Discussion of

Strike while the Iron is Hot: Optimal Monetary Policy with a Nonlinear Phillips Curve

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The paper

- Very nice paper
- Technically challenging
- Despite that, clear intuition and
- Very neat

Main Question

Optimal monetary policy in a menu cost model, i.e., with endogenous frequency of price setting

Methodology

- State Dependent model (GL) => non-linear Phillips Curve (in Calvo is approximately linear) => not new
- Inflation is bad because increases the frequency of the menu costs firms have to pay (while in Calvo => price dispersion)
- Optimal monetary policy in this setting fully non-linear (new alghoritm) => compare with Calvo

Main results

- Taylor rule => similar to Calvo for small shock, but NOT for large shocks

- Normative analysis
  - Opimal SS inflation is positive (0 in Calvo) => asymmetric *(s,S)* bands (profit functions)
  - Non-linear Phillips Curve
  - Non-linear targeting rule => tighter response, the larger the shock because of more favourable trade-off
  - Divine coincidence holds (tech shock)
  - Time consistency problem is weaker than in Calvo

Main conclusion

strikes while the iron is hot

- ***Our research underscores the importance of an aggressive anti-inflationary policy by the central bank in the face of large shocks***
- **Potentially very important for the recent inflation surge episode => do not look through, rather be more aggressive**

Main conclusion

‘Saving Private Calvo’ camp

- ***This policy prescription diverges markedly from that of the standard New Keynesian model with exogenous timing of price adjustment, which fails to capture such nonlinear dynamics***

