Credibility Dynamics and Disinflation Plans

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Red Nacional de Investigadores en Economía
October 2020

Announcements

Main question: How are *announcements* of future policy able to affect beliefs?

- Models
  - Commitment
  - Discretion
  - Hybrids
- This paper: rational-expectations theory of government *credibility*
  - Insights from reputation

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Application

Inflation Targeting, disinflation plans

- Model: obstinate/stubborn/crazy types committed to inflation targets
- Planner *(very likely to not be crazy)* announces targets
- Anticipates reputation dynamics once plan in place, weighs against plan itself

Gradualism

Main result: Planner picks a gradual disinflation

- Does not depend on inertia or 'real' effects, only incentives
- High credibility $\neq$ high reputation
- Story
  - CB values your belief that it follows the plan $\implies$ has incentive to "keep the fiction alive"
  - Incentive does not require reputation to be high
  - Strength of the incentive depends on the entire plan
- (Technical but critical) Imperfect control, means $p \in (0, 1)$ continuously
  - Makes some plans *more credible* than others

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- (Technical but critical) Imperfect control, means $p \in (0, 1)$ continuously
  - Makes some plans *more credible* than others $\implies$ gradualism

Model

Framework

- A government dislikes inflation and output away from a target $y^\star > 0$

$$L_t = \mathbb{E}_t \left[\sum_{s=0}^{\infty} \beta^s \left((y^\star - y_{t+s})^2 + \gamma \pi_{t+s}^2 \right) \right] \tag{1}$$

- A Phillips curve relates output to current and expected future inflation

$$\pi_t = \kappa y_t + \beta \mathbb{E}_t \left[\pi_{t+1} \right] \tag{2}$$

- The government controls inflation only imperfectly (through g_t)

$$\pi_t = g_t + \epsilon_t$$

with $\epsilon_t \overset{iid}{\sim} F_\epsilon$

Behavioral/Stubborn types

- What is the set $\mathcal{C}$?
  - ... and associated possible ϕ_c functions
- Consider $\{a_t\}_t$ paths characterized by
  - Starting point a_0
  - Decay rate ω
  - Asymptote χ

$$a_t = \chi + (a_0 - \chi)e^{-\omega t}$$

$$\phi(a) = \chi + e^{-\omega}(a - \chi)$$

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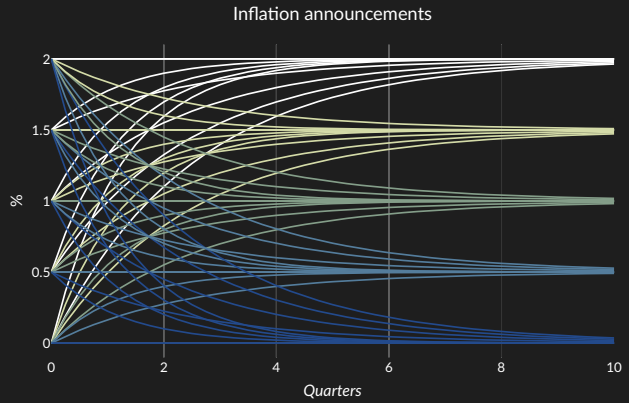
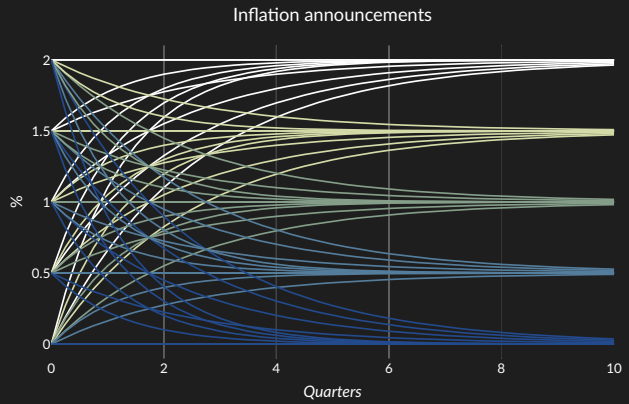


Gameplay

- At $t = 0$, inflation targets are announced
  - Type $c \in \mathcal{C}$ says c
  - Rational type strategizes announces r possibly $\in \mathcal{C}$
- At time $t \geq 0$, the government sets inflation
  - Behavioral type $c \in \mathcal{C}$ implements $g_t = a_t^c$
  - Rational type acts strategically chooses $g_t \lessgtr a_t^c$



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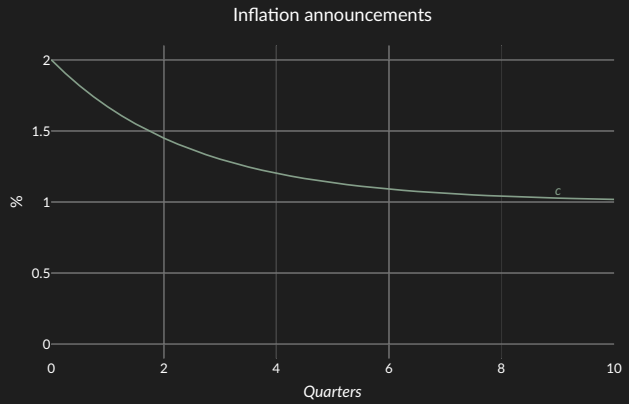

