

Transitory and Permanent Monetary Shocks around the World

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Unveiling the effect of monetary policy

- Unveiling the effect of monetary policy is a classical theme in macroeconomics
- It implies probing money neutrality and superneutrality
- Superneutrality requires special attention
 - We discuss the inflation target!
 - The Fisherian debate
 - Economists in high inflation argue inflation has real effects

Decomposing monetary policy

- Uribe (2022) suggests splitting monetary shocks into permanent and
- Finds that transitory shocks operate as typical neo keynesian models
- Finds that permanent interest rate/inflation shocks increase output in the short term
- But assumes superneutrality

- We extend Uribe's approach to a larger set of countries
- We then eliminate the restriction of superneutrality

What do we find?

- Uribe's result broadly replicate for other countries
- There are deviations from superneutrality
- These deviations are (very) small and dwindle quickly with inflation
- At the end of the road they validate traditional central banking objective: focus on price stability and ignore output.

- Uribe works with three shocks
 - Two orthogonal stochastic trends (real and nominal)
 - The interest and inflation rates are co-integrated
 - The transitory monetary shock either
 - has a non-negative direct effect on output and inflation.
 - has a zero direct effect on output and inflation.

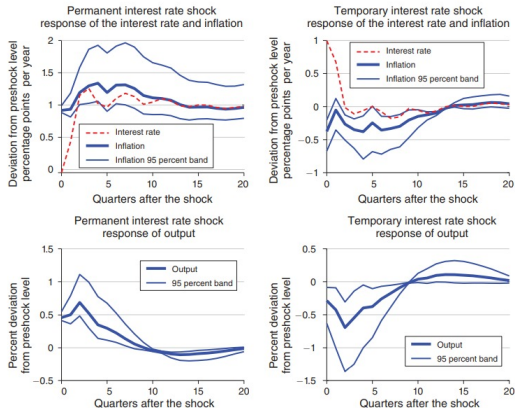


FIGURE 3. IMPULSE RESPONSES TO PERMANENT AND TEMPORARY INTEREST RATE SHOCKS: EMPIRICAL MODEL

Notes: Impulse responses are posterior mean estimates. Asymmetric error bands are computed using the Sims-Zha (1999) method.

Figura: Uribe, M. (2022). The Neo-Fisher effect: Econometric evidence from empirical and optimizing models. *American Economic Journal: Macroeconomics*, 14(3), pag. 145

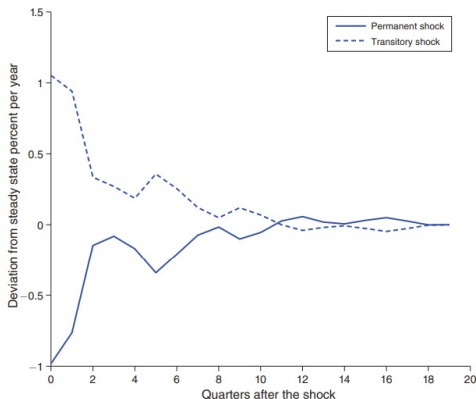


FIGURE 4. RESPONSE OF THE REAL INTEREST RATE TO PERMANENT AND TRANSITORY MONETARY SHOCKS: EMPIRICAL MODEL.

Notes: Posterior mean estimates. The real interest rate is defined as $\hat{r}_t - E_t \pi_{t+1}$.

Figura: Uribe, M. (2022). The Neo-Fisher effect: Econometric evidence from empirical and optimizing models. *American Economic Journal: Macroeconomics*, 14(3), pag 146.