- **…is it really so?…I argue that they are camping very close by**

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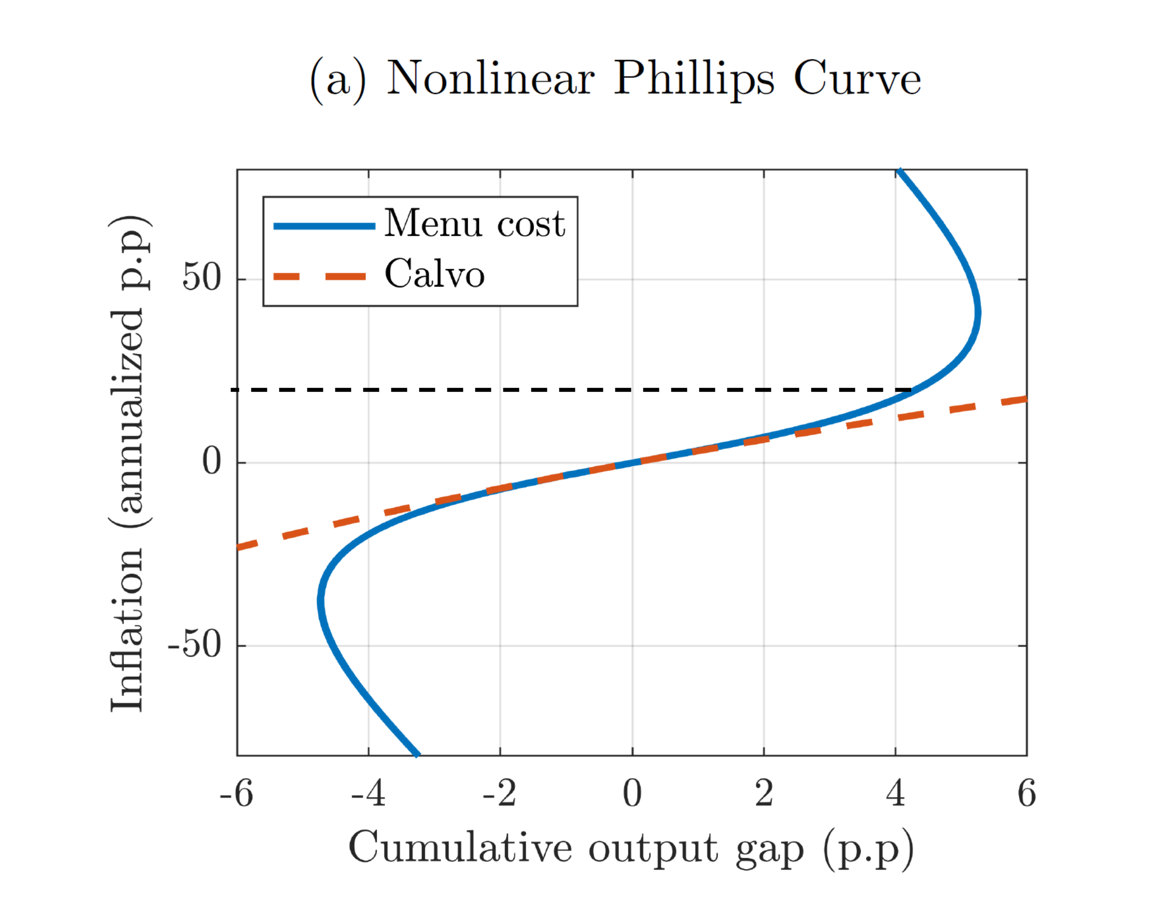
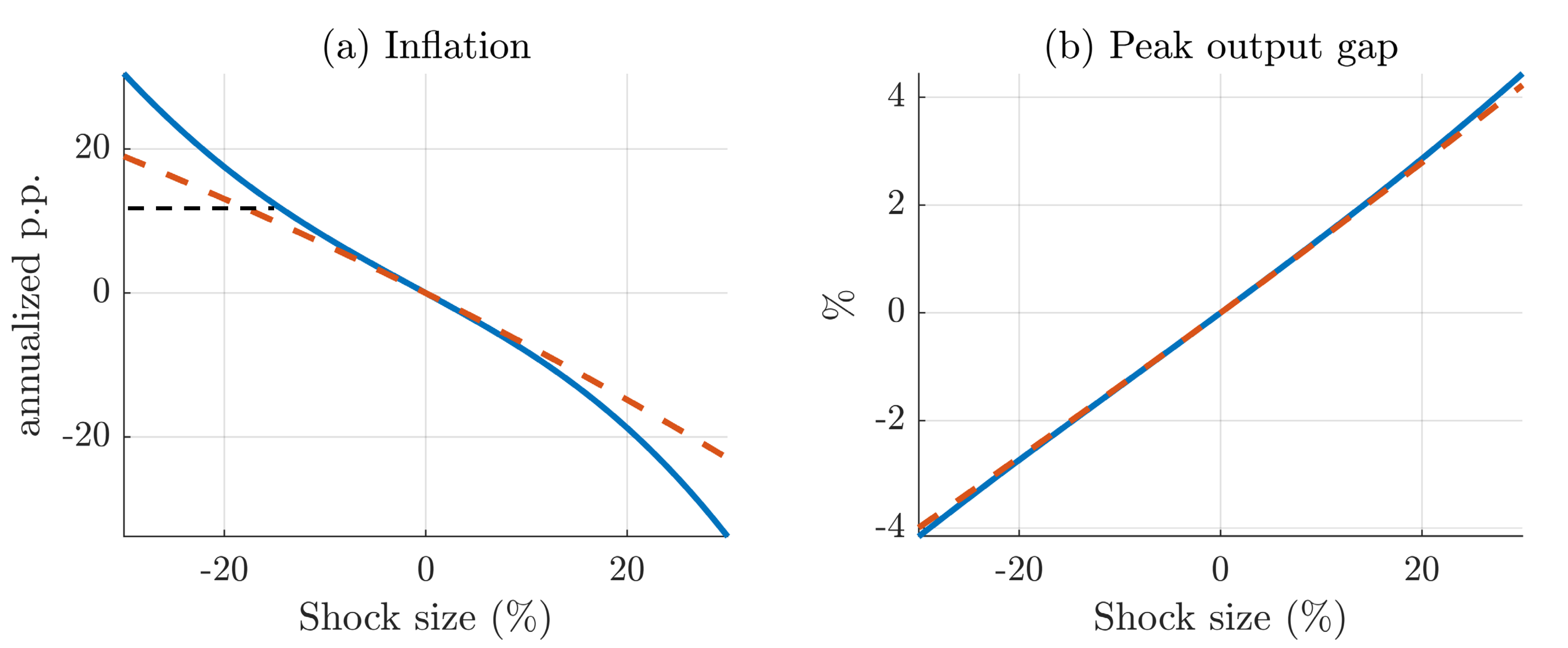
Relevant only for extreme values?



Non-linear PC implied by response to monetary policy shock under a Taylor rule

Relevant only for extreme values?

