EUROMOD: the EU-wide fiscal microsimulation model

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Microsimulation

- Microsimulation is a general term for modelling the behaviour and interactions of micro units (persons, households, firms etc)
- Microsimulation model is a set of rules operating on a representative sample of micro units
- Given the available information, microsimulation allows one to build a system that imitates the reality
- Microsimulation models provide customised data for analysis
- Many possible types of issue and micro-unit:
  - traffic flows, water supply...
- Here, focus on income and households (persons)

Tax-benefit models

- Deal with household income, (re-)calculating income components, i.e. taxes and benefits
- To analyse the effects of tax-benefit reforms on income, welfare and behaviour of individuals
- Typical outcome of a (static) MSM:
  - budgetary effects
  - income distributions (poverty and inequality indicators)
  - gainers and losers
  - indicators of work incentives (RRs, METRs) and budget constraints
- Tax-benefit calculations underlie most dynamic or behavioural microsimulation models
  - e.g. generate budget constraints for labour supply (or other behavioural) modelling

Microdata versus family type calculations

- Microsimulation models generally are based on sample surveys, which provide detailed information about individual and family characteristics, labor force status, housing status, earnings.
  - It is also common to analyze tax-benefit effects using a range of representative households (e.g. OECD Model family calculations)
  - Atkinson and Sutherland (1983) found that some 4% of actual families were covered by the hypothetical family model used by the Department of Health and Social Security
  - This concern is even more relevant for some of the theoretical simulation models used to investigate the effects of government policy in a complex intertemporal setting.

Added value to survey/register microdata

- Information which is otherwise not (publicly) available
  - e.g. tax deductions, benefit eligibility, net/gross values
- Indicators which only exist as output from a MSM
  - e.g. METRs, RRs, budget constraint charts, child contingent payments, net social benefits
- More up-to-date results (as data collection and release takes time)
- Results under alternative scenarios/assumptions
  - policy changes (reforms or illustrative changes)
  - changes in personal/household characteristics

EUROMOD – a model

- Multi-country tax-benefit MSM for the EU countries: unique
- It was built because of difficulties in making national model calculations comparable
- National models exist in many of the countries covered
- A tool for comparative multi-country research and policy analysis: consistent results

Introduction

- Typical features but unique for its multi-country dimension:
  - designed for comparative analysis of the effects of policies on household income
  - harmonised data and simulations
  - achieved through maximising user choice and model flexibility
  - Tax-benefit modelling language: universal
  - Library of policies

- Consistent results across countries allow:
  - Comparative analysis
  - EU-level outputs
  - Implications of common changes or changes with common objectives
  - Policy learning across countries

Policies simulated in EUROMOD

- Income taxes
- Employee, self-employed and employer Social Insurance Contributions
- Benefits that depend on current income and observed characteristics
- Plus unemployment benefits, with assumptions
- Remaining benefits (e.g. contributory pensions, disability benefits) taken from input data and updated to policy year where necessary
- (Selected countries): Indirect taxes, non cash incomes (imputed rent, public education, public health and child care services)
- Benefit non take-up and tax evasion are considered in some countries

What can EUROMOD do?

- Simulate previous, current, future and “potential” tax-benefit rules
  - Distributive analysis
  - Budgetary effects
  - Indicators of work incentives
- Complex policy reforms (e.g. revenue-neutral)
- Policy swapping
- Counterfactual (“what if”) scenarios (e.g. stress test)
- EU-wide policy reforms
- Legal taxes/benefits: estimate evasion and non-take-up

EUROMOD – a software platform

- A programming language specific to (static) tax-benefit calculations
- ... yet generic to accommodate different countries
- Again, unique
- Typically much more flexible than national models
  - Flexibility vs complexity
- A framework for building new country models: a short cut
  - Library of tax-benefit routines (i.e. a combination of EM functions)
  - South-Africa, Serbia, Australia (+ Turkey, Russia)

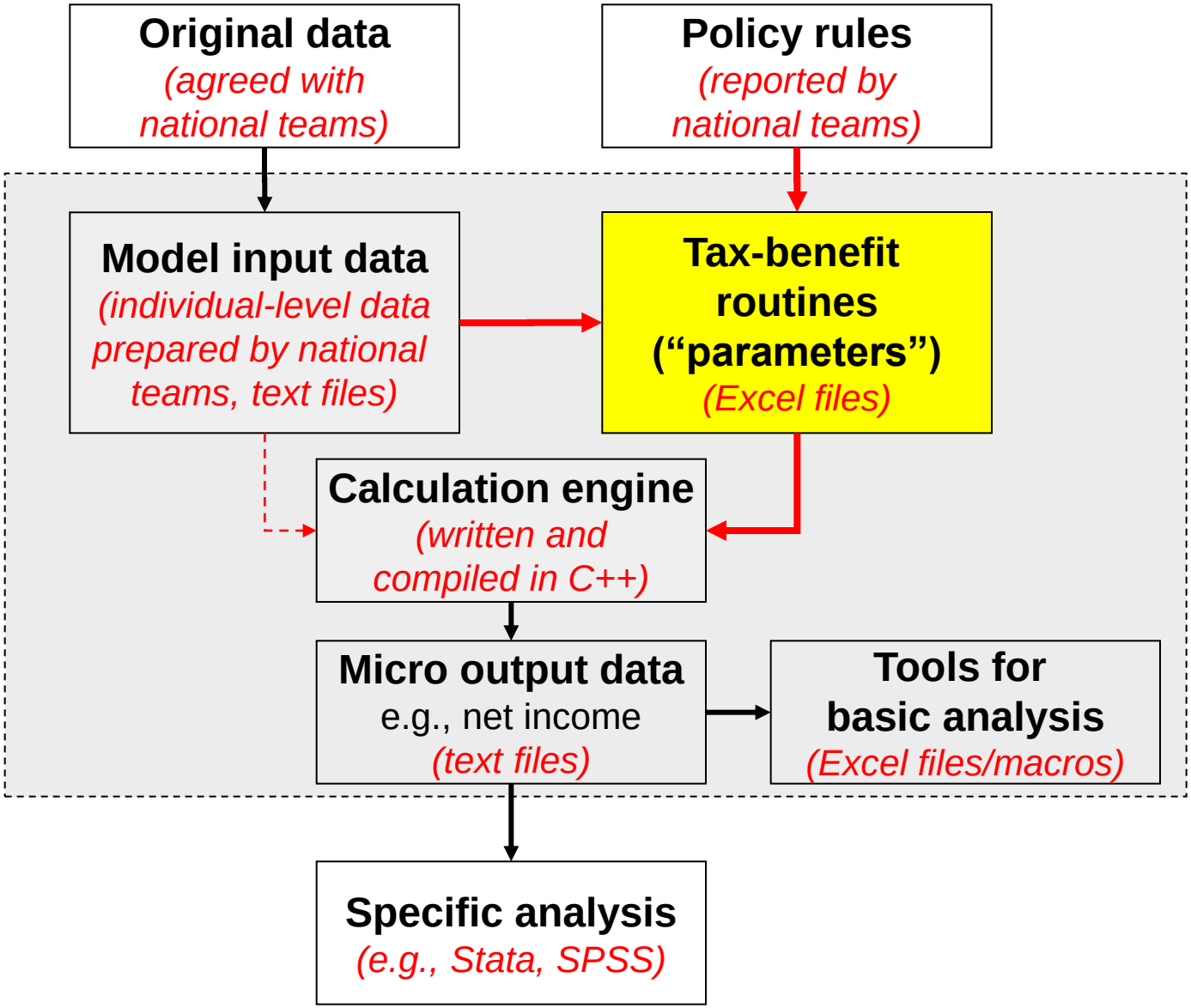
EUROMOD: work in progress

- Continuously being developed and improved
- EUROMOD*update* (2009-2012, 2012-2014) project:
  - funded by DG-EMPL
  - extend EUROMOD to EU27
  - re-base using (mainly) the EU-SILC (up to SILC 2010)
  - update policies to a very recent policy year (2005-2011)
  - establish a regular (annual) programme of updating (data and policies)
  - relies on a network of national experts in each country + core team of developers (researchers), led by U of Essex

What is special about EUROMOD?

- Many countries in a common framework
- Highly flexible and transparent
  - Comparability
  - Easy to simulate major structural reforms
  - Short cut to model building (non-EU)
- Core EUROMOD: effects of policy changes on income (+ effects of other changes on impact of policy)
  - First round budgetary, distributional and incentive effects
  - Cross country comparisons, EU-level analysis, “policy swaps”
- Up to the model user to (e.g.)
  - Link to labour supply (or other behavioural) or macro models
  - Extend policy scope (input data issues)
  - Re-weight or adjust data in other ways
  - Make adjustments for non take up or tax evasion
  - Build proper extensions and linkages (EM “talks” to Stata)

EUROMOD structure



EUROMOD input database

- Input databases contain information on
  - household demographic
  - labour market characteristics
  - gross market income
  - all available tax and benefit instruments
    - those not simulated by EUROMOD (e.g. pensions) due to lack of information (e.g. on work histories)
    - those also simulated by EUROMOD – for comparison if needed
  - grossing weights
- Observations at the individual level

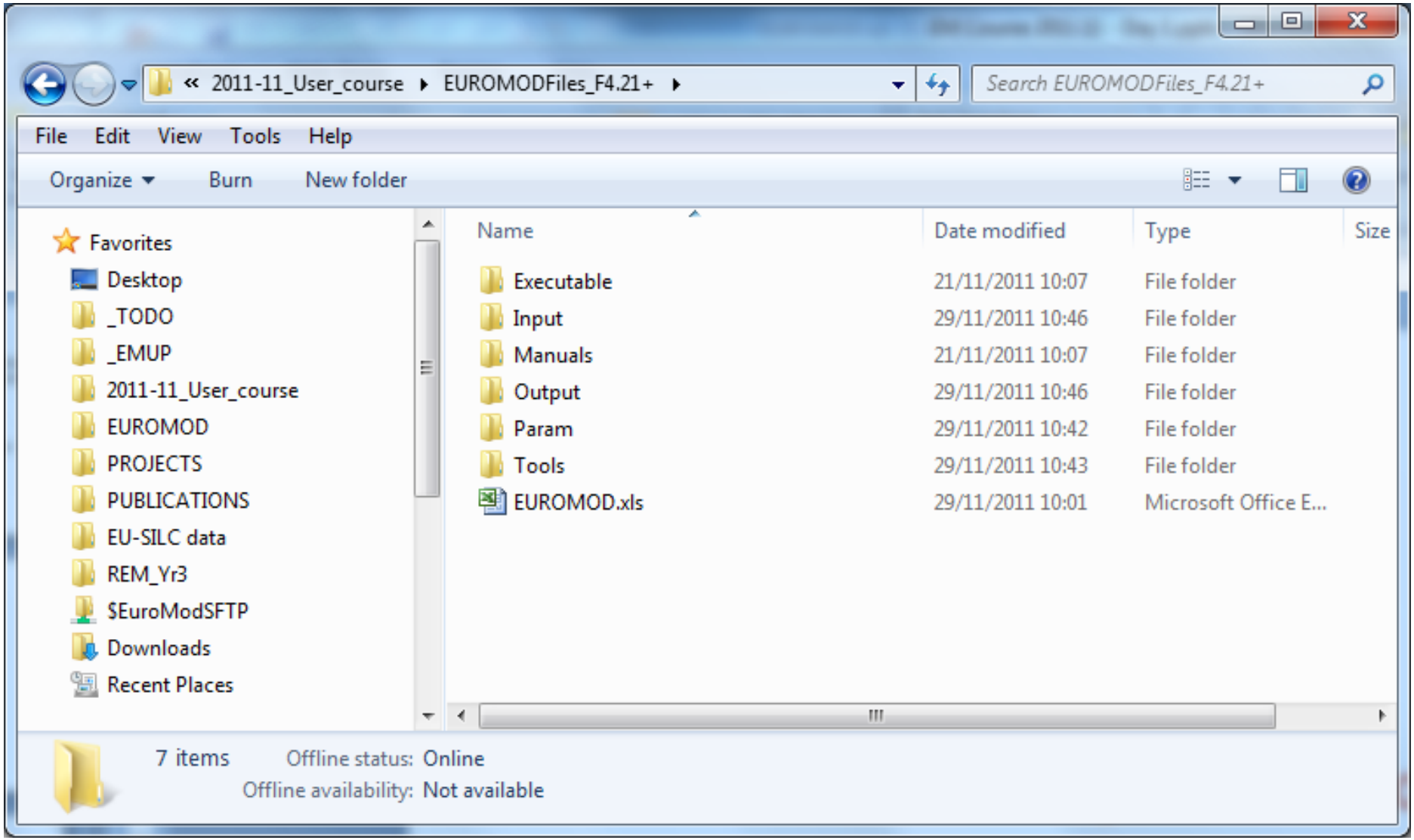
Tax-benefit routines ("parameters")