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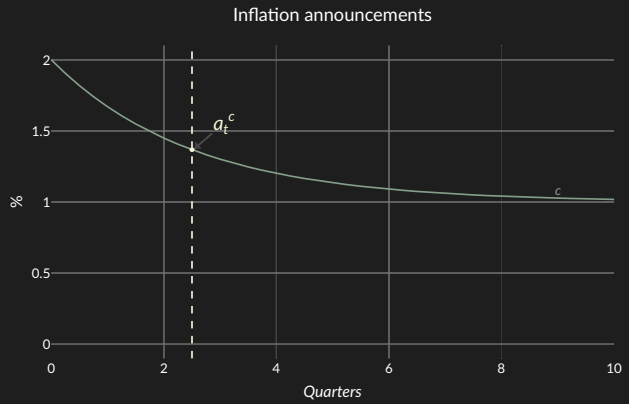

Equilibrium

Rational type's problem

Given an announcement c,

- The problem of the rational type is, given expectations $g_c^\star$

$$\mathcal{L}^c(p,a) = \min_g \mathbb{E}\left[(y^\star - y)^2 + \gamma\pi^2 + \beta\mathcal{L}^c(p', \phi_c(a))\right]$$

$$\text{subject to } \pi = g + \epsilon$$

$$\pi = \kappa y + \beta\left[p'\phi_c(a) + (1-p')g_c^\star(p', \phi_c(a))\right]$$

$$p' = p + p(1-p)\frac{f_\epsilon(\pi - a) - f_\epsilon(\pi - g_c^\star(p,a))}{pf_\epsilon(\pi - a) + (1-p)f_\epsilon(\pi - g_c^\star(p,a))}$$

- Rational expectations requires $g_c^\star$ to be the policy associated with $\mathcal{L}^c$

How to choose the announcement?

- Payoff of starting plan c with reputation p_0

$$\mathcal{L}^c(p_0, a_0^c)$$

- If in equilibrium gov't announces type c with density $\mu(c)$ when rational,

$$p_0(c; z, \mu) = \frac{z\nu(c)}{z\nu(c) + (1-z)\mu(c)} = \mathcal{B}(c; z, \mu)$$

- We want k and μ such that

$$\int_{\mathcal{C}} \mu(c) = 1$$
$$p_0(c) = \mathcal{B}(c; z, \mu)$$
$$\mathcal{L}(p_0(c), c) = (\geq) k \quad \text{if } \mu(c) > (=) 0$$

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Equilibrium distribution of announcements

Model solution produces a distribution of announcements

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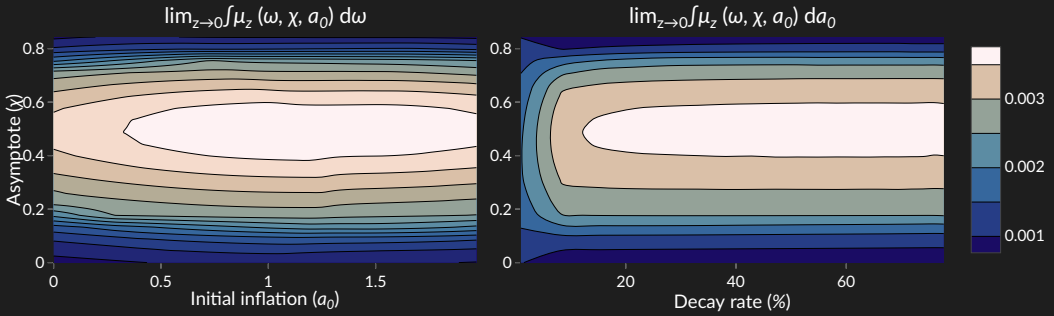

- Gradualism: $\mathbb{P}(a_0 > \chi) = 70.5\%$. $\mathbb{P}(a_0 > 5\chi) = 17.2\%$. $\mathbb{P}(\text{decay} \leq 10\%) = 8.09\%$.
- Imperfect credibility: $\mathbb{P}(\chi = 0) = 1.35\%$.

Extensions: Where are we going with this?

- Model of reputation + imperfect control creates incentives for a gradual disinflation

Questions:

1. Real sources of inertia – how do they interact with gradualist incentives?
2. Fiscal policy, seignorage – two-sided reputation
3. Quantitative version(s):
   - Consumption and nominal rates
   - Open economy: carry-trade and REER
   - Investment and costs of monetary contraction
4. Flexible announcements: liftoff
5. Empirical validation of (1) + (3)

Ideas and comments welcome!

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