Response to cost-push shocks of different magnitude under a Taylor rule



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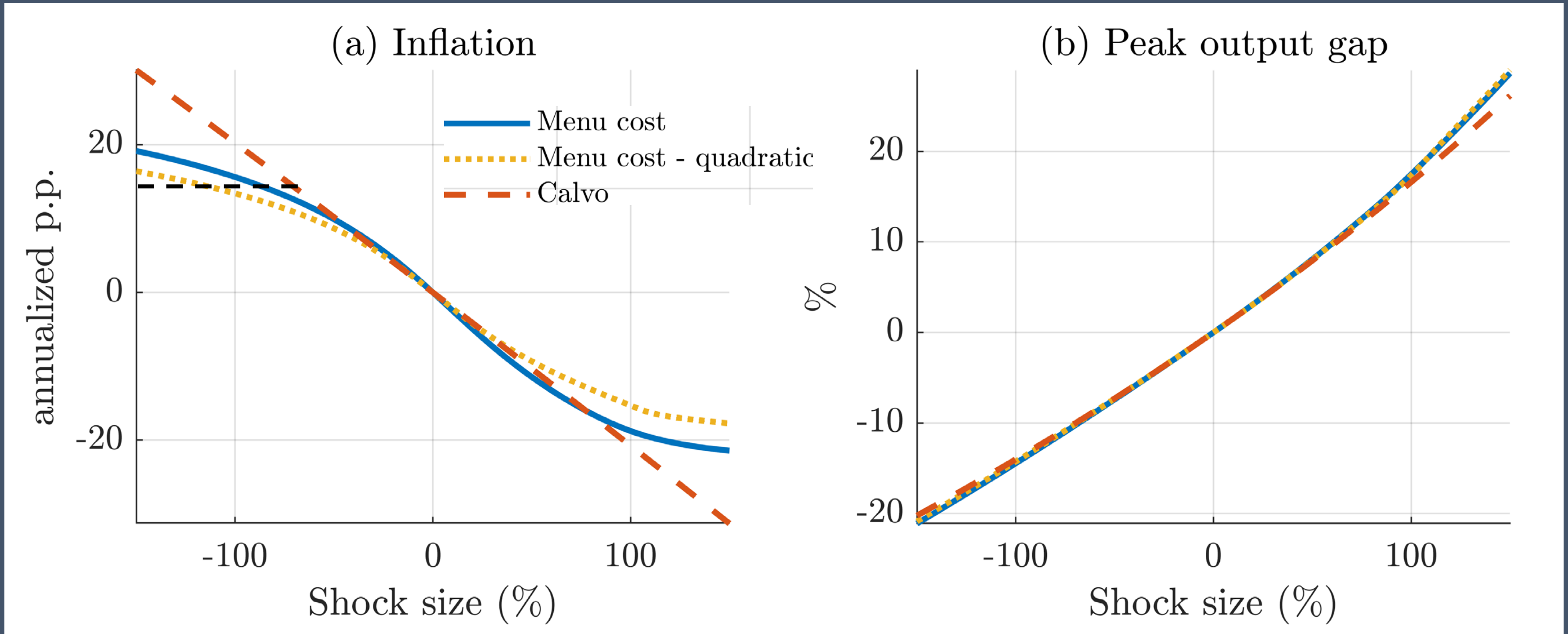
Relevant only for extreme values?

