

CALCULATING POLICY EFFECTS IN EUROMOD:

Policy effects in 2013-14
on the Bulgarian income
distribution

European Microsimulation Modelling for Policymaking

28 May 2015



Measuring the policy effect



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What is the *policy effect*?

- Household disposable income (HDPI) = sum of all income sources and cash benefits minus taxes
- Change in HDPI between two points in time = the direct effect of tax-benefit policies + everything else
- The *policy effect* captures the direct effects of tax-benefit policies on HDPI
- Abstract from changes in population characteristics and market incomes
- No behavioural responses



How do we measure the *policy effect*? (1/2)

- The policy effect can be measured in:
 - **nominal** terms
 - **real** terms, i.e. relative to growth in prices (Harmonised Consumer Price Index, HICP)
- Example: pensions are kept nominally the same over time:
 - In nominal terms: disposable income stays the same
 - In real terms:
 1. prices (HICP) \uparrow : pension values \downarrow , disposable income \downarrow
 2. prices (HICP) \downarrow : pension values \uparrow , disposable income \uparrow

How do we measure the *policy effect*? (2/2)

- Special '**Policy Effects tool**' in EUROMOD
- The tool estimates the first-order effects of policies on household incomes
- Built-in help



The 2013-14 policy effects on the Bulgarian income distribution

- We estimate the policy effect between 2013 and 2014 in Bulgaria
- We decompose the policy effect by the separate tax-benefit instruments

EUROMOD User Interface



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EUROMOD user interface (UI)

- Stand-alone piece of software - Windows OS
- Mostly point and click but some hot keys are available (standard and specific)
- Key features:
 - ribbon bar with tabs
 - context menus
 - IntelliSense (suggestion of parameter values)
 - drag and drop
 - bookmarks and comments
 - built-in help



EUROMOD UI starting page

Run EUROMOD

Countries Country Tools Administration Tools Add-Ons Applications Help & Info

AT BE BG CY CZ DE DK EE EL ES FI FR HU IE IT LT LU LV MT NL PL PT RO SE SI SK SL UK



Ribbon bar



Country files can be accessed by clicking on the corresponding flag on the tab *Countries*

