax allowance (1,700 EEK per month) and a special tax allowance for pensions (3,000 EEK per month) can be applied. That is for non-working pensioner the pension is non-taxable in the amount of 4,700 EEK. Average old-age pension was 2,739 EEK in January 2005 and 3,129 EEK in January 2006. It means that majority of the pensioners effectively do not pay income tax.

1.3.2 Benefits for families with children

There are various types of benefits for families with children.

- 1) State family benefits that mainly depend on the age and number of children.
- 2) Benefits that compensate periods when a parent is out of the labour market and which depend on the parent's previous earnings – maternity benefit (*sünnitushüvitis*), parental benefit (*vanemahüvitis*), care benefit for nursing a child under 12 years of age who is ill (*hooldushüvitis*); additional childcare leave for fathers, etc.
- 3) Tax allowances and deductions depending on the number of children or expenditures on children. This is described in detail below where we discuss income taxation.
- 4) Free or subsidised services for children (e.g. subsidised school meals; free health care, including dental care; subsidised childcare in kindergarten, etc) – these in-kind services are not discussed in detail.
- 5) Benefits and services provided by local municipalities – additional birth grants, social assistance benefits, child's school allowance (at the beginning of the school year), etc.
- 6) Special benefits for disabled children.

State family benefits

The types and extent of state family benefits and the conditions under which they are granted are regulated by the *State Family Benefits Act (Riiklike peretoetuste seadus)*. Family benefits are paid to permanent residents of Estonia and foreigners living in Estonia, who have a fixed-term residence permit or who are staying in Estonia on grounds set forth in the *Aliens Act (Välismaalaste seadus)*. Depending on the type of benefit, family benefits are paid either as a lump sum, once a month, once a quarter or once a year (see table 7) and they are financed from



the state budget. If a person is entitled to several types of family benefits, these benefits are determined and disbursed simultaneously. Child benefits are calculated on the basis of the Child Allowance Rate (CAR, *lapsetoetuse määr*). Childcare allowances and allowances for families with seven or more children are calculated on the basis of Childcare Allowance Rate (CCR, *lapsehooldustasu määr*). Both rates are established with the state budget for every budget year and the new rate cannot be lower than the existing rate. The family benefits are coefficients of those rates. Since 1997, the child allowance rate has been 150, and since 2000, the childcare allowance rate 1,200 EEK. (Ministry of Social Affairs “Social sector in figures 2006”, p 86)

Dependent children for family benefits are defined as aged under 16, or under 19 and enrolled in basic school, upper secondary school or vocational school in daytime study or another form of study for medical reasons.

All benefits paid under the State Family Benefits Act are non-taxable with income tax.

Table 7. Overview of state family benefits, in 2005

Benefit (legal term in English)	Frequency	Unit	Basic formula
Childbirth allowance	Single benefit	One of the parents	First child: 25 x CAR Subsequent child: 20 x CAR
Adoption benefit	Single benefit	One of the parents	20 x CAR
Child allowance	Per month	Per child	2 x CAR
Childcare allowance	Per month	Per child	Under 3 years old: 1/2 x CCR 3-8 years old: 1/4 x CCR
Allowance for families with 3 or more children/ with triplets	Per quarter	Per child	3 children/triplets: 1 x CAR 4 or 5 children: 2 x CAR 6 or more: 2.5 x CAR
Allowance for families with triplets	Per quarter	Per family	6 x CAR
Allowance for one parent of a family with 7 and more children	Per month	One of the parents	2 x CCR
Single parent child allowance	Per month	Per child	2 x CAR
Child's school allowance	At the beginning of the school year per child	Per child	3 x CAR
Allowance for a child in guardianship or in foster care	Per month	Per child	6 x CAR
Conscript's child allowance	Per month	Per child	5 x CAR
Start in independent life allowance	Single benefit	Per child	40 x CAR

Note: CAR – Child allowance rate, 150 EEK in 2005; CCR – Childcare allowance rate, 1,200 EEK in 2005

Child allowance (*lapsetoetus*): 300 EEK (= 2 x CAR) per child per month. Non-taxable.

Single parent child allowance (*üksikvanema lapse toetus*): 300 EEK (= 2 x CAR) per child per month, paid as a supplement to the child allowance. Non-taxable. Single parents are the parents of resident dependent children whose birth registration certificate does not have an entry



concerning the father or an entry has been made on the basis of a statement by the mother or whose parent has been declared to be a fugitive.

Allowance for families with 3 or more children / triplets (*kolme- ja enamalapselise pere ning kolmikuid kasvatava pere toetus*): For families with 3 children, 150 EEK (= CAR) per child is paid once a quarter as a supplement to other child benefits; for families with 4 or 5 children, 300 EEK (= 2 x CAR) per child, and for families with 6 or more children, 375 EEK (= 2.5 x CAR) per child. For families with triples it is 900 EEK (6 x CAR). A large family applicable to these benefits can only receive a benefit from one of these categories. Non-taxable. (Note: abolished since 1 July 2007. Monthly child benefits were increased for families with more than three children.)

Childcare allowance (*lapsehooldustasu*): 600 EEK (= 1/2 x CCR) per month for every child up to 3 years old, 300 EEK (= 1/4 x CCR) per month for each eligible child from 3 to 8 years of age. Additionally 100 EEK per month for every child up to one year old. Paid to one of the parents in respect of children under 3 years of age and in respect of children from 3 to 8 years of age if there are 3 or more children or children under 3 years of age in the family. It is non taxable and there is full accumulation with labour earnings, and other benefits, except maternity benefit and parental benefit. (Since 2006 the duration of parental benefits has been increased, and therefore the additional element for children less than 1 year old was abolished.)

School Allowance (*koolitoetus*): 450 EEK (= 3 x CAR) for each child receiving child allowance and enrolled in daytime studies, paid once a year at the beginning of the school year. Non-taxable.

Allowance for a parent raising 7 or more children (*7 ja enamalapselise pere vanema toetus*): Since 2005 the state offers a special allowance for the parent of seven or more children, 2,400 EEK (2 x CCR) per month. Non-taxable.

Conscript's child benefit (*ajateenija lapse toetus*) is applicable to the child whose parent serves in the Estonian Defence Forces in case the child receives child support. 750 EEK (= 5 x CAR) per month. Non-taxable.

Foster care allowance (*eestkostel või perekonnas hooldamisel oleva lapse toetus*) is paid for a child who is deprived of parental care, if guardianship has been established for him or her or a foster care contract has been entered into with respect to him or her, and who receives child allowance payments. Upon termination of guardianship or foster care when a child attains 18 years of age, the payment of an allowance continues until the end of the school year when the child attains 19 years of age. Foster care allowance was 900 EEK (= 6 x CAR) in 2005. Non-taxable.

Childbirth allowance (*sünnitoetus*). One of the parents has the right to receive childbirth allowance, which is 3,750 EEK (= 25 x CAR) for a first child and 3,000 EEK (= 20 CAR) for each subsequent child. In the case of a multiple birth, childbirth allowance is also paid at twenty-five times the child allowance rate for each child. An adoptive parent, guardian or caregiver has the right to receive childbirth allowance, if childbirth allowance has not been paid for the same child earlier. Non-taxable.

Adoption allowance (*lapsendamistoetus*). An adoptive parent residing in Estonia permanently or on the basis of a temporary residence permit from who an adopted child does not descend and who is not a step-parent of the child has the right to receive adoption allowance, if childbirth allowance has not been paid to the family for the same child earlier. The amount was 3,000 EEK (= 20 x CAR) in 2005. Non-taxable.



Start in independent life allowance (*elluastumistoetus*) is a benefit paid to the person without parental care who has been raised in a social welfare institution or a school for children with special needs in case the person starts living independently in a new residence. The amount is 6,000 EEK (= 40 x CAR) in 2005. If the person has spent in the aforementioned institution less than 3 years, the support is reduced by 2.5% for each month less than three years. Non-taxable.

Benefits compensating the periods out of the labour market

Maternity benefit (*sünnitushüvitis*) is one of the benefits for temporary incapacity for work, regulated by the *Health Insurance Act (Ravikindlustuse seadus)*. It is paid to insured person in the event of pregnancy and maternity leave. A pregnant woman has the right to receive maternity benefit for 140 calendar days or, in the case of a multiple birth or delivery with complications, for 154 calendar days if the pregnancy and maternity leave of the woman commences at least 30 calendar days before the estimated date of delivery as determined by a doctor. The size of the benefit is her average gross income taxed with social tax (i.e. earnings) per calendar day in the previous calendar year. It is taxable with income tax.

Parental benefit (*vanemahüvitis*): From 1 January 2004, the *Parental Benefit Act (Vanemahüvitise seadus)* entered into force, with the aim to compensate for income not received by stay-at-home parents in the first year of the child's life. The right to the parental benefit is granted to the parent, adoptive or foster parent, guardian or caregiver, who is a permanent resident in Estonia or a foreigner living in Estonia on terms of a temporary residence permit. In 2004 and 2005, parental benefit was paid until the end of a 365-day period from the beginning of the pregnancy and maternity leave, i.e. it includes the period of receiving maternity benefit. (The duration was increased in 2006 and 2008.) The size of the benefit is calculated according to the applicant's average monthly gross income taxed with social tax (i.e. earnings) in the previous calendar year (generally 100%). Persons who did not receive any earnings (e.g. not working students) are paid the parental benefit at the parental benefit rate (2,200 EEK in 2005). Persons whose average monthly income in the previous year was less than or equal to the minimum wages are paid the parental benefit in the amount of the minimum monthly wages (2,690 EEK in 2005). The maximum amount of the monthly benefit is three times the average monthly income taxed with social tax in the calendar year before (17,472 EEK in 2005). The parental benefit is subject to income tax. (Ministry of Social Affairs "Social sector in figures 2006", pp 86-87).

Additional childcare leave and breaks: Under the Holidays Act and the Working and Rest Time Act the following are financed from the state budget: the additional childcare leave of a parent raising a disabled child, the additional childcare leave of one parent (3 or 6 days, depending on the number of children) and the additional childcare leave for fathers (14 days). The father is entitled to additional childcare leave either during the mother's pregnancy and maternal leave or within 2 months from the child's birth. The daily rate for the additional childcare leave is 66 EEK.

A working person raising a child under 1.5 years of age is entitled to additional breaks for feeding the child – the minimum of 30 minutes after every three hours. The additional breaks may be added up and used to shorten the workday. The employees are paid average wages for the additional breaks from the state budget.



Other family benefits

Families are also paid a lump sum **benefit for holding funerals** (*matuseetoetus*) on the territory of Estonia under the *State Funeral Benefit Act* (*Riikliku matuseetoetuse seadus*). Non-taxable.

Compensation of study loans (*õppelaenu kustutamine*). Pursuant to the *Study Allowances and Study Loans Act* (*Õppetoetuste ja õppelaenu seadus*), the state started partially writing off the parents' study loans since 2004, writing off 50% of the study loan balance of a parent of one child, 75% of the study loan balance of a parent of twins and 100% of the study loan balance of a parent of triplets. 50% of the loan balance is written off upon the birth of every new child. (Ministry of Social Affairs "Social sector in figures 2006", pp 86-87.)

1.3.3 Unemployment benefits and social assistance benefits

In 1991-2002 the unemployment compensation system consisted only of flat rate unemployment assistance benefits. In 2002 unemployment insurance system was introduced and the payment of unemployment insurance benefits started in 2003. Currently the unemployment compensation in Estonia includes two tiers:

- a) unemployment insurance (UI) benefits, which depend on previous earnings and are financed from statutory unemployment insurance contributions. Unemployment insurance system is administered by the National Unemployment Insurance Fund (*Eesti Töötukassa*);
- b) unemployment assistance (UA) benefits, which are flat rate and are financed from the state budget. National Labour Market Board (*Tööturuamet*) is responsible for administering the unemployment assistance system.

In addition to that there are severance payments.

Unemployment insurance benefit (*töötuskindlustushüvitis*). The unemployment insurance operates as a compulsory insurance and is financed by the contributions of employees and employers. Unemployment insurance covers all employees (aged 16 to the legal pension age), except self-employed, members of management and controlling bodies of legal persons and some categories of civil servants. To be eligible for UI benefit a person should register as unemployed in the public employment service and needs to have worked and made contributions for at least 12 months during the previous 24 months. (Note: in 2007 the period was extended to 36 months.) Unemployment insurance benefits are not paid to those who leave their job or service voluntarily or who lose their job because they do not perform as agreed, lost confidence of their employer or behaved in an indecent manner. These persons still receive unemployment assistance benefits. The UI benefit may be stopped if the person refuses an offer of suitable work or does not show up at the public employment at a fixed date. Benefit may be stopped if the person refuses an offer of suitable work or does not show up at the Public Employment Service (PES) at a fixed date.

As persons receiving old-age pension or are older than legal pension age are not allowed to be registered as unemployed in PES, they are also not eligible for unemployment insurance benefits or unemployment assistance benefits.

The level of the UI benefit depends on the previous average gross earnings. During the first 100 calendar days of unemployment the replacement rate is 50% of the previous gross earnings and afterwards it falls to 40%. The gross earnings refer to the average daily gross earnings of the previous calendar year. There is an upper ceiling to the benefits, which is defined as 3-times average taxable wages in the previous calendar year (in 2005 it was 8,704 EEK per month). There was no lower limit for the benefit in 2005 (since 2007, it is 1,000 EEK). UI benefits are subject to income tax and this is withheld when the benefits are paid out by the UI fund.



To discourage entry into unemployment, UI system involves a waiting period of 7 days before the benefit payment starts. The duration of the unemployment insurance benefit ranges from 180 days up to 360 days depending on the length of contribution payments. During the first 5 years of the system (including 2005), the insurance benefits are paid up to 180 days since the contribution period cannot exceed necessary 5 years as it is counted only from January 2002. After expiry of the insurance benefit, the unemployed can apply for unemployment assistance benefits for the remaining 90 days and for social assistance thereafter.

Unemployment assistance benefit (*töötu riiklik abiraha*, since 2007 “*töötutoetus*”): Eligible for the unemployment assistance benefit are persons, aged 16 to the legal pension age, who do not fulfil the eligibility criteria (e.g. students, persons who terminated their previous employment voluntarily) for UI or who have exhausted their UI benefits. The person must have been employed or engaged in activity equal to work (e.g. studying) for at least 180 days during the 12 months prior to filing an application with an employment office. Benefit is suspended for 10 days if the person refuses an offer of suitable work or does not show up at the PES at a fixed date for the first time. Benefit is stopped if the person refuses an offer of suitable work or does not show up at the PES at a fixed date for the second time.

The level of UA benefit is fixed by the Government and has been since 400 EEK a month since 1999. (Note: it was increased to 1,000 EEK in 2007). The UA benefits are not subject to income tax. UA benefit is formally income tested: only the unemployed whose income is below the unemployment assistance state are entitled to the benefits.

Duration is generally 270 days. If the reason for termination of the previous employment was violation of the duties of employment, loss of confidence or indecent act, the UA is paid up to 210 days. If a person has less than 180 days until the retirement age after the receipt of 270 days of UA, the payment of UA will be extended until the person reaches the retirement age. The unemployed people who have received UI benefits for a shorter period than 270 days receive UA benefits until the end of the period of 270 days.

Severance payments (*koondamishüvitised*): According to the *Employment Contract Act* (*Töölepingu seadus*) the employees are entitled to severance payments if the reason for dismissal was liquidation of enterprise, bankruptcy of the employer, lay-off or age. The amount of the severance payments depends on previous work record and ranges from 2-4 months salary. If the contract was terminated because the employee was not suitable due to professional skills or health, the severance payment is 1 month's salary. In public sector the amounts of the severance payments can be much higher as compared to the private sector. The amount of the severance payment in public sector depends also on the length of previous employment and ranges from 2 month's salary up to 12 month's salary.

There are also **training allowances and transport allowances for the unemployed** (*sõidu- ja majutustoetus*) which are meant to cover actual costs of participation in active labour market measures (training, work practice) organised by Public Employment Service, but not more than 1,200 EEK per month. The duration of the allowances depends on the duration of the respective active labour market measure. The allowances are non-taxable.

Subsistence benefit (*toimetulekutoetus*) is a means-tested benefit guaranteeing a minimum income to all residents. Households whose income after payment for housing expenses, calculated according to certain general criteria and specific rules set by municipalities, is below the subsistence level are entitled to these benefits. The details are given in section 2.3.8.

In 2005, subsistence level was 750 EEK for the first member and 80% (500 EEK) for the each subsequent member of the household. (The level is changed in an ad hoc manner as cost of living increases, for example, in 2007 the level was 900 EEK for the first member.) Duration is



unlimited, but granted and renewed on monthly basis. Municipalities have the right to refuse the payment of benefits to people in working age and capable for work, but who do not study or work, and who have repeatedly refused to accept suitable work. Means-test is based on current disposable income (i.e. net of withholding income tax). Certain types of income are not counted as an household income, for example, family allowance for families with 3 or more children, social benefits for disabled persons, one-off benefits (e.g. birth grant, funeral grant), training stipends. The benefit is non-taxable. Local authorities may pay additional social assistance benefits.