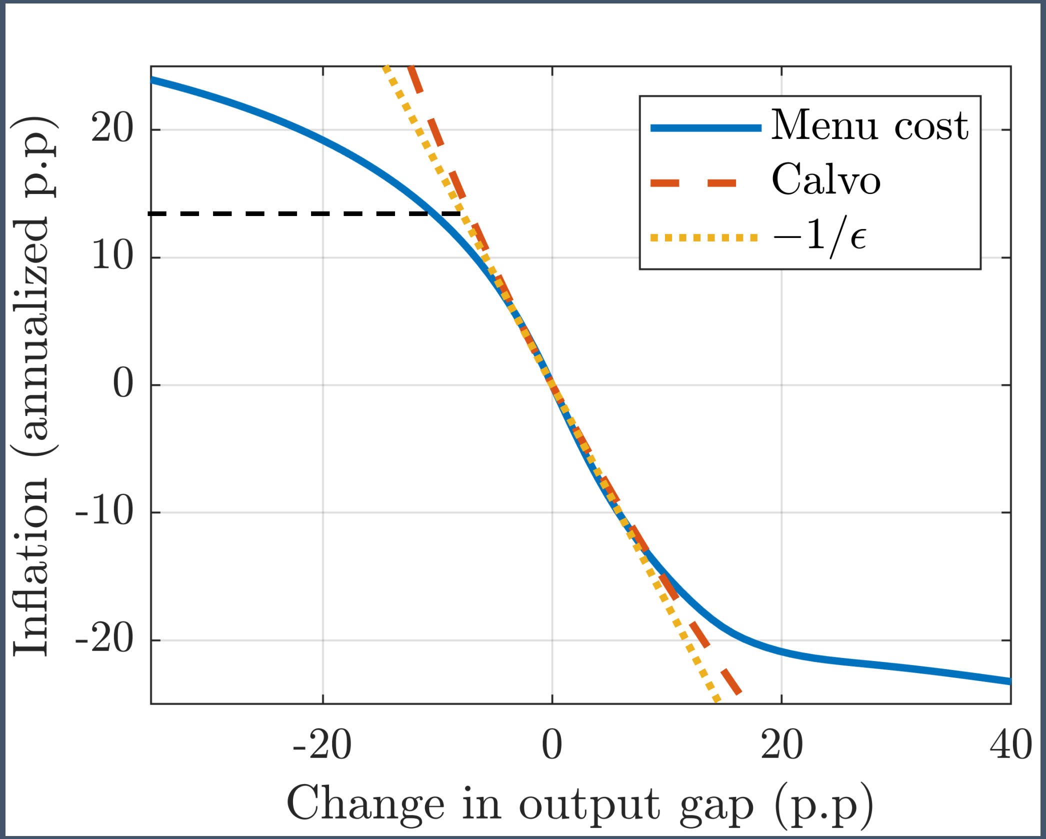
Response to cost-push shocks of different magnitude under an optimal mon pol rule

(monetary policy exploit Δ in the trade-off for large shocks)

