## **Exercise 2: Implement a reform to the UK model and use the Statistics Presenter to analyse its impact on the income distribution**

## **Objectives**:

- Copy and paste a policy system
- Introduce a simple policy reform to the copied policy system
- Assess the redistributive effects of the reform

#### **Directions:**

- Open UKMOD and access the UK policy descriptions
- Copy the UK\_2021 system, and call the copy UK\_2021reform
- Open the Child Benefit policy (*bch\_uk*)
- Find the parameter name defining the benefit value for the first child
- Check the default value for this parameter
- In system UK\_2021reform, replace the parameter with the value 25.00#w (per week)
- Save your changes
- Run both UK\_2021 and UK\_2021reform
- Use the Statistics Presenter, Baseline/Reform option, to analyse distributional effects









# Exercise 2: Implementing a reform to the UK model and using the Statistics Presenter to analyse its impact on the income distribution

## **Step-by-step solutions and further information:**

### Step 1: Adding a new system

Open the UK model, by clicking on the UK country flag. To work more easily with the UK\_2021 system, hide the rest of the systems, by right-clicking on the system name (UK\_2021), selecting "move to hidden system box" and then selecting "all systems but selected".

Figure	1:	Hiding	а	system
--------	----	--------	---	--------



Add a new system. There are two ways of doing it: 1) right-click on the system heading UK\_2021 and select the option 'copy/paste system' and 2) click on the button *Add System* in the Country Tools tab. Using 1), specify a name for the reform system (type e.g.  $UK_2020reform$ ).

	Countr	ries	Disp	play	Coun	itry Tool	s I	Admi	inistration	n Tool	s Add-Ons	Version Control	Арр
Run UKMOD	United Kingdom	1	EN	NI	SC	UK	WL	* * *					
	Policy	,					Gro	No	LIK 2021				-
1	Folicy ► ●	Set	tDefa	ult uk			Giph		on_2021		Copy/Paste Sys	stem	
2	- F 0	Up	rate_	uk					on		Rename System	n	
3	► •	Со	nstDe	f_uk					on		Delete System		
4	<b>*</b> •	FY/	A_uk						switch		Restore System Save System O	n Order rder	
5	► •	Ini	tVars_	_uk					on		Move To Hidde	en Systems Box	۲I
6	_ ► ●	ILS	oDef_u	uk					on		Show Matrix Vi	iew of Incomelists	
7	+ •	ILS	UDBD	ef_uk					on		Insert First Poli	cy	
8	+ •	ILC	)ef_ul	k					on	l+→l	Best Fit Best Fit (all col	umns)	
9	_	TU	Def_u	k				_	on		Rest Fit (all syst	tem columns)	
10	ו	BT	A_uk						switch		Set Width Colu	mn	
11	F •	rar	ndom_	_uk					on		Set Width All S used in tax-per modelling trans PIP; legacy ben Credit; Shocks)	ystem Columns ienc simulations (i sitions from DLA to efits to Universal	or o
12	۰ <b>۱</b>	сон	untrie	s_uk					on		DEF: Keep hous country model. policy are swite extensions.	eholds for respect Functions within ched on via	ive

## Figure 2: Adding a reform system using the copy/paste option

Figure 3: Giving a name to the reform system

System Name UK_2021reform		
System Year 2021		
ОК	Cancel	

Figure 4: Find policy "bch uk"

Search and Replace			×
Search <mark>bch_ukl</mark>		~	Search <u>N</u> ext Search <u>P</u> revious
Search in All Cells Visible Cells	Search in All Columns Policy Column	<ul> <li>System Columns</li> <li>Comment Column</li> </ul>	<u>R</u> eplace
<ul> <li>Selected Cells</li> <li>Search by</li> </ul>	<ul> <li>Match Case</li> <li>Match Entire Cel</li> </ul>	ll Content	
Columns O Rows	Match Exact Wo	Close	

# Figure 5: Check value of benefit for first child

	Countrie	es	Display Country Tools		s Adn	ninistration To	ols Add-C	ons Version Control	Applications		
Run UKMOD	United Kingdom Ioaded	E	N NI	SC	UK	WL	Ŧ				
	Policy					Grp/No	UK_2021	UK_2021	Comment		
28	▶ ● bunct_uk						on	on	BEN: contributory unemployment benefit (Jobseeker's Allowance)		
29	+ •	▶ ● boaht_uk					on	on	BEN: pensioner's annu allowance (Winter Fu	ual heating el Allowance)	
30	- •	+ • bch_uk					on	on	BEN: child benefit		
30.1	-	fx Be	nCalc				on	on	Child Benefit: amount		
30.1.1			comp_cor	nd		1	(IsNtoMchil d#1)	(IsNtoMchil d#1)	First child entitled to rece	eive	
30.1.2			#_N			1	1	1			
30.1.3			#_M			1	1	1			
30.1.4			comp_per	rElig		1	\$CBFirst	\$CBFirst	this amount   par69		
30.1.5			comp_cor	nd		2	(IsNtoMchil d#2)	(IsNtoMchil d#2)	"From second child on, ea	ach child is	
30.1.6			#_N			2	2	2	13( - 21,13##		
30.1.7			#_M			2	99	99			
30.1.8			comp_per	rElig		2	\$CBOther	\$CBOther	this amount   par70		
30.1.9			output_v	ar			bch_s	bch_s			
30.1.10			TAX_UNI	Г			tu_bu_uk	tu_bu_uk			

#### Step 2: Implementing the reform

You need to increase the Child Benefit amount for the first child from £21.15 per week to £25 per week. In the reform system UK\_2021reform, change the parameter value of  $comp\_perElig$  (1) from \$*CBFirst* to 25#w (£25 per week).