- Consider the vector x_t collecting the following three variables $x_t \equiv [\pi_t, y_t, i_t]'$.
- With one cointegrating relationship
- This can be written as

$$\Delta x_t = \Phi^P(L)\epsilon_t^P + \Phi^T(L)\epsilon_t^T, \quad (1)$$

- Where
 - ϵ_t^P is a 2×1 vector of permanent shocks
 - ϵ_t^T is a scalar disturbance with only transitory effects

- We first estimate a VAR on the vector $z_t \equiv [\Delta\pi_t, \Delta y_t, r_t]'$, with a SVAR representation,

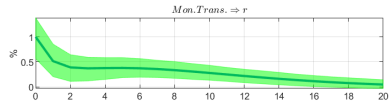
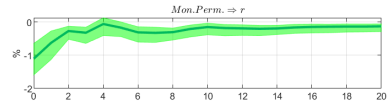
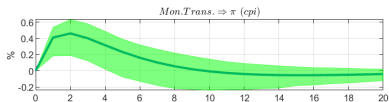
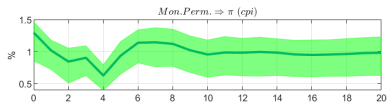
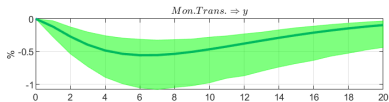
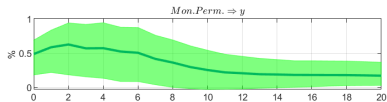
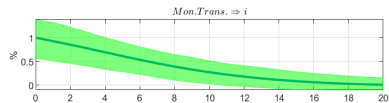
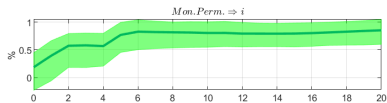
$$z_t = A_1 z_{t-1} + \dots + A_p z_{t-p} + B\epsilon_t, \quad (2)$$

- Let D denote the matrix collecting the long-run accumulated effects on z_t for each structural shock.
- Our identifying restriction is

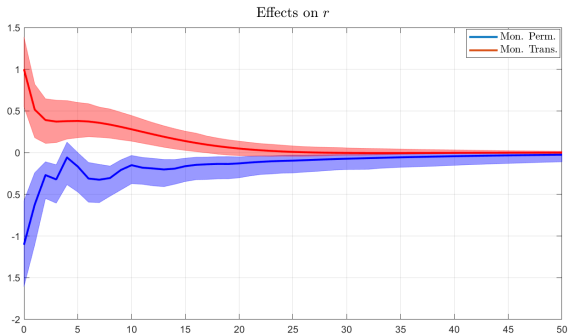
$$D = \begin{bmatrix} \cdot & 0 & 0 \\ 0 & \cdot & 0 \\ \cdot & \cdot & \cdot \end{bmatrix} \quad (3)$$

- In the second step we apply a historical decomposition to obtain the vector $\tilde{z}_t$, defined as the path of z_t that is not explained by permanent shocks.
- The final step consists in estimating a VAR model for $\tilde{x}_t$, imposing short-run restrictions.
- This is easy to do: We use a recursive/Cholesky order, where the transitory monetary shock is the third one (i.e. the one that contemporaneously does not affect inflation and output but it does move the nominal interest rate).