Working environment

Comments

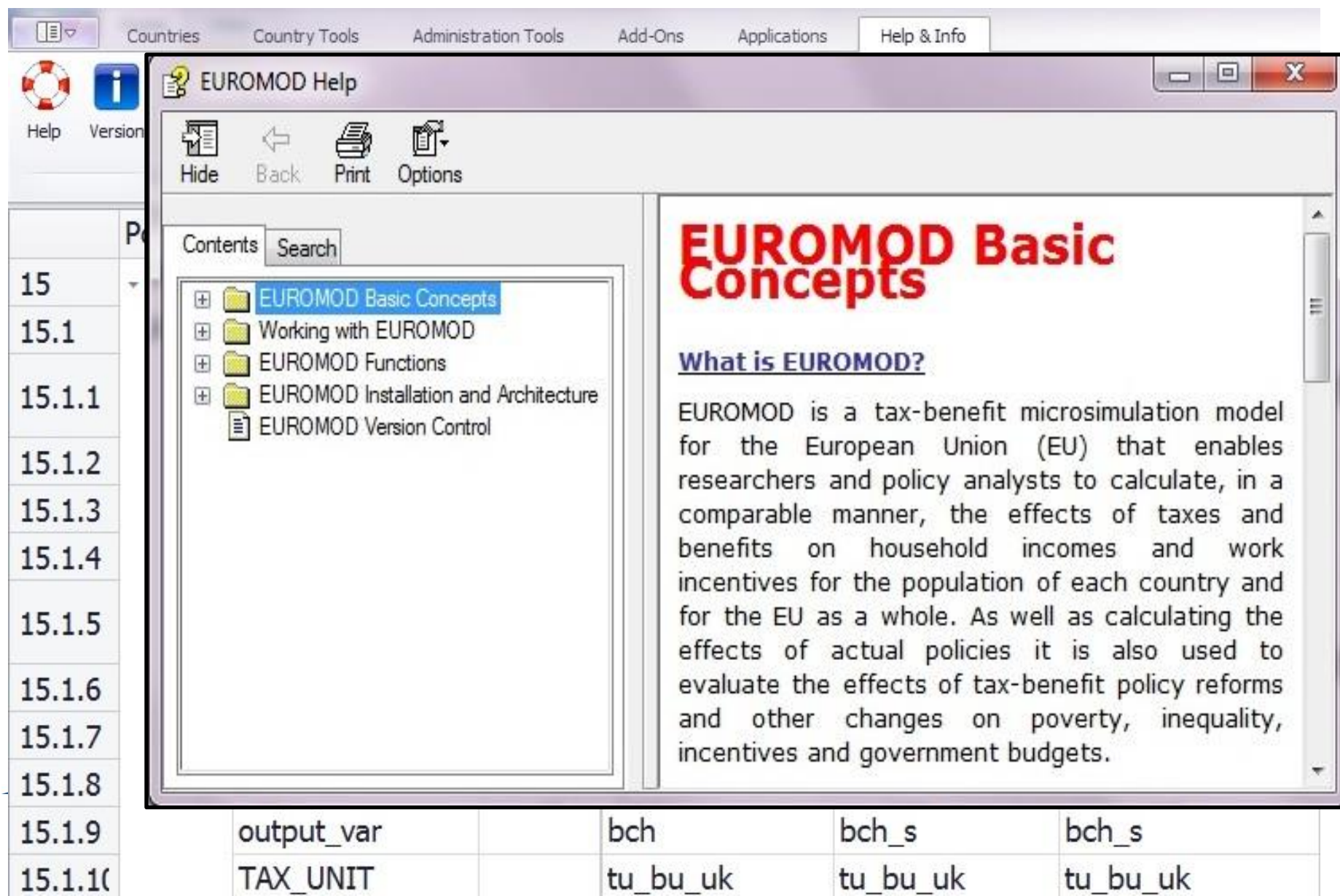
Policy	Grp/No	UK_2012	UK_2013	UK_2014	Comment
5 ▶ • TUdef_uk		on	on	on	DEF: ASSESSMENT UNITS
6 ▶ • taken_uk		on	on	on	DEF: settings for modelling benefit non take-up (switch
7 ▶ • poad_uk		on	on	on	BEN: changes in earnings and pensions due to increase in female state pension age
8 ▶ • yse_uk		on			DEF: recode to 0 negative self employed income
9 ▶ • yem_uk		off			DEF: Minimum wage
10 ▶ • bdisc_uk		off			BEN: DLA test (post 2011)
11 ▶ • tscee_tscse_uk		on	on	on	SIC: employee and self employed national insurance
12 ▶ • tscer_uk		on	on	on	SIC: employer national insurance contribution
13 ▶ • bunct_uk		on	n	on	BEN: contributory unemployment benefit (Job
14 ▶ • boaht_uk		on	on	on	BEN: pensioner's annual heating allowance (Winter Fuel
15 ▶ • bch_uk		on	on	on	BEN: child benefit
16 ▶ • tin_uk		on	on	on	TAX: personal income tax
17 ▶ • bwkmt_bfamt_uk		on	on	off	BEN: tax credits (Working Tax Credit and Child Tax Credit)

Open country

Policy system

Policies

Built-in help



The screenshot shows the EUROMOD software interface with the built-in help window open. The help window is titled "EUROMOD Help" and contains a table of contents on the left and a main content area on the right. The main content area displays the "EUROMOD Basic Concepts" section, which includes a table of variables.

EUROMOD Help

Hide Back Print Options

Contents Search

- EUROMOD Basic Concepts
- Working with EUROMOD
- EUROMOD Functions
- EUROMOD Installation and Architecture
- EUROMOD Version Control

EUROMOD Basic Concepts

What is EUROMOD?

EUROMOD is a tax-benefit microsimulation model for the European Union (EU) that enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country and for the EU as a whole. As well as calculating the effects of actual policies it is also used to evaluate the effects of tax-benefit policy reforms and other changes on poverty, inequality, incentives and government budgets.

15				
15.1				
15.1.1				
15.1.2				
15.1.3				
15.1.4				
15.1.5				
15.1.6				
15.1.7				
15.1.8				
15.1.9	output_var	bch	bch_s	bch_s
15.1.10	TAX_UNIT	tu_bu_uk	tu_bu_uk	tu_bu_uk

Calculating the policy effect in EUROMOD



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The 2013 and 2014 policy systems in Bulgaria

