

Nowcasting risk of poverty in the EU

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Outline

- Motivation and aims
- Toolbox
- Results
- Concluding remarks



Motivation and aims

- Problem: time lag in the production of EU-SILC statistics
 - ✓ In May 2015 only 4 EU countries have indicators based on 2013 incomes
- Timely indicators would:
 - ✓ Promote discussion of distributional issues
 - ✓ Facilitate monitoring of current policy reforms
 - ✓ Assess progress towards Europe 2020 target
- Aims of nowcasting:
 - ✓ Predict what the EU-SILC will show for the current year
 - ✓ Develop a method that can be quickly applied and updated for EU-28
 - ✓ Estimate the direction and scale of change in key income indicators



Toolbox

- EUROMOD – tax-benefit microsimulation model for the EU
- Adjusting EUROMOD to account for employment changes
- Calibration to align EUROMOD and EU-SILC



Toolbox: (1) EUROMOD

- Static tax-benefit microsimulation model for the EU
 - ✓ Operates on EU-SILC cross-sectional **data**
 - ✓ **Simulates** direct taxes, social insurance contributions and cash benefits
 - ✓ Non-simulated incomes **updated** using available indices plus official projections (*e.g. earnings, CPI etc.*)



Toolbox: (2) employment adjustments

- Explicitly model **labour market transitions**
 - ✓ Non-employment → employment
 - ✓ Employment → short-term / long-term unemployment
- Observations are selected for transitions based on **estimated probabilities** to be employed
 - ✓ Logit Model (split by gender)
- The total number of transitions matches the relative change in employment rates as shown in the **LFS statistics**
 - ✓ Employment rates by age, gender, education (18 strata)
- **Incomes are adjusted** in line with transitions
 - ✓ E.g. wages for new employed: average within the stratum

Toolbox (3): calibration

- EUROMOD estimates diverge from original EU-SILC (even in the base year)
- Sources of discrepancies:
 - ✓ Non take-up or leakage of means-tested benefits; tax evasion
 - ✓ Misreported income in SILC
 - ✓ Simulation error
- Calibration factors:
 - ✓ Align EUROMOD equivalised household disposable income to SILC
 - ✓ Based on the base year (at the household level)
 - ✓ Applied to all subsequent years



Current state

- 17 EU countries
- SILC 2010 or 2012
- Nowcasts up to 2013 (7 countries)
- Nowcasts up to 2014 (10 countries)

