Consumer Inflation Expectations before and after the 2022 Inflation Spike: The Role of Perceived and Realised Inflation

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This Paper in Brief

Question
- How has the relationship between consumers' **short-term inflation expectations** and **perceived** and **realised inflation** changed in the euro area after the 2022 inflation surge?

Method
- Individual-level panel data from the ECB **Consumer Expectation Survey (CES)** & mixed-method approach to estimate fixed and random effects across two sub-periods.

Findings
- **Before 2022: inflation perceptions strongly influenced expectations, while realised inflation had no impact.**
- **From 2022 onwards: the influence of perceptions on expectations diminished, and realised inflation mattered.**
- Findings are broadly consistent with the *rational inattention theory:* individuals pay more attention to inflation when inflation levels are high and uncertainty increases.

Research Problem

Pandemic, energy crisis, Russia's full-scale invasion of Ukraine → surge in inflation and heightened economic uncertainty → changes in consumer behaviour and perception of the economy → changes in how inflation expectations are formed?

Focus of This Paper

- How the formation of consumer inflation expectations in the euro area has changed following the 2022 inflation surge.
- Two measures of inflation used to explain the dynamics of inflation expectations: **inflation perceptions**, a subjective sentiment measure reported by individuals, and the constructed **individualised inflation rate**, representing a more objective experience with prices.

Data

- Panel microdata from the ECB Consumer Expectation Survey (CES) for six euro area countries: BE, DE, FR, ES, IT, NL.

Key Variables

- Dependent variable: **Expected inflation 12 months ahead ($\pi^{e}_{i,t}$)**
- Key explanatory variable 1: **Inflation perceptions for the past 12 months ($\pi^{per}_{i,t}$)**
- Key explanatory variable 2: **Individualised inflation rate ($\pi^{ind}_{i,t}$)**

Construction of Individualised Inflation Rate

- Calculated as a **weighted average of year-on-year changes in category-specific HICP indices:**

$$\pi^{ind}_{i,t} = \sum_{j=1}^{w} w_{j,i,q(t)} \Delta HICP_{j,t}$$

$w_{j,i,q(t)}$ - consumption share of individual *i* for category *j* in quarter $q(t)$, calculated based on consumption patterns reported in the CES.
$\Delta HICP_{j,t}$ - y-o-y change in the HICP for category *j* in month *t.*

Methodology

- **Mixed-effects linear regression**: estimating fixed effects for population averages and random effects for individual deviations.

Baseline Specification Across Two Sub-periods

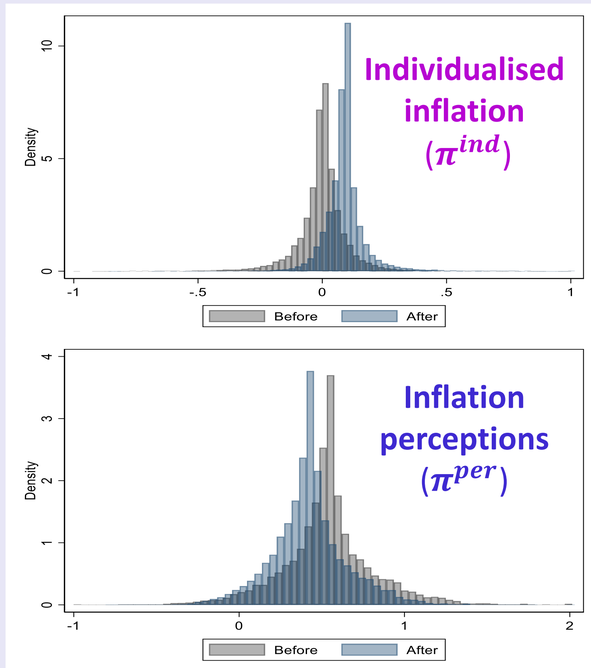
$$\pi^{e}_{i,t} = \underbrace{\beta_0 + \beta_1 \pi^{per}_{i,t} + \beta_2 \pi^{ind}_{i,t} + \beta_3 X_i + \gamma_c}_{\text{fixed portion}} + \underbrace{u_{0i} + u_{1i} \pi^{per}_{i,t} + u_{2i} \pi^{ind}_{i,t}}_{\text{random portion}} + \varepsilon_{i,t}$$

- April 2020 – February 2022: period **before** the inflation spike
- March 2022 – March 2024: period **after** the inflation spike

Results for the Pooled Sample

	Mixed 1 – RIM		Mixed 2 – RIRSM	
	Before	**After**	**Before**	**After**
π^{per}	0.533***	0.413***	0.535***	0.426***
	(0.0058)	(0.0042)	(0.0041)	(0.0027)
π^{ind}	0.008**	0.077***	-0.001	0.092***
	(0.0038)	(0.0030)	(0.0034)	(0.0025)
Var (u_{1i})			0.179	0.108
			(0.0042)	(0.0017)
Var(u_{2i})			0.051	0.042
			(0.0042)	(0.0030)
Var (u_{0i})	8.085	20.188	3.646	3.181
	(0.2488)	(0.4229)	(0.1972)	(0.3200)
Var (ε_i)	16.737	29.906	12.979	23.856
	(0.2571)	(0.3921)	(0.2257)	(0.3579)
Demogr. controls	X	X	X	X
Individual intercept	X	X	X	X
Individual slopes			X	X
Country dummies			X	X
Observations	241,477	292,487	241,477	292,487

Illustration of Random Effects



Country-Level Results

	Belgium		Germany		Spain	
	Before	**After**	**Before**	**After**	**Before**	**After**
π^{per}	0.534***	0.387***	0.473***	0.488***	0.531***	0.395***
	(0.0134)	(0.0094)	(0.0098)	(0.0063)	(0.0089)	(0.0058)
π^{ind}	0.019***	0.089***	-0.016*	0.084***	-0.027***	0.110***
	(0.0053)	(0.0051)	(0.0082)	(0.0071)	(0.0064)	(0.0064)
Demogr. controls	X	X	X	X	X	X
Individual intercept	X	X	X	X	X	X
Individual slopes	X	X	X	X	X	X
Observations	20,745	20,518	48,393	59,578	50,467	62,422

	France		Italy		Netherlands	
	Before	**After**	**Before**	**After**	**Before**	**After**
π^{per}	0.560***	0.445***	0.556***	0.403***	0.578***	0.373***
	(0.0092)	(0.0058)	(0.0081)	(0.0056)	(0.0158)	(0.0100)
π^{ind}	-0.008	0.245***	0.027***	0.091***	-0.0012	0.053***
	(0.0123)	(0.0133)	(0.0080)	(0.0046)	(0.0065)	(0.0040)
Demogr. controls	X	X	X	X	X	X
Individual intercept	X	X	X	X	X	X
Individual slopes	X	X	X	X	X	X
Observations	49,615	62,781	52,587	66,613	19,670	20,575

Key Takeaways

- Strong positive relationship between **inflation perceptions** and **short-term inflation expectations** during both periods studied.
- Before 2022, when inflation was low, **perceptions** played a significant role in shaping expectations, while **individualised inflation** was unimportant.
- From 2022 onwards, during a period of high inflation, the impact of **perceptions** decreased, and the importance of **individualised inflation** increased markedly, suggesting that individuals pay more attention to actual prices when inflation is high.