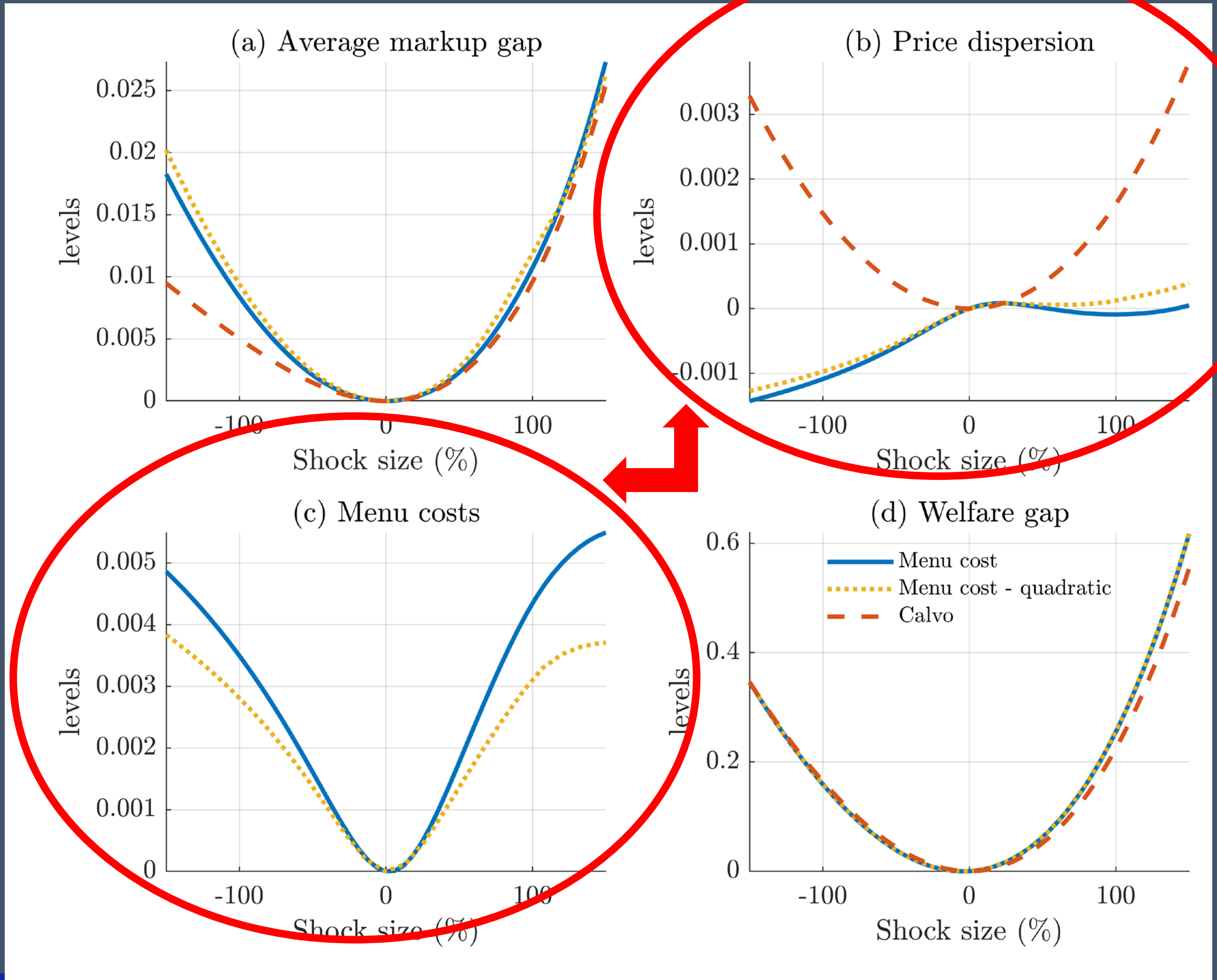


Relevant only for extreme values?

Non-linear optimal targeting rule



Menu costs instead of price dispersion



Three components of the welfare function

1) Average Mark-up
2) Price Dispersion
3) Menu Costs (0 in Calvo)

Welfare function is very similar

Main results

- Normative analysis
  - Optimal SS inflation is low: 0.3% (0 in Calvo)
  - Non-linear Phillips Curve targeting rule => for really very large shocks, possibly never observed
  - Non-linear targeting rule => for really very large shocks, possibly never observed
  - Planner preference are very close to Calvo => welfare costs of price dispersion similar to menu costs ones
  - Divine coincidence holds (tech shock)

- So my reading : also for optimal policy private Calvo is saved

Why the difference between the two models might be underestimated

- Some simplifying assumptions: prod function and utility linear in labour, risk aversion (1), elasticity of substitution

- No trend inflation… Ramsey policy ≈ 0 inflation rate

- In this respect, how can we generate 2% optimal target?
  - relative price trends (Adam and Weber, 2019)
  - ZLB

ZLB and optimal target

- L'Huillier and Schoenle (2023): A higher inflation target => higher frequency => steeper Phillips curve =>
  - reduces the effective policy space for central banks facing negative demand shock that could lead to ZLB, monetary policy less effective in affecting output, hence need to lower the interest rate more
  - Increase in the target from 2% to 4% generates an effective extra room of 1.4% and the loss is non-linear …to get 2% policy space one need to increase the target to much more

- Budianto (2022) : forward-looking behavior, inflation more volatile, same shocks could lead to ZLB more often

Empirical relevance

- L'Huillier and Schoenle (2023): linear relation between trend inflation and the frequency of price adjustment ≈ 1:1 (robust across data sets) => how does the model reproduce this 'elasticity' in the data? Key for the paper

- Adam, Alexandrov and Weber (2024): price dispersion comoves with inflation

- These models do not solve the problem of intrinsic inflation inertia

Empirical relevance

- **More generally: how can I as policymaker use this result from a quantitative perspective? Can I put this into an estimated model? So to match the non-linearity of the PC and/or inflation dynamics in the data?**

- **Work in progress with A. Carrier, E. Gasteiger, A. Grimaud and G. Vermandel**

$$\phi_{p,t} = \frac{\exp\left(\gamma_p V^f_{p,t}\right)}{\exp\left(\gamma_p V^f_{p,t}\right) + \exp\left(\gamma_p \left(V^{\#}_{p,t} - \tau_p\right)\right)},$$