- Stored in Excel
- One file for each country (e.g. Belgium.xls)
  - All policy years for that country
  - General settings: available input datasets, currency etc
  - Dataset adjustments (e.g. uprating of monetary variables)
  - Order of policy simulations ("policy spine")
  - All policy details:
    - Definition of assessment units ("tax units")
    - Definition of income concepts ("income lists")
    - Rules of calculations (using EUROMOD functions) etc
  - Output definition
- One common file (variables.xls) for variable definitions

EUROMOD

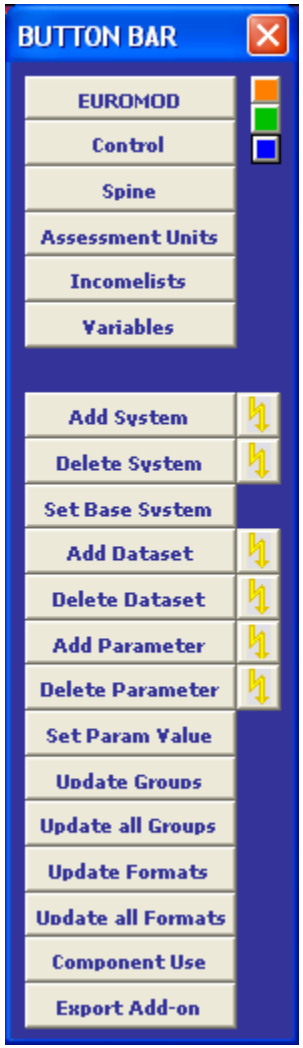
Live presentation

EUROMOD folders/files



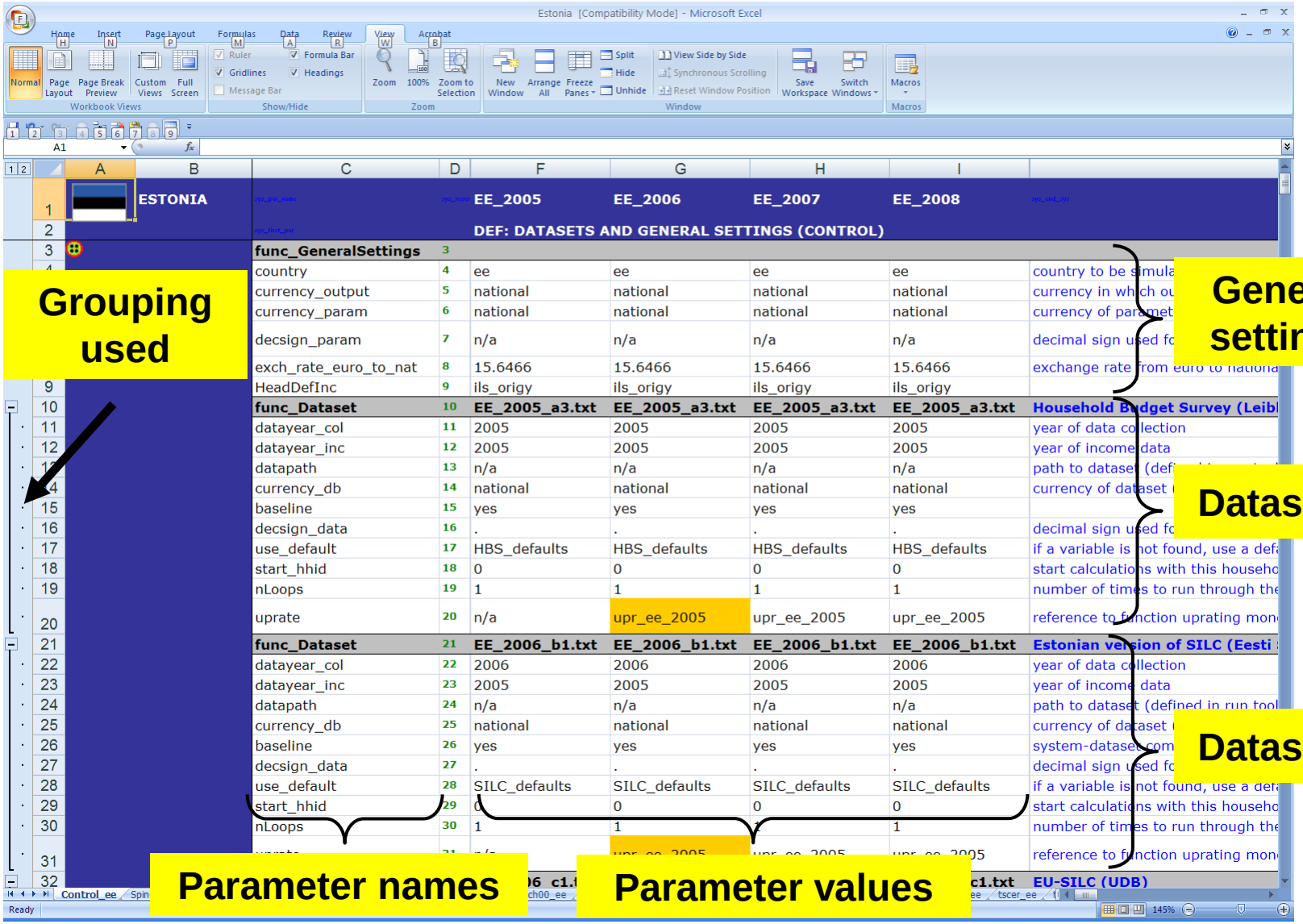
Operating system

EUROMOD button bar



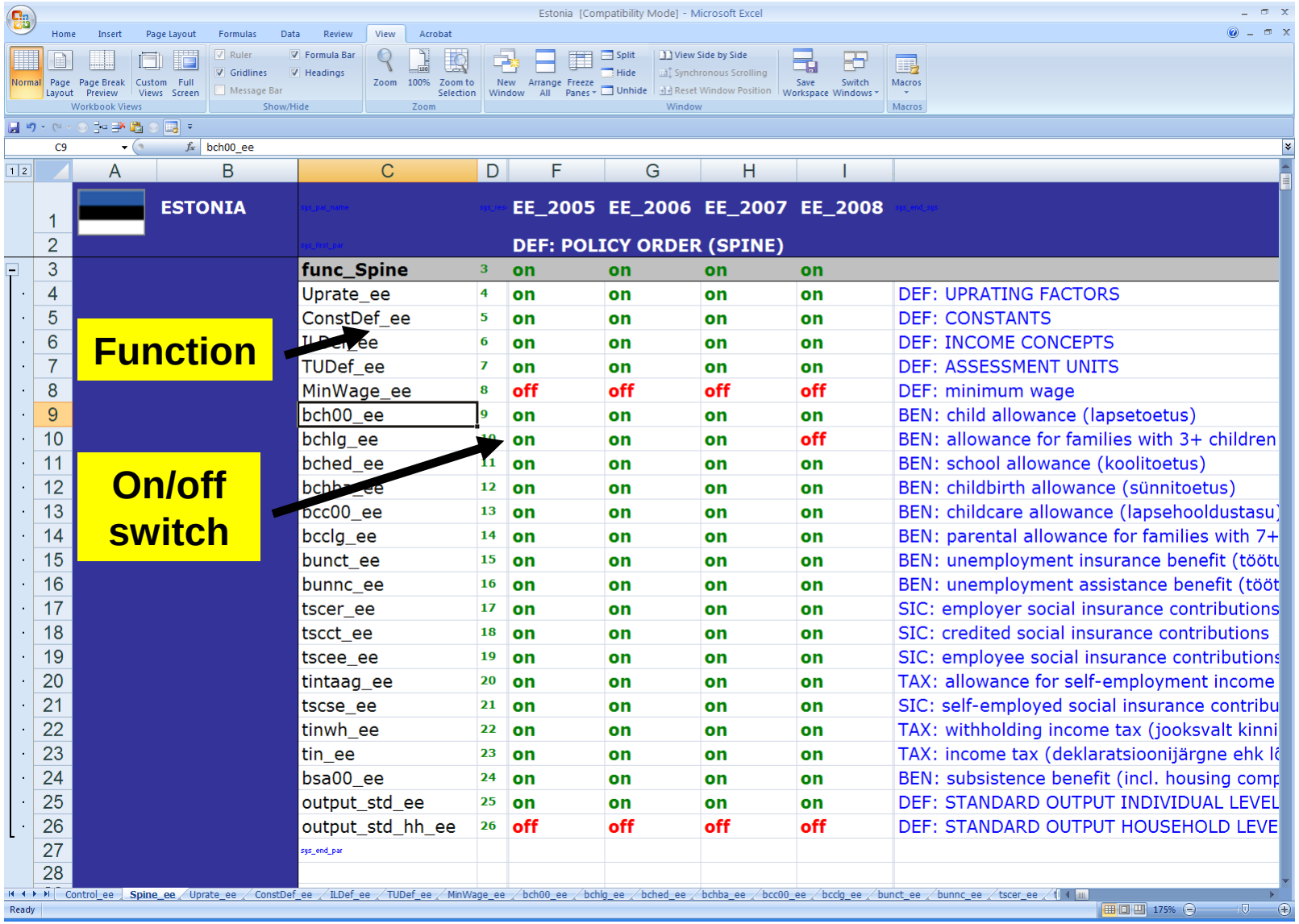
- Navigation buttons: they serve easier navigation, i.e. allow to jump to the named sheet
- Implementation buttons: they provide all functionalities necessary for implementing (basic or reform) tax-benefit systems, like adding and adapting of systems, policies, datasets, functions and parameters
  - Frequently accompanied by the flash buttons which serve the same purpose as the button right of them, they just do it "quickly".
- Other buttons: with miscellaneous tasks, e.g. formatting or providing convenient information or views.

