

Simulating the impact of tax-benefit measures on the distribution of family income

OECD Tax-Benefit Model

The OECD Tax-Benefit model computes the effects of tax and benefit systems on family disposable income. The model contains information for 33 OECD countries, and 6 EU non-OECD countries, currently for years 2001 to 2013. Benefits covered in the model include Unemployment, Social Assistance, Housing, Family and Employment-conditional benefits. The Tax system covers Personal Income taxes, and both Employee and Employer paid Social Security Contributions. The results capture the effects of taxes and benefits on the incomes of working-age individuals and their families both in and out of work (see: www.oecd.org/social/benefitsandwagesoecdindicators.htm).

Simulations

Simulations compute changes in the amount of taxes and benefits across years for a set of family types. The characteristics of these family types vary both in terms of family composition and labour circumstances. Four family compositions are considered: single individuals, single parents with children and couples with and without children. In all families there is one active working-age individual (either employed or unemployed); if present, other working-age individuals in the family are assumed to be inactive. Labour market circumstances of active working-age individuals include unemployment (from 1 to 60 months out of work) and employment (with earnings ranging up to 200% the average wage in the country).

Results

The table below illustrates how the simulation results are presented for each country. Each cell presents average results for all family compositions in intervals of months out of work (for unemployment) or earning levels (for employment). The row "Total" presents the simple average of cells for each row. Results are presented accumulated for the whole (2007-2013) period (first three rows) as well as separately by year. Negative numbers (grey bars) indicate tax-benefit measures that reduce family income, positive number (light blue bars) indicate measures that increase family income. The scale for each bar ranges between +/- 10%; above these levels bars are in darker colours. Results are indicative of qualitative and quantitative effects of the tax-benefit measures for the "model families" described above, but are not representative as not all household circumstances and their incidence can be taken into account.

Pensions and VAT are not simulated by the OECD tax-benefit model; however, statutory changes are shown, based on additional national sources. Only changes that affect current pensions (e.g., indexation rules) are indicated; other changes (e.g., retirement age) are not considered. Similarly, only changes in VAT rates are indicated; other changes (e.g., tax classification of goods) are not considered. Next to the (+) or (-) symbols, "r" indicates a reform (e.g., a new tax on pensions); "i" indicates changes in indexation; and the number the absolute change in the VAT standard rate.

The table below gives an example how to read the results, for the example of Portugal. It indicates an average 15% fall in disposable income between 2007 and 2013, 3% due to taxes and 12% to benefits. Families unemployed for up to 12 months lost 13%, families unemployed for 5 years lost 26%. Employed families earning up to 20% of the average wage lost 24%; those earning between 1.8 and 2 times the average wage lost 9%. With respect to the previous year, 2008 measures increased family income by 2%, 2012 measures decreased income by 8%. Pensions were changed in 2009, 2011 and 2012; the standard rate of VAT was reduced 1 point in 2008, increased 1 point in 2010 and 2 points in 2011.

Illustrative example: simulated effects of tax-benefit reforms on family disposable income, Portugal 2007-2013

Cumulate and annual percentage change of simulated family disposable income (2007 = 0)

	Total	Months in unemployment						% of AW										Pensions	VAT
		0-12	13-24	25-36	37-48	49-60	0-20	21-40	41-60	61-80	81-100	101-120	121-140	141-160	161-180	181-200			
Total	-2	-3	-3	-3	-3	-3	-4	-3	-3	-1	2	1	0	-3	-4	-3	(-) i	(+) 2.5	
Taxes	1	0	0	0	0	0	0	2	3	3	3	2	-1	-1	-1	-1			
Benefits	-3	-3	-3	-3	-3	-3	-5	-6	-6	-4	-1	-1	0	-2	-3	-2	(-) i		
2008	1	2	2	2	2	2	2	2	2	3	2	1	0	0	0	0			
2009	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	(+) i	(-) 2.5	
2010	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	0	-1	-1	-1	-1		(+) 2.5	
2011	-1	0	0	0	0	0	-1	-1	-1	-1	-1	-1	-2	-2	-1	-1		(+) 2.5	
2012	-1	-2	-2	-2	-2	-2	-2	-1	-1	0	0	0	0	0	0	0	(+) i		
2013	-1	-2	-2	-2	-2	-2	-2	-2	-2	-1	0	0	0	-1	-2	-2			

Source: OECD Tax Benefit Model, OECD VAT database, De Agostini et al (2014).