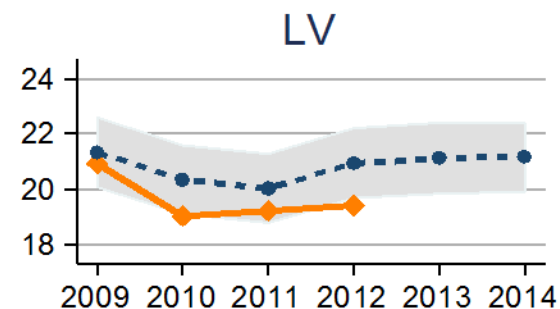
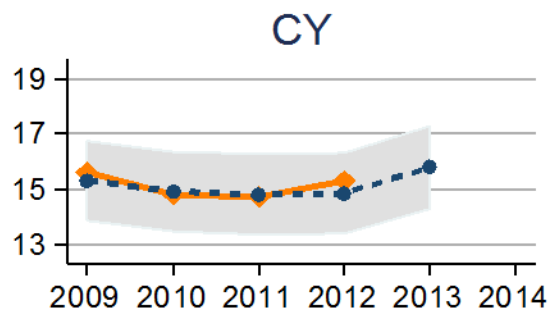
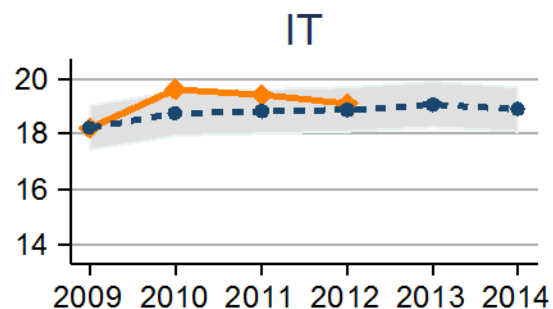
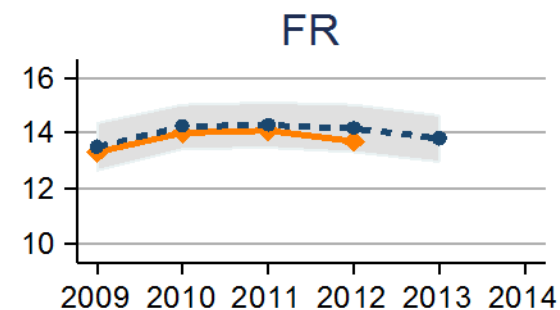
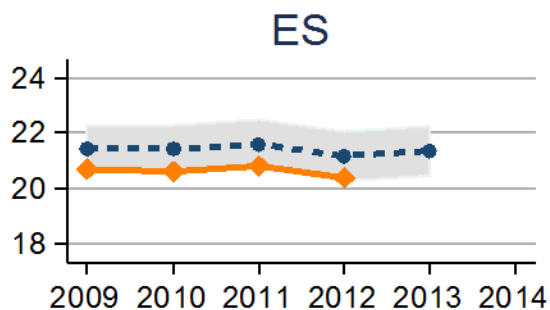
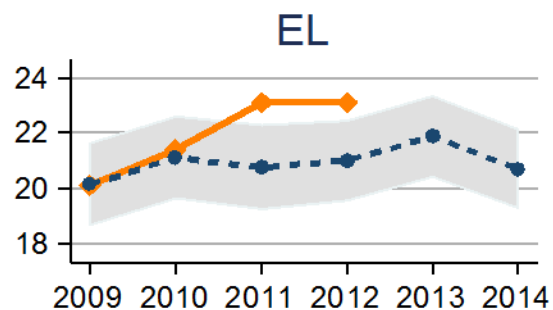
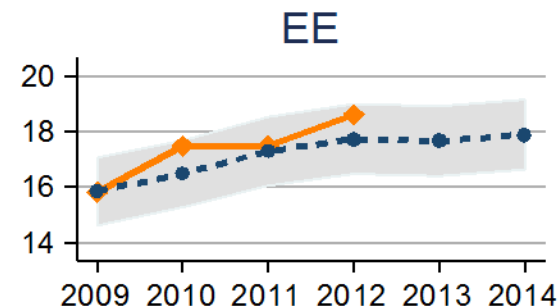
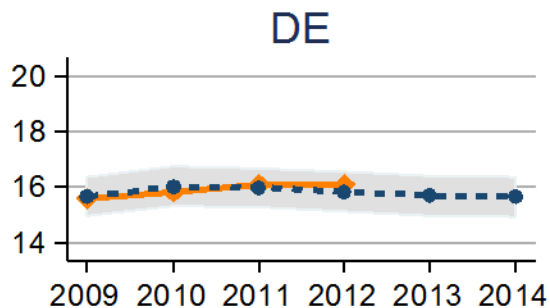
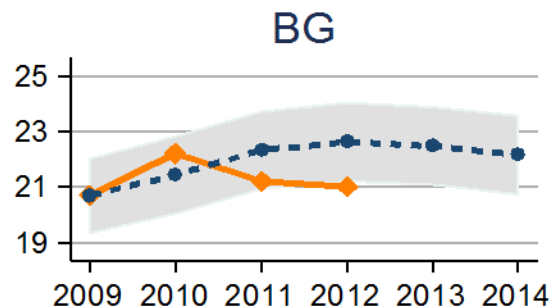
Social Situation Monitor, Research Note 1/2014:

“Nowcasting: estimating developments in the risk of poverty and income distribution in 2013 and 2014” by Olga Rastrigina, Chrysa Leventi and Holly Sutherland (2014)

