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## Medium- vs. short-term consumer inflation expectations: evidence from a new euro area survey

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\*The views expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland, Narodowy Bank Polski or the Eurosystem.

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## Motivation and research questions:

- Consumer inflation expectations are important for monetary policy makers
- Limited evidence on longer-term inflation expectations of European consumers due to lack of data
- How do euro area consumers revise their medium-term inflation expectations?
- What was the impact of Covid-19 pandemic on consumer inflation expectations?
- Do consumers who trust the ECB have less responsive inflation expectations?

## Survey data

- New monthly ECB Consumer Expectations Survey (waves from April to September 2020)
- Micro level panel data for six euro area economies
- Data on qualitative and quantitative inflation views in various horizons (current inflation, 12-month-ahead inflation, 3-year-ahead inflation)
- Measure of concerns about domestic economy due to Covid-19 pandemic and of level of trust in the ECB institution

## Empirical specifications:

- Assessment of responsiveness of medium-term inflation expectations ( $\pi_{it}^{3Y}$ ) to current price changes (inflation perceptions,  $\pi_{it}^P$ ) and changes in short-term expectations ( $\pi_{it}^{1Y}$ ) which filter shocks and information relevant for future inflation:

$$\Delta\pi_{it}^{3Y} = \alpha_i + \beta\Delta\pi_{it}^P + \gamma Covid_{it} + \mu X_{it} + e_{it}$$

$$\Delta\pi_{it}^{3Y} = \alpha_i + \beta\Delta\pi_{it}^{1Y} + \gamma Covid_{it} + \mu X_{it} + e_{it}$$

- *Covid* dummy captures increased concern about domestic economy
- Control variables ( $X$ ): demographic, financial literacy, economic sentiments, time effects, country effects
- We also consider models with interactions with trust in ECB ( $I=1$  if high trust in ECB)

## Main findings

- Medium-term inflation expectations adjust to changes in perceived inflation and they increased due to the Covid-19 (Table 1)
- Responsiveness of medium-term inflation expectations is lower than responsiveness of short-term inflation expectations (Table 1)
- Medium-term inflation expectations adjust to changes in short-term inflation expectations, even after orthogonalizing them with respect to changes in perceived inflation ( $\tilde{\pi}_{it}^{1Y}$ ) (Table 1)
- Results are qualitatively unchanged if we use qualitative inflation expectations, consider individual countries, or control for change in individual uncertainty
- Consumers who trust more central bank adjust their medium-term inflation expectations to a lesser degree than consumers with low trust (Table 2)
- Consumers with higher trust in the ECB did not increase medium-term inflation expectations during Covid-19 (Table 2)

Table 1. Baseline results on responsiveness

Variable	$\Delta\pi^{1Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$
$\Delta\pi^P$	0.38***	0.19***	-	-
$\Delta\pi^{1Y}$	-	-	0.29***	-
$\Delta\tilde{\pi}^{1Y}$	-	-	-	0.26***
Cov	0.33***	0.21**	0.11	0.12
<i>demographics</i>	yes	yes	yes	yes
<i>sentiment</i>	yes	yes	yes	yes
<i>country effects</i>	yes	yes	yes	yes
<i>time effects</i>	yes	yes	yes	yes
N	42 218	42 218	42 218	42 218
$R^2_{overall}$	0.121	0.026	0.068	0.050

Notes: Random effect estimations with robust standard errors (clustered at country level).  
\*/\*\*/\*\* denotes statistical significance at 10%, 5% and 1% level.

Table 2. Responsiveness and trust in ECB

Variable	$\Delta\pi^{1Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$
$\Delta\pi^P$	0.40***	0.22***	-
$I \times \Delta\pi^P$	-0.06**	-0.07***	-
$\Delta\pi^{1Y}$	-	-	0.32***
$I \times \Delta\pi^{1Y}$	-	-	-0.07**
Cov	0.43***	0.43***	0.29***
$I \times Cov$	-0.16	-0.34*	-0.27
I	0.01	0.04	0.01
<i>demographics</i>	yes	yes	yes
<i>sentiment</i>	yes	yes	yes
<i>country effects</i>	yes	yes	yes
<i>time effects</i>	yes	yes	yes
$H_0: \gamma + \gamma^* = 0$	4.5	0.33	0.02
p-val.	0.03	0.56	0.89
N	40 911	40 911	40 911
overall $R^2$	0.12	0.03	0.07

Notes: Random effect estimations with robust standard errors (clustered at country level).  
\*/\*\*/\*\* denotes statistical significance at 10%, 5% and 1% level.

## Additional findings

- Limited cross-country heterogeneity in responsiveness of medium-term inflation expectations (Table 3)
- No asymmetry in adjustments of medium-term inflation expectations to increases/decreases in inflation perceptions and short-term expectations (Table 4)

Table 3. Responsiveness in individual countries

	BE	FR	DE	IT	NL	ES
	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$
$\Delta\pi^{1Y}$	0.26***	0.30***	0.32***	0.30***	0.27***	0.27***
<i>Cov</i>	0.17	-0.11	0.28***	0.32	-0.21	0.07
<i>demographics</i>	yes	yes	yes	yes	yes	yes
<i>sentiment</i>	yes	yes	yes	yes	yes	yes
<i>time effects</i>	yes	yes	yes	yes	yes	yes
<i>N</i>	4 368	8 179	7 928	9 189	4 072	8 482
$R^2_{overall}$	0.057	0.067	0.097	0.067	0.064	0.072

Notes: Random effect estimations with robust standard errors.

\*/\*\*/\*\*\* denotes statistical significance at 10%, 5% and 1% level.

