Discussion of "Pricing Under Distress" by Boragan Aruoba, Andres Fernandez, Daniel Guzman, Ernesto Pasten, Felipe Saffie

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This paper: Keys

1. Monetary policy effectiveness
   - higher in times when firms adjust less their posted prices
2. Pricing under uncertainty (risk), with endogenously sticky prices from menu costs
   - realization of higher demand dispersion $\rightarrow$ more flexible (weaker non-neutrality)
   - 'riots': news of higher demand dispersion $\rightarrow$ less flexible (stronger non-neutrality)

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My discussion

1. Monetary policy effectiveness
   - higher in times when firms adjust less their price plans
2. Pricing under uncertainty (risk and ambiguity), with endogenously sticky prices from lack of confidence over possible demand shape
   - realization of higher demand dispersion → more flexible (weaker non-neutrality)
   - 'riots': loss of confidence → less flexible (stronger non-neutrality)

What the paper does (in a nutshell)

- Empirics: Quasi natural experiment of Chilean Riots in 2019
  - posted price changes have lower frequency & larger size
  - rule out supply-based forces
- Theory insight & quantitative model:
  - on news vs realization of idiosyncratic demand dispersion
  - account for change in pricing by news about higher demand dispersion
- Timing matters: monetary policy is more (less) effective under news (realization)

Comment (1): Micro-moments & monetary effectiveness

1. Frequency of price changes: not enough

   - models: Taylor, Calvo, menu costs, rational inattention, etc.
   - all can be made consistent with data on frequency of price changes
   - but state-dependency ('selection effect') $\rightarrow$ lower monetary effectiveness
   - kurtosis/frequency as sufficient statistic in standard models (Alvarez-Lippi)
   - holding constant selection effect (kurtosis) then frequency is enough

In these standard models: conditional on changing price, close perfectly the price gap, BUT...

Comment (1): Reference prices & monetary effectiveness

2. But data are more 'complicated': kurtosis/frequency may not be enough

- conditional on price change, return to a previously posted price
- appears as memory in prices/reference prices/price plans
  (Eichenbaum et al. 2011, Kehoe, Midrigan 2015, Matejka 2015, Stevens 2014)
- very strong evidence (control for sales etc), challenging for standard menu cost
- conditional on changing price, likely close imperfectly the price gap
  (since zero probability that frictionless new price = previous price)
- flexibility of price plans (vs. posted prices) now crucial for monetary non-neutrality
- quantify price plan moment: do price plans appear more/less sticky during riots?

Comment (2): Pricing under uncertainty

Uncertainty as Risk (impose full confidence in probability assessments)

- Stochastic volatility: level of demand (this paper), productivity (Vavra 2014)
  - anticipation (less flexible) vs realization (more flexible)
- Learning under risk:
  - about idiosyncratic productivity: 'wait and see' vs volatility of beliefs
  - Baley, Blanco 2018: volatility of beliefs dominates $\rightarrow$ more flexibility
  - about demand shape: experiment more in bad times
    (Rothschild 1974, Bachmann, Moscarini 2011)

Uncertainty also as Ambiguity

- Allows for lack of confidence in demand shapes (Ilut, Valchev, Vincent 2020)
- consistent with large decision-theory and managerial literature

Comment (2): Pricing under uncertainty

Figure 4: Riots in Chile: Oct.18 - Nov.17

(a) Riot 1

(b) Riot 2

(c) Riot 3

(d) Riot 4

Risk: 'Pricing under distress'
(higher demand dispersion)

Comment (2): Pricing under uncertainty

Figure 4: Riots in Chile: Oct.18 - Nov.17

(a) Riot 1

(b) Riot 2

(c) Riot 3

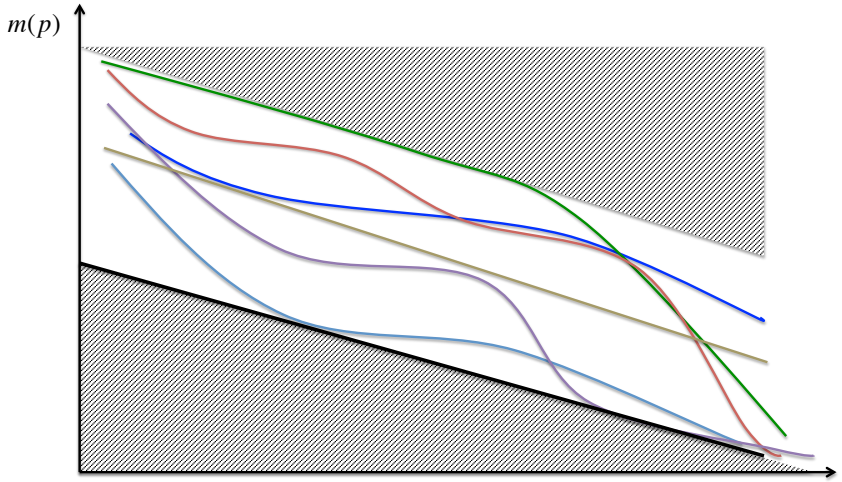
(d) Riot 4

Risk: 'Pricing under distress'
(higher demand dispersion)

