

# The Calvo Parameter Revisited: An Unbiased Insight

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**1** Motivation

2 Data

3 Publication Bias

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## Motivation

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- Two natural questions arise investigating literature:
  - 1 Is the Calvo parameter consistent with microeconomic data?
    - Extensive literature shows that the price durations estimated by the Calvo-based NKPC are generally consistent with the US micro data but not with the rest of the world (Alvarez and Burriel, 2010; Dufour et al., 2010; Nakamura and Steinsson, 2013).

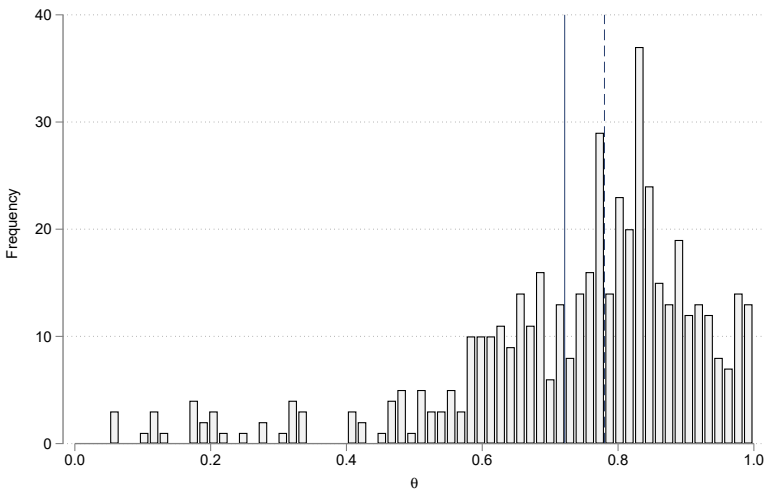
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  - 2 **What are the sources of variations in estimating the Calvo parameter?**

# Data

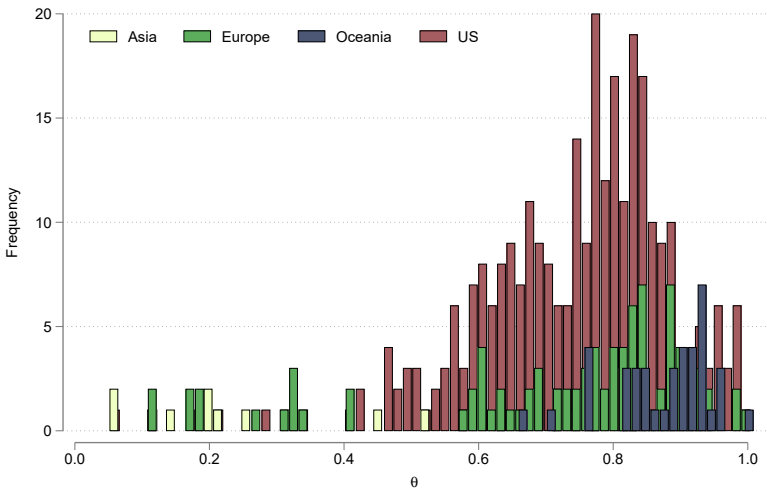
- 40 primary studies
- Published between 1999-2022
- 509 estimates
- Hybrid and forward-looking NKPC
- Sample mean = 0.72
- Sample median = 0.78
- 26 explanatory variables

## Patterns in the data



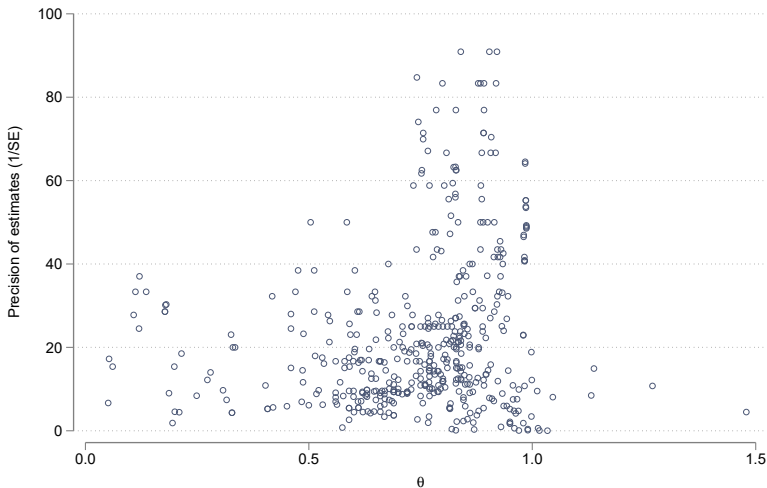


## Patterns in the data



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## Funnel plot suggests publication bias