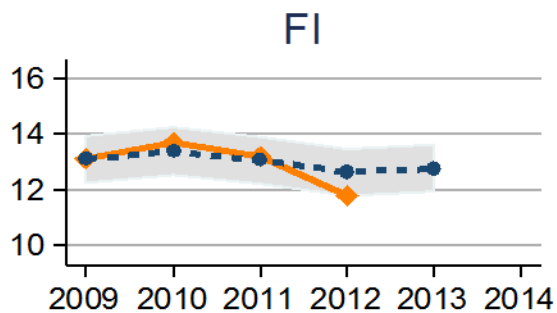
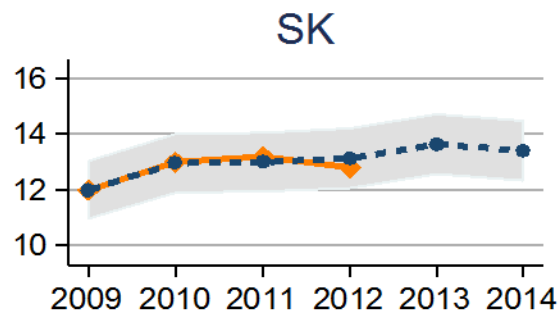
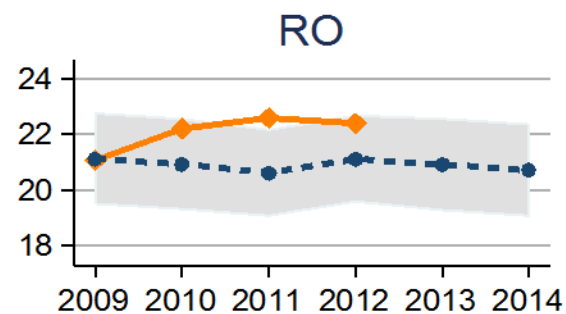
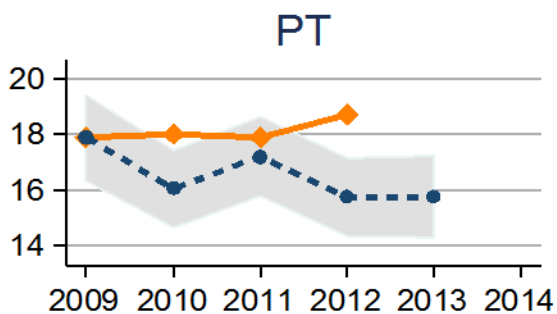
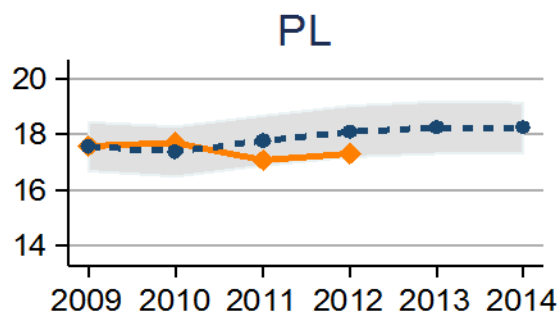
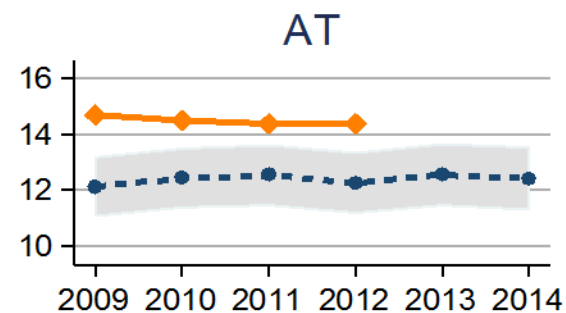
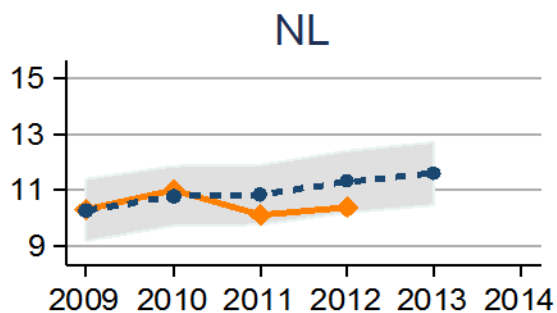
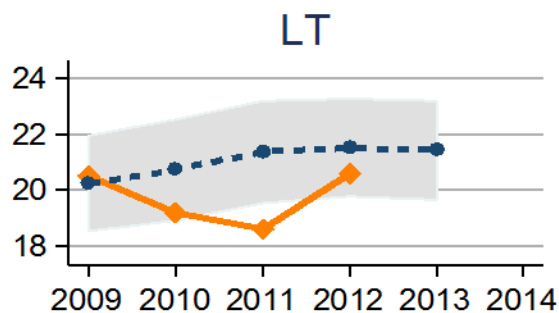
Available at: <http://ec.europa.eu>