	Policy	Grp/No	BG_2013	BG_2014	Comment
1	setdefault_bg		on	on	DEF: DEFAULT VALUES
2	UAA_bg		switch	switch	SWITCH: Uprating by Average Adjustment for public pensions
3	uprate_bg		on	on	DEF: UPRATING FACTORS
4	Co				
5	ilo				
6	tu				
7	ye				
8	neg_bg		on	on	come to zero (отрицателен доход от самостоятелна заетост да е равен на нула) SWITCH: correction for tax evasion: 1) UDB SILC - comparing gross and net income from employment; 2) UDB SILC+ national SILC variables - using information on base for calculating SIC
9	TCA_bg		switch	switch	
10	tscer_bg		on	on	SIC: social insurance contributions employer (вноски за социално осигуряване платени от работодателите)
11	tscee_bg		on	on	SIC: social insurance contributions employee (вноски за социално осигуряване на работниците и служителите)
12	tscse_bg		on	on	SIC: social insurance contributions self-employed (вноски за социално осигуряване на самостоятелно заети)
13	tin_bg		on	on	TAX: income tax (данък общ доход)

The policy spine in Bulgaria

2013 and 2014 policy systems

Some policy changes between 2013 and 2014 in Bulgaria

	Policy	Grp/No	BG_2013	BG_2014	
1	▶ setdefault_bg		on	on	
2	▶ UAA_bg		switch	switch	
3	▶ uprate_bg		on	on	
4	▼ ConstDef_bg		on	on	
4.1	▼ DefConst		on	on	
4.1.1	\$Minwage		310#m	340#m	minimum wage level
4.1.2	\$SIC_MaxBaseEE		2200#m	2400#m	upper t
4.1.3	\$SIC_MinBaseSE		420#m	420#m	lower th calculat
4.1.4	\$SIC_MaxBaseSE		2200#m	2400#m	upper threshol applicat calculat
4.1.5	\$GMI		65#m	65#m	guaranteed minimum income level

Some tax-benefit policy parameters have changed (highlighted in yellow)

Others have remained nominally the same

The Policy Effects tool in EUROMOD

Select *Applications* from the main menu bar

Select *Policy Effects* tool

Policy	Grp/No	BG_2013	BG_2014	Comment	
1					
2					
3					
4					
5					
6					
7					
8	▶ ● neg_bg		on	on	DEF: recode negative self-employment income to zero (отрицателен доход от самостоятелна заетост да е равен на нула)
9	▶ ● TCA_bg		switch	switch	SWITCH: correction for tax evasion: 1) UDB SILC - comparing gross and net income from employment; 2) UDB SILC+ national SILC variables - using information on base for calculating SIC
10	▶ ● tscer_bg		on	on	SIC: social insurance contributions employer (вноски за социално осигуряване платени от работодателите)
11	▶ ● tscee_bg		on	on	SIC: social insurance contributions employee (вноски за социално осигуряване на работниците и служителите)
12	▶ ● tscse_bg		on	on	SIC: social insurance contributions self-employed (вноски за социално осигуряване на самостоятелно заети)
13	▶ ● tin_bg		on	on	TAX: income tax (данък общ доход)

The Policy Effects tool in EUROMOD

The *Policy Effects* tool window

Select start and end period, e.g. 2013 and 2014

Select the country, e.g. Bulgaria

Select the input data set, e.g. EU-SILC 2012

Select if the policy effect will be measured in:
- real terms (CPI)
- nominal terms (1)

Run & show the results

Close

Run & Show Results

Policy Effects tool

Start period (year 1): 2013 End period (year 2): 2014

sel: 1	Country	Data
<input type="checkbox"/>	AT	AT_2012_a1
<input type="checkbox"/>	BE	BE_2010_a2.txt
<input checked="" type="checkbox"/>	BG	BG_2012_b1.txt
<input type="checkbox"/>	CY	CY_2010_a2.txt
<input type="checkbox"/>	CZ	CZ_2010_a1.txt
<input type="checkbox"/>	EL	EL_2010_a3.txt
<input type="checkbox"/>	ES	ES_2010_a4.txt
<input type="checkbox"/>	FI	FI_2010_a1.txt

Indexation (alpha)

CPI

1

Output path:
D:\Home\itasseva\Bulgaria\Year 6\EUROMOD\for merging G2.33 to G2.34\EuromodFiles_G2.34\Output\Policy_ch

The Policy Effects tool in EUROMOD

The screenshot shows the EUROMOD software interface. The 'Policy Effects' tool is active, and a progress window is displayed over the table. The table lists various policy parameters for Bulgaria (BG) for the years 2013 and 2014.