Figure 6: New benefit amount for the first child

	Policy				Grp/No	UK_2021	UK_2021	Comment
29	+ (		boaht_uk			on	on	BEN: pensioner's annual heating allowance (Winter Fuel Allowance)
30	- (		bch	_uk		on	on	BEN: child benefit
30.1		- 1	fx	BenCalc		on	on	Child Benefit: amount
30.1.1				comp_cond	1	(IsNtoMchil d#1)	(IsNtoMchil d#1)	First child entitled to receive
30.1.2				#_N	1	1	1	
30.1.3				#_M	1	1	1	
30.1.4				comp_perElig	1	\$CBFirst	25#w	this amount   par69
30.1.5				comp_cond	2	(IsNtoMchil d#2)	(IsNtoMchil d#2)	"From second child on, each child is entitled to receive"
30.1.6				#_N	2	2	2	
30.1.7				#_M	2	99	99	
30.1.8				comp_perElig	2	\$CBOther	\$CBOther	this amount   par 70
30.1.9				output_var		bch_s	bch_s	
30.1.10				TAX_UNIT		tu_bu_uk	tu_bu 🔻	

Figure 7: Save your changes

*	*					
		ols Adn	ninistration To	ols Add-O	ns Version Control Applica	tions
	Save Country (Ctrl+S)	i 🏨				
7	Save Country As	WL ,	Ŧ			
	New Project	Grp/No	UK_2021	UK_2021	Comment	
•	New Project		on	on	BEN: pensioner's annual heating allowance (Winter Fuel Allowa	ng ince)
	Open Project		on	on	BEN: child benefit	
	open Project		on	on	Child Benefit: amount	
	Project Configuration	1	(IsNtoMchil d#1)	(IsNtoMchil d#1)	First child entitled to receive	
	Project Configuration	1	1	1		
		1	1	1		
_	Close Country	1	\$CBFirst	25#w	this amount   par69	
8	,	2	(IsNtoMchil d#2)	(IsNtoMchil d#2)	"From second child on, each child is entitled to receive"	;
	Close All Countries/Add-Ons	2	2	2		
. 8		2	99	99		
		2	\$CBOther	\$CBOther	this amount   par70	
-	Exit		bch_s	bch_s		
			tu_bu_uk	tu_bu 🔻		
			on	on	TAX: personal tax allowance	
32			on	on	TAX: personal income tax	

#### Step 3: Produce and analyse micro-data output

Run the model to produce micro-data output for the baseline and reform system. Use the Statistics Presenter – option Baseline/Reform – to analyse differences in government revenues and income poverty due to the changes in the Child Benefit.

Figure 8: Producing micro-data output for the baseline and reform systems

<b>9</b>	-	Run UKMC	× □ − 00					
Main	View / Filte	er / Add-Ons	Advanced Settings					
	K X X X VK VI	Cour Select a Cour Select a	ntries O Countries tems O Systems -ons O Add-ons all / Unselect all					
Run	Country	System	Dataset					
	UK	UK_2005	UK_2003_a5 (Best Match) V					
	UK	UK_2006	UK_2008_a7 (Best Match) V					
	UK	UK_2007	UK_2008_a7 (Best Match) V					
	UK	UK_2008	UK_2008_a7 (Best Match) V					
	UK	UK_2009	UK_2009_a5 (Best Match) V					
	UK	UK_2010	UK_2009_a5 (Best Match) V					
	UK	UK_2011	UK_2009_a5 (Best Match) 🗸					
	UK	UK_2012	UK_2012_a6 (Best Match) 🗸					
	UK	UK_2013	UK_2013_a6 (Best Match) 🗸					
	UK	UK_2014	UK_2014_a7 (Best Match) 🗸					
	UK	UK_2015	UK_2015_a4 (Best Match) 🗸					
	UK	UK_2016	UK_2016_a4 (Best Match) 🗸					
	UK	UK_2017	UK_2017_a4 (Best Match) 🗸					
	UK	UK_2018	UK_2018_a3 (Best Match) 🗸					
	UK	UK_2019	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2020	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2021	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2021reform	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2022	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2023	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2024	UK_2019_a1 (Best Match) 🗸					
	UK	UK_2025	UK_2019_a1 (Best Match) 🗸					
Output	Output path c:\ukmod\ukmod_public_a3.0+\output\							

Statistics Presenter - Select Template

 $\times$ 

Statistics Presenter					
Please select a Statistic Template					
UKMOD Statistics - Baseline/Reform	~				
OK Cancel	?				

Figure 8: Selecting the relevant output files with the Statistics Presenter

Statistics Presenter - Select Files	×
UKMOD Statistics - Baseline/R	eform
Select Files for Calculating Statistic	
Baseline Scenario	Alternative Scenario(s)
c:\ukmod\ukmod_public_a3.0+\output\	c:\ukmod\ukmod_public_a3.0+\output\
uk_2021reform_std.txt	{0} uk_2021reform_std.txt
uk_2021_std.txt	uk_2021_std.txt
	Use Ctrl or Shift to select multiple files The order of selection will be retained
ОК	Cancel Is your file not visible?

## <u>Solution</u>

See Excel file "Exercise 2.xls"