1.3.4 Social benefits for the disabled

Social benefits for the disabled (*puuetega inimeste sotsiaaltoetused*) are regulated by the *Social Benefits for Disabled Persons Act* (*Puuetega inimeste sotsiaaltoetuste seadus*). Disabled people are paid special benefits to support the independent coping and social integration and equal opportunities of disabled people. Social benefits for disabled persons are granted and paid to permanent residents in Estonia or persons living in Estonia on the basis of a temporary residence permit in case of moderate, severe or profound disabilities for compensating additional expenses arising out of the disability and for activities established in the rehabilitation plan.

The types of social benefits to disabled persons are the disabled child allowance, disabled adult allowance, care-giver's allowance, disabled parent's allowance, education allowance, rehabilitation allowance and in-service training allowance. The benefits are calculated on the basis of the rate of social benefits for disabled persons, which is established by the Parliament for every year in the state budget.

Disability is determined regardless of a person's age and the main criteria in determining the degree of severity are the extent of outside assistance and the amount of additional expenses arising out of the disability.

The benefits are monthly benefits and the size of the benefit depends on the degree of disability.

Table 8. Amounts of social benefits for disabled persons, in 2005

Type of benefit	Severity of disability	Amount (EEK per month)
Disabled child allowance	Moderate	860
	Severe and profound	1,020
Disabled adult allowance	Moderate	200
	Severe	420
	Profound	640
Caregiver's allowance		
to a non-working parent of a disabled child aged 3-16		300
to a non-working parent of a disabled child aged 16-18	Severe disability	240
and to a non-working caregiver or guardian of a disabled person aged 18 and older:	Profound disability	400
Disabled parent's allowance (per child)		300

Benefits are non-taxable. Benefit is granted from the age of 16 years for the period of disability (which for persons under 65 years of age could be from 6 months to 3 years). The period is



renewable. It often accumulates with pension for incapacity to work (*töövõimetuspension*) and old-age pension (*vanaduspension*).

There are also allowances for education, rehabilitation, in-service training. The state also compensates 50-90% of the cost of the device to disabled people, the elderly and children, who need prostheses, orthopaedic and other aids.

1.3.5 Health insurance benefits

Health insurance benefits (*ravikindlustushüvitis*) are regulated by the *Health Insurance Act* (*Ravikindlustuse seadus*).

In Estonia, health care is financed from funds designated for health insurance in the state budget via the Health Insurance Fund (*Eesti Haigekassa*), as well as with direct allocations from the state budget, municipal and city budgets, by patients and from other sources (e.g. foreign aid, enterprises). The health insurance system is designed for compensating the insured persons for the cost of disease prevention and treatment, the cost of medicines and medical appliances and for paying benefits for temporary incapacity for work and other benefits.

The compulsory health insurance applies in Estonia since 1 January 1992. Employers are obligated to pay social tax for employees, which includes 13% of gross wages for health insurance. People in business for themselves (sole proprietors) are obligated to pay the social tax on their business income themselves.

Insured persons are permanent residents of Estonia or persons living in Estonia under a temporary residence permit, the social tax for whom is paid by the employer or the state or by themselves (this is discussed in detail in section 1.4), as well as equivalent persons under the Health Insurance Act for whom social tax is not paid: 1) pregnant women starting from the 12th week of pregnancy; 2) children up to 19 years of age; 3) recipients of state pension in Estonia; 4) an insured person's dependent spouse with less than five years until retirement age; 5) students of up to 21 years of age acquiring basic education, students of up to 24 years of age acquiring general secondary education or vocational secondary education after basic education, students acquiring vocational secondary education after secondary education and permanent residents of Estonia acquiring university education in Estonian educational institutions established and operating under legal acts or in equivalent educational institutions abroad. (Ministry of Social Affairs "Social sector in figures 2006", pp 67-68).

Health insurance benefit is either in kind (health service, necessary medicinal product or medical device), or in cash (a sum of money which the health insurance fund is required to pay to an insured person under for the health care expenses incurred by the person or upon his or her temporary incapacity for work). The Health Insurance Fund finances outpatient and inpatient services provided to insured persons, and in certain cases also rehabilitation and nursing care and dental care services. Uninsured persons have the right to emergency care.

Health insurance benefits in cash are the following:

- 1) benefit for temporary incapacity for work;
- 2) adult dental care benefit;
- 3) supplementary benefit for medicinal products.



1. Benefits for temporary incapacity for work (*ajutise töövõimetuse hüvitis*) provide an earnings-related benefit for periods of absence from work for illness or for caring for another person. The types of benefit for temporary incapacity for work are:

- 1) sickness benefit;
- 2) maternity benefit;
- 3) adoption benefit;
- 4) care benefit.

The benefits for incapacity for work are calculated on the basis of the insured person's income calculated on the basis of the social tax paid during the previous year. There is no upper ceiling. The percentage of the benefit paid of the average income per calendar day is:

- 80 per cent in the event of receiving in-patient health services or nursing a child under 12 years of age in a hospital;
- 80 per cent in the event of caring for a child under 3 years of age or for a disabled child under 16 years of age when the person caring for the child is himself or herself ill or is receiving obstetrical care;
- 80 per cent in the event of receiving out-patient health services, nursing a family member who is ill at home, temporary release from the performance of his or her duties, or quarantine;
- 100 per cent in the event of nursing a child under 12 years of age at home;
- 100 per cent in the event of pregnancy and maternity leave; or in the event of adoptive parents leave;
- 100 per cent in the event of an illness or injury caused as a result of an occupational disease or an accident at work;
- 100 per cent in the event of preventing a criminal offence, protecting national or public interests or saving a human life.

Benefits are paid for various periods – for up to 7 successive days in case of caring for a sick family member and quarantine, for up to 14 days in case of caring for a sick child, and generally for up to 182 days in case of illness and occupational accident (in case of tuberculosis 240 days). In case of certificates for sick leave, benefits are paid starting from the second day of the leave and in case of certificates for maternity leave and care leave, starting from the first day. In total the sick may be 250 calendar days per calendar year. Insured persons receiving a pension for incapacity for work or insured persons who are at least 65 years of age have the right to receive sickness benefit up to 60 consecutive calendar days for one illness but not for more than a total of 90 calendar days per calendar year.

2. Adult dental care benefit (*täiskasvanute hambaraviteenuse hüvitis*)

The adults pay for their dental treatment and dentures themselves and the Health Insurance Fund compensates for these payments up to the rate fixed by the Minister of Social Affairs. In 2005 it was 150 EEK per year. Higher compensation rates are established for pregnant women in 2005 450 EEK per year), mothers of children up to 1 year of age and those having greater need for dental treatment because of sickness (in 2005 both 300 EEK per one year). In case of dentures the Fund compensates once every three years for the amount paid for dentures by insured persons, who are at least 63 years old. In 2006 the amount is 2,000 EEK per 3 years.

3. Supplementary benefit for medicinal products (*täiendav ravimihüvitis*)

The Health Insurance Fund additionally compensates for amounts paid by the insured for medicinal products during the calendar year, where such amounts fall between 6,000 and 20,000 EEK. If the insured person has made an own contribution between 6,000 and 10,000 EEK during a calendar year, the Health Insurance Fund compensates 50% of the amount exceeding



6,000 EEK. If this own contribution is between 10,000 and 20,000 EEK, the Health Insurance Fund additionally compensates 75% of the amount exceeding 10,000 EEK. The fund does not compensate amounts beyond 20,000 EEK.

1.3.6 Local benefits

According to the *Local Government Organisation Act (Kohaliku omavalitsuse korralduse seadus)* the Council of any city or rural municipality is empowered to provide local benefits to people who are living and are registered in the Population Registry for the respective region. The variation of local benefits given in municipalities is large. Benefits differ on type, amounts, application conditions etc.

A study conducted by Ainsaar *et al* (2004) showed that the majority of the municipalities give family and child support related local benefits. The most common is benefit for birth support, however also such benefits as benefit for crisis, large family benefits etc are present in many regions. For more details of this study see Table 9.

As to the importance of such benefits, from the table it can be also seen that the family and child related local benefits in 2003 accounted approximately 77 million EEK in 2003, which is approximately 0.5% of the total social expenditures according to ESSPROS statistics (table 11).

Table 9. Local benefits for families in 2003

Benefit	Share of municipalities giving the benefit, %	Average amount of benefit per recipient per year, EEK	Total expenditures in all municipalities, EEK	Number of recipients
Birth benefit	94	1,710	33,201,279	13,350
School food	84	181	7,693,081	36,347
Support for buying spectacles	78	517	883,526	1,813
Crisis support	72	685	6,642,147	11,957
Christmas support	60	172	3,249,816	42,406
Medicine support	59	491	655,877	1,975
Schooling equipment benefit	56	378	2,707,234	8,727
Primary school graduate benefit	51	412	1,085,199	2,562
Disabled child benefit	49	3,790	1,679,651	799
Transport cost reimbursement	47	1,169	1,453,238	3,807
Secondary school graduate benefit	46	543	951,751	1,782
Large family support	42	936	3,228,356	4,869
Start school support	42	456	1,985,022	3,783
Reimbursement of social service	37	947	1,183,619	1,985
Reimbursement of clothing/ footwear	37	518	273,436	2,654
Support for excellent pupils	32	677	808,998	1,980
Beginning of school benefit	23	482	1,458,378	3,568
Baby-package	21	429	2,900,968	4,404
Student housing benefit	18	4,155	1,971,204	1,278
Additional school food support	7	1,049	1,789,423	2,427
Baby support	4	962	1,104,601	1,038

Source: Aidarov, A. Kohalikud laste- ja peretoetused Eestis 2003. aastal. Sotsiaaltöö nr 5/2005, pp 39-44, quoted from Ainsaar, M. Soo, K. Aidarov, A. Omavalitsuste toetus lastega peredele 2003-2004, TÜ sotsioloogia ja sotsiaalpoliitika osakond



1.3.7 Scope and scale of social benefits

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 10 presents the share of recipients as percentage of population. Note that for some benefits only total annual number of new cases is available and not the number of different recipients (see notes below the table). This means we may overestimate the actual share of recipients as some people may receive benefits several times a year. Still it gives an overview which benefits are most frequent.

The largest share of people receive health insurance benefits (about 1/3) and pensions (about 20%). About one fifth of the population receives universal child allowances. About 8-9% of the population receives allowances for disabled persons. The share people receiving unemployment benefits is relatively low due to low unemployment benefits and relatively strict eligibility criteria. Subsistence benefits are received by 4% of the households.

Table 10. Social benefits: recipients (as % of population)

	2003	2005
1. Health insurance benefits (paid sick leave, except maternity benefit)	33.9%	38.8%
2. Pensioners		
Old age pension (vanaduspension)	22.1%	22.1%
Survivor's pension (toitjakaotuspension)	0.6%	0.7%
National pension (rahvapension)	0.8%	0.8%
Disability pension (töövõimetuspension)	3.8%	4.4%
3. Allowance for disabled people (disabled child allowance, disabled adult allowance, caregiver's allowance, disabled parent's allowance)	9.6%	8.0%
5. Family and children		
Maternity benefit (sünnitushüvitis)	0.8%	0.8%
Parental benefit (vanemahüvitis)	0	0.7%
Childcare allowance (lapsehooldustasu)	4.3%	3.7%
Child allowance (lapsetoetus)	21.7%	21.3%
Single parent child allowance (üksikvanema lapsetoetus)	2.1%	1.8%
Large family allowance (3+/triplets) (3 ja enamalapselise pere toetus)		5.2%
Childbirth allowance (sünnitoetus)	1.0%	1.1%
School allowance (lapse koolitoetus)	15.2%	14.1%
Conscript's child benefit (ajateenija lapse toetus)	0.0%	0.0%
Foster care allowance (ajateenija lapse toetus)	0.2%	0.2%
Adoption allowance (lapsendamistoetus)	0.0%	0.0%
6. Unemployment		
Unemployment insurance benefit	0.6%	0.9%
Unemployment assistance benefit	3.5%	2.3%
7. Housing		
Subsistence benefit (toimetulekutoetus), people / households	7.2% / 9.0%	4.0% / 4.7%
Including additional social assistance benefits paid from the subsistence benefit budget (households)	15.0%	11.8%

Notes: Population figures – beginning of the year; pensioners – beginning of the year; family benefit recipients – end of the year; health care benefits – total number of cases within the year; subsistence benefits – total persons in the households receiving the benefit within the year; unemployment insurance benefits – total persons in the households receiving the benefit within the year;

Source: Statistics Estonia, on-line database, last accessed 2 February 2008; except: subsistence benefits – Ministry of Social Affairs; Population figures – Eurostat; Number of households – Ministry of Social Affairs, “Social sector in figures 2006”

According to ESSPROS statistics, which includes both in kind and cash social expenditures, majority of expenditures goes to categories of health care (about 32%) and old-age (43%). Expenditures on families and children 12%, disability takes 9.4%. The share of unemployment,



housing and social exclusion is 2.5% in total. Benefits in kind are relatively important in health care (health services) and unemployment (active labour market policy measures). In all other categories their share within the category is small.

Table 11. Social benefit: annual expenditures according to ESSPROS

	2003 (mln EEK)	2005 (mln EEK)	2003 (%)	2005 (%)
1. Health/sickness	5 368.98	6 913.82	31.8%	31.9%
Cash benefits	823.59	1 083.44	4.9%	5.0%
Paid sick leave	664.25	876.57	3.9%	4.0%
Benefits in kind	4 545.39	5 830.38	27.0%	26.9%
2. Disability	1 571.59	2 031.46	9.3%	9.4%
Cash benefits	1 384.45	1 773.97	8.2%	8.2%
Disability pension	794.57	1 127.02	4.7%	5.2%
Care allowance	467.65	527.22	2.8%	2.4%
Other cash benefits	122.23	119.73	0.7%	0.6%
Benefits in kind	187.15	257.49	1.1%	1.2%
Other	35.80	20.06	0.2%	0.1%
3. Old age	7 420.69	9 337.45	44.0%	43.1%
Cash benefits	7 258.87	9 142.23	43.1%	42.2%
Old age pension	5 830.89	7 232.75	34.6%	33.4%
Anticipated old age pension (<i>ennetähtaegne vanaduspension, väljateenitud aastate pension, soodustingimustel vanaduspension</i>)	1 286.85	1 799.27	7.6%	8.3%
National pension	141.13	110.21	0.8%	0.5%
Benefits in kind	161.82	195.22	1.0%	0.9%
4. Survivors	135.19	185.24	0.8%	0.9%
Survivors' pension	102.84	147.56	0.6%	0.7%
Death grant	32.36	37.68	0.2%	0.2%
5. Family and children	1 681.68	2 630.10	10.0%	12.2%
Cash benefits	1 599.99	2 507.19	9.5%	11.6%
Maternity benefit (<i>sünnitushüvitis</i>)	204.73	297.41	1.2%	1.4%
Parental benefit (<i>vanemahüvitis</i>)		552.56	0.0%	2.6%
Childcare allowance (<i>lapsehooldustasu</i>)	366.03	286.67	2.2%	1.3%
Child allowance (<i>lapsetoetus</i>)	729.98	1 034.88	4.3%	4.8%
Single parent child allowance (<i>üksikvanema lapsetoetus</i>)	103.02	102.59	0.6%	0.5%
Large family allowance (3+/triplets)		54.66		0.3%
Childbirth allowance	44.44	48.30	0.3%	0.2%
School allowance (<i>lapse koolitoetus</i>)	92.52	85.82	0.5%	0.4%
Other cash lump sum benefits (<i>elluastumistoetus lastekodu kasvandikule, alaealiste, vaegurite ja täiendava lapsepuhkuspäevade tasu, lapsendamistoetus</i>)	12.41	14.14	0.1%	0.1%
Other cash periodic benefits (<i>eestkostetava või perekonnas hooldamisel oleva lapse toetus, tasuline lapsetoetmise vaheaeg, lastetoetus kutsekoolis õppivale lastekodulapsele</i>)	34.02	30.17	0.2%	0.1%
Benefits in kind	81.69	122.91	0.5%	0.6%
6. Unemployment	304.89	286.10	1.8%	1.3%
Cash benefits	248.19	200.22	1.5%	0.9%
Unemployment insurance benefit	106.00	99.69	0.6%	0.5%
Unemployment assistance benefit	81.15	42.52	0.5%	0.2%
Vocational training allowance	7.23	10.24	0.0%	0.0%
Redundancy compensation (<i>koondamishüvitis</i>)	30.82	20.83	0.2%	0.1%



	2003 (mln EEK)	2005 (mln EEK)	2003 (%)	2005 (%)
Other	23.00	26.94	0.1%	0.1%
Benefits in kind	56.70	85.88	0.3%	0.4%
7. Housing	103.57	50.33	0.6%	0.2%
Social housing	20.97	13.80	0.1%	0.1%
Part of subsistence benefit, to cover housing costs (imputed)	82.60	36.53	0.5%	0.2%
8. Social exclusion	273.28	211.15	1.6%	1.0%
Subsistence benefit (toimetulekutoetus)	242.56	171.30	1.4%	0.8%
Accommodation (in kind)	28.92	27.90	0.2%	0.1%
Other	1.80	11.95	0.0%	0.1%
Total	16 859.88	21 645.65	100%	100%

Notes: Annual expenditures exclude administration costs.

