The asymmetric and heterogeneous pass-through of input prices to firms' expectations and decisions

Fiorella De Fiore*, Marco Jacopo Lombardi* & Giacomo Mangiante**

*BIS, **Bank of Italy

Introduction

- The **pass-through** from input prices to firms' price expectations and decisions is of pivotal importance for central banks
- Particularly in contexts of **inflationary pressures and supply chain disruptions**
- **Limited empirical evidence** due to lack of data availability

This paper in a nutshell

- Leverage rich data from the **Survey on Inflation and Growth Expectations** (SIGE) run since 1999
- Quarterly data on firms' expected and realised price growth
- Compute a measure of firm-level input price shocks, i.e., input price forecast errors
- Evaluate pass-through to firms' expectations and decisions
- Main findings:
  - **Strong pass-through** to both firm specific and aggregate expectations (and decisions)
  - Asymmetric effects in the sign of the shock
  - Important heterogeneity across **macroeconomic conditions** and **firms' characteristics**
  - **Providing information** to firms about the economy can dampen it

Pass-through to firms' own prices

- Estimate the following empirical specification:

$$E_t^i\left(y_{t,t+j}^i\right) = \alpha + \omega^i + \delta_t + \beta \, Input\ Price\ FE_t^i + \theta X_t^i + \varepsilon_t^i$$

- $E_t^i\left(y_{t,t+j}^i\right)$ expectation of firm i relative to the horizon $t+j$
- $InputPriceFE_t$ the **input price forecast errors**, i.e., realized minus expected input prices growth:
- Controls: firm, time, size, sector and area fixed effects

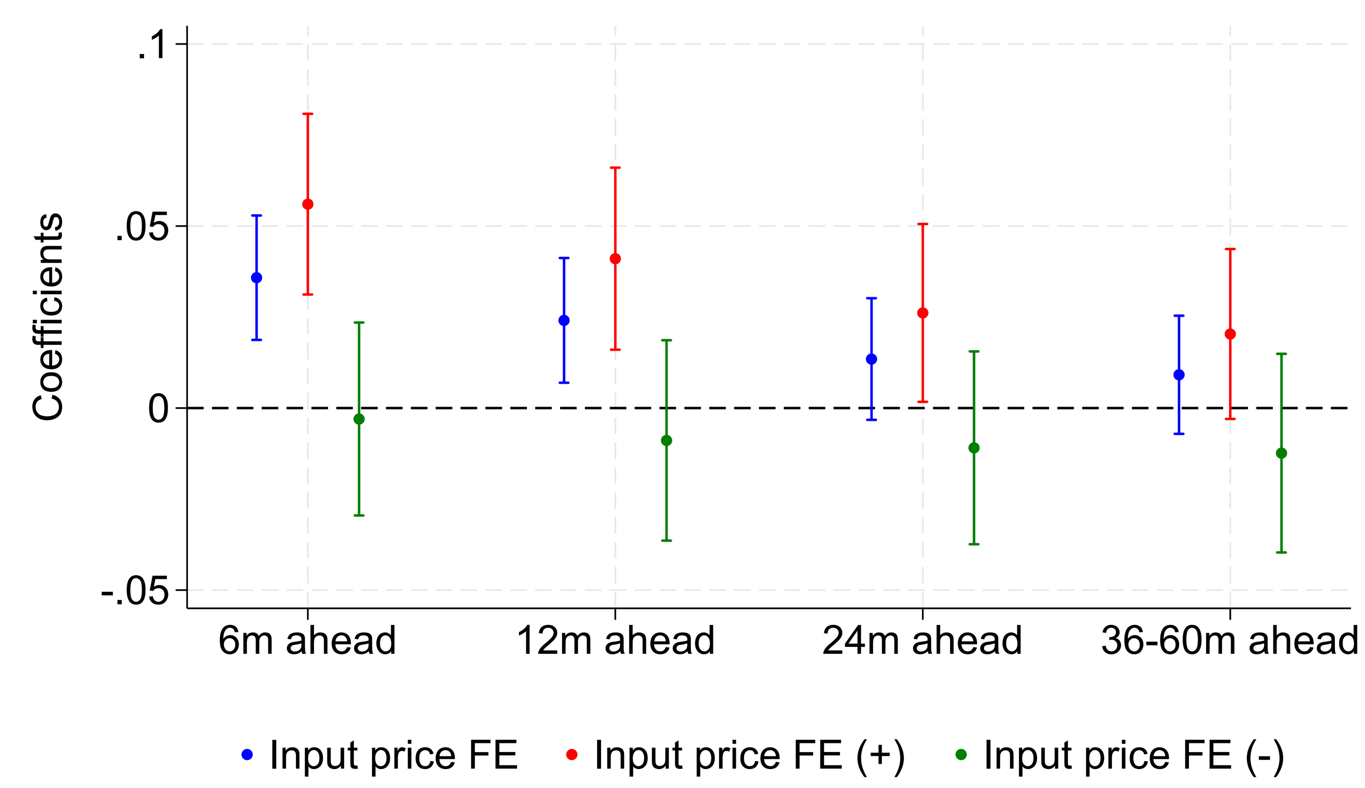
Table 1: Pass-through to firms' own expected and realised price growth

	(1) Exp. input price	(2) Exp. own price	(3) Realized own price	(4) Exp. own price	(5) Realized own price
Input price FE	1.000***	0.299***	0.187***		
	(0.0423)	(0.0274)	(0.0401)		
Input price FE (+)				0.362***	0.228***
				(0.0441)	(0.0645)
Input price FE (-)				0.185***	0.102**
				(0.0345)	(0.0513)
Constant	3.274***	2.043***	2.601***	1.960***	2.546***
	(0.0110)	(0.00743)	(0.0146)	(0.0342)	(0.0528)
Observations	25255	25206	16068	25206	16068
R^2	0.559	0.439	0.444	0.440	0.444
Controls	YES	YES	YES	YES	YES

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Pass-through to inflation expectations

Figure 1: Input price FE and firms' inflation expectations.