The ‘banana’ Phillips Curve

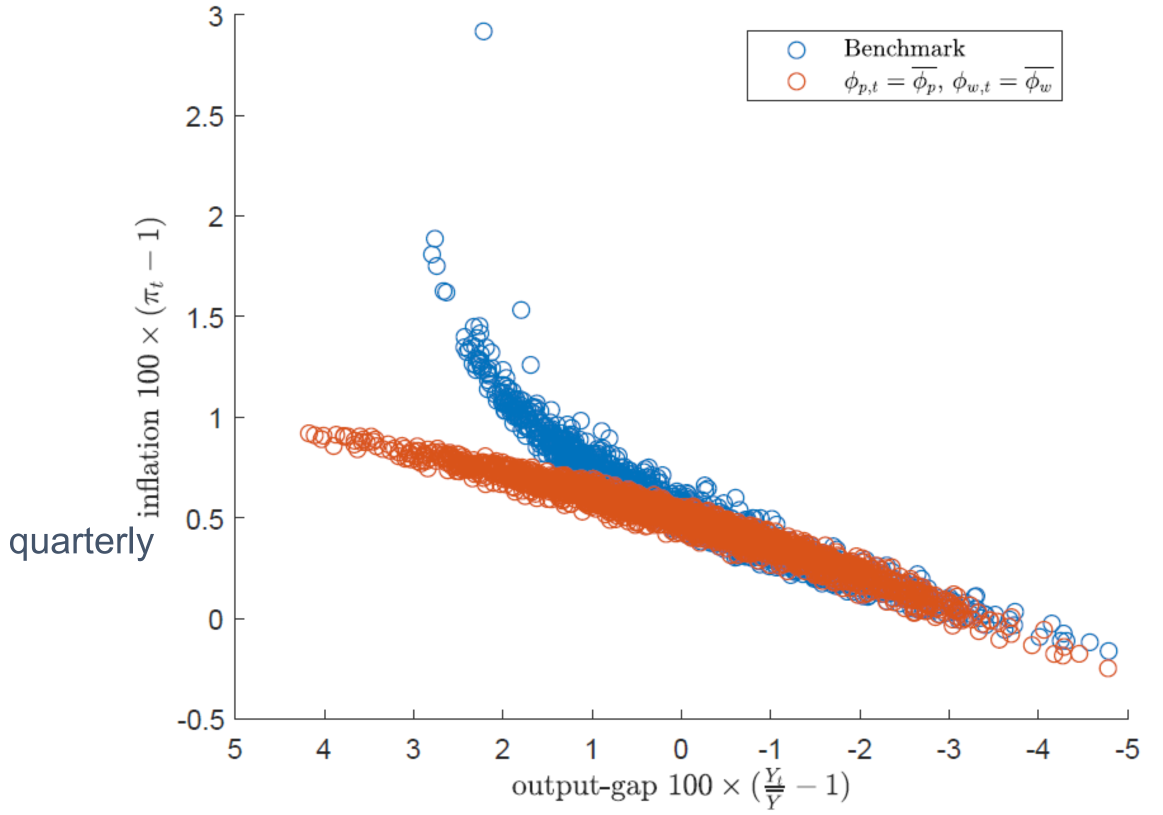
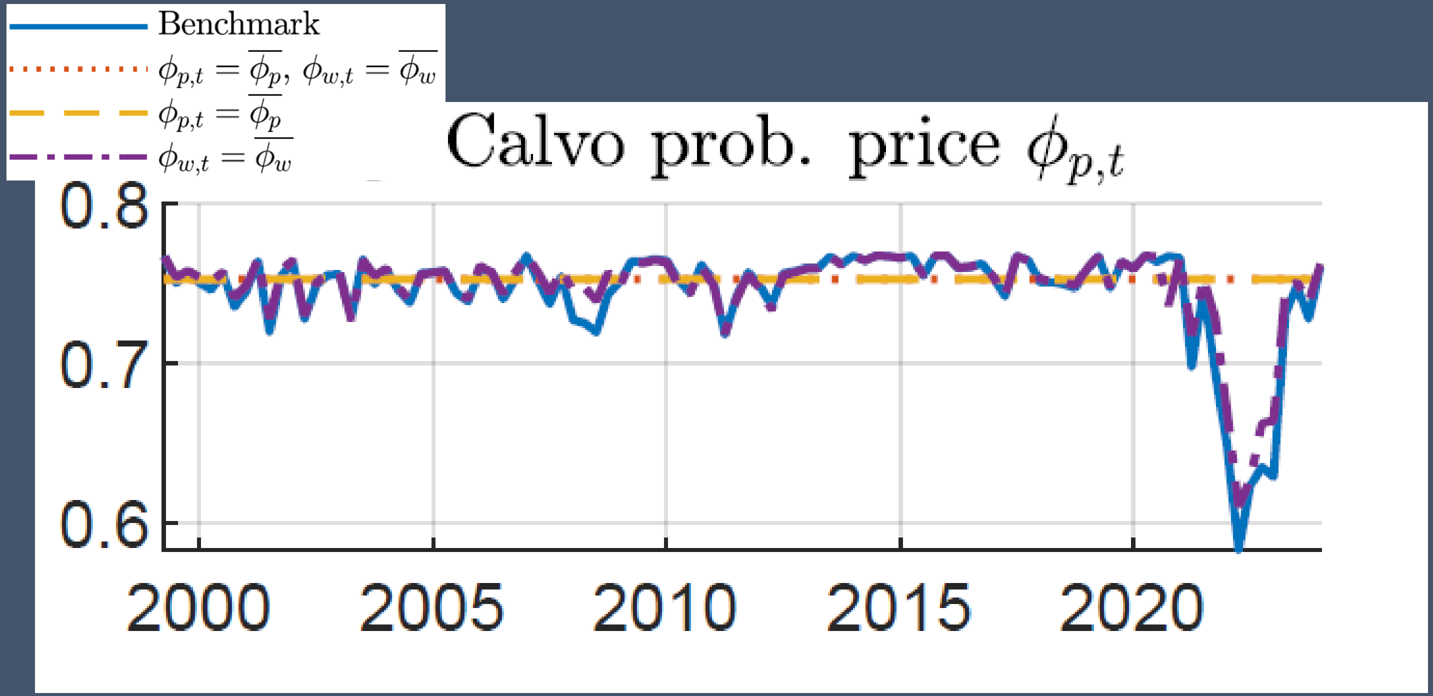


