Comments on “Exchange Rate Pass-through, Monetary Policy and Real Shocks: An Empirical Evaluation,” by Aguirre and González

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* The opinions expressed here do not reflect the views of Banco de México or its board of governors.

1.A Summary

- Aguirre and González (2018) explore the time-behavior of exchange rate pass-through (ERPT) and its determinants over 1970-2015 for a set of South American countries. For this purpose, they use a two-stage methodology:
  - ✓ First stage. They estimate times series of short and long term ERPTs for each country by using rolling-window regressions with lagged and contemporaneous values of the change in exchange rate, GDP, foreign prices and domestic prices to explain inflation dynamics.
  - ✓ Second stage. Using these estimates as dependent variables in a panel setup, they explore the impact of monetary and real shocks on short and long term ERPT.
- Conclusion: Both short and long term ERPT have declined, possibly due to the adoption of inflation targeting (IT) and more flexible foreign exchange (FX) regimes. Likewise, they find that ERPT is correlated strongly with money growth but only weakly with terms of trade.

1.B Comments

- After sharing a common history of hyper-inflation episodes and strong devaluations, some Latin American countries managed to achieve price stability and reduced ERPT **by apparently following the same recipe in the mid 1990's and 2000's**:

1. **Promoting central bank independence**;
2. **adopting an IT regime**; and
3. **transitioning towards more flexible FX regimes**.

- Yet, some seem to have followed the same recipe without having yet reached success, e.g., Argentina, while others seem to have achieved the same goals but, instead, followed a different recipe, e.g., Bolivia.
- Knowing whether adopting similar monetary and FX regimes is required for success in Latin America remains a relevant question.

2. Recommendations for a Better Sale

- The introduction should explain the mechanisms through which ERPT is affected by different shocks (monetary or real) and by the endogenous monetary policy response to them.
- To motivate the empirical analysis, there should be a small section explaining how different monetary and FX regimes affect these mechanisms.
- The paper shares similarities with Ghosh (2013), and thus it should state more strongly its contribution by emphasizing differences:
  - ✓ *A longer sample considering the post-Global Financial Crisis period;*
  - ✓ *the use of rolling-window regressions rather than a Kalman filter;*
  - ✓ *the study of the macroeconomic determinants of short term ERPT;*
  - ✓ *the use of terms of trade as a proxy for real shocks.*

3. Methodology: Concerns with Identification

- In their second stage, they run panel regressions with:
  - ✓ *Country-fixed effects: Control for countries' unobservable characteristics that do not vary over time.*
  - ✓ *Time-fixed effects: Control for time's unobservable characteristics that do not vary across countries.*

***Threat for identification**. Unobservable characteristics that vary over the two dimensions: across countries and over time.*

- This becomes relevant if the authors' hypothesis holds true:

It is precisely *"if"* monetary and FX regimes determine the mechanisms trough which ERPT is affected by different shocks, a relevant question is:

Did countries transition towards different regimes at different points in time (unobservable characteristics that vary across countries and over time)?

3. Methodology: Concerns with Identification

- As for **monetary regimes**, transitions in Latin American countries occurred at different points in time: unobservable characteristics that vary <u>across countries and over time</u> can be biasing the results.

Transition to Inflation Targeting Regimes in Latin America

Country	Date of Transition
Argentina	2016
Bolivia	No Transition
Brazil	1999
Chile	1990
Colombia	1999
Ecuador	No Transition
Paraguay	2012
Peru	1994
Uruguay	2008; 2015
Venezuela	No Transition

Source: Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) database of the International Monetary Fund (IMF) and Schmidt-Hebbel and Werner (2002).

- Monetary Regime ≠ Monetary Shocks. Controlling by the interest rate is not sufficient.
  - ✓ *Transmission mechanisms vary with regimes (institutional setups) more than policy actions, e.g. in ITs there's an additional expectation channel working beyond the direct impact of changes in interest rates.*

3. Methodology: Concerns with Identification

- **As for FX regimes**, countries ALSO transitioned at different points in time.

Transitions towards more FX flexibility in Latin America

Tobal's (2017) Self-Reported Classification

Country/Transition	Fix to Flexible	Intermediate to Flexible	Fix to Intermediate
Argentina	2002-Q1		
Bolivia	**No Transition**		
Brazil		1999-Q1	
Chile		1999-Q4	
Colombia		1999-Q3	
Paraguay	**No Transition**		
Peru	**No Transition**		
Uruguay		2002-Q3	

Source: Tobal (2017).

