"Communication, Information and Inflation Expectations"

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Overview

- ▶ Inflation Expectations Survey (IES) from Banco Central del Uruguay (BCU)
  - ▶ October 2009 to March 2020
  - ▶ Sent to about 500 *firms* per month (private, non-financial, non-agricultural)

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  - "price expectations of businesses — who are, after all, the price setters" (Bernanke 2007)
- Firms categorized as "informed about inflation target" (IAIT) and "informed about the inflation rate" (IAIR)
- Contractivity Index (CI) using web scraping and text analysis
- Regressions of expected inflation on lagged inflation, interest rate, CI, IAIT, IAIR

Key Finding

Informed firms have slightly higher inflation expectations and "reduce faster their expectations when inflation is falling and they delay in reacting to the inflation rate when it is growing. These results lead us to think that there is some credibility in the target, even when inflation expectations are outside the inflation target, the range acts as an anchor for expectations."

- ▶ Important and often neglected distinction between "on target" and "anchored."
- ▶ Novel evidence of relationship between credibility and informedness (see Binder 2017 JMacro; Binder and Rodrigue 2018 SEJ).

Classifying IAIT

- ▶ IAIT= 1 if respondent provides exact range [3,7] OR a point within the range, but NOT a partially correct range.
- ▶ But a subset of the true range like [3,6] or a mostly overlapping range like [3,8] probably indicates more information than a single point like 5%.
- ▶ Range was widened from [4-6] to [3-7] in July 2013. A respondent who provides an answer like 5% may or may not be informed of the change.
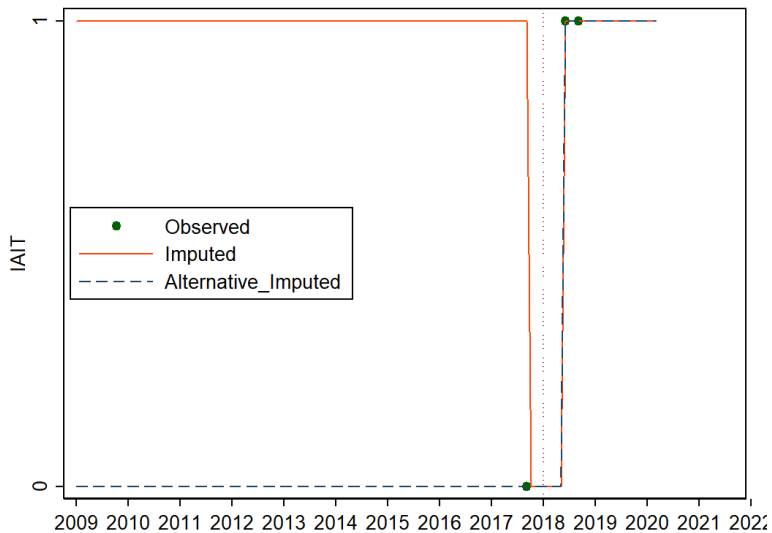
Imputation of IAIT

- Special questions in 3 survey: September 2017, June 2018, September 2018.
- Extrapolation: "To assign values to this variable from the first period until the question is asked for the first time (that is, from October 2009 to September 2017), it is assumed that if the average of the answers exceeds 50% then the firm is informed and not informed in the other case."
  - Informedness likely changes (increases?) from 2009 to 2017.
  - Person at firm taking survey may change too?

Imputation of IAIT

Imputation of IAIT

Imputation of IAIR

▶ Similar extrapolation for dates before September 2015
▶ But informedness about inflation fluctuates a lot over time, so observed IAIR on a few select dates may tell us almost nothing about information at earlier dates.

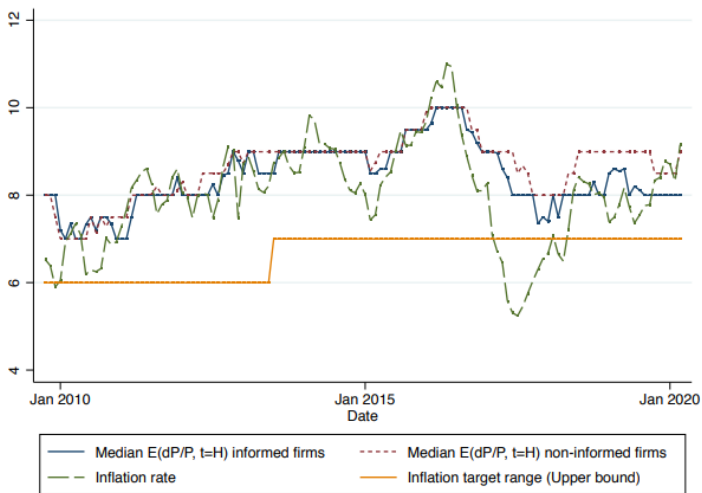Table 4: Percentage of firms informed about inflation rate

Date	Mean	Std. Dev.	Freq.
September 2015	40.99	49.25	383
March 2016	85.75	35.00	379
March 2017	1.20	10.89	334
June 2018	92.67	26.11	300
September 2018	85.17	35.60	290
Total	59.96	49.01	1,686

Imputation or IAIT and IAIR

- ▶ Very large share (about 98%) of values are imputed.
- ▶ Not just noise, since imputation error likely correlated with key variables of interest like inflation.
- ▶ Need to take into account in mean difference tests and regression tables.

Do informed firms really have higher inflation expectations?

Figure 1: Inflation expectations (monetary policy temporal horizon)

Legend:
- Median E(dP/P, t=H) informed firms
- Inflation rate
- Median E(dP/P, t=H) non-informed firms
- Inflation target range (Upper bound)

Informedness and Expected Inflation

▶ Informedness endogenous to inflation, expected inflation, and communication.
  ▶ High π^e ⇒ worried about inflation ⇒ seek info about inflation and monetary policy
  ▶ Financially savvy ⇒ knows about inflation target AND more accurate expectations

Contractivity Index (CI)

▶ Be clear about what CI aims to measure. Policy "shocks"? Communication shocks orthogonal to policy changes?

▶ CI is highly correlated with the policy rate *by construction* since communication about policy changes are coded as $(+2)$ or (-2).

▶ Simple averaging in CI might not be best choice. A highly hawkish statement $(+2)$ along with several neutral statements (0) would average to nearly 0.

Suggested Strategy

▶ Only use data beginning with first special survey date.

▶ Interpolate IAIR and IAIT between survey dates by randomly drawing a "switching date" if value changes.

▶ Bootstrap.

▶ Deal with composition effects by keeping respondents with sufficient observations (rather than including control for number of respondents).

▶ Could test responsiveness of longer-run to expectations depending on IAIT:

$$\Delta E_{it}(\pi_L) = \beta_0 + \beta_1 \Delta E_{it}(\pi_S) + \beta_2 E_{it}(\pi_S) * IAIT_{it} + \beta_3 IAIT_{it} + \epsilon_{it}$$