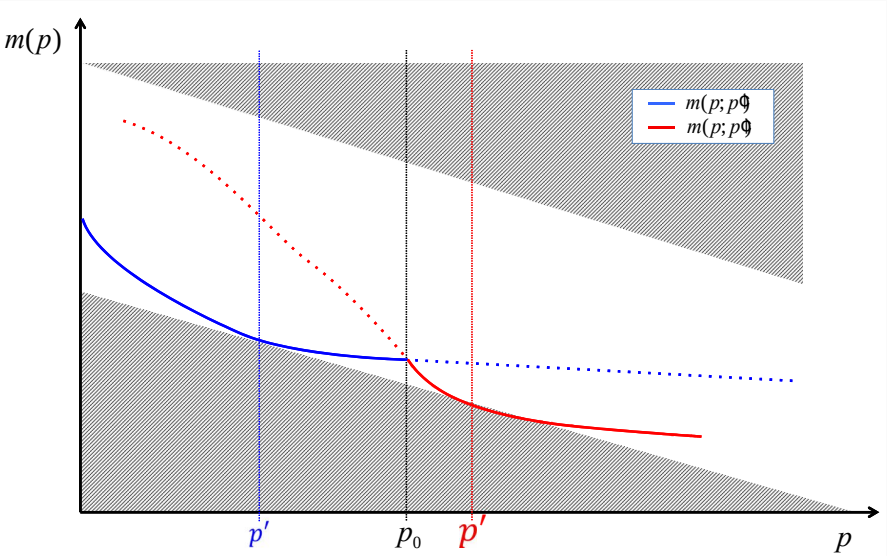
and/or

Ambiguity: 'Paralyzed by fear'
(less confident in demand shapes)

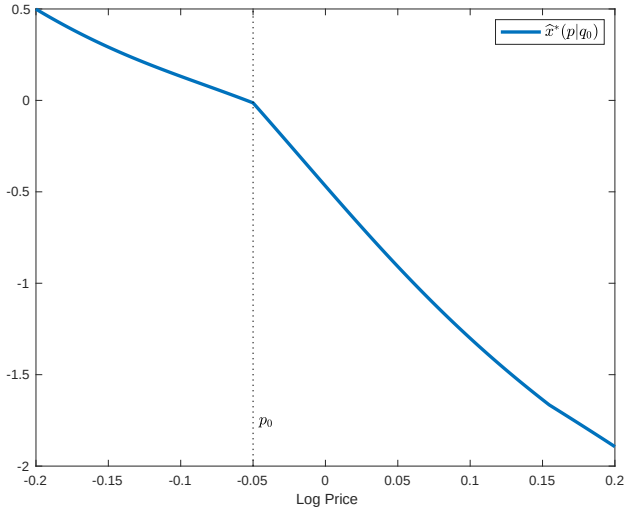
Pricing under ambiguity: Plausible Prior Demand Functions



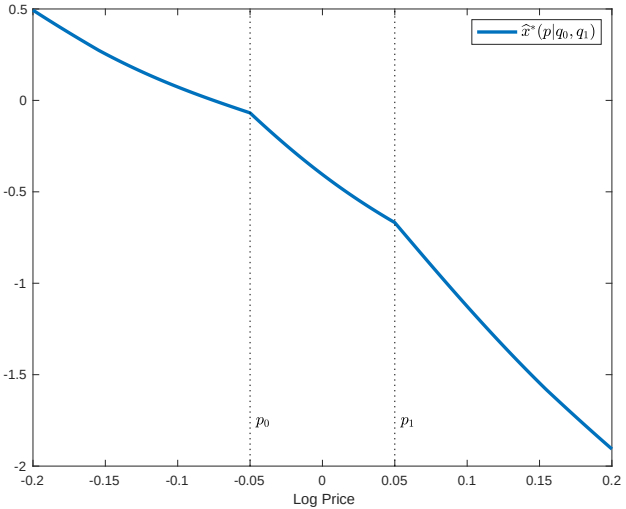
Pricing under ambiguity: Worst-case prior is conditional on price



Pricing under ambiguity: As if kinked expected demand



Pricing under ambiguity: Kinks at observed past price levels



Paralyzed by fear

- Kinks from lower uncertainty at previously posted prices ⇒

  endogenous, time-varying and history-dependent cost of price change ⇒ prices

  1. are sticky : do not want to move and face higher uncertainty
  2. display memory : price changes likely to move back to 'safer' prices (price plans)
  3. exhibit both small and large changes

- Significant and persistent monetary non-neutrality (not summarized by kurtosis)
- More ambiguity ('the riots')
  1. less flexibility & larger price changes (like 'pricing under distress')
  2. more sticky price plans
  3. stronger monetary effectiveness (both posted prices and price plans are stickier)

Conclusion

- Great paper: empirics, theory insights, quantitative model
- Rich and important policy implications