Control



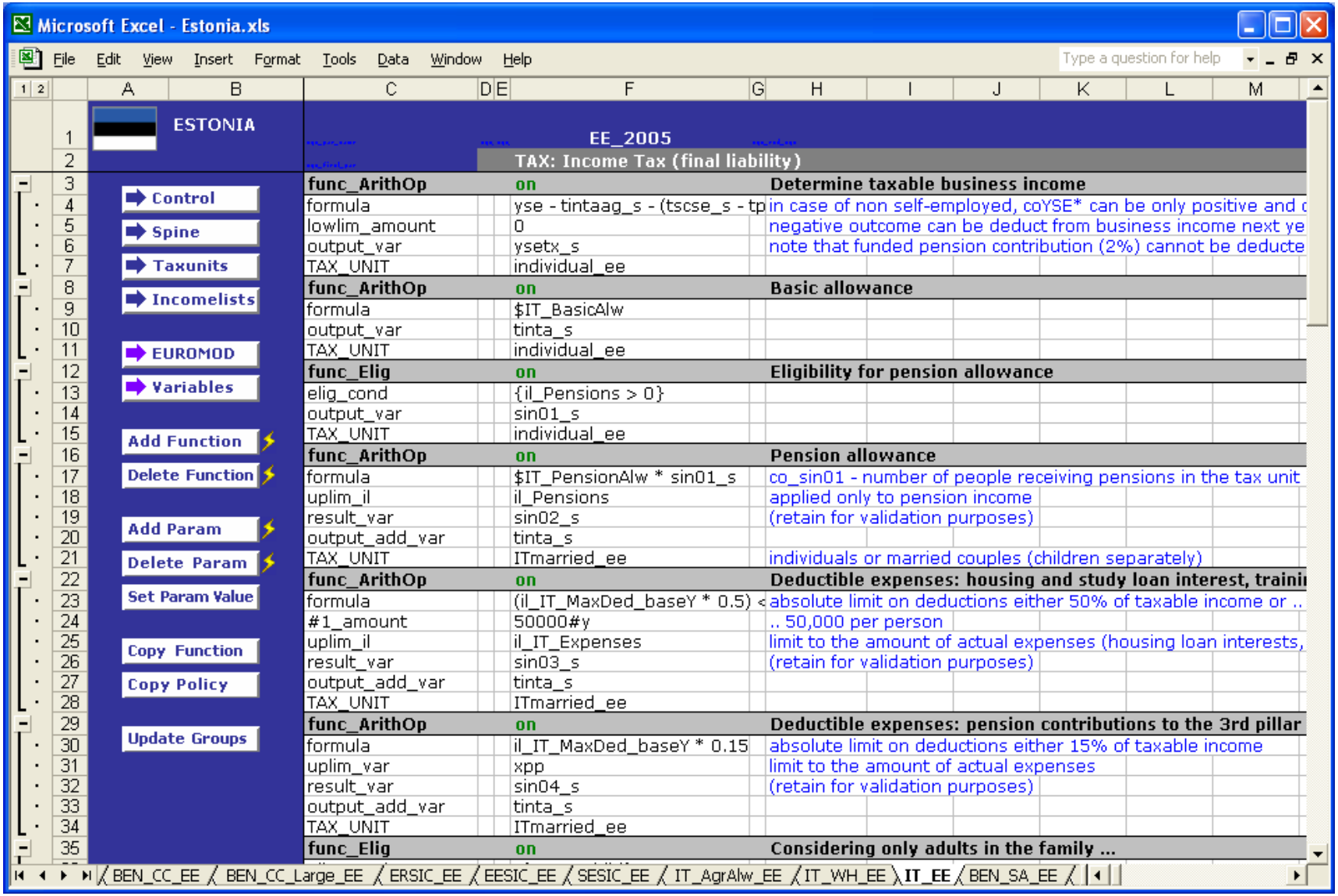
	A	B	C	D	F	G	H	I	
1		ESTONIA			EE_2005	EE_2006	EE_2007	EE_2008	
2					DEF: DATASETS AND GENERAL SETTINGS (CONTROL)				
3			func_GeneralSettings	3					
			country	4	ee	ee	ee	ee	country to be simula
			currency_output	5	national	national	national	national	currency in which ou
			currency_param	6	national	national	national	national	currency of paramet
			decsign_param	7	n/a	n/a	n/a	n/a	decimal sign used fo
			exch_rate_euro_to_nat	8	15.6466	15.6466	15.6466	15.6466	exchange rate from euro to nationa
9			HeadDefInc	9	ils_origy	ils_origy	ils_origy	ils_origy	
10			func_Dataset	10	EE_2005_a3.txt	EE_2005_a3.txt	EE_2005_a3.txt	EE_2005_a3.txt	Household Budget Survey (Leib
11			datayear_col	11	2005	2005	2005	2005	year of data collection
12			datayear_inc	12	2005	2005	2005	2005	year of income data
13			datapath	13	n/a	n/a	n/a	n/a	path to dataset (def
14			currency_db	14	national	national	national	national	currency of dataset
15			baseline	15	yes	yes	yes	yes	
16			decsign_data	16	.	.	.	.	decimal sign used fo
17			use_default	17	HBS_defaults	HBS_defaults	HBS_defaults	HBS_defaults	if a variable is not found, use a def
18			start_hhid	18	0	0	0	0	start calculations with this househo
19			nLoops	19	1	1	1	1	number of times to run through the
20			uprate	20	n/a	upr_ee_2005	upr_ee_2005	upr_ee_2005	reference to function uprating mon
21			func_Dataset	21	EE_2006_b1.txt	EE_2006_b1.txt	EE_2006_b1.txt	EE_2006_b1.txt	Estonian version of SILC (Eesti
22			datayear_col	22	2006	2006	2006	2006	year of data collection
23			datayear_inc	23	2005	2005	2005	2005	year of income data
24			datapath	24	n/a	n/a	n/a	n/a	path to dataset (defined in run tool
25			currency_db	25	national	national	national	national	currency of dataset
26			baseline	26	yes	yes	yes	yes	system-dataset com
27			decsign_data	27	.	.	.	.	decimal sign used fo
28			use_default	28	SILC_defaults	SILC_defaults	SILC_defaults	SILC_defaults	if a variable is not found, use a def
29			start_hhid	29	0	0	0	0	start calculations with this househo
30			nLoops	30	1	1	1	1	number of times to run through the
31			uprate	31	n/a	upr_ee_2005	upr_ee_2005	upr_ee_2005	reference to function uprating mon
32								c1.txt	EU-SILC (UDB)

Policy spine

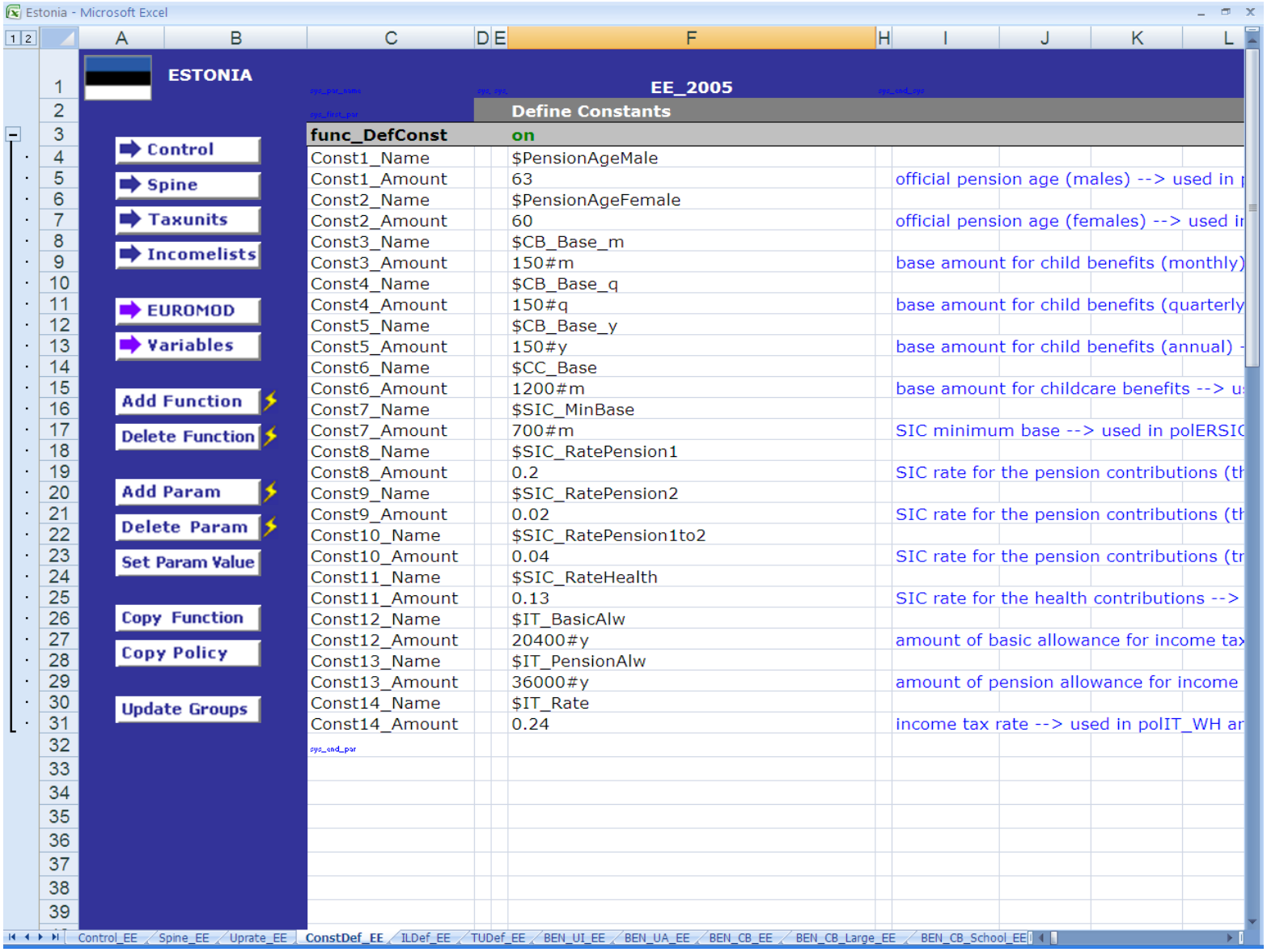


	A	B	C	D	F	G	H	I	
1		ESTONIA			EE_2005	EE_2006	EE_2007	EE_2008	
2					DEF: POLICY ORDER (SPINE)				
3			func_Spine	3	on	on	on	on	
4			Uprate_ee	4	on	on	on	on	DEF: UPRATING FACTORS
5			ConstDef_ee	5	on	on	on	on	DEF: CONSTANTS
6			ILDef_ee	6	on	on	on	on	DEF: INCOME CONCEPTS
7			TUDef_ee	7	on	on	on	on	DEF: ASSESSMENT UNITS
8			MinWage_ee	8	off	off	off	off	DEF: minimum wage
9			bch00_ee	9	on	on	on	on	BEN: child allowance (lapsetoetus)
10			bchlg_ee	10	on	on	on	off	BEN: allowance for families with 3+ children
11			bched_ee	11	on	on	on	on	BEN: school allowance (koolitoetus)
12			bchba_ee	12	on	on	on	on	BEN: childbirth allowance (sünnitoetus)
13			bcc00_ee	13	on	on	on	on	BEN: childcare allowance (lapsehooldustasu)
14			bcclg_ee	14	on	on	on	on	BEN: parental allowance for families with 7+
15			bunct_ee	15	on	on	on	on	BEN: unemployment insurance benefit (töötu
16			bunnc_ee	16	on	on	on	on	BEN: unemployment assistance benefit (tööt
17			tscer_ee	17	on	on	on	on	SIC: employer social insurance contributions
18			tscct_ee	18	on	on	on	on	SIC: credited social insurance contributions
19			tscee_ee	19	on	on	on	on	SIC: employee social insurance contributions
20			tintaag_ee	20	on	on	on	on	TAX: allowance for self-employment income
21			tscse_ee	21	on	on	on	on	SIC: self-employed social insurance contribu
22			tinwh_ee	22	on	on	on	on	TAX: withholding income tax (jooksvalt kinni
23			tin_ee	23	on	on	on	on	TAX: income tax (deklaratsioonijärgne ehk lõ
24			bsa00_ee	24	on	on	on	on	BEN: subsistence benefit (incl. housing comp
25			output_std_ee	25	on	on	on	on	DEF: STANDARD OUTPUT INDIVIDUAL LEVEL
26			output_std_hh_ee	26	off	off	off	off	DEF: STANDARD OUTPUT HOUSEHOLD LEVE
27			sys_end_par						
28									