Policy	Grp/No	BG_2013	BG_2014	Comment
1	▶ setdefault_bg	on	on	DEF: DEFAULT VALUES
2	▶ UAA_bg			ating by Average Adjustment for public
3	▶ uprate_bg	on	on	DEF: OPERATING FACTORS
4	▶ ConstDef_bg	on	on	DEF: CONSTANTS
5	▶ ildef_bg	on	on	DEF: INCOME CONCEPTS
6	▶			
7	▶			мална заплата)
8	▶			employment income to д от самостоятелна та)
9	▶			evasion: 1) UDB SILC - income from employment; C variables - using calculating SIC
10	▶			tributions employer уряване платени от работодателите)
11	▶ tscee_bg	on	on	SIC: social insurance contributions employee (вноски за социално осигуряване на работниците и служителите)
12	▶ tscse_bg	on	on	SIC: social insurance contributions self-employed (вноски за социално осигуряване на самостоятелно заети)
13	▶ tin_bg	on	on	TAX: income tax (данък общ доход)

The progress window shows the following status:

- Waiting 0 systems out of 3
- Running 3 systems out of 3
- Completed 0 systems out of 3

The *Policy Effects* tool is running

Waiting 0 systems out of 3
 Running 3 systems out of 3
 Completed 0 systems out of 3

Results



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The Harmonised Consumer Price Index in 2013-14 in Bulgaria

- Between 2013 and 2014, the Harmonised Consumer Price Index (HICP) fell
- $HICP = 0.984$
- Therefore, the purchasing power of households has increased
- The policy effect measured in real terms will be more income-increasing (less income-reducing) than in nominal terms

The policy effect in **nominal** terms: % change in disposable income in Bulgaria in 2013-2014

alpha=custom alpha=CPI
Results for BG with alpha: custom [1] on dataset BG_2012_b1.txt

Decile	Original income	Public pensions	Means-tested benefits	Decile	Disposable income	Direct taxes	Disposable income
1	0.00	0.00	1.4	1	1.58		
2	0.00	0.00	0.9	2	0.68	0.02	1.58
3	0.00	0.00	0.3	3	0.53	0.02	0.68
4	0.00	0.00	0.1	4	0.53	0.02	0.53
				5	0.43	0.02	0.53
				6	0.36	0.01	0.43
				7	0.27	0.01	0.36
				8	0.29	0.01	0.27
8	0.00	0.00	0.0	9	0.23	0.01	0.29
9	0.00	0.00	0.0	10	0.00	0.01	0.23
10	0.00	0.00	0.0	Total	0.31	0.03	0.00
Total	0.00	0.00	0.1			0.02	0.31

The policy effect in 2013-14 measured in **nominal** terms was income-increasing and pro-poor

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2013, using the modified OECD equivalence scale.

