

Assessing reliability of aggregated inflation views in the European Commission Consumer Survey

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Research question and motivation:

- Do qualitative and quantitative inflation views of individual consumers match each other?
- What is the impact of inconsistent responses on aggregate inflation expectations?
- Why important:
 - informs about reliability of inflation expectations estimates in the largest European consumer survey, which is widely used in economic and policy analysis,
 - inflation expectations of consumers are important determinants of their economic decisions.

Data and methods:

- Fully comparable confidential micro-level datasets for Finland and Poland since May 2003 (monthly frequency, repeated cross-sections).

Quantitative survey questions:

Q51 - By how many percent do you think that consumer prices have gone up/down over the past 12 months?

Q61 - By how many percent do you expect consumer prices to go up/down in the next 12 months?

Q61 - Q51 = (quantitative) expected change in inflation

Qualitative survey question:

Q6 - "By comparison with the past 12 months, how do you expect that consumer prices will develop over the next 12 months? They will: [E1] increase more rapidly; [E2] increase at the same rate; [E3] increase at a slower rate; [E4] stay about the same; [E5] fall; [E6] don't know."

[E1], [E2], [E3] – direction of expected change in inflation

Our definition of inconsistency of the individual response:

- "Consumer prices will increase more rapidly", but the quantitative expected change in inflation is non-positive,
- "Consumer prices will increase at a slower rate", but the quantitative expected change in inflation is non-negative,
- "Consumer prices will increase at the same rate", but the quantitative expected change in inflation is considerably different from zero (various thresholds employed: 0%-50%)
- We calculate the share of consumers who declare inconsistent views of inflation.
- We link inconsistency of responses to socio-economic characteristics of individual consumers (binary outcome model on micro data).
- We look for differences in micro level expectations formation between consistent and inconsistent consumers (Easaw et al. 2013):

$$\pi_i^e = c + c^*INC_i + \alpha\pi_i^p + \alpha^*INC_i \times \pi_i^p + \beta\pi^{exp} + \beta^*INC_i \times \pi^{exp} + \sum_k \gamma_k P_i^k + \sum_k \gamma_k^* INC_i \times P_i^k + \varepsilon_i \quad (1)$$

where: π_i^e (π_i^p) – quantitative expectations (perception), π^{exp} – experts' forecasts, P_i^k – consumers' characteristics, INC – dummy variable indicating inconsistent responses.

- We construct alternative aggregate inflation views by excluding inconsistent responses, and estimate epidemiological model (Carroll, 2003):

$$\pi_t^e - (\pi_t^p - \pi_{t-1}) = \gamma + \lambda\pi_t^{exp} + (1 - \lambda)[\pi_{t-1}^e - (\pi_{t-1}^p - \pi_{t-2})] + \varepsilon_t \quad (2)$$

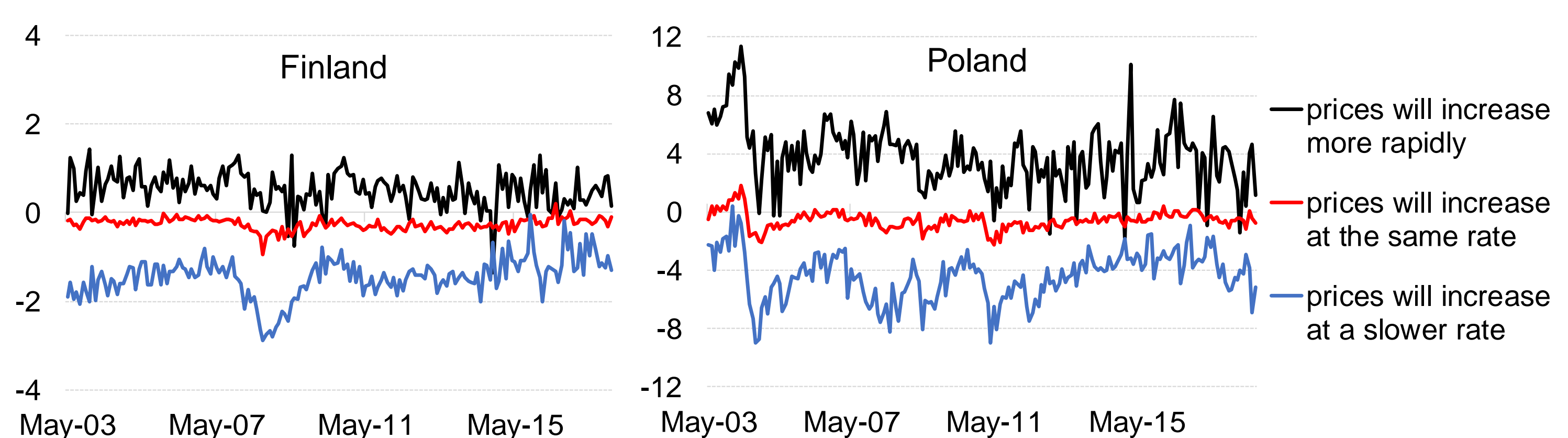
Conclusions:

- The share of inconsistent consumers is non-negligible (15 – 25%) and varies with inflation rate.
- Socio-economic factors matter: higher levels of income and education decrease tendency to have inconsistent views.
- Inconsistent consumers seem to follow experts' forecasts less intensively (micro-level evidence).
- Inconsistent responses have limited impact on aggregated inflation views and do not affect results on expectations formation based on aggregated data.
- The current European Commission Consumer Survey dataset for Finland and Poland is reliable.