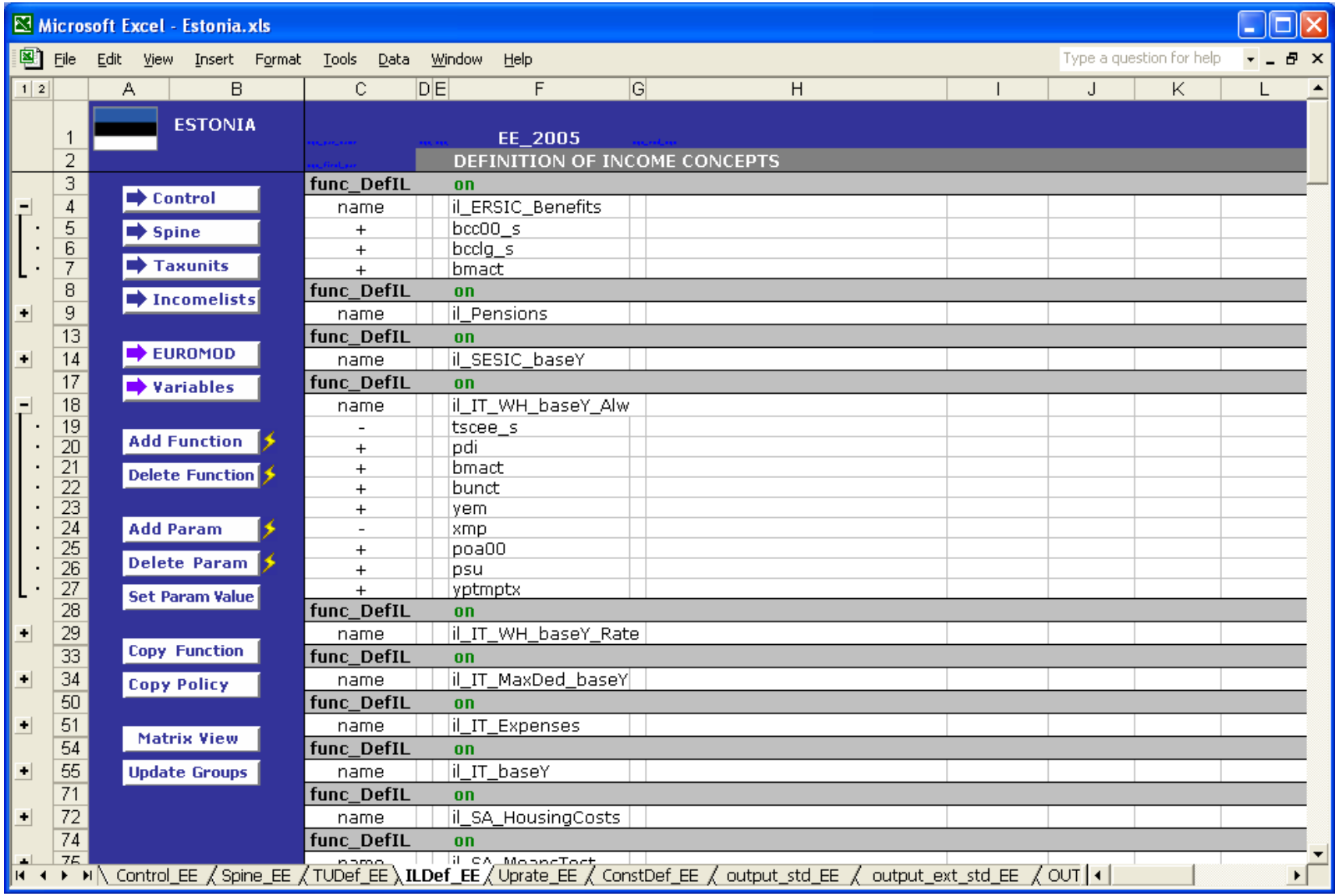
Policies


Microsoft Excel - Estonia.xls
File Edit View Insert Format Tools Data Window Help
Type a question for help
ESTONIA
EE_2005
TAX: Income Tax (final liability)
Control
Spine
Taxunits
Incomelists
EUROMOD
Variables
Add Function
Delete Function
Add Param
Delete Param
Set Param Value
Copy Function
Copy Policy
Update Groups
func_ArithOp on Determine taxable business income
formula yse - tintaag_s - (tscse_s - tp in case of non self-employed, coYSE* can be only positive and
lowlim_amount 0 negative outcome can be deduct from business income next ye
output_var ysetx_s note that funded pension contribution (2%) cannot be deducte
TAX_UNIT individual_ee
func_ArithOp on Basic allowance
formula $IT_BasicAlw
output_var tinta_s
TAX_UNIT individual_ee
func_Elig on Eligibility for pension allowance
elig_cond {il_Pensions > 0}
output_var sin01_s
TAX_UNIT individual_ee
func_ArithOp on Pension allowance
formula $IT_PensionAlw * sin01_s co_sin01 - number of people receiving pensions in the tax unit
uplim_il il_Pensions applied only to pension income
result_var sin02_s (retain for validation purposes)
output_add_var tinta_s
TAX_UNIT ITmarried_ee individuals or married couples (children separately)
func_ArithOp on Deductible expenses: housing and study loan interest, traini
formula (il_IT_MaxDed_baseY * 0.5) < absolute limit on deductions either 50% of taxable income or ..
#1_amount 50000#y .. 50,000 per person
uplim_il il_IT_Expenses limit to the amount of actual expenses (housing loan interests,
result_var sin03_s (retain for validation purposes)
output_add_var tinta_s
TAX_UNIT ITmarried_ee
func_ArithOp on Deductible expenses: pension contributions to the 3rd pillar
formula il_IT_MaxDed_baseY * 0.15 absolute limit on deductions either 15% of taxable income
uplim_var xpp limit to the amount of actual expenses
result_var sin04_s (retain for validation purposes)
output_add_var tinta_s
TAX_UNIT ITmarried_ee
func_Elig on Considering only adults in the family ...
BEN_CC_EE BEN_CC_Large_EE ERSIC_EE EESIC_EE SESIC_EE IT_AgrAlw_EE IT_WH_EE IT_EE BEN_SA_EE

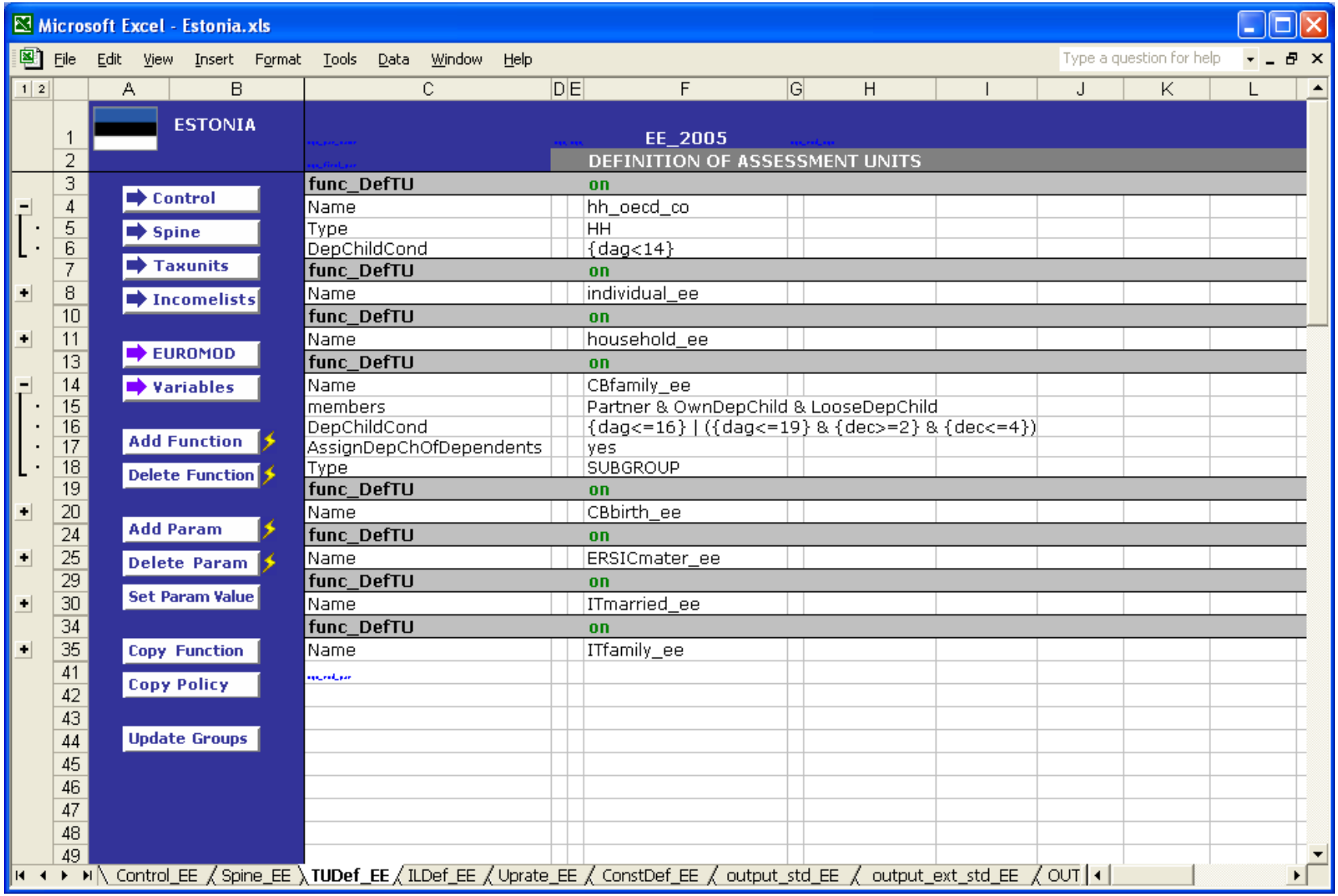
Constants


Estonia - Microsoft Excel
ESTONIA
EE_2005
Define Constants
func_DefConst
on
Control
Spine
Taxunits
Incomelists
EUROMOD
Variables
Add Function
Delete Function
Add Param
Delete Param
Set Param Value
Copy Function
Copy Policy
Update Groups
Const1_Name $PensionAgeMale
Const1_Amount 63 official pension age (males) --> used in
Const2_Name $PensionAgeFemale
Const2_Amount 60 official pension age (females) --> used i
Const3_Name $CB_Base_m
Const3_Amount 150#m base amount for child benefits (monthly)
Const4_Name $CB_Base_q
Const4_Amount 150#q base amount for child benefits (quarterly
Const5_Name $CB_Base_y
Const5_Amount 150#y base amount for child benefits (annual)
Const6_Name $CC_Base
Const6_Amount 1200#m base amount for childcare benefits --> u
Const7_Name $SIC_MinBase
Const7_Amount 700#m SIC minimum base --> used in polERSIC
Const8_Name $SIC_RatePension1
Const8_Amount 0.2 SIC rate for the pension contributions (th
Const9_Name $SIC_RatePension2
Const9_Amount 0.02 SIC rate for the pension contributions (th
Const10_Name $SIC_RatePension1to2
Const10_Amount 0.04 SIC rate for the pension contributions (tr
Const11_Name $SIC_RateHealth
Const11_Amount 0.13 SIC rate for the health contributions -->
Const12_Name $IT_BasicAlw
Const12_Amount 20400#y amount of basic allowance for income tax
Const13_Name $IT_PensionAlw
Const13_Amount 36000#y amount of pension allowance for income
Const14_Name $IT_Rate
Const14_Amount 0.24 income tax rate --> used in polIT_WH ar
Control_EE
Spine_EE
Uprate_EE
ConstDef_EE
ILDef_EE
TUDef_EE
BEN_UI_EE
BEN_UA_EE
BEN_CB_EE
BEN_CB_Large_EE
BEN_CB_School_EE