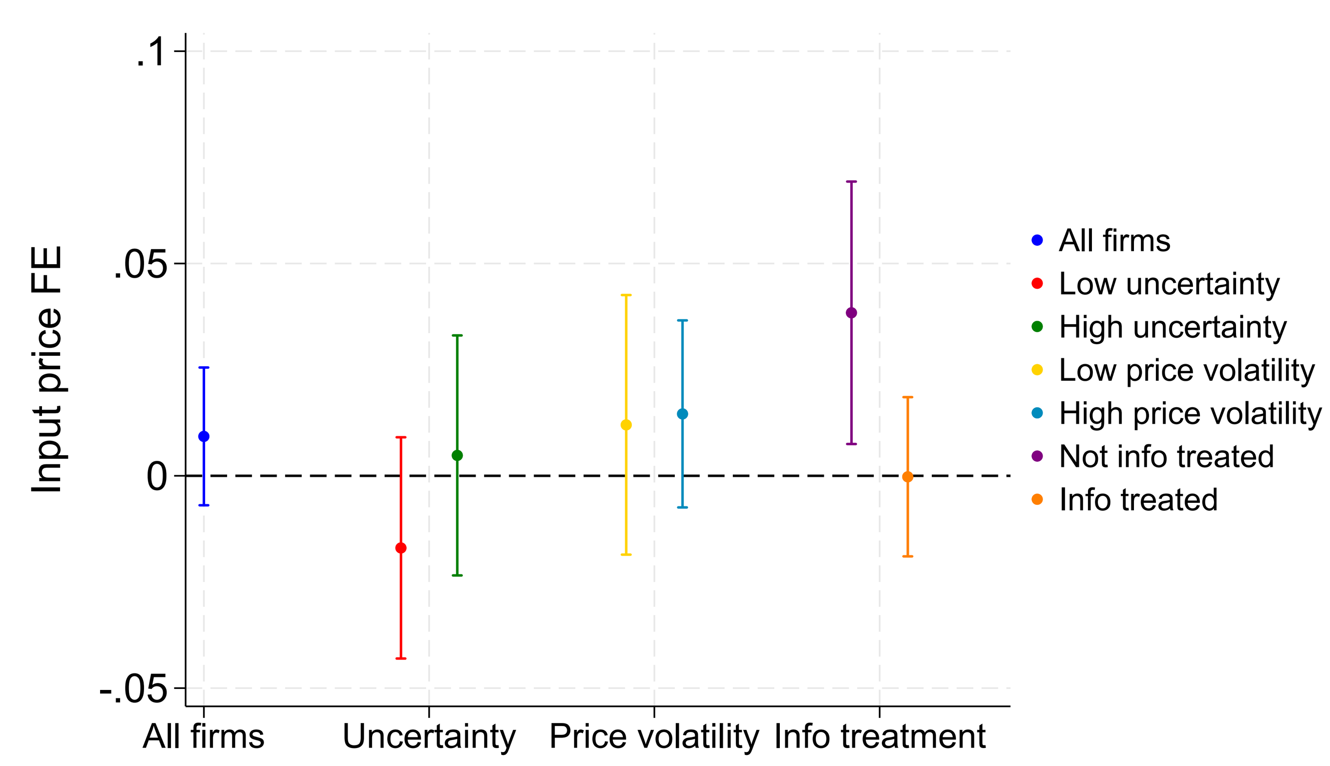


- **Short- and medium-term inflation expectations** rise in response to input price shocks
- **Long-term expectations** remain well anchored
- The effect is driven entirely by positive surprises

Heterogeneity

- Pass-through is influenced by firms' characteristics
- We consider different macro conditions and characteristics:
  - High vs low inflation
    ⇒ In high inflation, firms focus more on **aggregate rather than firms-specific shocks**
  - Size and sector
    ⇒ Stronger pass-through in **upstream sectors**
  - Uncertainty and price volatility
    ⇒ Stronger for firms with **high uncertainty**
  - Balance sheet data
    ⇒ Important role of profit margin, markup and liquidity ratio
  - Receiving information about current inflation rate dampens pass-through to expected inflation:

Figure 2: Pass-through to inflation expectations (36-60m)



Contact

Email: giacomo.mangiante@bancaditalia.it

Twitter: @MangianteGiaco

The views expressed here are those of the authors, and not necessarily those of the Bank for International Settlements, the Bank of Italy or the Eurosystem

Conclusions

- **Strong pass-through** to both firms' specific and aggregate expectations
- Asymmetric effects between positive and negative shocks
- Heterogeneity across **macroeconomic conditions** and **firms' characteristics**
- Central bank communication can influence the pass-through