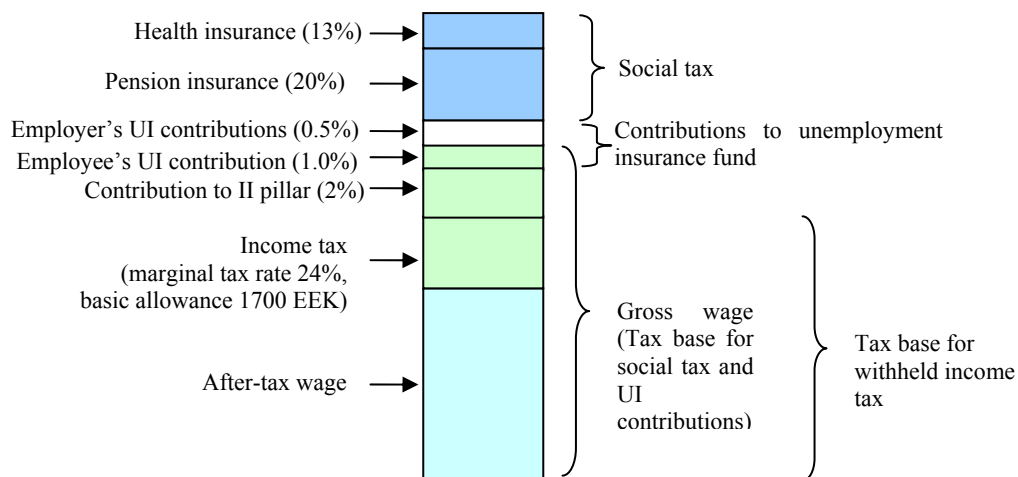
Source: Statistics Estonia, Social protection expenditure and receipts, for ESSPROS.

1.4 Social contributions

Social insurance contributions finance pensions, health care, and unemployment insurance benefits. Conditions regarding contributions made in the past determine eligibility and amount of contributory benefits (unemployment insurance benefits, maternity benefits, incapacity to work benefits, pensions).

Contributions are either in the form of social tax or unemployment insurance (UI) contributions, all specified as percentage of the gross wage (see Figure 1 below for a schematic definition of the gross wage and other direct taxes on wages). The calculation of social contributions for self-employed are discussed in detail in the Section 2.4.3.

Figure 1. Schematic composition of labour cost, in 2005

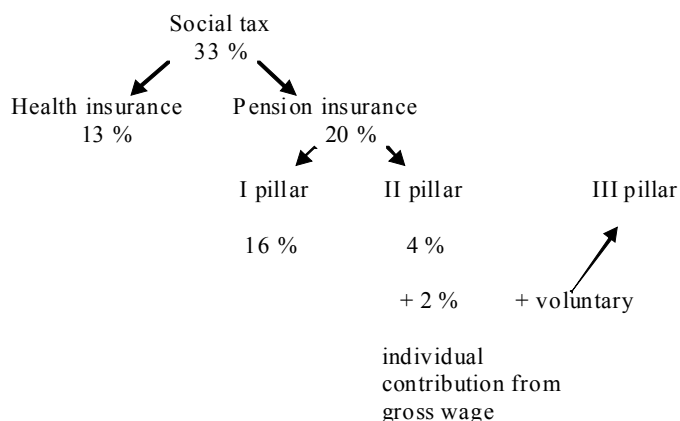


Social tax (*sotsiaalmaks*) is a financial obligation imposed on employers and self-employed to obtain revenue required for supplying state pension insurance and health insurance in the country. Tax rate is 33% and the tax base is “gross wage”. The 13% of social tax base is transferred into the Estonian Health Insurance Fund and 20% is transferred into pension insurance schemes. In case the person participates in the funded pension insurance scheme (the so-called 2nd pillar of the pension scheme), 4% of the social tax is shifted from the state pension



insurance scheme to the private pension scheme and additional 2% contribution of gross wage will be paid by the employee into the pension scheme 2nd pillar (see Figure 2 below). Additionally employee may always contribute to the voluntary pension schemes (3rd pillar) which are up to certain limit deducted from the income tax base.

Figure 2. Social tax and contributions to pension schemes



The minimum monthly base for social tax calculation set by the *2005 State Budget Act (2005. aasta riigieelarve seadus)* was 700 EEK, which made the minimum social tax obligation 231 EEK ($= 700 \times 33\%$) per month. (The minimum base was 1,400 EEK in 2006, 2,000 EEK in 2007.) There is no upper ceiling, except for self-employed. After certain deductions relating to enterprise, self-employed are not obliged to pay social tax annually on an amount not more than fifteen times the sum of the legal minimum monthly wages for the taxable period, i.e. 446,400 EEK ($= 15 \times 12 \times 2,480$), therefore limiting their maximum contributions to 147,312 EEK ($= 446,400 \times 33\%$) per year.

For certain inactive groups of people (e.g. parents on maternity leave, unemployed, military service, etc.) the state pays the social tax, based on the minimum social tax base in most cases (see Table 12). In addition, the state pays additional contributions to the funded pension scheme (second pillar) on parental benefits. Some of the categories (recipients of unemployment benefits and family benefits) are also included in EUROMOD.



Table 12. Social tax paid by the state

Group	Basis	Rate	Who pays
Recipients of unemployment insurance benefit	Gross UI benefit	13% (health)	Unemployment Insurance Fund
Recipients of unemployment assistance benefit	Monthly minimum	13% (health)	State budget
Recipient of parental benefit (<i>vanemahüvitis</i>)	Monthly minimum	33%	State budget
Recipients of childcare allowance (<i>lapsehooldustasu</i>)	Monthly minimum	33%	State budget
Recipients of benefit for parents of families with seven and more children (<i>seitsme- ja enamalapselise pere vanema toetus</i>)	Monthly minimum	33%	State budget
Dependent spouses of persons in certain public occupations	Monthly minimum	13% (health)	State budget
Persons who are paid caregiver's allowance pursuant to the <i>Social Benefits for Disabled Persons Act</i> until the persons attain pensionable age	Monthly minimum	33%	State budget
Conscripts in compulsory military service in the Defence Forces	Monthly minimum	33%	State budget
Estonian citizens or persons of Estonian nationality who have settled in Estonia from a foreign country and receive social benefits under the <i>Social Welfare Act (Sotsiaaltoetuste seadus)</i> , and their spouses, children and parents	Monthly minimum	13% (health)	State budget
Employees with loss of capacity for work of 40% or more in certain cases	Monthly minimum	33%	State budget
Non-working accompanying spouses of diplomats and public servants serving in foreign missions of Estonia, until attaining pensionable age	Monthly minimum	33%	State budget
Non-working persons who have participated in the elimination of the effects of a nuclear disaster, nuclear test, or an accident at a nuclear power station, until attaining pensionable age;	Monthly minimum	33%	State budget
<i>To funded pension scheme (II pillar):</i>			
Parental Benefit (<i>vanemahüvitis</i>)	Gross benefit	1% for each related child	State budget

Voluntary private pension contributions (3rd pillar) may be in two different forms: a) pension insurance policies offered by licensed private insurance companies; b) units of voluntary pension funds, which are managed by private fund managers. The third pillar pension market is dominated by insurance companies, partly due to more preferential tax treatment compared to voluntary pension funds.

Unemployment insurance contributions (*töötuskindlustusmakse*) is a compulsory insurance that covers an employee in case of becoming unemployed, collective closing or insolvency of the employer, and an employer in case of collective redundancies. An unemployment insurance contribution is paid by employees and employers. The unemployment contribution payment base matches the social tax base. Generally the employee's share is withheld from the gross wage and the employer pays the contribution in addition to social tax. Self-employed and the members of the management or controlling bodies of legal persons are not applicable for insurance. Also persons who receive compensation when leaving their position (ministers, parliament members etc) do not hold the unemployment insurance contribution payment obligation. The rate of the unemployment insurance contribution for employees is set annually



between 0.5 and 2 per cent, and for employers between 0.25 and 1 per cent. The rates in 2005 were 1% for employees and 0.5% for employers (as they have been since the introduction in 2002; 0.6% and 0.3%, respectively, since 2006).

As persons receiving old-age pension or older than legal pension age are not allowed to be registered as unemployed in Public Employment Service, they are also not eligible for unemployment insurance benefits or unemployment assistance benefits. Therefore they do not have to pay employee's part of the unemployment insurance contribution.

- *Scope and scale*

The following tables show the number of contributors and the composition of social contributions, as a percentage of overall revenue.

Table 13. Social contributions: contributors (as % of population)

	2003	2005
Unemployment Insurance (employees*)	43.7%	45.9%
Social tax (employees*, self-employed, or covered by state)	54.3%	56.7%
Contributors to the funded pension scheme (II pillar)	15.3%	35.4%
Contributors to the voluntary pension scheme (III pillar)**	4.3%	5.6%

Notes: Unemployment Insurance contributors, voluntary pension scheme contributors – end of the year; Social tax and contributors to the funded system – whole year cumulative; population – beginning of the year; Social tax figures include only those contributing pension part of the social tax, i.e. excluding the social tax paid on unemployment benefits for health insurance.

* - paid by them or for them (e.g. employers)

** - as people may have joined several voluntary pension funds, double counting is possible

Sources: Unemployment insurance contributors – Unemployment Insurance Fund, annual report 2005;

Social tax – Estonian National Social Insurance Board, data on pension insurance;

Voluntary pension scheme – [Ministry](#) of Social Affairs (2007), Table 7.

The share of contributors to social insurance funds as a percentage of population reflects the overall share of workers in the population, which was about 45% in 2005. The share of contributors of social tax is larger, because social tax is also paid for some inactive persons by the state. The share of contributors to the compulsory funded scheme (II pillar) was about 35% of the population, but almost 78% of the employment in 2005. This continues to increase as the participation becomes compulsory for a larger share of the population. The share of contributors to the voluntary funded scheme (III pillar) was about 5.6% of the population, but almost 12.3% of the employment.

The largest contributions come from social tax (93% in 2005), of which most goes to pension (56% of total social contributions). The share of unemployment insurance contributions is 3.7% of total social contributions. Additional contributions to the compulsory funded pension scheme were 3.1% of total contributions.



Table 14. Social contributions: revenue

	2003	2005	2003	2005
Social contributions (mln EEK)	15,103	19,453	100%	100%
Social Tax (employers + state; includes state contributions to the funded pension scheme)	14,254	18,133	94.4%	93.2%
Of which health care	5,629	7,158	37.3%	36.8%
Of which pension	8,625	10,975	57.1%	56.4%
Of which part of the social tax transferred to the funded pension scheme	529	1,167	3.5%	6.0%
Employees additional contribution to the funded scheme	274	594	1.8%	3.1%
Funded pillar pension contributions total (state transfers+employees' contributions)	803	1761	5.3%	9.1%
Unemployment insurance contributions (employees and employers part)	575	726	3.8%	3.7%

Notes:

Source: Social Tax – Statistics Estonia, online-database; Contributions to the pension scheme – Estonian National Social Insurance Board, annual revenue data, and Estonian Tax and Customs Board, annual tax revenue data; Unemployment Insurance Contributions - Unemployment Insurance Fund

1.5 Taxes

1.5.1 Personal Income Tax (tulumaks)

Estonia applies a flat rate system to the personal income tax. Different income sources are taxed uniformly. The single tax rate (24% in 2005) is applied on all labour and personal capital income (capital gains, royalties etc).

The personal income tax (PIT) system is an individual system, but a married couple may also file a joint tax report if they wish (beneficial if one has unused tax allowances which the other one could claim for).

In 2005, the tax rate is 24% and the annual basic allowance 20,400 EEK or 1,700 EEK per month.

In addition to basic allowance, there are additional allowances:

- 1) **Increased basic allowance in case of children** is applicable in case of three or more children in family in 2005. One resident parent (or guardian of a child or other person) who maintains three or more underage children may deduct additional basic allowance from his or her income in the period of taxation for each child of up to 17 years of age. The allowance is applicable for the third and each subsequent child in the amount exceeding the taxable income of the child. The allowance can be used from the year in which the child is born, a guardian is appointed for him/her or the maintenance obligation arises until the year in which the child attains 17 years of age (inclusive). This means that in the tax period, where the child gets 18, the additional allowance is not applicable. The eligibility condition does not set that the parent has to be married, however only one parent can make use of such allowance. Note that the allowance has been extended to the second child in 2006 and to the first child in 2008.
- 2) **Pension allowance.** If a resident person receives a pension paid by the Estonian state or a mandatory funded pension, an additional allowance can be deducted from the income of the



person in the amount of those pensions but not more than 36,000 EEK during a year or 3,000 EEK per month. This is usually applied monthly.

- 3) **Sickness allowance.** In cases where a resident person receives a compensation for an accident at work or an occupational disease, an additional allowance can be deducted from the income of the person in the amount of that compensation but not more than 12,000 EEK during a period of taxation. However, if compensation for an accident at work or an occupational disease is paid as insurance indemnity, increased basic allowance does not apply.

In order to make use of the additional child allowances and deductions these have to be declared in the following year when filing the tax report. Therefore, there is difference between taxes withheld and taxes paid after filing tax report. There are some income sources on which income tax is immediately withheld when they are paid out (wages and salaries, unemployment insurance benefits, parental benefits, etc). Final tax liability is based on the tax report after the tax year has ended (taking into account tax already withheld). Usually, most people get refund due to additional tax deductions and allowances.

Liability of income tax is based on annual income and allowances are referred to in annual terms, although 1/12 of the annual basic allowance is usually applied monthly to calculate withheld income tax. Also usually additional allowance for pensions is applied monthly.

The tax rate and the amount of basic allowance have changed during recent years (see the table below). In 2005, the tax rate is 24% and the annual basic allowance 20,400 EEK or 1,700 EEK per month. According to adopted legislation as of the 1st of January 2008, the income tax rate will decline further to 18% since 2011. And the non-taxable threshold will also gradually increase to 36,000 EEK by 2011.

Table 15. Income tax parameters 2003-2011

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Income tax rate	0.26	0.26	0.24	0.23	0.22	0.21	0.20	0.19	0.18
Basic allowance per month (EEK)	1,000	1,400	1,700	2,000	2,000	2,250	2,500	2,750	3,000
Additional allowances per month per children starting from ... child	3rd	3rd	3rd	2nd	2nd	1st	1st	1st	1st
Pension allowance per month (EEK)	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000

In addition to allowances, a person's taxable income can be reduced with several tax deductions:

- Compulsory unemployment insurance contribution payments
- Contributions to compulsory funded pension scheme
- Contributions to voluntary pension system to certain extent
- Housing loan interest payments
- Training expenses
- Alimony or maintenance support
- Certain donations and trade union entrance and membership fees

The concise overview of exemptions for the personal income tax is presented in Table 16.



Table 16. Allowances and deductions from personal income tax

Allowance/deduction	%, sum or limit in a year	Description
Basic allowance	20,400 EEK in 2005	
Allowance in case of children	In amount by which taxable income of the child is lower than the basic allowance	If 3 or more children, for 3 rd and each subsequent child under the age of 17. Applicable for one parent.
Pension allowance	Pension amount, but max 36,000EEK	Pensions (state or mandatory funded) not taxable up to this level.
Sickness allowance	Compensation amount, but max 12,000 EEK	Compensation for an accident at work or an occupational disease (not insurance) deducted from the taxable income
Alimony or maintenance support paid	100%	Only if income tax paid by the recipient.
Housing loan or lease interest payments*	100%	Only interest payments for the main house or apartment
Training expenses *	100%	One under 26 years old person's schooling/training expenses in registered educational establishment
Gifts, donations and trade union entrance and membership fees*	100%; entrance & membership fees max 2% of taxable income less economic activity related costs in case of self-employed, maintenance, housing loan interest and training expenditure deductions and basic allowances; general limit for gifts, donations and fees is 5% of the aforementioned sum	Payments etc to certain private and all public institutions. Entrance and membership fees.
Insurance premiums and acquisition of pension fund units	100%, max 15% of taxable sum, less economic activity related costs in case of self-employed	Payments to voluntary pension scheme
Unemployment insurance contribution	100%	All payments to unemployment insurance fund
Contributions to mandatory funded pension	100%	The compulsory payments to pension fund
Additional child birth allowance by employer	Max 5/12 of the basic allowance rate (i.e. 8,500 EEK in 2005)	Birth allowance is paid voluntarily by employer

*Note: from 2005 the maximum annual limit for these deductions summed up is 50,000EEK per taxpayer and not more than 50% of taxable income (less economic activity related costs in case of self-employed).

- 1) **Compulsory unemployment insurance contribution payments** (0.1% of the gross wage) and **contributions to compulsory funded pension scheme** (2% of the gross wage) are fully deductible (see also Figure 1 in section 1.4).
- 2) **Insurance contributions and acquisition of pension fund units.** The part of the insurance contributions paid during the period of taxation under an insurance contract for a supplementary funded pension (*täiendav kogumispension*), the purpose of which is to ensure the payment of the insured sum as a pension, can be deducted from taxable income to a certain extent. This also applies to amounts paid to acquire units of a voluntary pension fund except when fund units are changed or recalled and for the acquiring costs of these units. A negative change which occurs in a technical provision established on the basis of an insurance contract with a view to securing a supplementary funded pension and which is



due to deduction of the amounts charged for a certain insurance cover are added to the taxable income of a private person.