Table 4. Asymmetry in responsiveness

Variable	$\Delta\pi^{1Y}$	$\Delta\pi^{3Y}$	$\Delta\pi^{3Y}$
$\Delta\pi^{P+}$	0.38***	0.19***	-
$\Delta\pi^{P-}$	0.38***	0.19***	-
$\Delta\pi^{1Y+}$	-	-	0.29***
$\Delta\pi^{1Y-}$	-	-	0.29***
<i>Cov</i>	0.33***	0.21**	0.11
<i>demographics</i>	yes	yes	yes
<i>sentiment</i>	yes	yes	yes
<i>country effects</i>	yes	yes	yes
<i>time effects</i>	yes	yes	yes
$H_0 : \beta^+ = \beta^-$	0.01	0.04	0.00
<i>p-val.</i>	0.908	0.846	0.981
<i>N</i>	42 218	42 218	42 218
$R^2_{overall}$	0.121	0.026	0.068

Notes: Random effect estimations with robust standard errors (clustered at country level).

\*/\*\*/\*\*\* denotes statistical significance at 10%, 5% and 1% level.

## Conclusions

- We use micro-dataset from novel ECB Consumer Expectations Survey to investigate how euro-area consumers revise their medium-term inflation expectations
- We find that medium-term inflation expectations adjust to current economic conditions
  - responsiveness of medium-term inflation expectations is lower than responsiveness of short-term inflation expectations
  - medium-term inflation expectations react symmetrically to increases and decreases in inflation perceptions and short-term inflation expectations
  - limited cross-country heterogeneity in responsiveness of medium-term inflation expectations
  - high trust in the ECB is related to lower responsiveness of inflation expectations
- The Covid-19 pandemic contributed to higher inflation expectations

### Additional slides: wording of questions

- How much higher/lower do you think prices in general are now compared with 12 months ago in the country you currently live in? Please give your best guess of the change in percentage terms.
- How much higher/lower do you think prices in general will be 12 months from now in the country you currently live in? Please give your best guess of the change in percentage terms.
- By about what percentage do you expect prices in general in the country you currently live in to increase/decrease over the 12-month period between [survey month, year+2] and [survey month, year+3]? Please give your best guess of the change in percentage terms.
- How concerned are you about the impact of the coronavirus (COVID-19) on Your country's economic situation? (0 – not concerned at all, 10 – extremely concerned)
- How much do you trust the European Central Bank? (0 – no trust at all, 10 – trust completely)

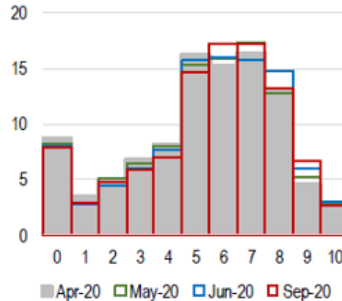
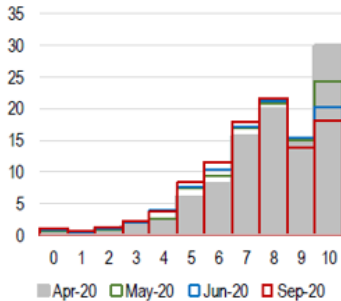
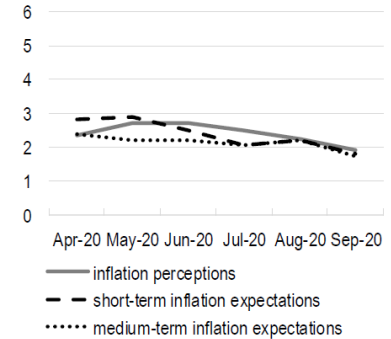
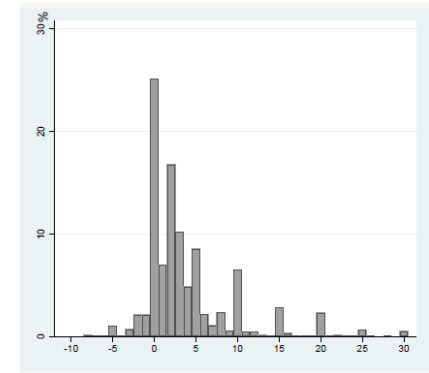


Figure 1. Level of inflation views

(a) Aggregated (medians)



(b) Individual responses (distribution)



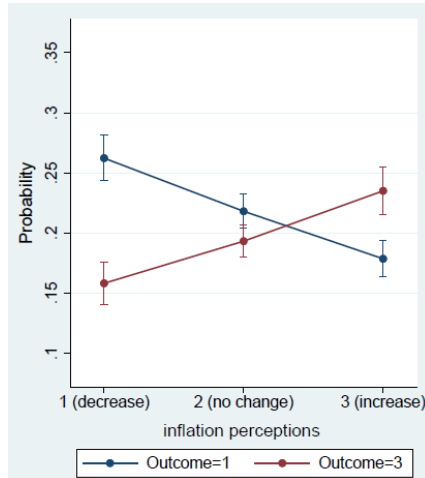
## Additional slides: robustness check using qualitative inflation views

Quantitative vs qualitative inflation views:

- Are qualitative inflation views more reliable than quantitative inflation views? (Pesaran and Weale, 2006)
- Qualitative responses are not affected by rounding
- Are changes in qualitative views more important for consumers' economic decisions? intensive margin vs extensive margin of expectations changes (Andrade et al., 2020)

Figure 4. Marginal effects based on ordered multinomial models (impact on medium-term inflation expectations)

(a) Effect of changes in inflation perceptions



(b) Effect of changes in short-term expectations