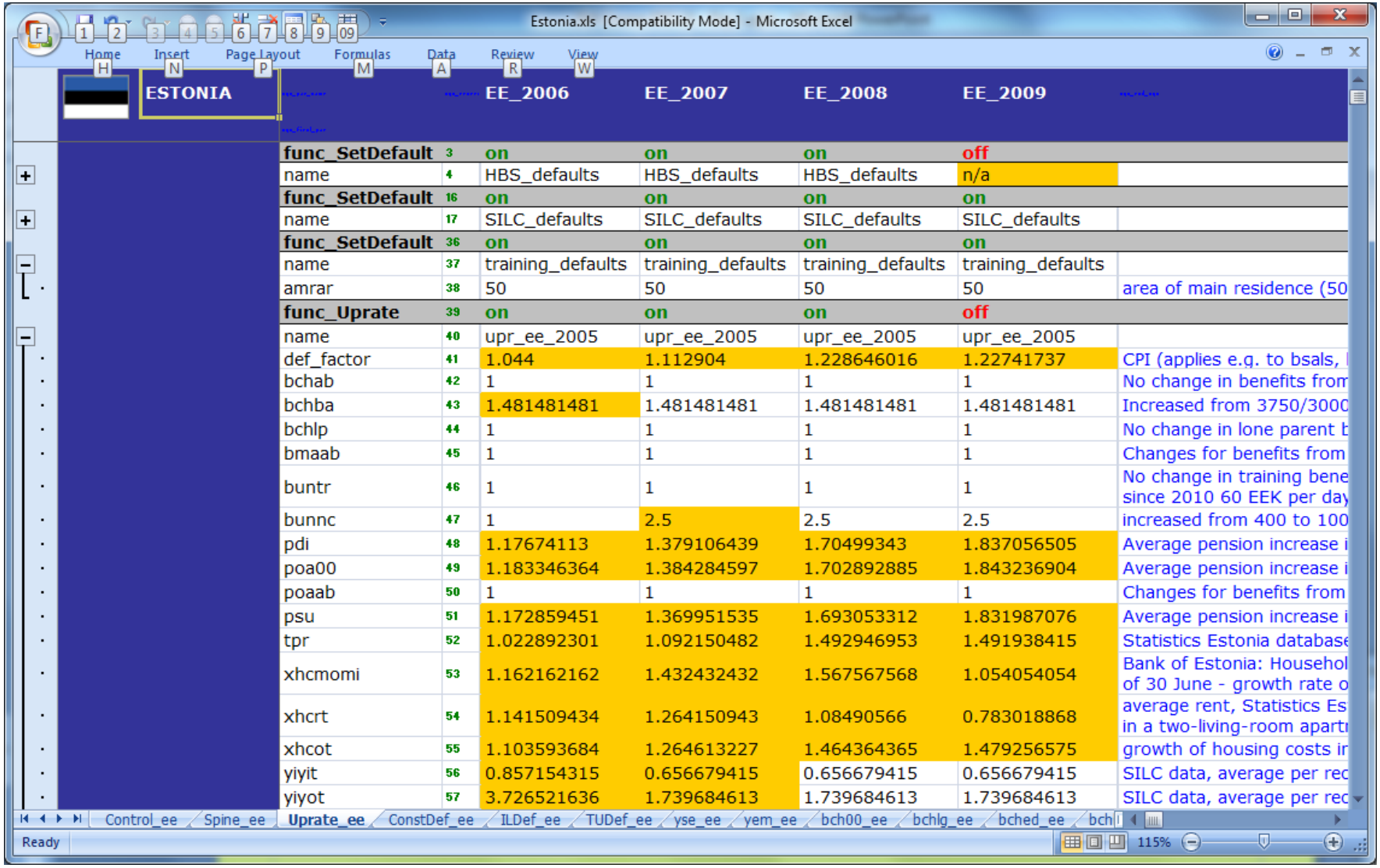
Income lists



Assessment (tax) units



Uprating factors



Estonia.xls [Compatibility Mode] - Microsoft Excel

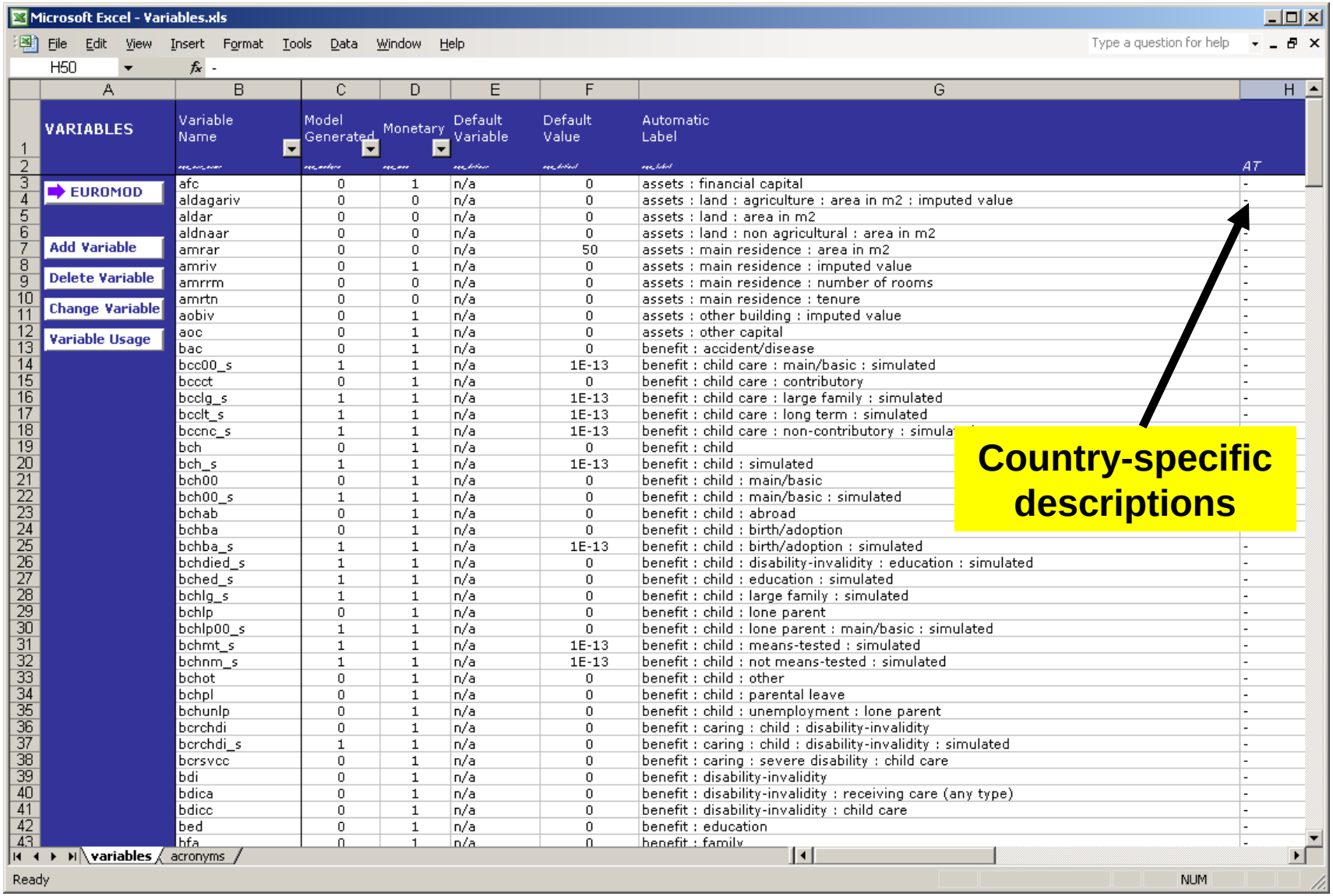
Home Insert Page Layout Formulas Data Review View

ESTONIA		EE_2006	EE_2007	EE_2008	EE_2009	
func_SetDefault	3	on	on	on	off	
name	4	HBS_defaults	HBS_defaults	HBS_defaults	n/a	
func_SetDefault	16	on	on	on	on	
name	17	SILC_defaults	SILC_defaults	SILC_defaults	SILC_defaults	
func_SetDefault	36	on	on	on	on	
name	37	training_defaults	training_defaults	training_defaults	training_defaults	
amrar	38	50	50	50	50	area of main residence (50
func_Uprate	39	on	on	on	off	
name	40	upr_ee_2005	upr_ee_2005	upr_ee_2005	upr_ee_2005	
def_factor	41	1.044	1.112904	1.228646016	1.22741737	CPI (applies e.g. to bsals,
bchab	42	1	1	1	1	No change in benefits from
bchba	43	1.481481481	1.481481481	1.481481481	1.481481481	Increased from 3750/3000
bchlp	44	1	1	1	1	No change in lone parent b
bmaab	45	1	1	1	1	Changes for benefits from
buntr	46	1	1	1	1	No change in training bene since 2010 60 EEK per day
bunnc	47	1	2.5	2.5	2.5	increased from 400 to 100
pdi	48	1.17674113	1.379106439	1.70499343	1.837056505	Average pension increase i
poa00	49	1.183346364	1.384284597	1.702892885	1.843236904	Average pension increase i
poaab	50	1	1	1	1	Changes for benefits from
psu	51	1.172859451	1.369951535	1.693053312	1.831987076	Average pension increase i
tpr	52	1.022892301	1.092150482	1.492946953	1.491938415	Statistics Estonia database
xhcmomi	53	1.162162162	1.432432432	1.567567568	1.054054054	Bank of Estonia: Household of 30 June - growth rate o
xhcrt	54	1.141509434	1.264150943	1.08490566	0.783018868	average rent, Statistics Es in a two-living-room apartr
xhcot	55	1.103593684	1.264613227	1.464364365	1.479256575	growth of housing costs ir
yiyit	56	0.857154315	0.656679415	0.656679415	0.656679415	SILC data, average per rec
yiyot	57	3.726521636	1.739684613	1.739684613	1.739684613	SILC data, average per rec

Control_ee Spine_ee Uprate_ee ConstDef_ee ILDef_ee TUDef_ee yse_ee yem_ee bch00_ee bchlg_ee bched_ee bch