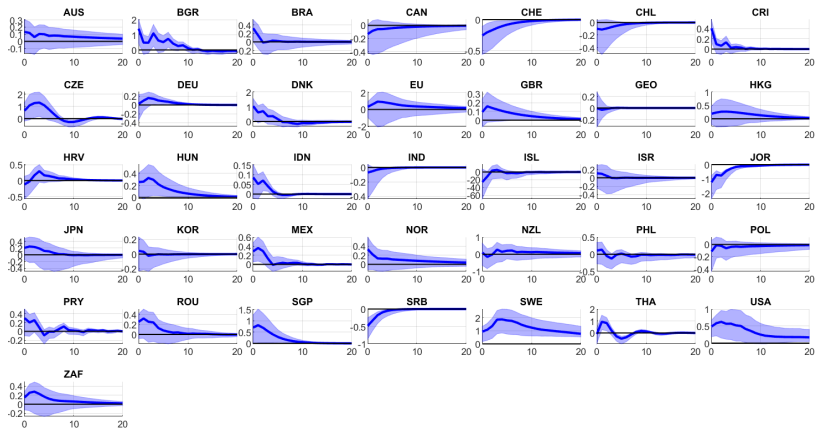
Replicating Uribe I



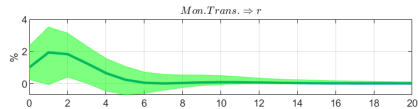
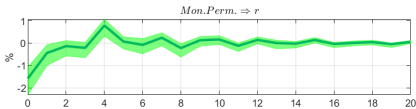
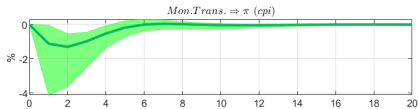
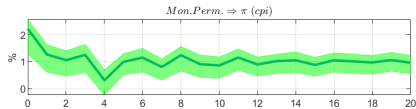
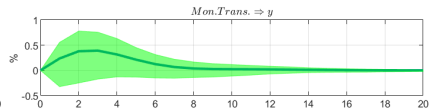
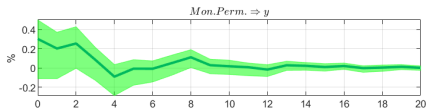
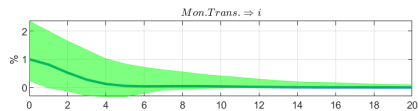
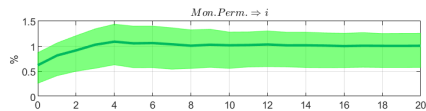
Replicating Uribe II



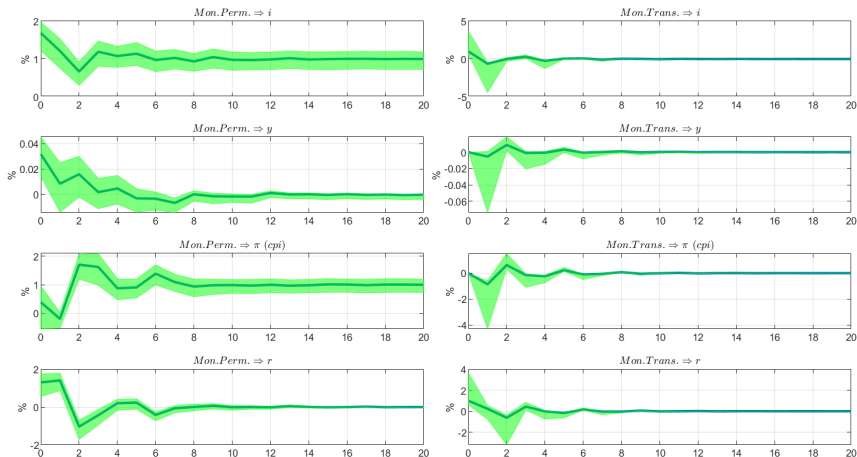
Extending Uribe's results. Permanent shocks I



Paraguay Neutrality



Argentina Neutrality



Extending Uribe's results. Permanent shocks II

Classification	$\Delta y(4)$	$\Delta y(20)$	$\Delta_c y(4)$	$\Delta_c y(20)$	Pos.	Neg.
US	0.57	0.17	2.83	6.87	1	0
Euro	0.78	0.15	3.50	8.55	1	0
Advanced	0.12	0.00	0.53	1.22	13	4
Asian Emerging	-0.01	0.00	0.00	-0.12	2	4
European Emerging	0.13	0.00	1.20	1.49	3	2
Other Emerging	0.01	0.00	0.74	0.95	5	1