The deductions related to insurance contributions and supplementary pension fund unit payments during one period of taxation are limited to 15% of the taxpayer's income of the same period of taxation, after all certified expenses incurred by a taxpayer in relation to business are deducted. If spouses present one declaration, the allowance can not exceed 15% of the sum of spouse's income.

- 3) **Housing loan (or lease) interest payments** for the period of taxation if they are paid to the financial institution in order to acquire a house or apartment or a plot of land for building a house for personal use or for his/her spouse, parents or children. The same conditions apply in case of reconstruction, expansion and building works. The deduction is available for only one loan object per person. A parent who is raising a child alone and who has taken parental leave during a period of taxation can deduct the exemption during more than one taxation period.
- 4) **Training expenses** are deductible for the person him/herself or a person of less than 26 years of age or if no such training expenses are incurred, the training expenses of one permanent resident of Estonia of less than 26 years of age. Parents can also deduct the interest expenses of the student loan. In case the educational expenditures are made using scholarship that is exempt from income tax, the deduction could not be used. The legal condition for applying the deduction requires that the training expense have to be certified expenses incurred for studying at a state or local government educational establishment, a university in public law, a private school which holds a training licence or has been positively accredited with regard to the given study programme, or a foreign educational establishment of equal status with the aforementioned, or for studying on fee-charging courses organised by such educational establishments.
- 5) **Alimony or maintenance support** a person has paid from his/her income to another person. This kind of payment is set by the court order or agreement with respect to the *Family Act (Perekonnaseadus)*.
- 6) **Gifts, donations and trade union entrance and membership fees** which have been given or paid to persons included in the special list specified in the *Income Tax Act (Tulumaksuseadus)* – non-governmental organisations (NGOs) and foundations, church institutions or to a state or local government scientific, cultural, sports, educational or social welfare institution, a manager of a protected area, a university in public law or a political party. Gifts and donations may be given in monetary or non-monetary form, however, the cost of a non-monetary gift or donation is the market price of the property, and in the case of sale of the property at a preferential price, the cost of the gift or donation is the difference between the market price and selling price of the property.

The amount of the trade union entrance and membership fees deductions cannot exceed 2% of the taxpayer's income after deductions of all aforementioned exemptions. The maximum deduction of gifts and donations and the trade union entrance and membership fees can be 5% of the taxpayer's income after deductions of all in previous points mentioned exemptions.

- 7) Income tax is not charged on **childbirth benefit** (*sünnitustoetus*) paid voluntarily by the employer to the employee or public servant, in an amount not exceeding 5/12 of the basic exemption.

The income tax deductions provided for housing loan interests, gifts-donations and training costs are altogether limited to 50,000 EEK per taxpayer during a period of taxation, and not



more than 50% of the taxpayer's income of the same period of taxation, less economic activity related costs in case of self-employed.

If a resident taxpayer has received income from abroad during a period of taxation, all income derived from abroad is included in the taxable income of the person and income tax paid or withheld on such income abroad is deducted from the income tax to be paid. Income tax is calculated separately for income derived in Estonia and for income derived in each foreign country. Income tax paid in a foreign country on income which is not subject to tax in Estonia is not taken into account.

Taxation of self-employed

Taxable income from self-employment is equal to income from self-employment less related costs minus special allowances for the agricultural income, and minus social insurance contributions, except contributions to the funded pension scheme. The latter can be deducted from other source of incomes.

Taxable business income is derived on individual basis.

1.5.2 Land tax (maamaks)

Land taxes (*maamaks*): there are a number of personal property taxes applied, however, these are in most cases local taxes, providing relatively small revenue and not affecting private budgets considerably. The highest share of total property tax revenue is collected by land tax, which is essentially a state tax based on the assessed value of land and paid by the land owner. The rate of land tax is established by the local government council annually in the range of 0.1-2.5% of the assessed value of land. The collected tax revenue is directed into the respective local government budget.

1.5.3 Value added tax (käibemaks) and excise taxes (aktsiisimaksud)

Value Added Tax (*käibemaks*): The standard rate of VAT has been stable since 1992 at 18 %. There are a few goods and services that have a reduced rate 0% (for exports mainly) or 5% or are exempt from VAT.

A 5 % reduced rate applies, for example, to books (excluding books for education); medicines and medical equipment; funeral requisites and services; organisation of performances and concerts by a state, municipal or private performing arts; heat, peat, fuel briquettes, coal or firewood sold to private persons for personal use. (From the 1st of July 2007 the reduced VAT rate for this category will be abolished and replaced with the basic rate of 18%: accommodation services; periodical publications.)

The VAT is not imposed on, for example: postal services; health services; pre-school, basic, secondary and higher education; certain financial and insurance services

Excise taxes (*aktsiisimaksud*): excise duties are set for alcohol, tobacco, fuel and packages. (The excises on cigarettes and unleaded petrol and diesel are being increased step by step to reach the EU level in 2010.) According to the government plan nearly all excise duties, as well as other environmental taxes, should be increased in the coming years as a part of the package to finance reductions in personal income tax rates.

For more information on indirect taxes and excise taxes see the Estonian Feasibility Study (Lüpsik, S., Paulus, A., Võrk, A. (2006) I-CUE Feasibility Study. Estonia. 2005 tax-benefit system. EUROMOD Feasibility Study.)



1.5.4 Scope and scale of taxes

Table 17 shows the share of tax-payers in the population. Table 18 shows the structure of the tax revenues. We have included also social tax in the tables as it is usually considered together with other direct taxes in government statistics.

In 2006 about 52.1% of the population earned wages on which income tax was withheld. About 45.4% of the population submitted income declaration in 2006. And about 57.9% of the population paid social tax (or employers or state paid by them).

The revenue from social tax is the largest, about one third. This is followed by VAT, about 28% of the revenue. Personal income tax is 18.4% in 2005 and corporate income tax is 4.7% of the tax revenues. The share of other taxes is negligible. The share of income taxes has declined, compared to 2003, because marginal tax rate has declined.

Table 17. Taxes: taxpayers (as % of population)

	2003	2005	2006
Social tax (employees, self-employed, or covered by state)	54.3%	56.7%	57.9%
Income tax total	na	na	na
Income tax on wages	na	na	52.1%
Income tax (people who submitted declarations)	37.7%	43.0%	45.4%
Land Tax	na	na	na

Notes: Submitting tax declarations is not always obligatory.

na – not available

Source: Estonian Tax and Customs Board, Estonian National Social Insurance Board

Table 18. Taxes: revenue

	2003	2005	2003	2005
Annual revenue (mln EEK)	41333	52885	100%	100%
Direct taxes				
Personal Income tax (withheld)	8818	9736	21.3%	18.4%
Personal Income tax (final)	8344	9520		
Corporate Income tax	2156	2496	5.2%	4.7%
Land tax	449	506	1.1%	1.0%
Social tax*	14254	18133	34.5%	34.3%
Indirect taxes				
Value added tax	11187	14677	27.1%	27.8%
Excises	4162	6524	10.1%	12.3%
Other central government taxes (gambling tax, heavy vehicle tax, customs duty,	228	694	0.6%	1.3%
Other local taxes (sales tax, advertising tax, etc)	79	118	0.2%	0.2%

Notes: Tax revenues both for central government and local government. Final income tax includes net payments from after declaration is submitted. Withheld income tax based on current revenues (does not include additional net payments after declaration is submitted). Annual revenue is calculated using withheld income tax.

* - Social tax is also included in this table as it is usually considered as a tax in Estonia.

Source: Statistics Estonia, online-database; withheld income tax – reports of the Estonian Tax and Customs Board, own calculations.



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. Some are beyond its scope entirely and are neither included in the EUROMOD database nor in its output income variables. Others 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. Tables 19 and 20 classify each of the main tax-benefit instruments (and some minor ones introduced above) into one of these three groups and provides a brief explanation as to why the instrument is not fully simulated if this is the case.

Most of the benefits that are simulated in EUROMOD are universal family benefits that depend on the number of children and their age. Also, subsistence benefit, as a support of a last resort, is simulated, although using several simplifications. Benefits that depend on contribution history, like various pensions, health insurance benefits and unemployment benefits, are not simulated, because the contribution history is not available in the dataset. A few benefits are simulated partially, meaning that the information on eligibility or particular benefit is drawn from the data.

All labour taxes and social insurance contributions are simulated. As social contributions (social tax, unemployment insurance contributions) are proportional to gross labour earnings, except in few cases, they are easily simulated. Income tax is calculated as both withholding income tax and final income tax. The final income tax takes into account possible additional deductions that are used on annual basis and can be applied after submitting the income declaration.

Other taxes, such as capital income tax, land tax, or indirect taxes, are not simulated in the current version of the model as there is little or no data for that purpose or outside EUROMOD scope.



Table 19. Simulation of benefits in EUROMOD

Benefit	Variable name	2005	Why not simulated
Unemployment insurance benefit (<i>töötuskindlustushüvitis</i>)	coBUNCT	I	No data on contribution history
Unemployment assistance benefit (<i>töötu abiraha</i>)	co_BUNNC	PS	Eligibility is taken from data, size of the unemployment benefit
Unemployment retraining allowance	coBUNTR	I	No data on participating in retraining
Redundancy compensation (<i>koondamishüvitised</i>)		E	No data, part of earnings
Paid sick leave	coBAC	I	No data on contribution history
Disability pension (<i>töövõimetuspension</i>)	coPDI	I	No data on contribution history, no exact data on health status
Disability care allowance		E	No exact data on health status, Income is part of the “other benefits” or disability pension.
Old age pension (<i>vanaduspension</i>)	coPOA00	I	No data on contribution history
National pension (minimum old age pension, <i>rahvapension</i>)		I	No data on contribution history No data, part of other pensions
Old age pension from abroad	coPOAAB	I	No data on contribution history
Survivors' pension	coPSU	I	No data on contribution history
Maternity benefit (<i>siinnitushüvitis</i>)	coBMAPR	I	No data on contribution history
Parental benefit (<i>vanemahüvitis</i>)	coBMACT	I	No data on contribution history
Childcare allowance (<i>lapsehooldustasu</i>)	co_BCC00	S	
Child allowance (<i>lapsetoetus</i>)	co_BCH00	S	
Single parent child allowance (<i>üksikvanema lapsetoetus</i>)	coBCHLP	I	No data on father in birth certificate of the child
Large family allowance (3+/triplets) (<i>3 ja enama lapse/kolmikute toetus</i>)	co_BCHLG	S	
Childbirth allowance (<i>siinmitoetus</i>)	co_BCHBA	S	
School allowance (<i>koolitoetus</i>)	co_BCHED	S	
Large family parent allowance (<i>seitsme- ja enamalapselise pere vanema toetus</i>)	co_BCCLG	S	
Child allowance from abroad	coBCHAB	I	
Subsistence benefit (<i>toimetulekutoetus</i>)	co_BSA00	S	Normative housing costs are extracted from the data
Scholarships and grants (<i>õppetoetused ja stipendiumid</i>)	coBED	I	No data on grades
Other benefits (not explicitly stated in the data set)	coBSALS	I	Various small benefits are not directly simulated, as there is no information in the data; they are aggregated under “other social assistance”

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 20. Simulation of taxes and social contributions in EUROMOD

	Variable name	2005	Why not simulated
Taxes and social contributions			
Employer's total social insurance contributions (including contributions paid on social benefits by the central government)	co_TSCER	S	
Unemployment insurance contributions	co_TSCERUI	S	
Pension insurance contributions (1st pillar), part of the social tax	co_TSCERPI	S	
Pension insurance contributions (2nd pillar) - transferred from the 1st pillar	co_TTFERPI	S	
Health insurance contributions	co_TSCERHL	S	
Employee total social insurance contributions	co_TSCEE	S	
Unemployment insurance contributions	co_TSCEEUI	S	
Funded pension insurance contributions (2nd pillar)	co_TPCEEPI	S	
Self-employed social insurance contributions	co_TSCSE	S	
Health insurance contributions	co_TSCSEHL	S	
Pension insurance contributions (1st pillar)	co_TSCSEPI	S	
Funded pension insurance contributions (2nd pillar) - transferred from the 1st pillar	co_TTFSEPI	S	
Funded pension insurance contributions (2nd pillar)	co_TPCSEPI	S	
Income Tax (final)	co_TIN	S	
Withholding income tax	co_TINWH	S	
Land tax		E	Available in the data but very unreliable
Other local taxes		E	No information available

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.



2.2 Simulated policies and order of simulation

2.2.1 Simulated policies

The model allows simulating changes in the tax rates and contribution rates, changes in tax deductions and allowances, family benefits, and major rules for subsistence benefit. 2005 is the first simulated year of the Estonian policies in the EUROMOD, see the order of simulation below.

2.2.2 Order of simulation

The following table shows the order in which the main elements of the Estonian system are simulated. This table is extracted from the EUROMOD parameter sheets *spine_EE_2005*.

Table 21. EUROMOD Spine: order of simulation, 2005

Policy	Description	Main output
DefConst_EE	Definition of parameters of tax-benefit system	
BEN_UI_EE	unemployment insurance benefit (<i>töötuskindlustushüvitis</i>) (currently switched off, <u>not simulated</u>)	co_BUNCT
BEN_UA_EE	unemployment assistance benefit (<i>töötu abiraha</i>) - <u>partly simulated</u>	co_BUNNC
BEN_CB_EE	child allowance (<i>lapsetoetus</i>)	co_BCH00
BEN_CB_Large_EE	large family allowance (<i>kolme- ja enamalapselise pere toetus</i>)	Co_BCHLG
BEN_CB_School_EE	school allowance (<i>koolitoetus</i>)	Co_BCHED
BEN_CB_Birth_EE	childbirth allowance (<i>sünnitoetus</i>)	Co_BCHBA
BEN_CC_EE	childcare allowance (<i>lapsehooldustasu</i>)	Co_BCC00
BEN_CC_Large_EE	large family parent allowance (<i>seitsme- ja enamalapselise pere vanema toetus</i>)	Co_BCCLG
ERSIC_EE	employer social insurance contributions	co_TSCER
EESIC_EE	employee social insurance contributions	co_TSCEE
IT_AgrAlw_EE	income tax allowance for self-employment income from agriculture	co_TINTAAG
SESIC_EE	self-employed social insurance contributions	co_TSCSE
IT_WH_EE	withholding income tax (<i>jooksvalt kinnipeetud tulumaks</i>)	co_TINWH
IT_EE	final personal income tax (<i>tulumaks</i>)	co_TIN
BEN_SA_EE	subsistence benefit (<i>toimetulekutoetus</i>)	co_BSA00

There are the following dependencies between the instruments:

- Unemployment benefits (UIB_EE, UAB_EE) and some family benefits (CC_EE, CCLarge_EE) are subject to social insurance contributions paid by the government (ERSIC_EE).
- An income tax allowance for self-employment income from agriculture (IT_AgAlw_EE) also applies to the tax base for self-employed social insurance contributions.



- Unemployment insurance benefit (UIB_EE) is subject to income tax (unlike all other simulated benefits).
- Employee and self-employed social insurance contributions are deductible from the income tax base. Employee SIC (EESIC_EE) both from the tax base for withholding and final income tax, self-employed SIC (SESIC_EE) only from the latter.
- Subsistence benefit (SA_EE) is means-tested and depends on the income net of employee SIC and withholding income tax. Most of benefits are also included in the means-test.

2.2.3 Policy constants

Policy parameters used more than once (either by one or more policies) are defined as constants (see polDefConst_EE). They are listed below.

Table 22. Policy constants

Period	Name	Value	Policies where used
mr	\$PensionAgeMale	63	official pension age (males) --> used in BEN_UI, BEN_UA, and EESIC
mr	\$PensionAgeFemale	60	official pension age (females) --> used in BEN_UI, BEN_UA, and EESIC
m	\$CB_Base_m	150	Child Allowance Rate (CAR) – base amount for child benefits monthly --> used in BEN_CB
q	\$CB_Base_q	150	quarterly --> used in CB_Large
y	\$CB_Base_y	150	annual --> used in BEN_CB_School and BEN_CB_Birth
m	\$CC_Base	1,200	Childcare Allowance Rate (CCR) - base amount for childcare benefits --> used in BEN_CC and BEN_CC_Large
m	\$SIC_MinBase	700	SIC minimum base --> used in ERSIC and SESIC
mr	\$SIC_RatePension1	0.2	SIC rate for the pension contributions (the 1st pillar) --> used in ERSIC and SESIC
mr	\$SIC_RatePension2	0.02	SIC rate for the pension contributions (the 2nd pillar) --> used in EESIC and SESIC
mr	\$SIC_RatePension1to2	0.04	SIC rate for the pension contributions (transferable from the 1st to the 2 nd pillar) --> used in ERSIC and SESIC
mr	\$SIC_RateHealth	0.13	SIC rate for the health contributions --> used in ERSIC and SESIC
y	\$IT_BasicAlw	20,400	amount of basic allowance for income tax --> used in IT_WH and IT
y	\$IT_PensionAlw	36,000	amount of pension allowance for income tax --> used in IT_WH and IT
mr	\$IT_Rate	0.24	income tax rate --> used in IT_WH and IT



2.3 Social benefits

2.3.1 Unemployment insurance benefits (töötuskindlustushüvitis) (co_BUNCT)

- Brief description*

Unemployment insurance (UI) benefits depend on previous earnings and are financed from statutory unemployment insurance contributions. In 2005, UI benefit could be received for 180 days.