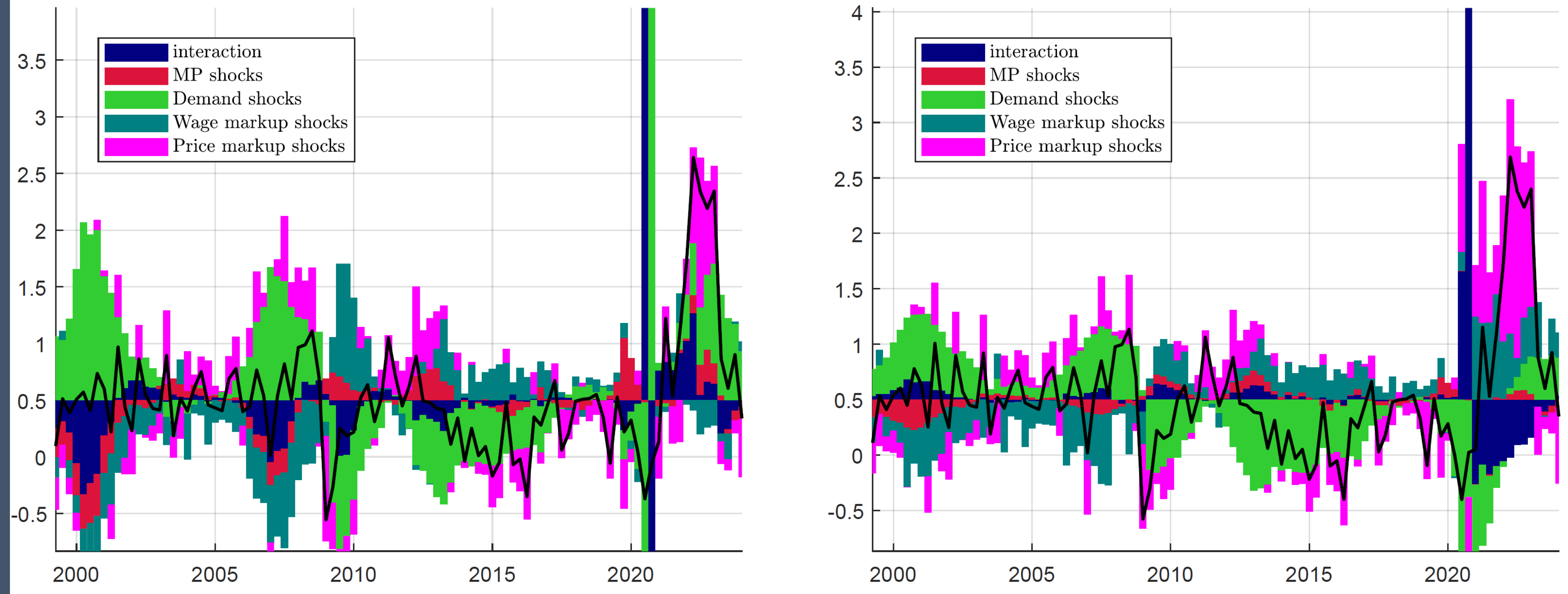
Figure: Price NKPC under MP shocks (2xStd)