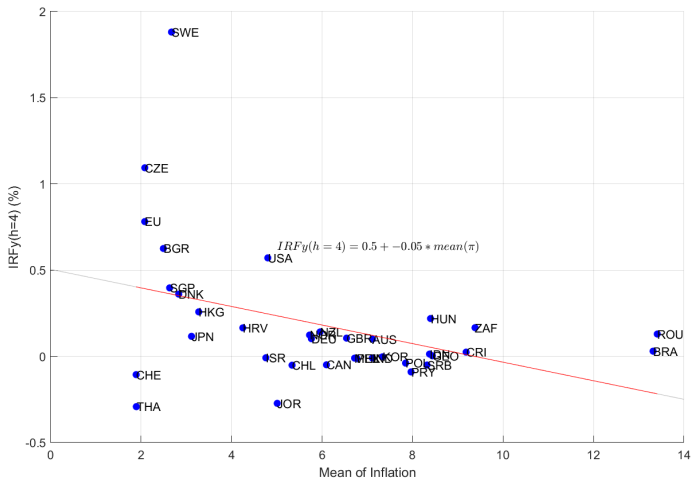
Cuadro: Effects on Output of the Permanent Monetary Shock

Extending Uribe Transitory Shocks II

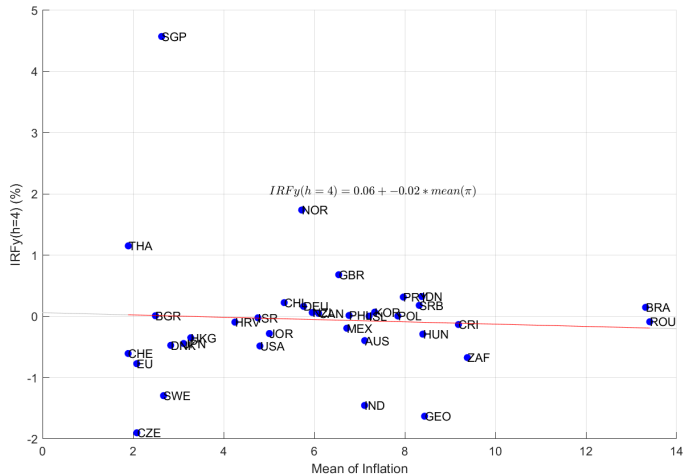
Classification	$\Delta y(4)$	$\Delta y(20)$	$\Delta_c y(4)$	$\Delta_c y(20)$	Pos.	Neg.
US	-0.48	-0.10	-1.27	-6.84	0	1
Euro	-0.77	0.05	-2.51	-6.07	0	1
Advanced	-0.02	0.00	-0.39	-0.57	6	11
Asian Emerging	-0.13	0.00	-0.2	-0.12	1	5
European Emerging	0.01	0.00	-0.17	0.12	2	3
Other Emerging	0.01	0.00	-0.31	-0.52	3	3

Cuadro: Effects on Output of the Transitory Monetary Shock

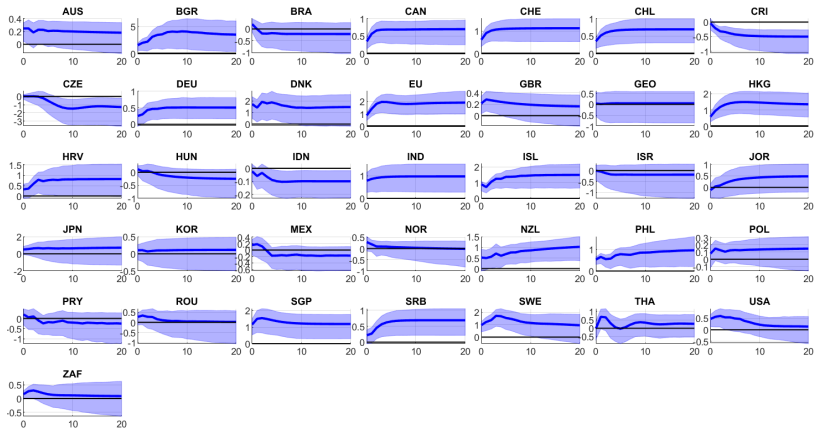
Output effects and inflation to permanent shocks