## Linear techniques

	WLS	FE	BE	Study
Standard error ( <i>publication bias</i> )	-1.749*** (0.503) [-2.986, -0.735]	0.380 (0.916)	-3.289*** (0.913)	-2.205*** (0.529) [-3.310, -1.130]
Constant ( <i>mean beyond bias</i> )	0.840*** (0.022) [0.790, 0.887]	0.754*** (0.037)	0.879*** (0.025)	0.842*** (0.0187) [0.801, 0.881]
Implied duration (quarters)	6.250	4.065	8.264	6.329
Observations	509	509	509	509
Studies	40	40	40	40

## Non-linear techniques

	Ioannidis et al. (2017)	Andrews and Kasy (2019)	Bom and Rachinger (2019)	Furukawa (2020)
Effect beyond bias	0.800*** (0.022)	0.785*** (0.009)	0.800*** (0.007)	0.819*** (0.030)
Implied duration (quarters)	5.000	4.651	5.000	5.525
Observations	509	509	509	509
Studies	40	40	40	40

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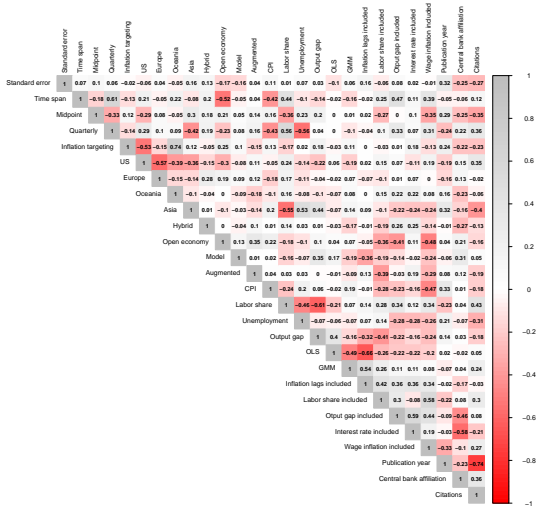
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## Explanatory variables

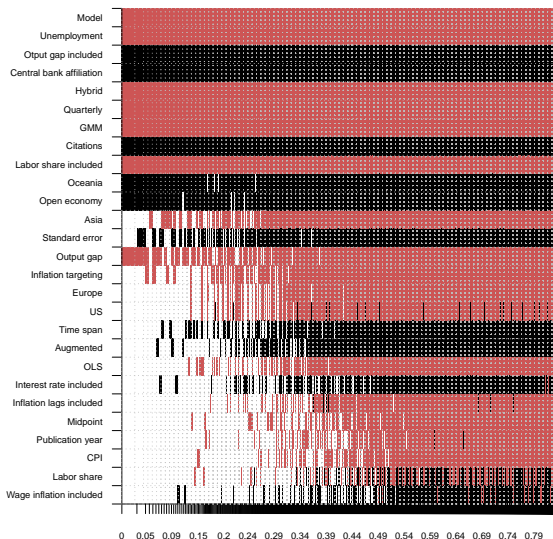
<i>Data char.</i>	<i>Specifications</i>	<i>Estimation tech.</i>	<i>Publication char.</i>
Time span	Hybrid	OLS	Publication year
Midpoint	Open economy	GMM	CB affiliation
Quarterly	Model	Inflation lags incl.	Citations
Inflation targeting	Augmented	Labor share incl.	
US	CPI	Output gap incl.	
Europe	Labor share	Interest rate incl.	
Oceania	Unemployment	Wage inflation incl.	
Asia	Output gap		

## Explanatory variables





# Bayesian model averaging (BMA)



## Explaining heterogeneity with BMA

- **Standard error** +
- **Data characteristics:**
  - Quarterly -
  - Oceania +
- **Specifications:**
  - Hybrid -
  - Open economy +
  - Model -
  - Unemployment -
- **Estimation techniques:**
  - GMM -
  - Labor share included -
  - Output gap included +
- **Publication characteristics:**
  - Central bank affiliation +
  - Citations +

## Conclusion

- The presence of publication bias in the literature leads to reported estimates of the Calvo parameter skewed toward more conventional values (e.g., 0.75).
- The choice of forcing variables and instrument selection plays a crucial role in influencing the reported estimates.
- Studies involving authors affiliated with central banks are systematically associated with the larger estimates of the Calvo parameter.

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