- Definitions and eligibility conditions*

The unit of analysis is an individual person. Eligible are persons aged from 16 to old-age pension age. To be eligible for UI benefit a person should register as unemployed in the public employment service and needs to have worked and made contributions for at least 12 months during the previous 24 months.

- Benefit amount*

During the first 100 calendar days of unemployment the replacement rate is 50% of the previous gross earnings and afterwards it falls to 40%. The gross earnings refer to the average daily gross earnings of the previous calendar year. There is an upper ceiling to the benefits, which is defined as 3-times average taxable wages in the previous calendar year (in 2005 it was 8,704 EEK per month). There was no lower limit for the benefit in 2005.

co_BUNCT Benefit Calculation (polUIB_EE, currently switched off)

	Period	2005	Comment
elig_cond		{coLES = 5} & {coDAG >= 16} & (({coDAG <= \$PensionAgeMale} & {coDGN = 1}) ({coDAG <= \$PensionAgeFemale} & {coDGN = 0}))	If unemployed and aged 16 to pension age.
base_amount		0	Currently not set. It should correspond to previous monthly gross earnings.
comp1_cond		0	Currently not set.
comp1_perElig		base_amount * 0.5	During the first 100 days
comp2_cond		0	Currently not set
comp2_perElig		base_amount * 0.4	During 101-180 days
uplim_amount		0	Upper limit. In 2005 it was 8,704 EEK per month

2.3.2 Unemployment assistance benefits (töötü abiraha) (co_BUNNC)

- Brief description*

Unemployment assistance benefit is paid to those people who do not qualify for unemployment insurance benefit or the period of UI benefit has ended. In 2005, UI benefit could be received for 180 days. UA benefits can be received until the end of the period of 270 days.

- Definitions and eligibility conditions*

The unit of analysis is an individual person. Eligible are persons aged from 16 to old-age pension age. The person must have been employed or engaged in activity equal to work for at



least 180 days during the 12 months prior to filing an application with an employment office. Benefit is suspended for 10 days if the person refuses an offer of suitable work or does not show up at the Public Employment Service (PES) at a fixed date for the first time. Benefit is stopped if the person refuses an offer of suitable work or does not show up at the PES at a fixed date for the second time.

As we do not observe employment history or active job search conditions we derive eligibility from the data that is eligible are those persons who actually receive benefits.

- **Benefit amount**

Flat rate of 400 EEK per month. It is non-taxable.

co_BUNNC Benefit Calculation (polUAB_EE)

	Period	2005	Comment
elig_cond		{coBUNNC > 0}	if receiving unemployment assistance benefit
Formula		coBUNNC / 400 * amount#1	first, divide by 400 to determine how many months was paid for and then multiply by the benefit amount
#1_amount	m	400	

Alternatively we may ignore the employment history and active job search conditions and use a simplification and set the person eligible if the person is registered as an unemployed, aged between 16 and the pension age, not receiving UI benefit, pensions or scholarships.

2.3.3 Child allowance (co_BCH00)

- **Brief description**

Child allowance is a monthly universal non-means-tested non-taxable benefit paid to families with children below an age limit.

- **Definitions, eligibility conditions and income test**

The unit of analysis for all child and childcare benefits is the family (TU: CBfamily_ee) consisting of the head, spouse or cohabitant partner and children under 16 years (cd_agelow) or under 19 years if studying at basic, upper secondary or vocational school (cd_agehigh). There is no income test. Eligible children living in the household, but without parents, are also counted as dependent children.

TU: CBfamily_ee	2005
Spouse	1
CohabPartner	1
own_child	1
oth_child	1
cd_min_age	0
cd_agelow	16
cd_agehigh	19
cd_InFTbed	1
cd_InFTsed	1



Note that we have monthly and quarterly family benefits, but the age variable is recorded as of at the end of 2005 in the data and, therefore, we do not know how many months exactly children are eligible. We have chosen to oversimulate the benefit by assuming eligibility for the whole year when reaching the age limit, i.e. also including the age limits like 16 and 19 in case of child allowance, instead of undersimulating (assuming no eligibility for the year when reaching the age limit) as this seems to better match corresponding age profiles and the aggregate results are more similar to register data.

The parameter “cd_InFTsed” includes both people with lower secondary (coDEC = 2) and upper secondary education (coDEC = 3). In principle, the latter should be excluded (currently this results in 18 more people than it should).

- **Benefit amount**

The benefit is paid monthly to one of the parents, based on the number of eligible children (nDepChInTu). The amount per child is two times the Child Allowance Rate (CAR, equal to 150 EEK in 2005), resulting in 300 EEK per month.

co_BCH00 Benefit Calculation (polCB_EE)

	2005	Comment
Formula	$nDepChInTu * \$CB_Base_m * 2$	300 EEK (= 2 x CAR) per child

2.3.4 Allowance for families with 3 or more children (kolme- ja enamalapselise pere toetus) (co_BCHLG)

- **Brief description**

Allowance for families with 3 or more children is a quarterly universal non-means-tested non-taxable benefit paid to families where there are three or more children below an age limit.

- **Definitions**

The unit of analysis is the same as for child allowance (see above 2.3.1).

- **Eligibility conditions**

At least three children must be below an age limit.

- **Benefit amount**

The benefit is paid quarterly to one of the parents, based on the number of eligible children in the household (nDepChildrenInTu). The amount per child is a multiple of CAR, depending on the number of children in the family.

co_BCHLG Benefit Calculation (polCBlarge_EE)

	2005	Comment
comp1_cond	{nDepChInTu = 3}	
comp1_perTU	$nDepChInTu * \$CB_Base_q$	150 EEK (= CAR) per child if 3 children
comp2_cond	{nDepChInTu = 4} {nDepChInTu = 5}	
comp2_perTU	$nDepChInTu * \$CB_Base_q * 2$	300 EEK (= 2 x CAR) per child if 4 or 5 children
comp3_cond	{nDepChInTu >= 6}	
comp3_perTU	$nDepChInTu * \$CB_Base_q * 2.5$	375 EEK (= 2.5 x CAR) per child if 6 or more children



2.3.5 School allowance (koolitoetus) (co_BCHED)

- *Brief description*

School allowance is an annual universal non-means-tested non-taxable benefit paid to families where there are school-age children to help them with the start of the school year. It is paid out in August, in general.

- *Definitions and eligibility conditions*

The unit of analysis is the same as for child allowance (see above 2.3.1), except that they need to be enrolled at school. This is controlled for with an additional condition that they must be older than the minimum schooling age, i.e. 7 years (as of the 1st of October). If a child goes to school earlier or later, the age changes respectively.

- *Benefit amount*

The benefit is paid once in a year to one of the parents, based on the number of eligible children in the household (nDepChildrenInTu). The amount is three times CAR.

co_BCHED Benefit Calculation (polCBsch_EE)

	2005	Comment
comp1_cond	{IsDepChild} & {coDAG >= 7}	Older than 7
comp1_perElig	SCB_Base_y * 3	450 EEK (= 3 x CAR) per child

2.3.6 Childbirth allowance (sünnitoetus) (co_BCHBA)

- *Brief description*

One of the parents has the right to receive childbirth allowance which is higher for the first and multiple births (e.g. twins, triples etc). An adoptive parent, guardian or caregiver has the right to receive childbirth allowance, if childbirth allowance has not been paid for the same child earlier, but we do not have that information.

- *Definitions and eligibility conditions*

A separate unit of analysis is defined for the birth allowance: a parent (mother if present) and her/his own children aged zero.

TU: CBbirth_ee	2005
Spouse	0
CohabPartner	0
own_child	1
oth_child	0
cd_min_age	0
cd_agelow	0
cd_agehigh	0

- *Benefit amount*

The benefit is paid in case of childbirth. The amount is 25 times CAR for the first birth and 20 times CAR in case of the second and later births. In case of a multiple birth, childbirth allowance is also paid at 25 times CAR for each born child (this is modelled, although there are no multiple births in 2005 dataset).

**co_BCHBA Benefit Calculation (polCBbirth_EE)**

	2005	Comment
comp1_cond	{nChOfPerson = nDepChOfPerson} & {nDepChOfPerson > 0} {nDepChOfPerson > 1}	
comp1_perElig	\$CB_Base_y * 25 * nDepChOfPerson	3,750 EEK (= 25 x CAR) per child if the first child or a multiple birth
comp2_cond	{nChOfPerson > nDepChOfPerson} & {nDepChOfPerson = 1}	
comp2_perElig	\$CB_Base_y * 20	3,500 EEK (= 20 x CAR) for a subsequent (singleton) child

2.3.7 Childcare allowance (lapsehooldustasu) (co_BCC00)

- Brief description**

Childcare allowance is an additional benefit targeted for young children. It is a monthly universal non-means-tested non-taxable benefit paid to families where there are young children.

- Definitions and eligibility conditions**

The unit of analysis is the same as for child allowance (see above 2.3.1). The benefit is paid to one of the parents based on the number of children up to 3 years old and aged 3-8 years. It is not paid for a child due to whom a parent receives maternity benefit or parental benefit (we assume that these payments are related to children up to 1 year old). There is an additional element for every child up to one year of age.

The benefit is allocated to the same person in the household who is receiving maternity benefit to avoid that social tax paid by the state on behalf of the person in the maternity leave is counted twice. If there is no one receiving maternity benefit assign it to the head of unit.

- Benefit amount**

The benefit is paid monthly to one of the parents. The amount is 1/2 of the Childcare Allowance Rate (CCR, equal to 1,200 EEK in 2005) for every child up to 3 years old, 1/4 of the CCR for each eligible child from 3 to 8 years of age. Additionally, 100 EEK for every child up to one year of age.

co_BCC00 Benefit Calculation (polCC_EE)

	Period	2005	Comment
comp1_cond		{coDAG <= 1} & {coBMACT = 0} #1 {coDAG > 1} & {coDAG <= 3}	for each child up to 3 years old if parents are not receiving parental benefit for that child (assuming these payments are related to children up to 1 year old)
comp1_perElig		\$CC_Base * 0.5	600 EEK (= 1/2 x CCR)
#1_level		CBfamily_ee	
comp2_cond		{coDAG > 3} & {coDAG <= 8} & ({nDepChInTu >= 1} #2 {nDepChInTu >= 3} #3)	for each child aged 3-8 if there is also at least one child up to 3 years old or at least three children aged 3 or older
comp2_perElig		\$CC_Base * 0.25	300 EEK (= 1/4 x CCR)
#2_AgeMax		3	
#3_AgeMin		4	
comp3_cond		{coDAG <= 1} & {coBMACT = 0} #1	for each child up to 1 year old if parents are not receiving parental benefit for that child
comp3_perElig	m	100	



2.3.8 Parental allowance for families with 7 or more children (7 ja enamalapselise pere vanema toetus) (co_BCCLG)

- *Brief description*

This allowance is targeted to families with very large number of children. It is a monthly universal non-means-tested non-taxable benefit.

- *Definitions and eligibility conditions*

The unit of analysis is the same as for child allowance (see above 2.3.1). There must be at least seven eligible children in the family.

- *Benefit amount*

In 2005 the benefit is the two times CCR.

co_BCCLG Benefit Calculation (co_BUNNC)

	2005	Comment
comp1_cond	{nDepChInTu >= 7}	
comp1_perTU	\$CC_Base * 2	2,400 EEK (2 x CCR) per family with at least 7 children

2.3.9 Subsistence benefit (toimetulekutoetus) (co_BSA00)

- *Brief description*

Subsistence benefit is a means-tested social assistance benefit that should guarantee a minimum income to all residents after paying for minimum housing costs. The general rule for subsistence benefit is the following:

$$B = \max(L - (Y - C); 0)$$

B = subsistence benefit;

L = subsistence level, which is 100% of the subsistence rate, which is set annually by the government, for the head of household and 80% of the subsistence rate for each subsequent person in the household;

C = actual costs related to the dwelling that do not exceed maximum limits set by the local government and which are calculated for “norm-space”;

Y = household income according to the income definition for the subsistence benefit purpose.

- *Definitions and Benefit amount*

The unit of analysis is a household.

Household subsistence level is calculated as follows. It is summed over the household members, with 100% of the subsistence rate (750 EEK in 2005) for the head of household and 80% for any other household member.

The “norm-space” of the household is derived as following. First, the norm-space is 18m² per person in the household plus additionally 15m² per household (15 + 18 x nPersInUnit). In case the number of rooms used equals the number of persons living in this dwelling permanently (nPersInUnit = coAMRRM), and the actual living space exceeds the norm area then this actual living space (coAMRAR) is taken as a norm-space. If the area of the apartment is smaller than



the norm-space, then the actual area is taken as a basis for calculations. For a single pensioner applying for subsistence benefit, the norm-space can be up to 51m²

$$(\text{co_sin01} > 51 \ \& \ \text{nPersinUnit} = 1 \ \& \ \text{coLES} = 4).$$

Imputation of housing costs

In reality all housings costs for “norm-space” depend on the detailed rules by municipalities. In our case we approximate the actual costs related to dwelling with actual costs proportional to housing size, applying an upper limit to avoid unreasonably large housing costs. We currently use three times the average housing cost (amount#1), which was 725 EEK per month in 2005:

$$C = \text{il_SA_HousingCosts} / \text{coAMRAR} \times \text{co_sin01} <\text{min}> (3 \times \text{amount\#1})$$

il_SA_HousingCosts is the list of housing costs, including the following components (currently kept in a single variable named coXHC): actual rent, water, sewerage, garbage collection, electricity, gas and other fuels and other miscellaneous services.

coAMRAR is actual size of the dwelling in square meters and co_sin01 is the normative size of the dwelling calculated as above.

Income list

Income for the subsistence benefit is calculated using all current income except a few irregular benefits, such as childbirth allowance (*sünnitoetus*), school allowance (*koolitoetus*), other social assistance, large family allowance (*kolme- ja enamalapselise pere toetus*) and subsistence benefit itself. It is based on income net of withholding income tax (co_TINWH). Only positive income from self-employment is included (coYSE <max> 0).

There is an additional supplement 200 EEK if the household is entitled to subsistence benefit and there is only one adult in the household and all other household members are younger than 18.

$$\{\text{co_BSA00} > 0\} \ \& \ \{\text{nPersInUnit} > 0\}\#1 \ \& \ \{\text{nPersInUnit} \leq 1\}\#2$$

where #1_AgeMax is 18 and #2_AgeMin is 19.

Non take-up

Finally we allow for an option that very small sums are not taken up, but this is switched off by default. If the resulting subsistence benefit are less than 10% of the current income or less than a certain amount, currently set to 50 EEK, the benefit is assumed not to be taken up.²

$$(\text{il_SA_CurrentY} * 0.1) <\text{max}> \text{amount\#1}$$

where #1_amount is 50 EEK.

² The threshold 50 EEK or 10% of the current income is arbitrary. The national minimum monthly gross wage is 2690 EEK in 2005. In the raw data, the smallest amount of subsistence benefits that we observe is 135 EEK and the largest is 2650 EEK. Without any threshold about 4% of the households with positive simulated subsistence benefits would have it lower than 50 EEK and 11% lower than 135 EEK in the baseline scenario. About 7% of the simulated benefits are larger than 2650 EEK, the maximum observed in the data, and the maximum value of the simulated subsistence benefits is 4325 EEK. Deeper analysis on the appropriate level of lower and upper limits on simulated subsistence benefits will be possible when the micro level register data on subsistence benefits will be available.



il_SA_CurrentY is a income list, which includes all current income net of the withholding income tax. It also excludes self-employed social insurance contributions.

2.4 Social contributions

Social contributions are paid by employees, employers and self-employed. Social insurance is highly centralised, contributions are formally either taxes (*social tax*) or otherwise rates set by laws.

2.4.1 Employee social contributions

Employees pay from their gross wage their part of the unemployment insurance contributions (unless they are at the pensionable age or receiving old-age pension) and a contribution to the funded pension scheme, which is optional for certain age groups.

Unemployment insurance contributions (co_TSCEEUI)

Only employees who have not reached the legal pension age (different for males and females) and not receiving old age pension (coPOA00) are obliged to pay unemployment insurance contributions.

$$((\{coDAG \leq \$PensionAgeMale\} \& \{coDGN = 1\}) \mid \\ (\{coDAG \leq \$PensionAgeFemale\} \& \{coDGN = 0\})) \\ \& \{coPOA00 = 0\}$$

Unemployment insurance contributions (co_TSCEEUI) are calculated as 1% of the gross employment income: $coYEM * 0.01$.

Pension contributions to the funded scheme (co_TPCEEPI)

We do not have information on the participation in the funded pension scheme in the data. Therefore the participation is simulated in the raw dataset using gender-age specific participation rates derived from pension register and population data. The imputed participation variable is coLPM. Contributions are calculated as 2% (\$SIC_RatePension2) of the gross employment income.

$$coYEM * \$SIC_RatePension2$$

Unemployment insurance contributions and pension contributions are summed up to yield total employee social contributions co_TSCEE.

We do not simulate voluntary contributions to the private pension funds (i.e. payments into the 3rd pillar), but take them from the data. In the household budget survey there is information on actual contributions, which give about 40% coverage both in terms of contributions and contributors.