Estimated Calvo parameter over time



Frequency from 1 year to almost 2 quarters

Historical Shock Decomposition



(a) Endogeneous Calvos)

(b) Fixed Calvos

State dependent effects of monetary policy shocks and trade-off

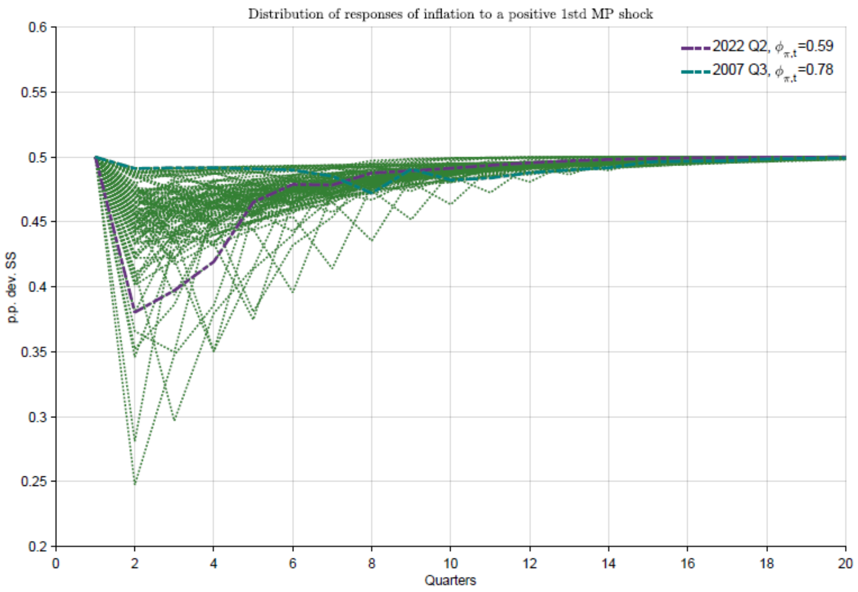


Figure: Distribution of IRFs of inflation in response to MP shock

Notes: Distribution of IRFs of inflation to a 1std positive MP shock over time

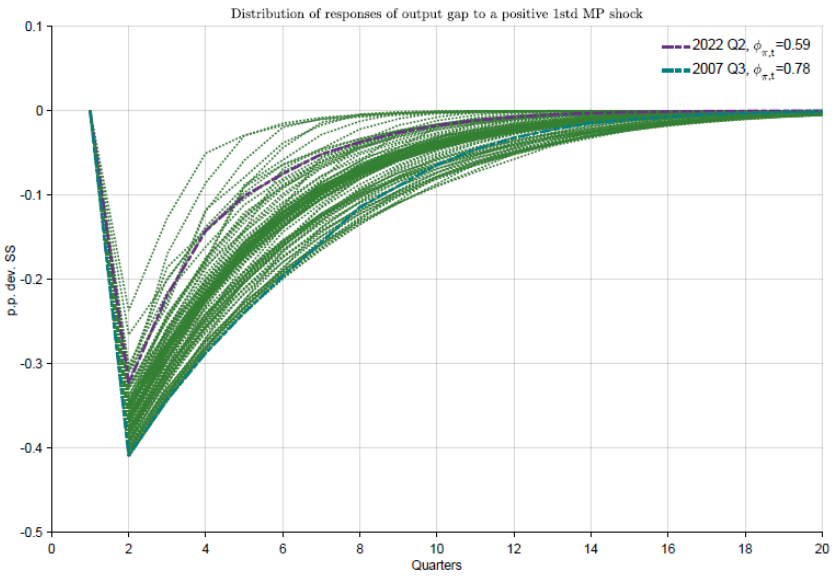


Figure: Distribution of IRFs of output gap in response to MP shock

Notes: Distribution of IRFs of output gap to a 1std positive MP shock over time

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