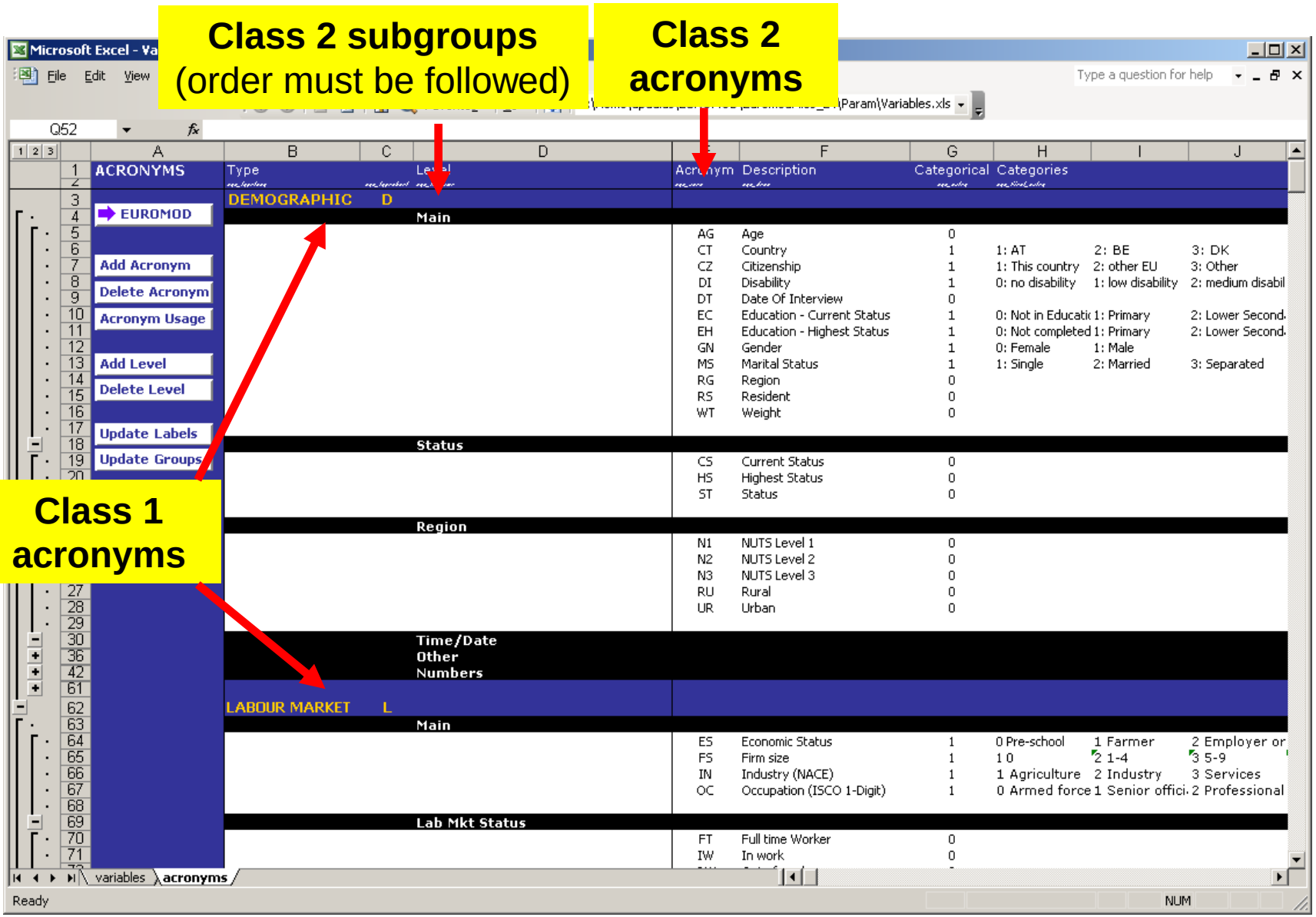
Ready 115%

Variable definitions

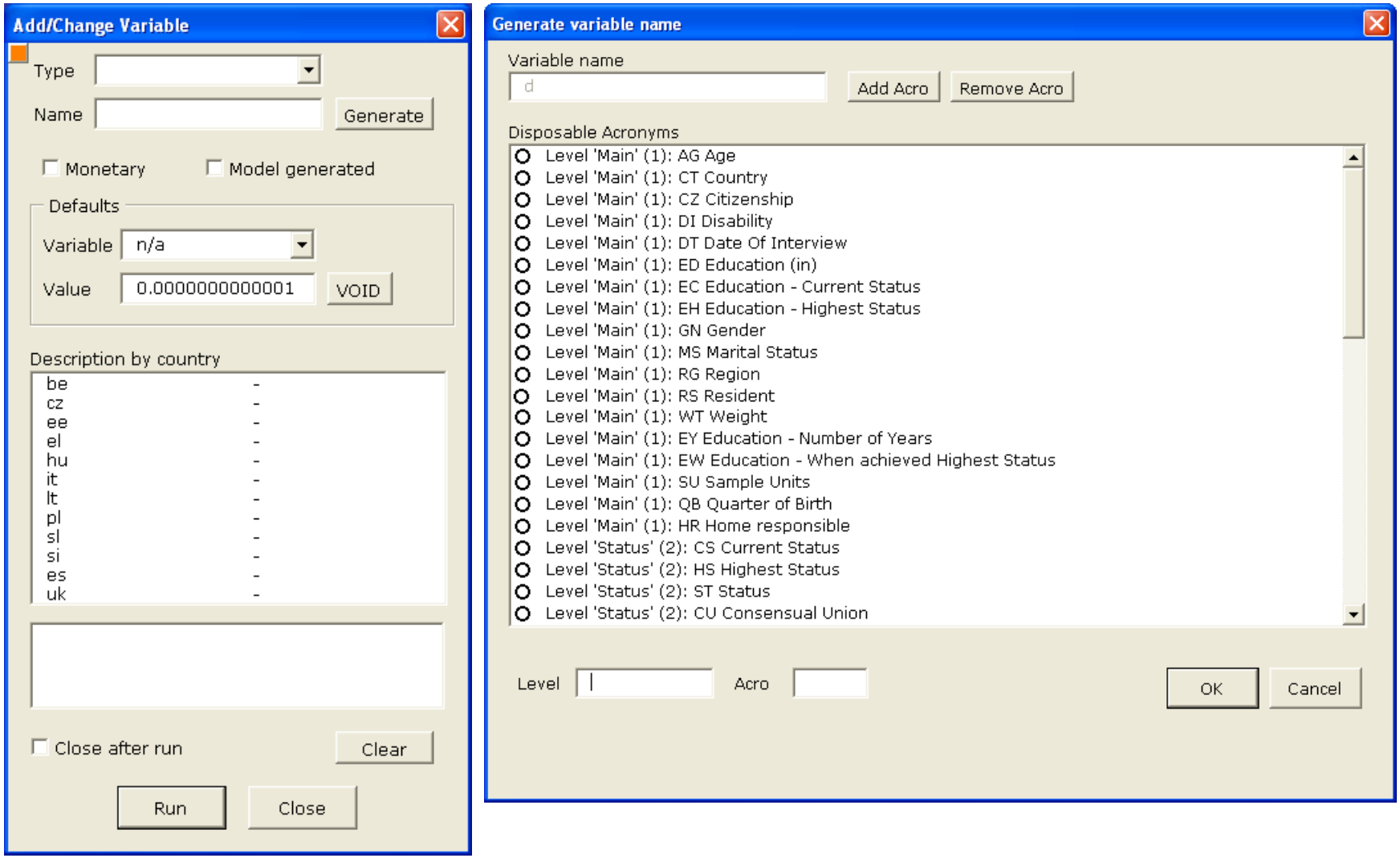


	A	B	C	D	E	F	G	H
1	VARIABLES	Variable Name	Model Generated	Monetary	Default Variable	Default Value	Automatic Label	
2								AT
3		afc	0	1	n/a	0	assets : financial capital	-
4		aldagariv	0	0	n/a	0	assets : land : agriculture : area in m2 : imputed value	-
5		aldar	0	0	n/a	0	assets : land : area in m2	-
6		aldnaar	0	0	n/a	0	assets : land : non agricultural : area in m2	-
7		amrar	0	0	n/a	50	assets : main residence : area in m2	-
8		amriv	0	1	n/a	0	assets : main residence : imputed value	-
9		amrrm	0	0	n/a	0	assets : main residence : number of rooms	-
10		amrtn	0	0	n/a	0	assets : main residence : tenure	-
11		aobiv	0	1	n/a	0	assets : other building : imputed value	-
12		aoc	0	1	n/a	0	assets : other capital	-
13		bac	0	1	n/a	0	benefit : accident/disease	-
14		bcc00_s	1	1	n/a	1E-13	benefit : child care : main/basic : simulated	-
15		bccct	0	1	n/a	0	benefit : child care : contributory	-
16		bcclg_s	1	1	n/a	1E-13	benefit : child care : large family : simulated	-
17		bcclt_s	1	1	n/a	1E-13	benefit : child care : long term : simulated	-
18		bccnc_s	1	1	n/a	1E-13	benefit : child care : non-contributory : simula	-
19		bch	0	1	n/a	0	benefit : child	-
20		bch_s	1	1	n/a	1E-13	benefit : child : simulated	-
21		bch00	0	1	n/a	0	benefit : child : main/basic	-
22		bch00_s	1	1	n/a	0	benefit : child : main/basic : simulated	-
23		bchab	0	1	n/a	0	benefit : child : abroad	-
24		bchba	0	1	n/a	0	benefit : child : birth/adoption	-
25		bchba_s	1	1	n/a	1E-13	benefit : child : birth/adoption : simulated	-
26		bchdied_s	1	1	n/a	0	benefit : child : disability-invalidity : education : simulated	-
27		bched_s	1	1	n/a	0	benefit : child : education : simulated	-
28		bchlg_s	1	1	n/a	0	benefit : child : large family : simulated	-
29		bchlp	0	1	n/a	0	benefit : child : lone parent	-
30		bchlp00_s	1	1	n/a	0	benefit : child : lone parent : main/basic : simulated	-
31		bchmt_s	1	1	n/a	1E-13	benefit : child : means-tested : simulated	-
32		bchnm_s	1	1	n/a	1E-13	benefit : child : not means-tested : simulated	-
33		bchot	0	1	n/a	0	benefit : child : other	-
34		bchpl	0	1	n/a	0	benefit : child : parental leave	-
35		bchunlp	0	1	n/a	0	benefit : child : unemployment : lone parent	-
36		bcrchdi	0	1	n/a	0	benefit : caring : child : disability-invalidity	-
37		bcrchdi_s	1	1	n/a	0	benefit : caring : child : disability-invalidity : simulated	-
38		bcrsvcc	0	1	n/a	0	benefit : caring : severe disability : child care	-
39		bdi	0	1	n/a	0	benefit : disability-invalidity	-
40		bdica	0	1	n/a	0	benefit : disability-invalidity : receiving care (any type)	-
41		bdicc	0	1	n/a	0	benefit : disability-invalidity : child care	-
42		bed	0	1	n/a	0	benefit : education	-
43		bfa	0	1	n/a	0	benefit : family	-

Variable naming convention



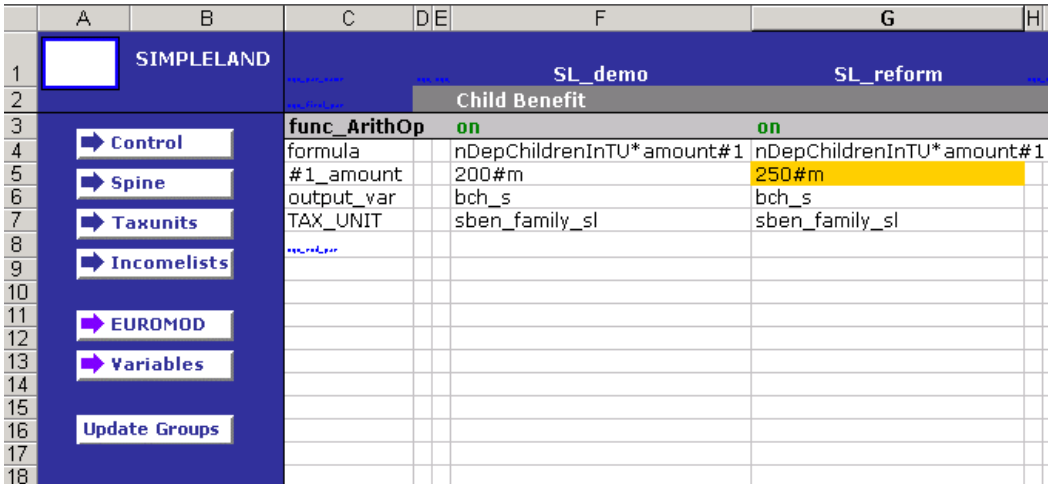
Adding variables



Implement a simple reform…

…to make the family support in Simpleland more generous

- Add system tool (i.e. to add SL_reform system)
- Modify parameters in sben_cb_sl

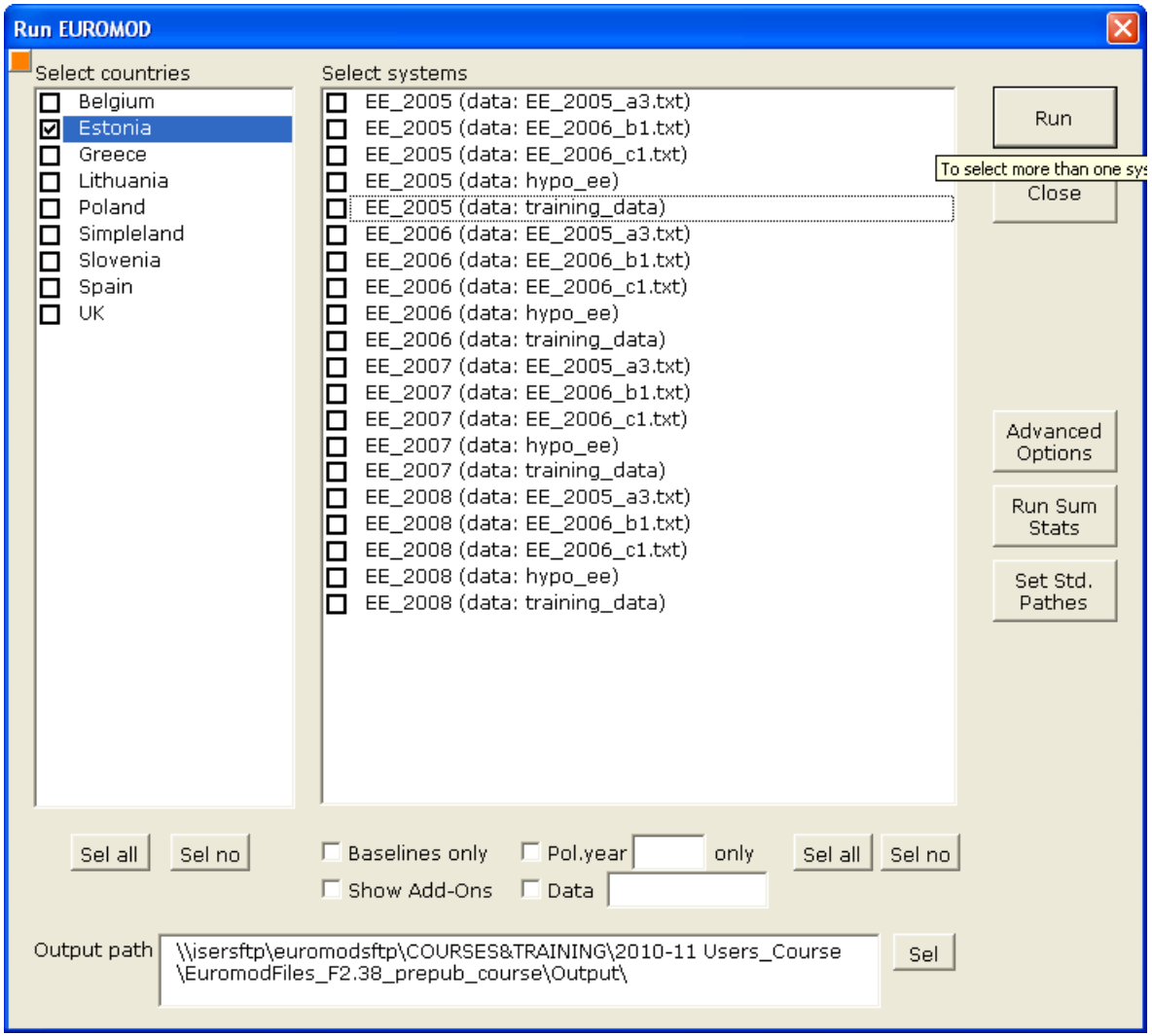


- Run SL_reform system in Simpleland
- (Analyse the results using Summary Statistics Tool)