Results (1): AROP

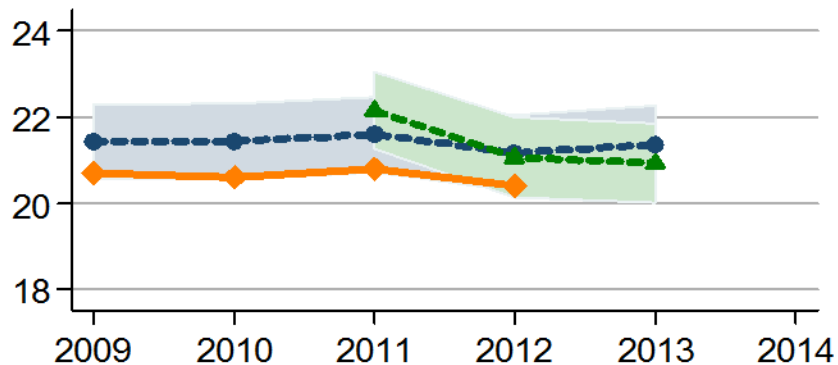


Results (2): AROP

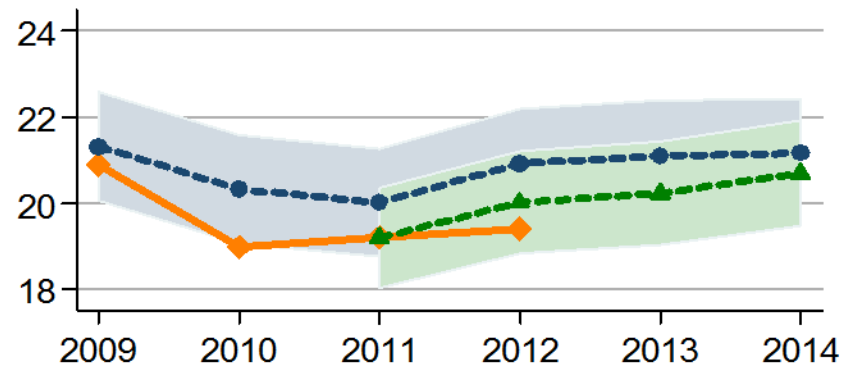


Results (3): AROP using SILC 2010 & 2012

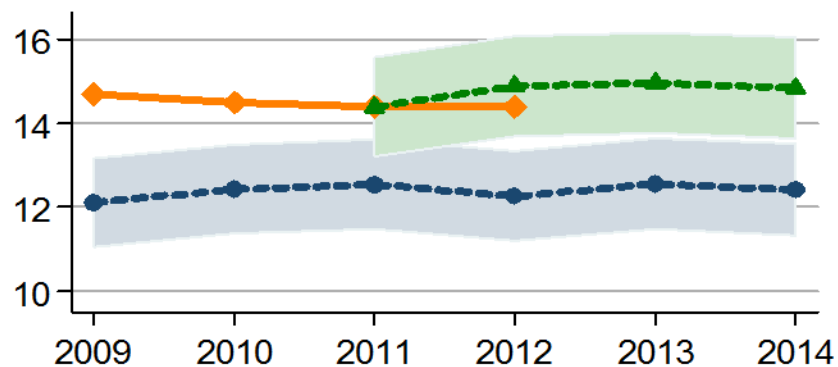
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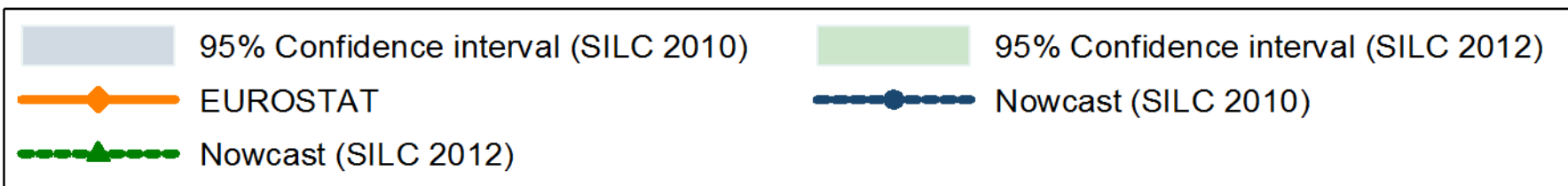
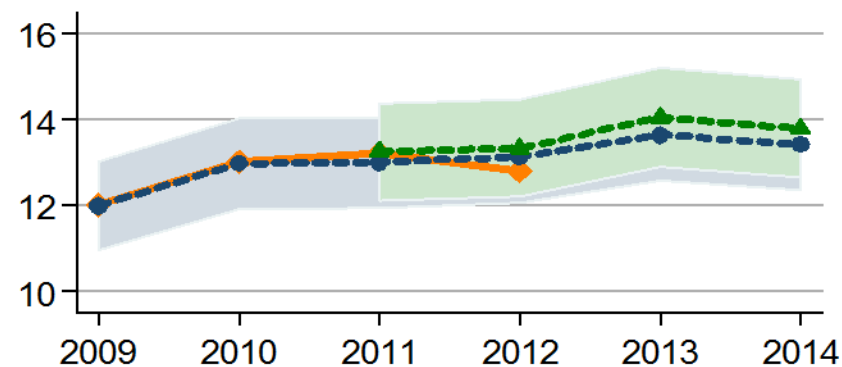
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Results (4): main developments in 2012-2013/14

	Household income change in %	At risk of poverty change in percentage points		
	Median	All	Children	Elderly
Bulgaria (in BGN)				
2012-2014	10.9***	-0.5†	-0.1	-1.4***
Germany				
2012-2014	2.5***	-0.2†	0.2	0.2*
Greece				
2012-2014	-10.2***	-0.3	-1.8*	0.2
Spain				
2012-2013	0.0	-0.1	-0.1	-1.2***
France				
2012-2013	-0.9***	-0.4*	-0.4	-1.6***
Cyprus				
2012-2013	-2.6***	1.0*	1.5*	-1.4**
Latvia (in LVL)				
2012-2014	13.9***	0.7†	-1.7**	8.8***
Romania (in RON)				
2012-2014	9.6***	-0.4	-1.6**	1.8***

Note: † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Results (5): main developments in 2012-13/14

- Total AROP increases in:
 - ✓ **Cyprus** (+ 1.0 pts in 2012-13)
- Total AROP decreases in:
 - ✓ **France** (- 0.4 pts in 2012-23)
- Child poverty:
 - ✓ Increases in **Cyprus** (by 1.5 pts)
 - ✓ Decreases in **Greece, Latvia, Romania** (by more than 1.5 pts)
- Poverty risk among elderly is very volatile:
 - ✓ Increase in the **Baltic states** and **Romania**
 - ✓ Decrease in **Bulgaria, Spain, France**

Concluding remarks

- In most cases Nowcast and Eurostat AROP estimates follow the same trends and fall within the boundaries of the nowcasted CIs
- Main data issues
 - ✓ Breaks in time series, inconsistencies between SILC and other data sources, large sampling errors and weights
- Main methodological issues
 - ✓ Not accounting for all types of transitions
 - ✓ Changes in demographics and household structure not currently modelled
 - ✓ Difficulty in capturing changes in the distribution of market incomes
 - Limited information for the latest policy year

Steps forward

- Cover all EU 28
- Test different methods to select observations for transitions
- Improve wage estimation for new employees
- (?) Account for demographic changes and changes in household structure by reweighting
- (?) Model more types of transitions
- Decomposing changes into policy-related and employment-related

Thank you!