2.4.2 Employer social contributions

Employers pay social tax, which is divided into health insurance part and pension insurance part. The latter is further divided into state pension scheme and compulsory funded pension scheme for those employees who have joined the funded pension scheme. Employers also pay their part of the unemployment insurance contributions. Central government pays social tax, either total or health insurance part, on certain social benefits.



Pension contributions

Government pays social contributions on certain minimum base (\$SIC_MinBase = 700 per month) determined each year with the government budget for those receiving either childcare allowance (*lapsehooldustasu*), large family parent allowance (*seitsme- ja enamalapselise pere vanema toetus*) or parental benefit (*vanemahiivitis*).

Pension contributions to the first pillar (co_TSCERPI) are 20% (\$SIC_RatePension1) of the employment income and government's contribution basis (co_sin01), minus transfers to the funded pension scheme (co_TTFERPI):

$$(coYEM + co_sin01) * \$SIC_RatePension1 - co_TTFERPI$$

Transfers to the funded pension scheme are determined with participation in the funded scheme and the transfer rate to the pension scheme 4% (\$SIC_RatePension1to2).

$$coYEM * \$SIC_RatePension1to2$$

There are extra pension insurance contributions (co_TPCERPI), paid by the central government, to the 2nd pillar for those receiving parental benefit. They are calculated as 1% of the maternity benefit for each related child.

$$coBMACT * 0.01 * nDepChOfPerson$$

Health insurance contributions

Government pays again social contributions on the minimum base (\$SIC_MinBase = 700 per month) for those receiving same benefits mentioned above (childcare allowance, large family parent allowance, parental benefit) and additionally unemployment assistance benefit.

$$\{il_ERSIC_Benefits > 0\} | \{co_BUNNC > 0\}$$

The total health insurance contributions (co_TSCERHL) are calculated as 13% (\$SIC_RateHealth) of gross employment earnings, unemployment insurance benefit and the minimum base (co_sin02).

$$(coYEM + coBUNCT + co_sin02) * \$SIC_RateHealth$$

Unemployment insurance contributions

Unemployment insurance contributions (co_TSCERUI) amount to 0.5% of employment income

$$coYEM * 0.005$$

Total contributions

Total employer contributions (including the government contributions) equal:

$$co_TSCER = co_TTFERPI + co_TSCERPI + co_TPCERPI + co_TSCERHL + co_TSCERUI$$



Note that co_TTFERPI, co_TSCERPI and co_TSCERHL are included in 'social tax' in the national statistics. To calculate total labour cost for employers the government contributions should be separated or switched off.

2.4.3 Self-employed social contributions

Self-employed pay social tax (pension and health insurance contributions) and contributions to the funded pension scheme. They do not pay unemployment insurance contributions.

Self-employed are those who had stated in the survey data that their status in employment belongs to the category “Self-employed, farmer without hired workers, freelancer” (coLSE = 3).

The contribution base is calculated as follows:

$$il_SESI_baseY / (1 + \$SIC_RatePension1 + \$SIC_RateHealth)$$

where il_SESI_baseY is income from self-employment (after deducting related expenses) less the tax allowance on income from agriculture. Note that (advance payments of) self-employed contributions are also deductible from the base (therefore, we need to divide the base by the total self-employed SIC rate).

Self-employed are also subject to minimum contribution base (\$SIC_MinBase), unless they are receiving state pensions or the central government is already paying minimum contributions due to certain benefits (see polERSIC):

$$\{il_Pensions > 0\} \mid \{il_ERSIC_Benefits > 0\}$$

Also, social insurance contributions paid by employers for self-employed receive earnings (coYEM) can be offset against the minimum obligation.

$$\$SIC_MinBase - coYEM$$

Finally, there is also an upper annual limit to social contributions base, which is 15 times the annual legal minimum wage (484,200 EEK). The resulting temporary variable (co_sin04) is the basis for contributions.

Pension insurance contributions

Participation in the funded pension scheme and calculation of the contributions to the state pension scheme and funded pension scheme are the same as for employees.

Contributions to the funded pension scheme have two parts: one is 4% (\$SIC_RatePension1to2) of the contribution base transferred from the social tax (co_TTFSEPI) and additional 2% (\$SIC_RatePension2) funded pension insurance contributions (co_TPCSEPI). Altogether, a self-employed person therefore directly contributes 6% to himself.

$$co_TTFSEPI = co_sin04 * \$SIC_RatePension1to2$$

$$co_TPCSEPI = co_sin04 * \$SIC_RatePension2$$

where co_sin04 is a basis for contributions.

Contribution to the state pension scheme (co_TTFSEPI) amount to 20% (\$SIC_RatePension1) of the contribution base less transfer to the funded pension scheme (co_TTFSEPI):

$$co_sin04 * \$SIC_RatePension1 - co_TTFSEPI$$



Health insurance contributions amount to 13% of the contribution base:

$$\text{co_sin04} * \$\text{SIC_RateHealth}$$

Total self-employed social insurance contributions

$$\text{co_TTFSEPI} + \text{co_TPCSEPI} + \text{co_TSCSEPI} + \text{co_TSCSEHL}$$

Note again that co_TTFSEPI, co_TSCSEPI and co_TSCSEHL are included in 'social tax' in the national statistics, and co_TPCSEPI and co_TTFSEPI is included in funded pension contributions in the national statistics.

2.5 Personal income tax

2.5.1 Tax unit

We use several different tax units for income tax calculations. We differentiate between withholding income tax and income tax liability based on the final tax report. For the purpose of subsistence benefit simulation we need to know current income and therefore withholding income tax. Tax base for the latter is narrower than for the final tax liability, e.g. it does not include income from self-employment, rent, royalties, etc.

Withholding income tax is applied at the individual level, however, for the final tax liability married couples are allowed to submit a joint declaration. Large family additional tax allowance is for families with three or more children aged up to 17.

Therefore we need a separate family unit for income taxation. Note that it is different from the family unit that we used for family benefits or subsistence benefits.

	Individual_ee	IT_married_ee	IT_family_ee
Household	0	0	0
Individual	1	0	0
Spouse	0	1	1
CohabPartner	0	0	1
DepParent	0	0	0
own_child	0	0	1
oth_child	0	0	1
cd_min_age	0	0	0
cd_agelow	0	0	17
cd_agehigh	0	0	0
Cd_IfParent	0	0	1

2.5.2 Exemptions

The following income sources are non taxable: all family benefits (except parental benefit), unemployment assistance benefit, unemployment retraining benefit, subsistence benefit, scholarships and grants, voluntary maintenance payments and investment income. The latter includes interests, which are non-taxed if received from an EU financial institution, and



dividends, on which firms pay only corporate income tax in Estonia. We also consider benefits received from abroad untaxed, assuming they have been taxed in the foreign country already.

2.5.3 Tax allowances

First there is income tax allowance for self-employment income from agriculture (applied both to income tax and self-employed SIC) (polIT_AgrAlw_EE).

	Period	2005	Comment
elig_cond		{coLSE = 3} & {coYSEAG > 0}	Only self-employed with positive income from agriculture
Formula	y	45000	45,000 EEK a year, but not more than actual income from agriculture
uplim_var		coYSEAG	
output_var		co_TINTAAG	
TAX_UNIT		individual ee	

Contributions to the unemployment insurance fund and to the funded pension scheme are deductible from taxable income.

Income tax simulation takes into account basic allowance (\$IT_BasicAlw), which equals 20,400 EEK per year (1,700 EEK per month) in 2005.

Second, it takes into account pension allowance (\$IT_PensionAlw), which equals 36,000 EEK per year (3,000 EEK per month) in 2005. Pension allowance is applicable only to pensions, determined by pension income list (il_Pensions), which sums disability pensions, old-age pensions and survivors' pensions.

Thirdly, it considers an additional allowance for families with at least 3 children aged up to 17, equal to the basic allowance (i.e. 20,400 EEK per year in 2005) for the third and each subsequent child less the taxable income of that child.

All allowances are non-refundable, i.e. their value cannot be larger than income tax base (il_IT_baseY).

2.5.4 Tax base

Withholding income tax

Incomes subject to withholding income tax are grouped into two:

1) incomes for which the basic allowance is usually not taken into account (il_IT_WH_baseY_Rate): sickness benefit and maternity benefit paid (by the Estonian Health Insurance Fund) and royalties.

2) incomes for which the basic allowance is usually taken into account (il_IT_WH_baseY_Alw):

$$\text{il_IT_WH_baseY_Alw} = \text{coPDI (disability pension)} + \text{coPOA00 (old-age pension)} + \text{coPSU (survivors' pension)} + \text{coBMACT (parental benefit)} + \text{coBUNCT (unemployment insurance benefit)} + \text{coYEM (employment income)} + \text{coYPTMPTX (taxable maintenance payments received, i.e. alimony)} - \text{coXMP (alimony payments made)}.$$

In case of pensions, also pension allowance is taken into account.



There is a single income tax rate (\$IT_Rate) 24% in 2005.

	2005	Comment
Formula	$il_IT_WH_baseY_Rate * \$IT_Rate$	These two are added up
	$(il_IT_WH_baseY_Alw - co_TINTAWH) * \IT_Rate	
output_var	co_TINWH	

Final income tax

Compared to withhold income tax, final income tax takes into account several additional aspects:

- 1) tax base includes income from self-employment,
- 2) married couples may submit a joint declaration,
- 3) there is additional allowance for families with 3 or more children per child starting from the third (less the taxable income of the children),
- 4) there are deductible expenditures (education expenses, mortgage interest payments, contributions to the voluntary pension funds).

Income from self-employment

Taxable income from self-employment (co_YSETX) is equal to income from self-employment less related expenses (coYSE) minus special allowances for the agricultural income (co_TINTAAG), calculated above, and minus social insurance contributions (co_TSCSE), except contributions to the funded pension scheme (co_TPCSEPI). The latter can be deducted only from other source of incomes.

$$co_YSETX = coYSE - co_TINTAAG - (co_TSCSE - co_TPCSEPI)$$

Taxable business income is derived on individual basis.

Pension allowance

Considering pension allowances, we allow that only persons receiving pensions (co_sin01) may use pension allowance (\$IT_PensionAlw), limited to the total income from pensions (il_Pensions), that is that pension allowances cannot be applied to other income.

co_Elig	
elig_cond	{il_Pensions > 0}
output_var	co_sin01
TAX_UNIT	individual_ee
co_ArithOp	
Formula	$\$IT_PensionAlw * co_sin01$
Uplim_il	il_Pensions
TAX_UNIT	ITmarried_ee



Deductible expenditures, except voluntary pension contributions, are calculated below.

	Period	2005	Comment
elig_cond		(il_IT_MaxDed_baseY * 0.5) <min> (amount#1 * nPersInUnit)	Absolute limit on deductions either 50% of taxable income or
#1_amount	y	50000	... 50,000 EEK per year
uplim_var		il_IT_Expenses	And limited to actual expenditures
output_var		co_TINTA	

Again it is allowed that married couples submit a joint declaration.

Base for deductions consist of all taxable income:

$il_IT_MaxDed_baseY = co_YSETX + co_BAC + co_BCHAB + co_PDI + co_BMAAB + co_BMACT + co_PMAPR + co_POA00 + co_POAAB + co_PSU + co_BUNCT + co_YEM + co_YPRRO + co_YPRRT + co_YPTMPTX$.

Actual expenditures (il_IT_Expenses) consist of education expenditures including study loan interests (coXED) and mortgage interest payments (coXHCMO³).

Deductible expenditures on pension contributions (coXPP), which are directly taken from the data, to the 3rd pillar (i.e. voluntary funded scheme) cannot exceed 15% of taxable income (il_IT_MaxDed).

We are not taking into account membership fees or donations that can also be deducted up to certain amount of the taxable income.

Large family allowances are allowances for families with 3 or more children per child starting from the third child, but less the taxable income of the children (taking into account other tax allowances). Large family allowance is partly optimised by assigning it to the spouse with highest taxable income (before applying the allowance itself).

	2005	Comment
elig_cond	{IsNtoMchild}#1	Children from the third
#1_N	3	
#1_M	99	
formula	\$IT_BasicAlw – ((il_IT_baseY - co_TINTA) <max> 0)	allowance per child less the taxable income of the child (and controlling for negative tax base)
share_between	{IsRichestInTu}#1	This is summed over children and assigned to the person with highest taxable income
#1_Means_var	co_sin04	Taxable income before family allowances (il_IT_baseY - co_TINTA)
output_var	co_TINTA	

The sum of all income allowances is limited to the taxable income ($co_TINTA <min> il_IT_baseY$). Income tax is calculated by multiplying the tax rate ($\$IT_Rate$) with the difference between taxable income and the total allowances: $(il_IT_baseY - co_TINTA) * \IT_Rate .

Where $il_IT_baseY = co_YSETX + co_BAC + co_PDI + co_BMACT + co_PMAPR + co_POA00 + co_PSU + co_BUNCT + co_YEM + co_YPRRO + co_YPRRT + co_YPTMPTX - co_TSCEE - co_TPCSEPI - co_XMP$

³ coXHCMO includes only mortgage interest payments, although the name might suggest otherwise. The reason being that variable coXHCMOMI (interests only) already exists but at the household level.



3. DATA

3.1 General description⁴

The Estonian database is drawn from the Household Budget Survey (HBS) carried out by Statistics Estonia since 1995. The purposes of the survey are: to get reliable information about the economic situation of households; to calculate indicators reflecting socio-economic development of the society (standard of living, cost of living, inequality, poverty, etc.); to plan socio-political measures; to estimate the efficiency of socio-political measures. In addition to income and expenditure, the survey provides information about the structure of households and the main demographic and social characteristics of households (family relations, employment, education), but also on living conditions, existence of durable goods and additional sources of income (free services and goods, usage of land, foodstuffs received from household's own farm or kitchen plot). The survey also provides information about the real estate owned by household and the self-assessment of the economic situation of households. Since 2004 HBS is partly replaced by the Estonian Social Survey (Estonian version of EU-SILC) for statistics on income distribution and relative poverty levels.

All households living legally and permanently in Estonia are considered as the surveyed population. Persons living in institutional households (children's homes, care homes, convents) are excluded. The frame of the study is the population database (Population Register — PR) of the Andmevara Ltd.

Table 23. EUROMOD database description

	Year 2005
EUROMOD database	EE 2005
Original name	Leibkonna eelarve uuring 2005 (Household budget survey 2005)
Provider	Eesti Statistikaamet (Statistics Estonia)
Year of collection	2005
Period of collection	December 2004 – Jan 2006
Income reference period	January 2005- December 2005, monthly income and expenditures
Sampling	Stratified systematic sampling
Unit of assessment	Spending unit
Coverage	Households living permanently in Estonia. Persons living in institutional households are excluded
Sample size	7161 households
Response rate for household description	69.2% (4,953 households)
Response rate for household income and expenditures	50.1% (3,593 households)
Final sample used in EUROMOD	3,432 households

Household is the group of persons living in the common main dwelling (at the same address) and share joint financial and/or food resources and whose members consider themselves to be members of one household. Household can also consist of one member only. Members of the household are not necessarily related by blood or marriage. A household consists of one or more benefit units (or "families"), e.g. a couple together with any dependent children.

⁴ This section includes extracts from the following publication by Statistics Estonia: "Leibkonna Elujärg. Household Living Niveau. 2005". Statistics Estonia 2006.



Sampling was carried out by stratified systematic procedure, i.e. independent subsamples were drawn separately from the non-overlapping subpopulation (strata). For pre-stratification, all Estonian counties and the capital city Tallinn were divided into three strata by the population size: large counties, small counties and Hiiumaa (the smallest county). From different strata the persons were included with different probabilities (in the case of smaller counties the sampling rate was higher to guarantee the necessary sample size for estimating important parameters).

Within each stratum systematic sampling procedure was used. Since in the Population Register, counties have been arranged in a certain order, the systematic sampling procedure inside strata results in the proportional allocation of the sample for its counties.

As a result of sampling procedure the address persons were fixed and they formed the basis for households' sample. The households to be sampled were finally identified and treated by two alternative ways. If the address was complete and it was represented by less than nine persons aged 15 and over, the household or all households at the given address were included in the survey irrespective of whether the address person was actually living at the address or not ("address-rule"). If the address was represented in the database more than nine times as the place of residence of a person aged 15 and over then only the address person and his/her household were included in the survey ("person-rule"). If the household had moved within the county, it was traced and included in the survey. The persons who had left the county were excluded and not replaced. The methodology of the survey did not provide for the use of replacement households.

Since 2000 each household is interviewed twice, the rotation period is 12 months, whereas every year half of the sample is replaced. Thus during the year the survey is cross-sectional.

The data were collected from households by face-to-face interviews and by diary questionnaire method. Four interviewing documents were used:

- 1) Household picture – a questionnaire completed at the first meeting in the pre-survey month with the household.
- 2) The diary book for food expenditure – contained data on food expenditure during half a month (1st -15th day or 16th-31st day). It also included data on eating out and consumption of self-produced or free food products. Since the diary of food consumption is filled in during half a month, the monthly food consumption is calculated by using special coefficients which depend on the surveyed month (the number of days in the given month).
- 3) The diary book for income, taxes and expenditures – contained data about monetary and non-monetary income of the surveyed month, taxes paid by the household and goods and services bought by the household. The diary included separate parts for recording the expenditure on reconstruction and renovation activities and expenditure related to the household's economic and production activities and expenditure on the investment of money and other financial transactions.
- 4) Post-interview – it was carried out in the post-survey month and it registered changes in the household composition during the survey period, and the self-assessments about the economic coping of the household.