Running Euromod I

Select:
-countries
-systems
-data

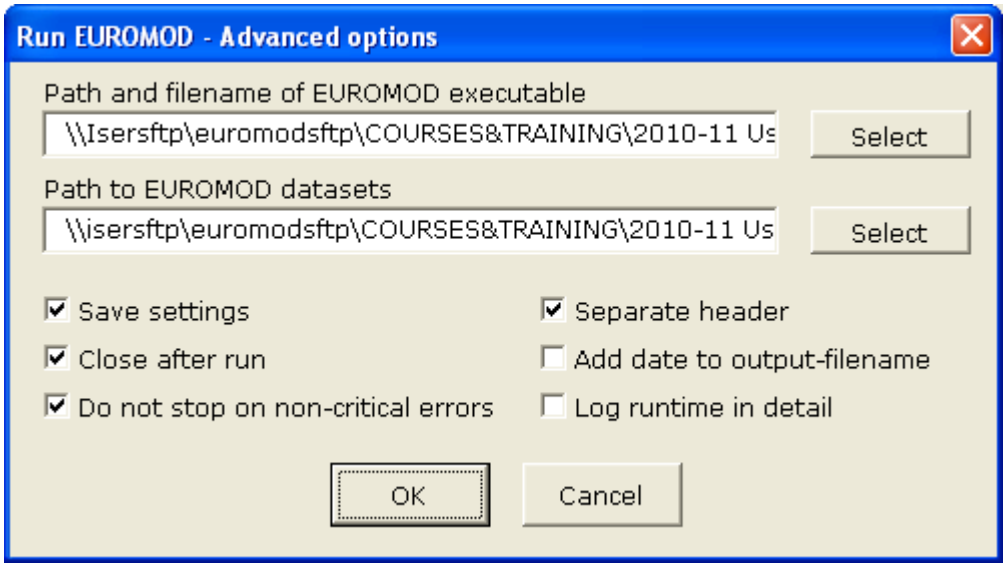
-output path



Running Euromod 2

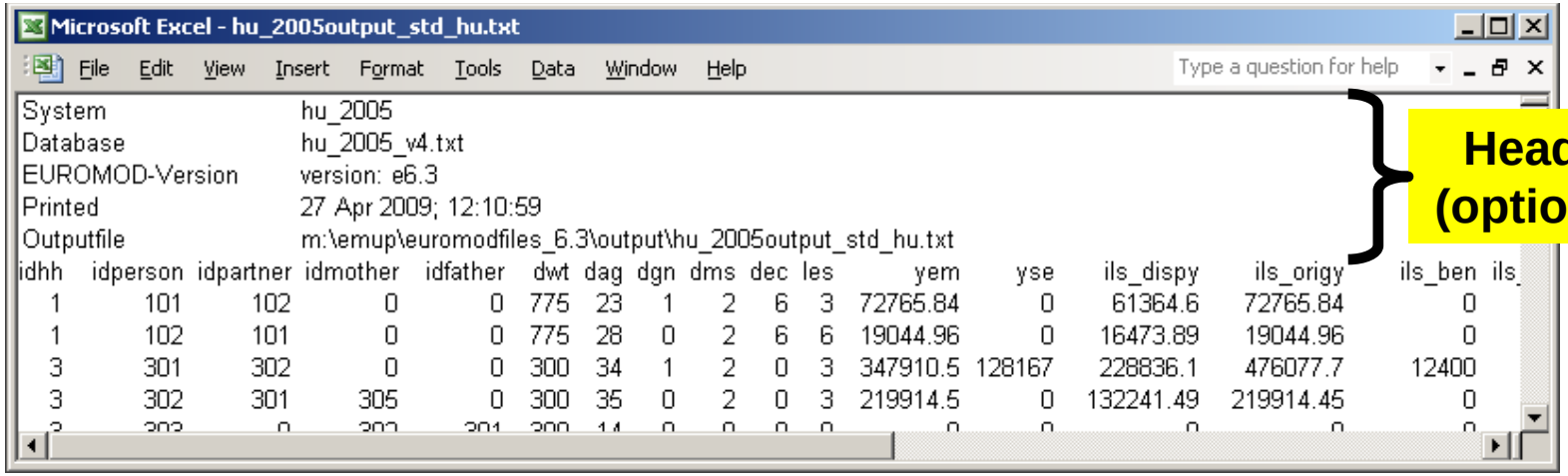
Select:
-Executable path
-Input data path

-Other settings

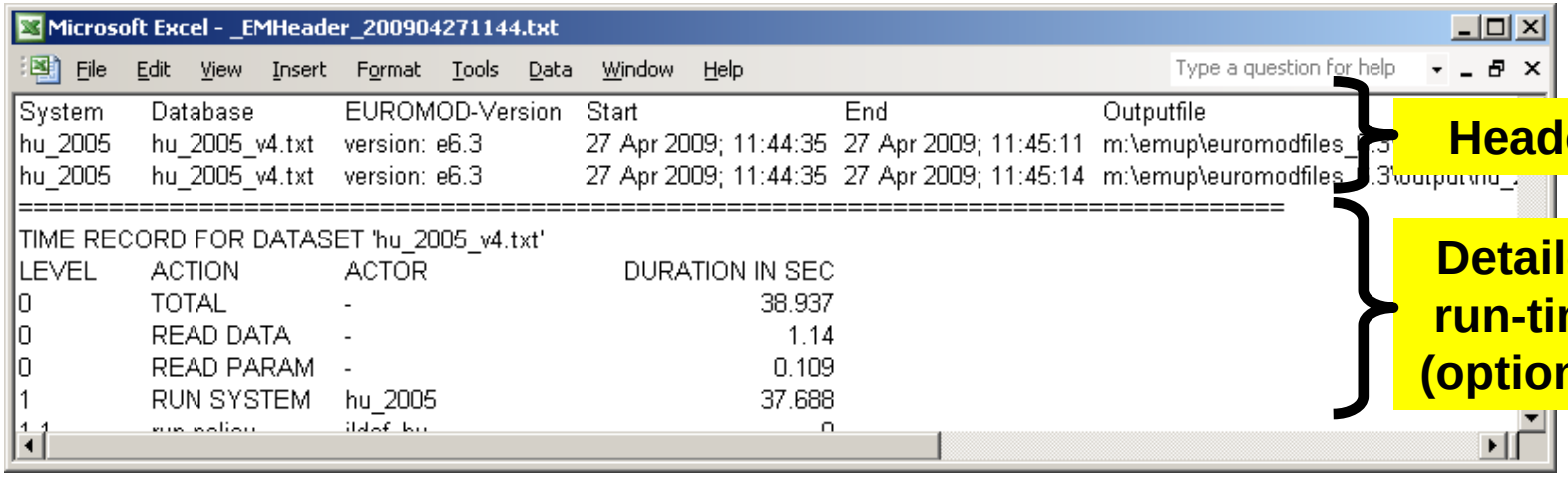


Output files

- micro-data (with an optional header)



- separate header file (optional)



Micro output file: income concepts

Original Income (ils_origy)
(employment and self-employment income, property income, investment income, private pensions, private transfers etc)

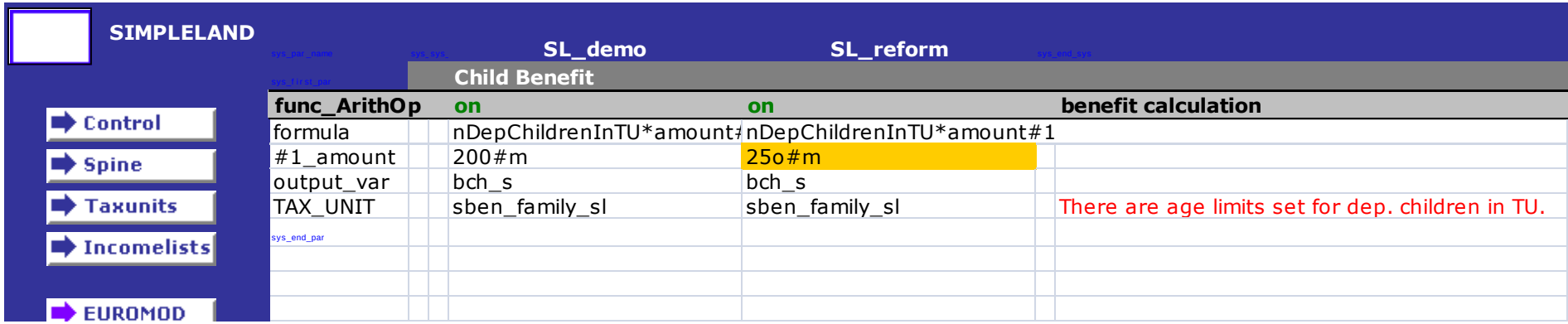
\+ **Social Benefits (ils_ben)**
(public pensions, family benefits, health related benefits, unemployment benefits, social assistance benefits, housing benefits)

– **Social Insurance Contributions (ils_sicee, ils_sicse)**
(employee, self-employed)

– **Personal Taxes (ils_tax)**
(national and local income taxes)

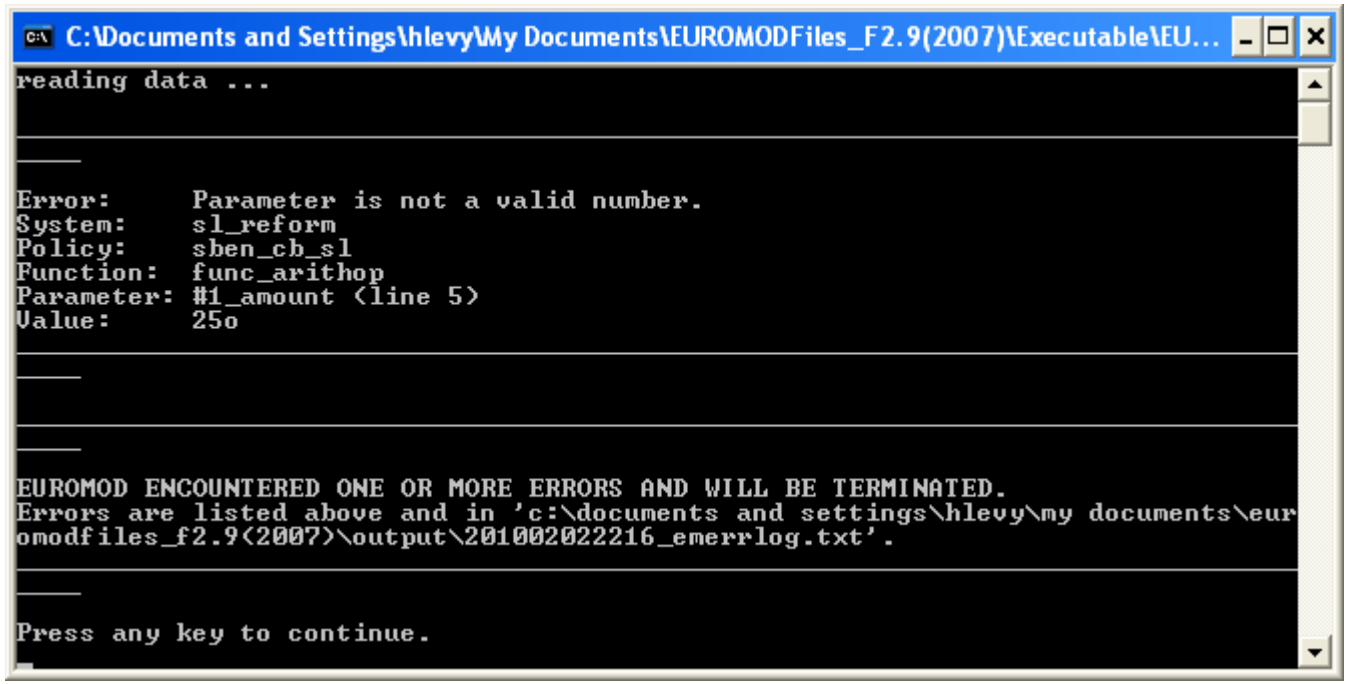
= **Standard Disposable Income (ils_dispy)**

