

# Inflation distorts relative prices: theory and evidence

## PSE-CEPR Policy Forum

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*The opinions herein do not necessarily represent those of the Banque de France*

28 June 2023

# The paper

- Very interesting and exhaustive paper.
- Crucial/topical question of measuring the effect of inflation on price distortion
- Tackle many difficulties
  - ▶ The "flexible price" is not observable  $\Rightarrow$  identifying the marginal effect of inflation on price distortions without identifying the level of price distortion.
  - ▶ Price distortions depend on the square value of suboptimal inflation.
  - ▶ Focusing on disaggregated specific items allows to measure properly pure causal effects of inflation variation on price dispersion.

# Main takeaways

- Beautiful theory that uses the local disparity of optimal pricing to identify inefficient price dispersion.
- Application on very detailed prices of expenditure items underlying UK CPI (around 1000).
- The impact of inflation on inefficient price dispersion is positive and significant and inefficient price dispersion gives rise to a increase of standard deviation of prices of maximal order of 5%.

# Main comments

- Beautiful theory that we could perhaps push a bit further.
- Challenging the assumptions
- Is it big?

# Theoretical contribution (1)

- Key ingredients :
  - ▶ The pricing behavior for an item has an homogeneous stickiness but a local trend.
  - ▶ The flexible price of a product has a separable property where the shocks  $\ln(x_{jt})$  are idiosyncratic and Markov.
- Then first-order approximation around a balanced growth path leads to

$$\ln p_{jt}^{\text{opt}} = \ln(p_{jt}^*) - \ln(x_{jt}) + \left( \frac{\alpha}{1 - \alpha} \right) (\ln(\Pi) - \ln(\Pi_j^*)) + f(x_{jt})$$

where

$$f(x_{jt}) = (1 - \alpha) E_t \sum_{i=0}^{\infty} \alpha^i \ln(x_{jt+i})$$

## Theoretical contribution (2)

- The set up is already **very general** (Calvo, state-dependence) but could be even more general (Calvo plus model, *a la* Nakamura and Steinsson, 2010) as soon as
  - ▶ there is a balanced growth path for general and flexible prices.
  - ▶ there is a separability/stationarity property for the residuals  $\ln(x_{jt})$
- it seems a bit miraculous and surprising since pricing behavior of Calvo and menu costs are quite different (time between two changes for instance ...)
- is it possible to get **more insights** behind this feature?

## Challenging the assumptions (1)

- The key assumption for identification is the **same stickiness behavior** for an item. Is it really satisfied in the data (Baudry et al. 2007)? It may depend on the type of retailers, also on time ... Some description of frequency of price changes on subsamples, depending on the type of retailers, level of prices may be reassuring.
- Another key assumption is that there is a **constant linear trend** for the optimal price of an item. Thus there should be empirically a constant gap between the intercepts of first-stage nominal and relative price estimates, whatever the sample of estimation.

## Challenging the assumptions (2)

- The shocks  $\ln(x_{jt})$  : very smart test to exclude RW. What about the **Markov property**? There is perhaps some items for which it is possible to construct a proxy of the optimal price, to confront it with Assumption 1.
- Proposition 1 is very fair. We could increase our insight on this Proposition to see **quantitatively different fundamental processes** leading to the same  $f(x_{jt})$ .



# The overall effect ?

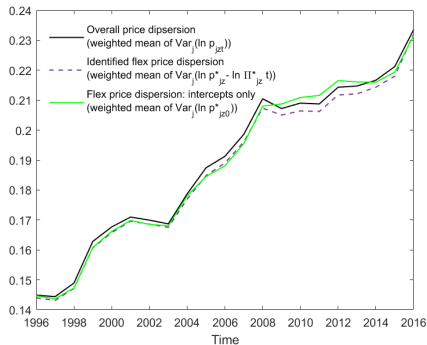


Figure 15: Overall price dispersion versus flexible price dispersion (various identified components)

Figure : Quantitative magnitude of inefficiency dispersion (extracted from Figure 15, in Adam et al. 2023)

# Very exciting paper in many directions

- Nice theoretical result.
- Deep applied empirics.
- Quantitative identification of the role of inflation in inefficiency dispersion.