Technically the HBS data set includes several files (see the table below). Incomes are collected in 77 variables. Expenditures are made available separately in approximately 1400 variables,



including separate variables for different taxes (income tax, land tax etc)⁵. The collected tax information is rather limited (mostly omitted), being therefore not usable.

Table 24. Data files of the Household Budget Survey

Original file name	Description
PEREPILT	Information about structure and main demographic and social characteristics of households, including living conditions and the existence of durable goods.
PEREISIK	Contain information about individuals – their relationship to the head of household, employment, education, gender, age etc
PERESIS1	Received monthly net incomes at the individual level – monetary
PERESIS2	Received monthly net incomes at the individual level – non-monetary
PERTOIT2	Food expenditures
PERTOIT4	Non-monetary food expenditures
PERTARB1	Other consumer good and services expenditures and data about paid taxes
JARELKYS	Post-interview data – information on changes in the household and self-assessment of economic coping
HINCOME	Aggregated monetary and non-monetary income at household level
HEXPEND	Aggregated monetary and non-monetary expenditures at household level

For EUROMOD purposes the net-to-gross transformation of income variables is carried out and then data files are merged into single file keeping only variables necessary in EUROMOD.

3.2 Sample quality and weights

3.2.1 Sample size and non-response

The intended sample size is about 640 households per month. In total 7,684 addresses were selected to identify the household sample. Due to the application of address-rule approach in some cases which allows multiple households living at the same address, the final sample to be interviewed consisted of 7,803 households.

The Household Budget Survey that also contains filling in diaries belongs to relatively difficult surveys that have rather low response rate according to international experience. Estimates of parameters of the population contain a certain bias, i.e. systematic error. Reasons for failed interview are divided into two groups: frame error and non-response.

The frame error contains inaccuracies of the population database of the Andmevara Ltd. In the case of address-wise approach the address has considered as frame error when there does not exist a dwelling with the address given in the data-base (either there is a mistake, or the dwelling has been destroyed or is empty) and nobody lives at this address. In the case of person-wise approach the frame errors occur if the address person is dead, has left Estonia or the given

⁵ The classification COICOP, worked out by the Statistical Office of the European Communities (Eurostat), is used for the consumption expenditure.



county, lives in an institution or it is impossible to locate his/her address. Frame errors and corresponding households were excluded from the sample.

The size of frame error in 2005 was 616 households, which makes the proportion of the frame error in the sample 7.9%. The most common reason (349 times) for frame error was uninhabited dwelling at the given address. Frame errors and corresponding households were excluded from the sample.

The non-response rate depends on the diary-type. Different parts of the survey were responded differently. Household picture was completed for 69% of the households, but diaries on expenditures only for half of the households. The most frequent reason for non-response were refusal (about half of the cases) and that household is inaccessible (about one third of the cases).

Table 25. Sample size, frame error and non-response

	Sample	Household Picture	Diary Book for Food Expenditures	Diary Book for Income, Taxes and Expenditures	Post- Interview
Initial sample	7,803				
Frame error	- 616				
Remaining sample	7,161				
Number of households not responding		2,208	3,593	3,568	2,424
Households responding		4,953	3,568	3,593	4,737
(%)		(69.2%)	(49.8%)	(50.2%)	(66.1%)

3.2.2 Weights and item non-response

The data set includes weights to take into account sampling probabilities and also to compensate frame errors and the non-response. The weights were calculated in three stages.

Inclusion probabilities are calculated taking the representation frequencies of the addresses and household sizes into account. Sampling weights are the inverses of inclusion probabilities. The initial weights are corrected to compensate for non-response and frame errors and to balance some important estimates with the ones from different data sources.

Statistics Estonia uses the following techniques to compensate the presence of frame errors and non-response:

- imputation of missing values – used in Household Picture and Post-Interview section;
- post-stratification – to reduce the bias caused by frame errors and non-response;
- calibration on demographic data – to balance the results with other data sources.

Imputation of missing values is done only in Household Picture and Post-Interview section. In 2005 five questions had some missing values for 291 households. To fill the values multiple imputation approach was used with Markov Chain Monte Carlo method (using package SAS).



For post-stratification the counties were divided into six groups of supposedly similar counties after that the regional weights were calculated. The weights were corrected as to make the population size estimated by sample coincide with the computational one.

As the response rate differs depending on the age, sex and region, the population structure estimated by the collected data differs from the demographic information. To correct the bias the weights were corrected again for each household using calibration method using five integrated sex-age groups (males and females aged 0-15, males 16-54, females 16-54, males 55 and older, females 55 and older) and 16 regions (15 counties and Tallinn) so that estimated totals in certain sex-age groups and regions would be close to the actual number of people in these groups.

The programme Bascula using linear consistent weighting method was used for calibration. The estimated totals of people in defined groups should be as close as possible to the actual number of people in these calibration groups.

As the level of non-response is rather high, also the data of the households with incomplete answers have been included in the survey data. For each document (Household Picture, Income diary, etc.) different weights are calculated due to different response frequencies. In addition, different weights are calculated for such characteristics that depend on several documents (e.g. average incomes in expenditure deciles). Overall the dataset includes seven different weights.

For EUROMOD purposes we need both income and expenditure data. The original HBS 2005 dataset given to researchers included 4,977 households (13,201 individuals), which had answered at least some parts of the survey. Of these, 1,545 households did not answer either income or expenditure part of the survey and these households were excluded from EUROMOD input data, resulting 3,432 households. The weight variable named *tulukaal*, constructed by Statistics Estonia, takes into account the households who have answered both income and expenditure part. Therefore, this weight variable is used in EUROMOD.

Table 26. Descriptive Statistics of the Grossing-up weight

Weight variable in the original dataset	<i>Tulukaal</i>
Number of households with positive values	3,432
Mean	162.34
Median	130.51
Maximum	748.66
Minimum	11.40
Max/Min	65.67
Decile 1 (10% cut point)	45.41
Decile 9 (90% cut point)	335.11
Dec 9 / Dec1	7.38

3.2.3 Under-reporting

Comparisons can be made of income components (wages and various benefits) between Household Budget Survey and administrative sources (see the table below and Table 29).

Wages and salaries are estimated at 78% when compared to National Accounts Statistics. This is in accordance with our results that most of the labour taxes that we simulate also fall into the range of 70-90%.



When comparing all cash benefits from ESSPROS data and all aggregated cash benefits from HBS data (partly converted to gross values), the overall ratio is 89%. This may seem rather high but is due to good coverage of pensions and child benefits, which constitute about 85% of the expenditures in the HBS data. Pensions (98%) and benefits for children (84%) are rather well represented, but income of low-income households are underrepresented (unemployment benefits 53%, subsistence benefit 65%, sickness benefits 42%). Some of these benefits may be recorded under “Other social assistance”, for which we do not have a clear counterpart from the administrative data.

Table 27. Comparison of expenditures on wages and benefits in the HBS and administrative data

Income type	Household budget survey (mln EEK)	Administrative statistics (mln EEK)	Ratio (HBS/Register)
Wages and salaries	45,593***	58,212**	0.78
Pensions (old-age, survivor, disability)	10,351*	10,516	0.98
State family benefits total (peretoetused), incl	1,382	1,646	0.84
Child benefits	1,094	1,035	1.06
Childcare allowance	197	287	0.69
Single parent child allowance	87	103	0.85
Parental benefit (vanemahüvitis)	740***	553	1.34
Subsistence benefit (toimetulekutoetus toimetulekupiirini)	135	208	0.65
Unemployment benefits (töötushüvitis)	76***	142 ⁺	0.53
Sickness benefits	344***	818	0.42
Other social assistance	259	Not applicable	
	13,438	15,076	
All cash benefits	(all benefits in HBS data)	(cash benefits in ESSPROS data)	0.89

Notes: * - pensions from abroad are excluded; pensions are converted to gross values in order to compare with register data; ** from National Accounts; *** converted to gross values in order to compare with register data; ⁺ - here unemployment benefits from administrative statistics do not include redundancy payments, and payments in case of employer's bankruptcy.

Sources: HBS data, own calculations; Ministry of Social Affairs. Social Sector in Figures 2006; Statistics Estonia on-line database, Table “Gross domestic product by income approach at current prices”.

A study by Statistics Estonia⁶ on Household Budget Survey 2004 indicated that households with higher income have higher non-response rate for diaries. In 2004 in the lowest quintile (based on self-reported average monthly income) 25% of the households refused to fill in diaries, while

⁶ Mari Toomse, Marin Randoja “Eesti sotsiaaluuringu ja leibkonna eelarve-uuringu sissetuleku ühilduvusanalüüs” (*Comparability analysis of income in Estonian Social Survey and Household Budget Survey*). Statistics Estonia 2007. Mimeo.



in the highest quintile 31% refused. The study also showed that data from the Estonian Social Survey (Estonian EU-SILC) are more representative in terms of total wage cost, but there is little difference regarding social benefits.

We may conclude that there appears to be a problem of under-reporting of income, perhaps particularly by high-wage earners and recipients of unemployment, sickness and subsistence benefits.

3.3 Data adjustment

There are two main adjustments compared to the original HBS dataset. First, only households who have provided information on incomes and expenditures (the weight variable *tulukaal* is positive) are included in EUROMOD's database (3,432 households with 9,201 individuals). There remain 107 households with zero incomes (but positive response weight assigned). As the households report monthly incomes we have no justification to omit those observations.

Secondly, gross amounts have been imputed for incomes net of withholding income tax (see next section). Related expenses for self-employment have been deducted from self-employment income for (registered) self-employed.

In addition, we have made data adjustments in 5 households to remove inconsistency in the variables of the family structure (the identification codes of the parents, children, etc). The details are recorded in the Data Requirement Document.

Technically, the EUROMOD input data file is derived from the original HBS data using the Estonian tax-benefit microsimulation model ALAN (authors Alari Paulus and Andres Võrk) with some minor modifications.

3.4 Imputations and assumptions

3.4.1 Time period

Reference period of socio-demographic, labour, economic characteristics is the month of the survey. Information on earnings refers to the following month. It is collected using the diary method.

All monetary amounts in the HBS are expressed in monthly terms. In the EUROMOD calculations it is implicitly assumed that income is received at the same rate throughout the year. However it should be remembered that this may not be the case and in particular that simulated income tax (based on annual income) does not take account of changes that may happen during the year. On the other hand, it is generally the case that personal and household characteristics are consistent with the current incomes that are observed, since they apply to the same or very similar reference periods. There is no information about how many times (e.g., number of months) a particular income was paid over the year.

3.4.2 Other imputed variables

Unemployment assistance benefits and unemployment insurance benefits

In the original dataset unemployment assistance benefit and unemployment insurance benefit, are recorded together in a single variable as unemployment benefits, however, they need to be split as they are treated differently for the purpose of income tax.



The unemployment assistance benefit is a flat-rate benefit equal to 400 EEK in 2005. Therefore, we assigned all values less than 400 EEK to unemployment assistance benefits (variable coBUNNC) and larger values to unemployment insurance benefits (coBUNCT).

Unemployment insurance benefits, if received for a month, must be larger than 400 EEK if the contribution basis is larger than minimum wage. But if the unemployment insurance benefits are received only for a very short period, e.g. a week, or if the previous earnings were very small (e.g. from part-time work) then the benefits may end up being smaller than 400 EEK. This may result in minor underestimation of unemployment insurance benefits and overestimation of unemployment assistance benefits. (Note that the Household Budget Survey 2007 has separate variables for these two benefits already in the original dataset.)

Participation in the funded pension scheme (co_TPCEEPI)

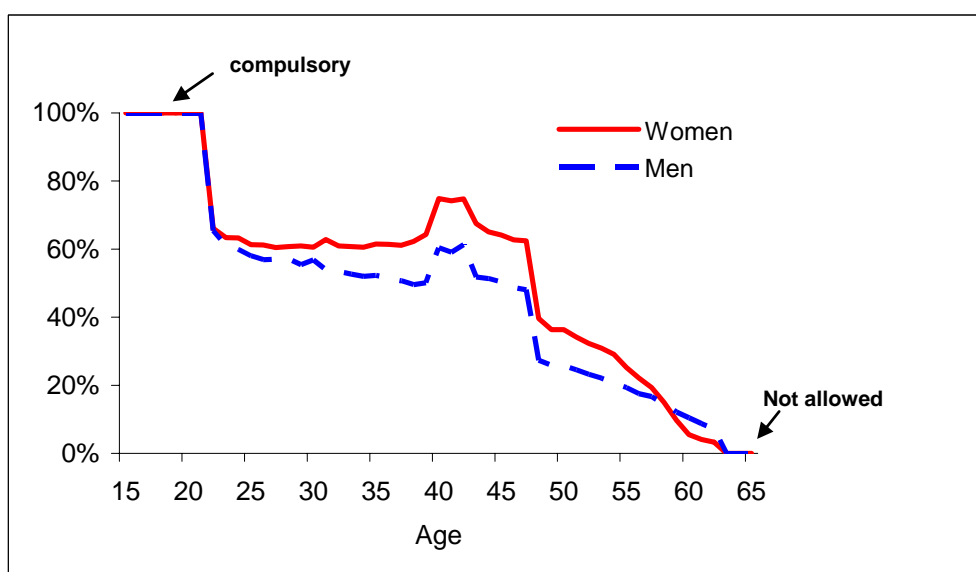
Participation in compulsory funded pension scheme (the second pillar) is compulsory for new entrants to the labour market (born 1983 or later), but voluntary for employees who were in the labour market in 2002 when the scheme was introduced. Cohorts born 1941 or before (i.e. those beyond pension age at the time of the reform) were not allowed to join the scheme.

We do not have information on the participation in the funded pension scheme in the HBS data, but we know the age-gender distribution of the participants from the register data. Based on that and population data the age-gender participation rate can be calculated.

$$\text{Prob}(\text{Participates})_{\text{age, gender}} = \frac{\text{Participants at the beginning of 2005}_{\text{age, gender}}}{\text{Population at the beginning of 2005}_{\text{age, gender}}}$$

Number of participants who have joined the funded pension scheme by the beginning of 2005 are derived from data received from the Estonian Central Securities Depository. Population data are from Eurostat on-line database.

Figure 3. The participation rate in compulsory funded pension scheme in 2005





About 50% of those who could have joined the scheme had done so by 2005. Women have slightly higher participation rates. Because different cohorts have had a different time window to make the decision, there is a spike in the middle of age profile. We have assigned value 1 to whom the participation is compulsory (21 or younger in 2005) and value 0 for those who are not allowed to participate (63 or older in 2005).

For the rest, we simulate participation status based on these age-gender specific participation rates by drawing a uniformly distributed random number from the 0-1 interval (this is done in Stata and can be reproduced as the seed number is fixed). If the resulting number is lower than the corresponding participation rate the person is assigned a value 1, otherwise value 0. The resulting variable is *coLPM*.

We know that actual participation decision also depends on the employment status and level of earnings. People with higher earnings have joined the scheme earlier. Currently we do not have register data on average earnings by age, gender and participation in the scheme. If the data become available then the participation decision can be simulated more precisely.

Childbirth allowance

As we simulate child birth allowance the data variable needs to be excluded from the disposable income concept. Birth allowance is not recorded in a separate variable in the original dataset but included in “Other state or municipal support” (code 0712 in HBS). We have assigned its value to birth allowance (variable *coBCHBA* in EUROMOD) in case the person has a child born in 2005 and the amount of that variable is larger than 1,000 EEK.

The threshold of 1,000 EEK is set arbitrarily. For comparison, the birth allowance paid by the state is 3,750 EEK. The average birth benefit paid by local governments was 1,710 EEK in 2003 (see section 1.3.6), and presumably larger in 2005, but usually paid in 2-3 parts over the two years. Therefore, a threshold 1,000 EEK seems reasonable enough.

Interest payments on mortgage and study loan are recorded together with the payment of principal in the data. We need interest payments, because they are deductible from final taxable income (see Section 1.5.1). We have assumed that 40% of mortgage payments and 20% of study loan payments are interest payments.

3.4.3 Gross incomes

HBS does not include reliable data on income tax, employee social insurance contributions and other deductions from gross earnings. Therefore the taxes and social insurance contributions have to be simulated and added to net after-tax income.

Gross incomes are imputed using the inversion of rules. Estonia has constant marginal tax rate, which makes inversion straightforward. All income sources in the HBS dataset are grouped according to their income tax treatment (see also Annex 1):

- 1) Pensions on which income tax is withheld subject to the pension and basic income tax allowance.
- 2) Incomes on which income tax is withheld subject to the basic allowance: employment income, unemployment insurance benefit, parental income (*vanemahiivitis*) and alimonies received.



- 3) Incomes on which income tax is withheld without any allowance applied: royalties, sick pay and maternity benefit (*sünnitushüvitis*).

Based on the information above, income before income tax can be directly calculated. If only income tax has been withheld, with no allowances, income before income tax is simply scaled up. Basic allowance and pension allowance are taken into account similarly, only before scaling up the tax allowance must be subtracted.

The order of the income variables matters when applying tax allowances. We have assumed that pension and basic allowance are both applied to pension income at first. Then the remaining part of the basic allowance is applied to wages and then unemployment insurance benefits and so on (see the table below).