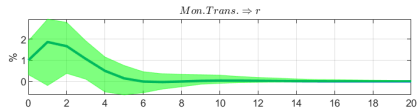
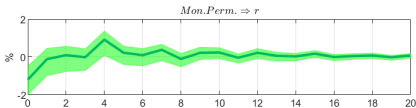
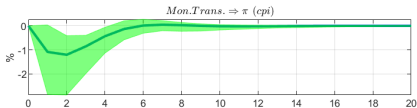
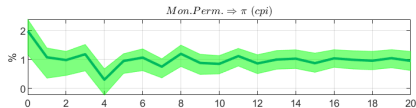
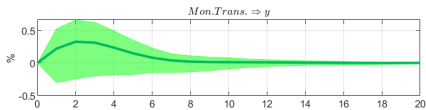
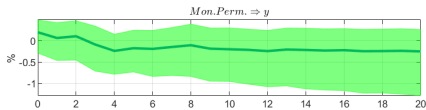
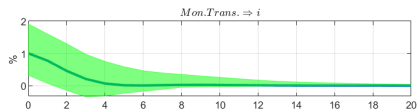
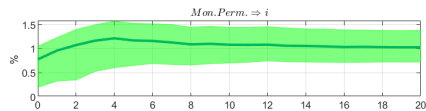
Output effects and inflation to transitory shocks



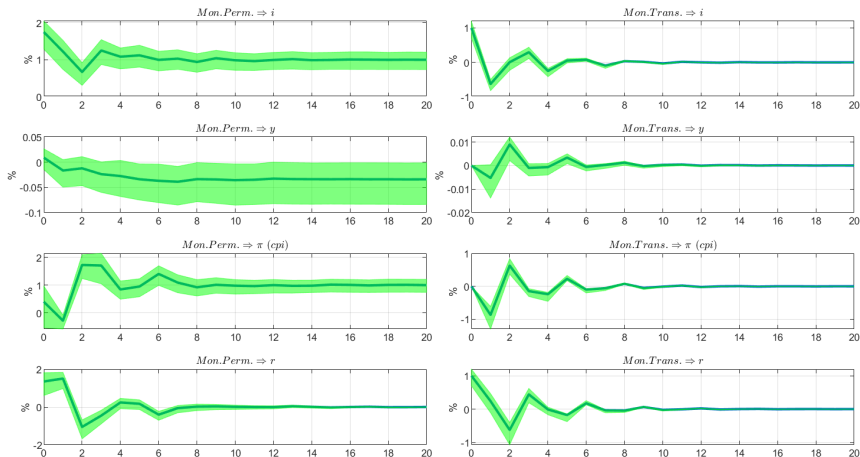
The effect of permanent monetary shocks without superneutrality I



Paraguay Non-Neutrality



Argentina Non-Neutrality



The effect of permanent monetary shocks without superneutrality II

Classification	$\Delta y(4)$	$\Delta y(20)$	Positive	Negative
US	0.54	0.14	1	0
Euro	1.95	1.90	1	0
Advanced	0.63	0.71	16	1
Asian Emerging	0.16	0.37	3	3
Euro. Emerging	0.14	0.09	5	0
Other Emerging	-0.18	-0.19	5	1

Cuadro: Effects on Output of the Permanent Monetary Shock (non-neutrality)

Effects on output of the transitory monetary shock without superneutrality II

Classification	$\Delta y(4)$	$\Delta y(20)$	$\Delta_c y(4)$	$\Delta_c y(20)$	Positive	Negative
US	-0.48	-0.10	-1.27	-6.83	0	1
Euro	-0.61	0.01	-2.20	-4.75	0	1
Advanced	0.05	0.00	-0.06	-0.04	7	10
Asian Emerging	0.01	0.00	-0.32	-0.3	1	5
European Emerging	-0.08	0.00	-0.32	-0.44	2	3
Other Emerging	0.01	0.00	-0.31	-0.54	3	3

Cuadro: Effects on Output of the Transitory Monetary Shock (non-neutrality)

Long run output effects and inflation