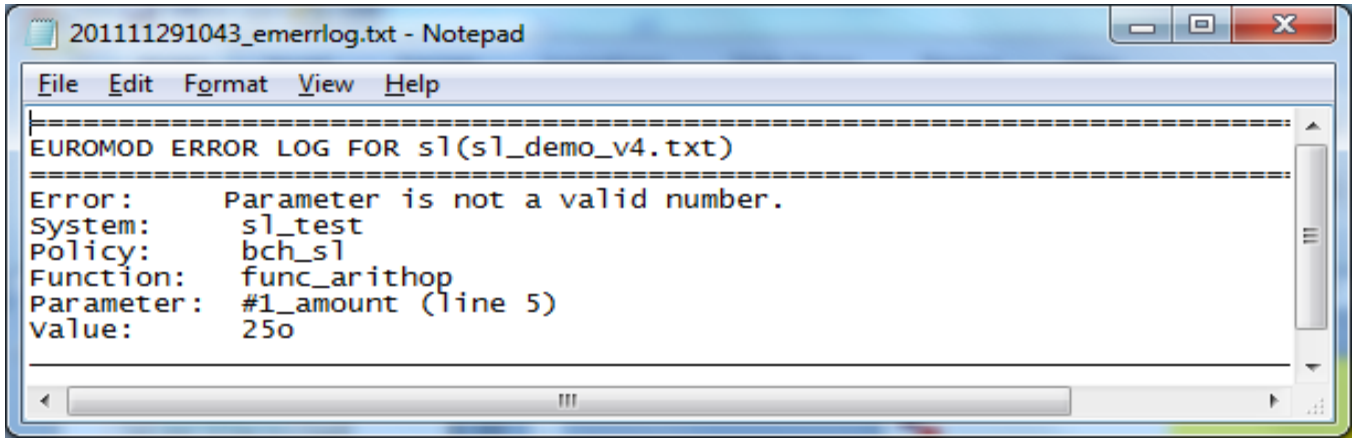
Error handling: producing an error



	SL_demo	SL_reform	
	Child Benefit		
func_ArithOp	on	on	benefit calculation
formula	nDepChildrenInTU*amount#	nDepChildrenInTU*amount#1	
#1_amount	200#m	25o#m	
output_var	bch_s	bch_s	
TAX_UNIT	sben_family_sl	sben_family_sl	There are age limits set for dep. children in TU.

Error handling: error message



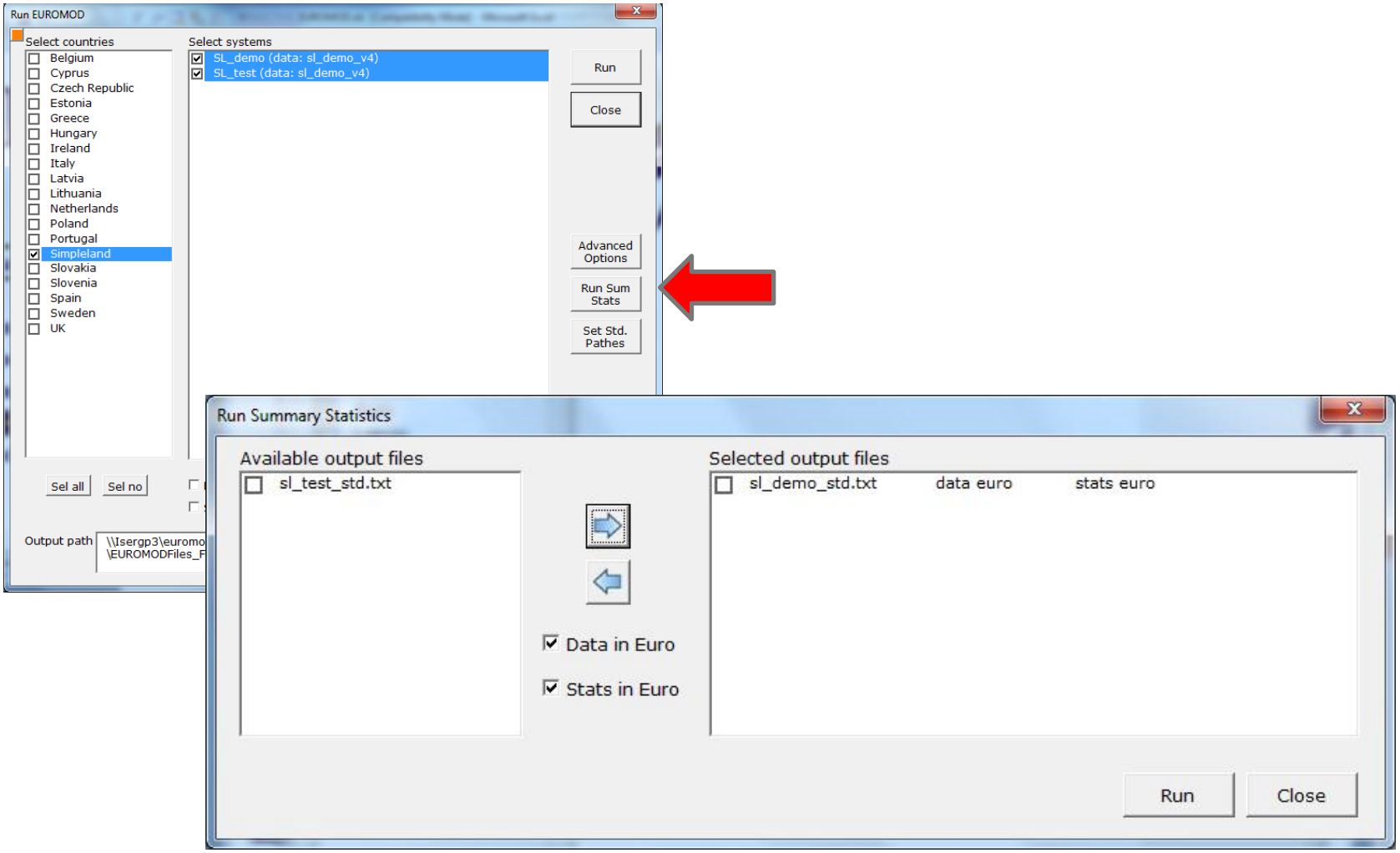


Summary Statistics Tool

Computes a range of commonly used indicators and statistics for analysing EUROMOD micro-output:

- poverty rates for the overall population and for selected groups and the Gini coefficient
- distribution of household income, taxes and benefits by income group
- demographic information on households by income group

Summary Statistics Tool: running



Additional features

- Documentation
  - Country Reports
  - Data Requirement Documents
  - Manuals
  - Recipes
  - Working Papers
- Tools:
  - Summary statistics
  - Budget constraint charts (for standard hh types)
  - METRs calculation

Country report

1. Basic information
   - background information (e.g. country statistics)
   - brief description and statistics of all policies
2. Simulation of taxes and benefits in Euromod
   - scope and order of simulation
   - detailed information on simulated policies (incl. assumptions)
3. Data
   - general description, sample quality and weights
   - data adjustment, imputations and assumptions
4. Validation
   - policy validation
   - income distribution validation: poverty and inequality
   - “health warnings”

Access to model and data

- Web http://www.iser.essex.ac.uk/research/euromod
  - Summary statistics
  - Documentation: Country Reports, Working Papers ….
- Model is freely available for non-commercial use
  - Contact euromod@essex.ac.uk to obtain the link for downloading (incl. manuals)
- Data access conditions set out by the original data provider
  - EU-SILC (UDB): (for now) EUROMOD users need to join our project network contract with Eurostat
  - Other data: relatively straightforward procedures
- Free training courses

Responsibilities of EUROMOD hand-on users

- Respect data access rules and conditions
- Acknowledge EUROMOD when it is used
- Submit all papers using EUROMOD for inclusion in the WP series
- Take responsibility for your own use of the model
- Tell us about bugs or errors
- Keep us informed about what you are working on and when you are working actively: that way we can keep you informed of relevant changes

Further information on EUROMOD

- Technical papers:
  - Immervoll H, C O'Donoghue and H Sutherland (1999), An Introduction to EUROMOD, EM 0/99.
  - Sutherland H (ed) (2001), EUROMOD: an integrated European Benefit-tax model. Final Report, EM 9/01.
  - Lietz C and D Mantovani (2006): Lessons from building and using EUROMOD, EM 5/06.
- Web site: http://www.iser.essex.ac.uk/research/euromod
  - Country Reports
  - Recipes
  - Working Papers

Useful links and references

- International Microsimulation Association http://www.microsimulation.org/
- International Journal of Micosimulation http://www.microsimulation.org/IJM/index.htm
- Zaidi A., A. Harding and P. Williamson (eds) 2009, *New Frontiers in Microsimulation Modelling*, Ashgate.
- Lelkes O. and H. Sutherland (eds) 2009, *Tax and Benefit Policies in the Enlarged Europe: Assessing the Impact with Microsimulation Models,* Ashgate.
- Bourguignon F. and Spadaro A. 2006, Microsimulation as a tool for evaluating redistribution policies, *Journal of Economic Inequality* 4(1): 77-106.
- Bargain O. (ed) 2006, *Microsimulation In Action: Policy Analysis in Europe using EUROMOD,* Research In Labor Economics Vol 25, Elsevier.
- A. Gupta and V. Kapur (eds) 2000, *Microsimulation in Government Policy and Forecasting*, Elsevier.
- Mitton L., H. Sutherland and M. Weeks (eds) 2000, *Microsimulation Modelling for Policy Analysis: Challenges and Innovations*, Cambridge University Press.

Some recent academic papers using EUROMOD

- O. Bargain, The Distributional Effects of Tax-Benefit Policies under New Labour: A Shapley Decomposition, Oxford Bulletin of Economics and Statistics, forthcoming
- M. Dolls, C. Fuest, A. Peichl, Automatic stabilizers and economic crisis: US vs. Europe, Journal of Public Economics, 2012.
- F. Figari, A. Salvatori, H. Sutherland, Economic downturn and stress testing European welfare systems, Research in Labour Economics, 2011.
- F. Figari, H. Immervoll, H. Levy, H. Sutherland, Inequalities within couples in Europe: market incomes and the role of taxes and benefits, Eastern Economic Journal, 2011
- F. Figari, A. Paulus, H. Sutherland, Measuring the size and impact of public cash support for children in cross-national perspective, Social Science Computer Review, 2011.
- H. Immervoll, H. J. Kleven, C. T. Kreiner, N. Verdelin, Optimal tax and transfer programs for couples with extensive labor supply responses, Journal of Public Economics, 2011.

Some recent academic papers using EUROMOD

- F. Figari, Can In-work Benefits Improve Social Inclusion in the Southern European countries?, Journal of European Social Policy, 2010.
- A. Paulus, A. Peichl, Effects of flat tax reforms in Western Europe, Journal of Policy Modeling, 2009.
- O. Bargain, T. Callan, Analysing the effects of tax-benefit reforms on income distribution: a decomposition approach, Journal of Economic Inequality, 2008.
- H. Immervoll, H.J. Kleven, C.T. Kreiner, E. Saez, Welfare Reform in Europe: A Micro-simulation Analysis, Economic Journal, 2007.
- H. Levy, C. Lietz, H. Sutherland, Swapping Policies: Alternative Tax-Benefit Strategies to Support Children in Austria, Spain and the UK, Journal of Social Policy, 2007.
- O. Bargain K. Orsini, In-work policies in Europe: killing two birds with one stone? Labour Economics, 2006.