Table 28. Order of income types in net-to-gross conversion process and application of allowances.

Income type	Pension allowance	Basic allowance
1. Disability pension	+	+
2. Old age pension	+	+
3. Survivors pension	+	+
4. Wages and salaries		+
5. Unemployment insurance benefit		+
6. Parental benefit		+
7. Alimony for spouse/child		+

Finally, gross earnings are calculated by adding employee's contributions to unemployment insurance fund and funded pension scheme, if eligible, on the income from employment by simply scaling up the variables. This is possible because neither minimum nor upper ceiling is present for these contributions.



4. VALIDATION

4.1 Aggregate Validation

4.1.1 Non simulated taxes and benefits

As was discussed in section 3.2.3, in the data there appears to be a problem of under-reporting of unemployment benefits and sickness benefits. And these are the benefits that depend on contribution history and therefore we cannot simulate them (except flat rate unemployment assistance benefits, which are partly simulated). Disability pensioners and pensions seem to be overestimated in the data, but deeper analysis of the exact amounts of the money suggests that in many cases social benefits for the disabled persons (see the definitions in Section 1.3.4) have been recorded in the data by respondents as disability pensions, therefore artificially inflating the number of disability pensioners.

Table 29. EUROMOD validation: taxes and benefits included but not simulated, 2005

	Recipients/Payers (persons)			Expenditure/Revenue (mln EEK)		
	EUROMOD database	External source	Ratio	EUROMOD database	External source	Ratio
Old-age pensions (excl. pensions from abroad)*	286,996	300,739	0.95	8,751	9,177	0.95
Disability pensions*	99,362	61,181	1.61	1,372	1,159	1.18
Survivors pensions*	12,961	14,720	0.88	228	180	1.27
Unemployment benefits, incl				82	142	0.53
Unemployment insurance benefits	2,439	4,270**	0.57	42	100	0.42
unemployment assistance benefits (partly simulated)	7,925	11,600**	0.68	43	34	0.80
Parental benefit	12,522	9,994***	1.25	740	553	1.34
Sickness benefits	13,292	36,612****	0.37	344	818	0.42
Other social assistance				259	na	na

Notes: * - in administrative statistics pensions include also national (minimum) pensions (*rahvapension*), which were distributed according to their type

** - average monthly number of receivers;

*** - at the end of the year

**** - annual number of compensations for illness or injury divided by 12

Sources: see notes on Table 27.



4.1.2 Simulated income tax

Income tax coverage is simulated at 85% level. This is in accordance with the coverage of wage and salaries (about 78%) and social expenditures (89%), which was calculated in Table 27.

Data on the comparable number of tax payers is not available for 2005, but comparison with 2006 last quarter (0.88) confirms the results.

Table 30. EUROMOD validation: income tax, 2005

	Taxpayers (persons)			Revenue (mln EEK)		
	EUROMOD Database	External source	Ratio	EUROMOD database	External source	Ratio
Personal Income tax (withheld)	539,374	612,384*	0.88	8,342	9,736	0.86
Personal Income tax (final)		579,269**		8,124	9,520	0.85

Notes: in EUROMOD we have monthly averages, but in the register data we have cumulative number of taxpayers

* - 2006 IV quarter, total number of persons with withheld income tax

** - number of persons submitting declarations

Sources: see Table 18

4.1.3 Simulated social contributions

Overall about 84% of social tax revenue, covering health insurance and pension insurance, and 90% of unemployment insurance contributions are simulated. Relatively poor performance of contributions to funded scheme (about 71%), compared to the oversimulation of participants in the funded scheme, is related to the way participation was simulated – based on age-gender pattern, which does not take into account the fact that workers with higher wages have higher participation rates. This remains to be improved, when additional registry data become available.



Table 31. EUROMOD validation: social contributions, 2005

	Contributors (persons)			Revenue (mln EEK)		
	EUROMOD database	External source	Ratio	EUROMOD database	External source	Ratio
Social Tax (employers, self-employed, state)	579,835			15,644	18,133	0.86
Of which health care (incl)	579,835			5,992	7,158	0.84
Of which pension	579,835	661,448*	0.88	8,342	10,975	0.86
Of which part of the social tax transferred to the funded pension scheme	252,945			861	1,167	0.72
Employees additional contribution to the funded scheme	252,945					
number of persons joined the scheme (aged 16-64)	480,579	425,694	1.13	422	594	0.71
Total contributions to the funded scheme				1,267	1,761	0.72
Unemployment insurance contributions (employees and employers part)				657	736	0.89
Employers part	554,860			228	256	0.89
Employees part	513,262	~619,000**	0.83	429	480	0.89

Notes: Contributions to the funded pension scheme (both employer and employee part - co_TPCERPI and co_TPCEEPI) are included in the funded pension contributions in the national statistics.

* - end of the year, includes insured people by Health Insurance Fund (employed, self-employed, and those inactive people whose social tax is paid from the state budget); does not include equalised categories (children and pensioners)

** - cumulative during the year

Sources: see Table 13 and 14; and Unemployment Insurance Fund “Annual report. 2005”, Table 2;

Estonian Health Insurance Fund, data on insured people,

http://veeb.haigekassa.ee/files/est_haigekassa_statistika_kindlustatud/Kindl%205a%20arv%2031dets2005.xls



4.1.4 Simulated social benefits

- *Family benefits*

Family benefits are simulated reasonably well, around 105% in total. Child allowance (*lapsetoetus*) is simulated around 100%. Small benefit groups, such as childbirth allowance and large family parent allowances have some problems with precision, but their impact on overall expenditures is relatively small.

Table 32. EUROMOD validation: family benefits, 2005

	Recipients (children)			Expenditure (mln EEK)		
	EUROMOD database	External source	Ratio	EUROMOD database	External source	Ratio
Child allowance	300,867	287 459	1.05	1,083	1,035	1.05
Large family allowance	76,015	69 982	1.09	66	55	1.20
School allowance	225,291	190 479	1.18	101	86	1.18
Childbirth allowance	7,663	14 245	0.54	25	48	0.52
Childcare allowance	51,352	50,517	1.02	312	287	1.09
Large family parent allowance*	254	195	1.30	7	6	1.28
Total				1,595	1,516	1.05

Notes: * - families

Sources: See Table 11

- *Subsistence benefit*

We oversimulate expenditures on subsistence benefits by 50% and also number of recipients (although the data are not strictly comparable. There may be several reasons. Partly it is related to simplified rules that we use for calculating housing costs. Also local governments have the right to refuse the payment of benefits to people in working age and capable for work, but who do not study or work, and who have repeatedly refused to accept suitable work. Finally, we do not take into account by default benefit non take-up. In practice, small amounts of benefits are not taken up. The appropriate threshold can be calibrated to yield better results. For example, simulations show that 50 EEK threshold reduces expenditures by 3.5%, but recipients by 21%, indicating that we have many households with very small amounts of subsistence benefits. The threshold 500 EEK would reduce expenditures by 12% and recipients 45%.

Table 33. EUROMOD validation: subsistence benefit, 2005

	Recipients (households)			Expenditure (EEK)		
	EUROMOD database	External source	Ratio	EUROMOD database	External source	Ratio
Subsistence benefit	29,699	~14,500*	2.05	314	208	1.51
with simulated non-take up 50 EEK or 10% current income	23,466		1.62	303	208	1.46
with simulated non-take up 500 EEK or 10% current income	16,443		1.13	276	208	1.33

Notes: * average number of applications per month

Sources: see Table 11



4.2 Income distribution

All income distribution results presented next are computed for individuals according to their household disposable income (HDI) equivalised by the “modified OECD” equivalence scale, if not specified otherwise. HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions. The weights in the OECD equivalence are: first adult=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

We compare our results with statistics based on raw HBS data and with the Estonian version of EU-SILC (EE-SILC) data. Since 2003, the latter data set is used for official income inequality measures.

4.2.1 Poverty

Table 34. EUROMOD validation: relative poverty rates, 2005

Percentage of individuals below:	EUROMOD	External source (EE-SILC)	Ratio
60% of median equivalent income	17.7	18.3	0.97
Males	16.9	16.3	1.04
Females	18.3	20.0	0.92

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: Statistics Estonia, on-line database, last accessed 3 March 2008

The simulated poverty rate of children and particularly of elderly (65+) is lower when compared to EE-SILC data. And poverty rate for the middle-age group is higher.

The different age-poverty pattern may be due to different concept of income in two data sources – monthly income in our data and annual income in EE-SILC data, assumption of full benefit take-up in our model.

Still the poverty 25.1% for age group 65 and older seems to be difficult to explain in EE-SILC. In 2004 the poverty rate was only 20.3% according to the same data source and the ratio of wages and pensions remained unchanged over the two years.

Table 35. EUROMOD validation: relative poverty rates by age groups, 2005

Percentage of individuals below:	EUROMOD	External source (EE-SILC)	Ratio
Population	17.7	18.3	0.97
0-15	17.9	19.8	0.90
16-24	17.7	18.0	0.98
25-49	16.2	14.3	1.13
50-64	19.1	18.6	1.03
65-	18.7	25.1	0.75

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: Statistics Estonia, on-line database, last accessed 3 March 2008



4.2.2 Income inequality

Main characteristics of the simulated income distribution match data from EE-SILC data, for example Gini coefficients, and the income quintile ratio.

Comparison of simulated data and raw HBS data, it can be seen that the simulated income of the lower end of the distribution (the first decile) is about 10% larger than in data. Analysis indicates that this is due to simulated subsistence benefit. Switching off simulation of subsistence benefit and keeping the benefit recorded in the data would result the average income in the first decile 976 – almost identical to the one in the original dataset.

Table 36. EUROMOD validation: income inequality, 2005

	EUROMOD	External source (EE-SILC)	Ratio
Gini coefficient	0.323	0.331	0.98
Income quintile ratio (S80/S20)	5.21	5.5	0.95

	EUROMOD	External source (HBS)	Ratio
Average income per household member by decile*			
1	1,078	975	1.11
2	1,737	1,758	0.99
3	2,186	2,207	0.99
4	2,458	2,495	0.99
5	2,714	2,760	0.98
6	3,017	3,098	0.97
7	3,483	3,572	0.98
8	4,248	4,344	0.98
9	5,430	5,504	0.99
10	9,598	9,520	1.01
Mean income (unequalised)	3,588	3,476	1.03
Median income (unequalised)	2,786	2,827	0.99
9 th /1 st decile ratio	8.9	9.8	0.91

Notes:

*Deciles, income by deciles and mean and median income are computed for individuals according to their household disposable income (HDI) with **no** equivalence weights (i.e. weights are 1:1:1). HDI are calculated as the sum of all income sources of all household members net of income tax and social insurance contributions.

Sources: Ministry of Social Affairs. Sotsiaalvaldkonna arengud 2000-2006, Sotsiaalministeeriumi toimetised nr 2/2008, Tabel 2.1, Tabel 15; Statistics Estonia, on-line database, last accessed 3 March 2008.



4.3 Summary of “healthy warnings”

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

- The sample is relatively small. Care should be taken in interpreting results for small sub-groups.
- The weights do not control for differential non-response according to any dimension except region, age and gender.
- Direct taxes and social contributions are undersimulated, because wages and salaries are under-represented in the data. On the other hand, family benefits are simulated relatively well and also pensions are recorded in the data reasonably well. Overall it means that the model scales the benefit expenditures closer to their actual values than taxes and social contributions, which may shift the relative impact of taxes and benefits on disposable personal income.
- Non take-up of subsistence assistance benefits is not modelled by default. This leads to higher income in the bottom of the income distribution compared to original dataset. Depending on the purpose of the study one may consider switching the simulation of subsistence benefit off or applying reasonably large non take-up threshold.



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6. ANNEX 1. DERIVATION OF INCOME COMPONENTS FROM HBS DATA

Variable in EUROMOD	Description	Derivation from the HBS data
coBAC	Sickness benefit	0701 Sick pay (net of withholding income tax without allowances; gross amount imputed)
coBCC	Childcare allowance	0703 Childcare allowance
coBCH	Child benefits (total)	= coBCH00 + coBCHAB + coBCHBA + coBCHLP
coBCH00	Child allowance	0704 Child allowance (incl. school allowance)
coBCHAB	Child allowance abroad	0716 Child allowance from abroad
coBCHBA	Childbirth allowance	0712 Other state or municipal subsidy (in case the person has a child born in 2005 and the amount is ≥ 1000 EEK)
coBCHLP	Lone parent child benefit	0705 Child benefit for single parents
coBED	Scholarships and grants	601 Stipend paid by the state; 602 Stipend or grant of a foundation or organisation based in Estonia; 603 Stipend or grant of a foreign country; 604 Other grant for self-education, development of production activity
coBMA	Maternity benefits (total)	=coBMAAB + coBMACT + coBMAPR
coBMAAB	Parental benefit abroad	0717 Parental benefits from abroad
coBMACT	Parental benefit	0715 Parental benefit (net of withholding income tax with basic allowance; gross amount imputed)
coBMAPR	Maternity benefit	702 Maternity benefit (net of withholding income tax without allowances; gross amount imputed)
coBSA00	Subsistence benefit	0711 Subsistence benefit
coBSALS	Other social assistance	0712 Other state or municipal subsidy (in case the person does not have a child born in 2005 or the amount is < 1000 EEK); 0713 Financial social assistance from enterprise, church or charity
coBUN	Unemployment benefits (total)	= coBUNCT + coBUNNC + coBUNTR
coBUNCT	Unemployment insurance benefit	0706 Unemployment benefit (in case the amount is > 400 EEK) (net of withholding income tax with basic allowance, gross amount imputed)
coBUNNC	Unemployment assistance benefit	0706 Unemployment benefit (in case the amount is ≤ 400)
coBUNTR	Unemployment retraining allowance	0707 Retraining allowance for the unemployed
coPDI	Disability pension	709 Inability to work pension (net of withholding income tax and basic + pension allowance; gross amount imputed)
coPOA	Old-age pensions (total)	=coPOA00 + coPOAAB
coPOA00	Old-age pension (main)	0708 Old-age pension (net of withholding income tax and basic + pension allowance; gross amount imputed)
coPOAAB	Old-age pension abroad	0714 Pension from a foreign country
coPSU	Survivors' pension	0710 Survivor's pension (net of withholding income tax and basic + pension allowance; gross amount imputed)



coYEM	Employment income	<p>HBS: Income from employment. This includes 13th /14th monthly salaries as well as other employment incomes such as bonuses, extra holiday pay, sick pay, occasional, etc. The income from employment constitutes from wage, advanced payments, and premiums, both from the main and additional position, if there is any.</p> <p>0101 Compensation for labour (salary, advance, premium) from the main job; 0102 Compensation for labour (salary, advance, premium) from second job; 0103 Holiday pay; 0104 Unused amount of business trip allowance.</p> <p>Net of withholding income tax with basic allowance, unemployment and pension insurance contributions (the 2nd pillar); gross amount imputed.</p>
coYIY	Investment income	0503 Income from interests on deposit; 0504 Income from shares interests
coYPRRO	Royalties	0507 Income from intellectual property (copyright etc) (net of withholding income tax without any allowances, gross amount imputed)
coYPRRT	Rental income	0502 Real estate rent; 0514 Income from land rent
coYPTMPNT	Voluntary maintenance payments	802 Voluntary allowance paid by separated/divorced spouse to the child; 804 Voluntary allowance paid by separated/divorced spouse; 805 Allowance from private person; 922 Granted money
coYPTMPTX	Alimony	0801 Alimony for the child adjudged by the court; 0803 Maintenance allowance paid to the spouse (alimony) (net of withholding income tax with basic allowance; gross amount imputed)
coYSE	Self-employment income (total)	=coYSEAG + coYSEBS
coYSEAG	Self-employment income from agriculture	<p>Income from self-employment, agricultural activities:</p> <p>0301 Sale of garden products (berries, vegetables, etc.); 0302 Sale of agricultural produce (potatoes, grain, etc.); 0303 Sale of livestock and poultry; 0304 Sale of produce of animal husbandry, poultry breeding and sale of fish; 0305 Sale of agricultural products; 0306 Sale of timber (firewood, building materials, etc.); 0307 Other income (e.g. sale of berries, mushrooms); 0309 Agricultural support from EU; 0310 Agricultural support from Estonia</p> <p>Related expenses (total at the hh level) - 161xxxx, 162xxxx, 1644xxx - are deducted for the person with self-employed status (i.e. b25=3) and with the highest income from self-employment in the household (or lowest person ID if several).</p>
coYSEBS	Self-employment income from non-agriculture	<p>HBS: Income from self-employment, except agricultural activities:</p> <p>0201 Royalty, contract fee; 0202 Income from registered self-employment; 0203 Rendering of paid private services to other persons; 0204 Income from own-produced consumer goods; 0205 Income from own-produced articles of food; 0206 Non-agricultural support from EU; 0207 Non-agricultural support from Estonia; 0401 Intermediate sale of food products; 0402 Intermediate sale of consumer goods; 0403 Income from the mediation of services; 0404 Income from financial intermediation; 0405 Other income from commercial activity</p> <p>Related expenses (total at the hh level) - 171xxxx, 172xxxx, 1744xxx - are deducted for the person with self-employed status (i.e. b25=3) and with the highest income from self-employment in the household (or lowest person ID if several).</p>