Results:

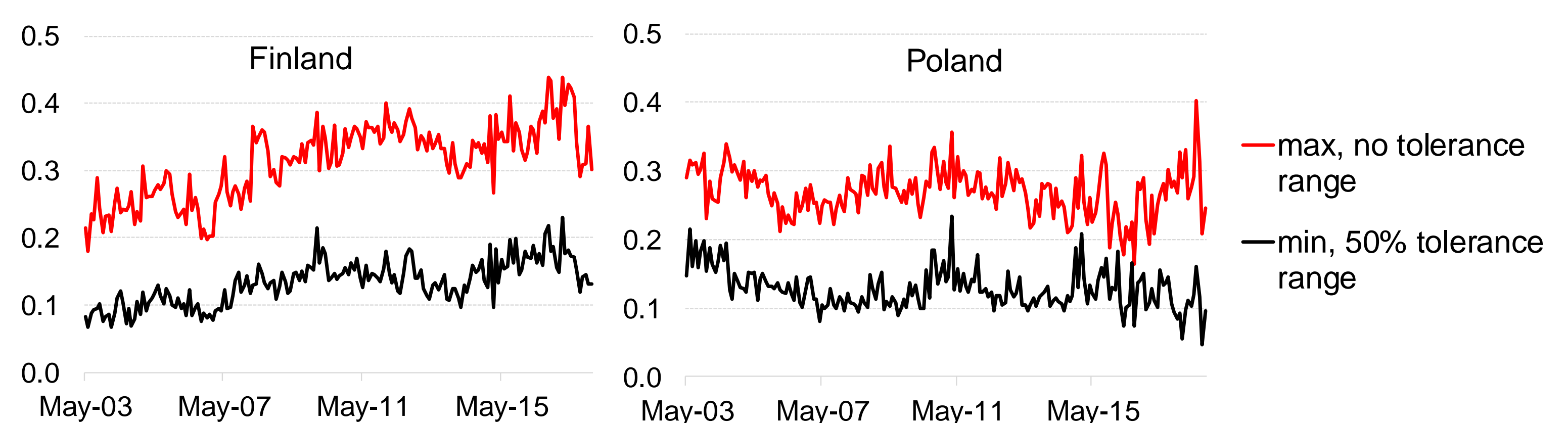
- Inflation views are consistent at aggregate level...

Fig. 1. Average expected change in inflation for different qualitative inflation views



- ... but at individual level, the share of inconsistent responses is considerable:

Fig. 2. Share of inconsistent individual responses



- Share of inconsistent responses varies with inflation rate. In Finland (Poland) male, higher income, higher education, middle-aged consumers (higher income and higher education consumers) are less likely to have inconsistent views.
- Inconsistent consumers follow expert forecasts to a lesser degree than consistent.

Tab. 1. Micro-level evidence on expectations formation (model (1), estimates of selected parameters)

	Finland				Poland			
	π^p	$INC \times \pi^p$	π^{exp}	$INC \times \pi^{exp}$	π^p	$INC \times \pi^p$	π^{exp}	$INC \times \pi^{exp}$
Model without interactions	0.72***		0.07***		0.77***		0.90***	
No tolerance range	0.80***	-0.19***	0.11***	-0.08***	0.85***	-0.22***	1.00***	-0.39***
10% tolerance range	0.80***	-0.20***	0.11***	-0.09***	0.85***	-0.23***	1.00***	-0.37***
20% tolerance range	0.80***	-0.23***	0.10***	-0.09***	0.85***	-0.26***	0.96***	-0.26***
30% tolerance range	0.80***	-0.24***	0.10***	-0.10***	0.85***	-0.27***	0.93***	-0.17
40% tolerance range	0.78***	-0.24***	0.09***	-0.90***	0.83***	-0.25***	0.91***	-0.11
50% tolerance range	0.76***	-0.20***	0.09***	-0.10***	0.81***	-0.21***	0.92***	-0.22

- Inconsistent responses do not distort aggregate inflation perception and expectations:

- Inconsistent responses have only minor impact on aggregated inflation views (means, balance statistics, disagreement measures),
- The propensity to follow professional forecasters (λ) estimated on the basis of only consistent survey responses is the same as estimated on original dataset.

Tab. 2. Macro-level evidence on expectations formation (estimation results of model (2))

	Finland				Poland			
	γ	λ	adj.R ²	F-prob., λ	γ	λ	adj.R ²	F-prob., λ
Original data	-0.02	0.08**	0.90	-	-0.27***	0.16***	0.78	-
Adjusted data (no tolerance range)	-0.02	0.07**	0.90	0.89	-0.19**	0.15***	0.80	0.78
Adjusted data (10% tolerance range)	-0.02	0.07**	0.90	0.89	-0.18**	0.14***	0.81	0.65
Adjusted data (20% tolerance range)	-0.02	0.07**	0.90	0.89	-0.18**	0.14***	0.81	0.63
Adjusted data (30% tolerance range)	-0.02	0.07**	0.90	0.89	-0.18**	0.14***	0.81	0.62
Adjusted data (40% tolerance range)	-0.02	0.07**	0.90	0.91	-0.19**	0.13***	0.81	0.59
Adjusted data (50% tolerance range)	-0.02	0.07**	0.90	0.93	-0.20**	0.13***	0.81	0.59

- Inconsistent responses do not explain positive bias in quantitative inflation views.