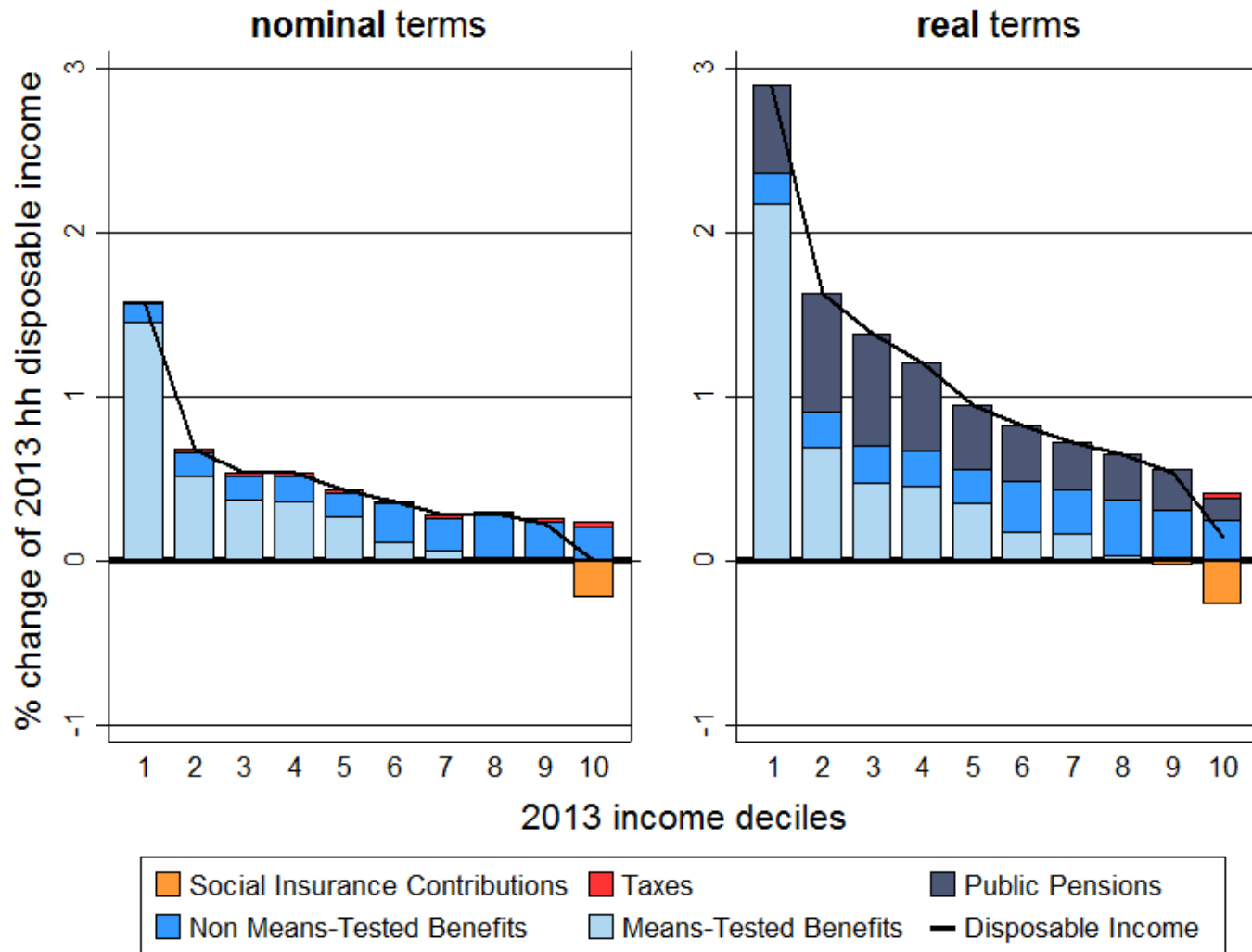
The policy effect in **real** terms: % change in disposable income in Bulgaria in 2013-2014

alpha=custom		alpha=CPI							
Results for BG with alpha: CPI [0.984089101034208] on dataset BG_2012_b1.txt									
Decile	Original income	Public pensions	Means-tested benefits	Non means-tested benefits	Decile	Disposable income	axes	Disposable income	
1	0.00	0.54	2.17		1	2.89			
2	0.00	0.72	0.69		2	1.63	0.00	2.89	
3	0.00	0.68	0.47		3	1.38	0.00	1.63	
4	0.00	0.53	0.45		4	1.20	0.00	1.38	
5					5	0.94	0.00	1.20	
6					6	0.82	0.00	0.94	
7					7	0.72	0.00	0.82	
8					8	0.65	0.00	0.72	
9	0.00	0.25	0.02		9	0.53	0.00	0.65	
10	0.00	0.13	0.01		10	0.14	0.00	0.53	
Total	0.00	0.32	0.22		Total	0.74	0.01	0.14	0.74

As prices fell, the policy effect in 2013-14 measured in **real** terms was even more income-increasing and pro-poor than in nominal terms

Notes: shown as a percentage change in mean equivalised household disposable income by income component and income decile group. Income decile groups are based on equivalised household disposable income in 2013, using the modified OECD equivalence scale.

The 2013-14 policy effect on disposable income in Bulgaria measured in:



The 2013-14 policy effect on disposable income in Bulgaria (1/2)

Public pensions:

- Nominally constant in 2013-14 and so, no effect on household incomes
- However, due to prices falling the value of public pensions increased in real terms. As a result, household incomes increased, too.

Means-tested benefits:

- The values of the heating allowance and the income-tested child benefit (amount for the 2nd child) increased slightly in nominal terms
- And even more so in real terms (due to prices falling)

The 2013-14 policy effect on disposable income in Bulgaria (2/2)

Non-means-tested benefits:

- Benefit amounts increased slightly in both nominal and real terms

Social Insurance Contributions:

- The max level of income based on which (self-)employed pay SICs increased
- As a result, SICs liabilities paid by the top decile groups increased and household incomes fell

Total policy effect on household disposable income:

- The policy effect in 2013-14 measured in **nominal** terms was income-increasing and pro-poor
- As prices fell, the policy effect in 2013-14 measured in **real** terms was even more income-increasing and pro-poor than in nominal terms

Thank you!

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