Reinhart and Rogoff's (R&R) Classification

Country/Transition	Peg to Managed Floating	Crawling Peg/Band to Managed Floating	Peg to Crawling Peg/Band
Argentina	2003-Q1		
Bolivia	**No Transition**		
Brazil		1999-Q4	
Chile		1999-Q4	
Colombia	**No Transition**		
Paraguay		1999-Q3	
Peru	**No Transition**		
Uruguay		2002-Q4	

Source: Ilzetzki, Reinhart, and Rogoff (2008).

Transitions towards less FX flexibility in Latin America

Reinhart and Rogoff's (R&R) Classification

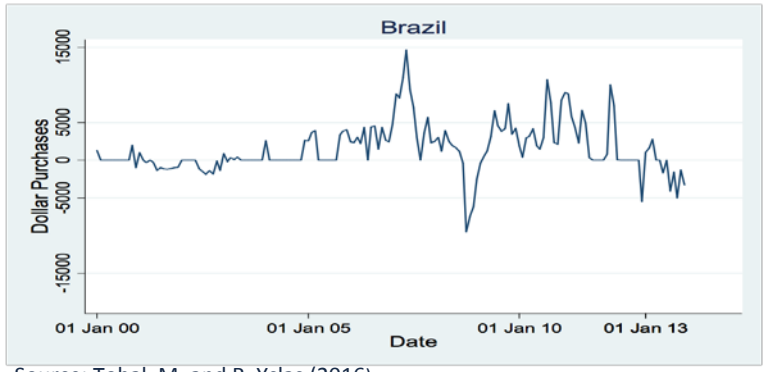
Country/Transition	Managed Floating to Peg	Managed Floating to Crawling Peg/Band	Crawling Peg/Band to Peg
Argentina		2007-Q1	
Bolivia			2008-Q4
Brazil	**No Transition**		
Chile		1998-Q3	
Colombia	**No Transition**		
Paraguay	2010-Q1		
Peru	**No Transition**		
Uruguay	**No Transition**		

Source: Ilzetzki, Reinhart, and Rogoff (2008).

4. Recommendations for Better Identification (I)

- Solution 1. Using IMF, R&R and Tobal (2017) to construct dummies and identify monetary and FX regimes.
- However, classifications are not sufficiently rich to capture all dimensions of a given regime.
  - ✓ Although R&R classify Mexico and Brazil as managed floaters, they have different FX intervention models: Brazil performs discretionary interventions, on a regular basis and mostly conducive to depreciating pressures.

FX Interventions in Brazil (Millions of dollars)



Source: Tobal, M. and R. Yslas (2016).

FX Interventions in Mexico (Millions of dollars)

Source: Tobal, M. and R. Yslas (2016).

- The mechanisms through which ERPT is affected by different shocks is not determined in isolation by a particular monetary or FX regime: agents' expectations and reactions depend on the policy framework as a whole, including institutional frameworks and interdependent relationships between these regimes.
  - ✓ Even though Mexico and Brazil adopted an IT, their particular FX intervention model determines the use of the interest rate to meet the target and may influence expectations (Tobal and Yslas, 2016).

4. Recommendations for Better Identification (II)

- Solution 2. Given what I have just said, controlling for heterogeneity over the two dimensions may be hard. Because country heterogeneity can be more difficult to control for, I suggest keeping only heterogeneity over time:
  - ✓ *Markov-switching for each country (controlling for heterogeneity over time).*
  - ✓ *Time-varying parameters structural VAR (e.g., Benati, 2008).*
- This has at least two additional advantages:
  - ✓ *The work will be seen as a "modern" version of previous literature.*
  - ✓ *This would allow identifying **actual shocks**, as claimed by the authors, and not merely continuous changes in the monetary or real variables.*

5. Recommendation for a Better Specification

- Lack of central bank's credibility and FX flexibility linked global factors to inflation through ERPT. Currently, this link still exists but works through different mechanisms that tend to be gradual; i.e., some of which involve the financial cycle studied by Borio and Lowe (2002) and the global financial cycle studied by Bruno and Shin (2015).
  - ✓ *The existence of the domestic and global financial cycles implies that "excessive" appreciations may transform into financial imbalances. The correction of these imbalances can involve gradual depreciations and, therefore, lagged impacts on the inflation rate.*
- The existence of these new mechanisms generates the need of having a richer dynamics; i.e., including more lags in their estimations.
- Beyond this conceptual remark and the new mechanisms, the results reported in Tables 4a, 4b, 5a and 5b show small values for the adjusted R squared, suggesting that the estimated models may not be well specified.
- Hence, it is particularly relevant to use an information criterion to choose the lag-length.

6. Appendix

- Finally, their first stage estimations do not take into account the fact that prices also affect FX, potentially biasing ERPT estimates.

  - ✓ *In their second stage panel regressions, this generates econometric concerns analogous to a measurement error in ERPTs.*

  - ✓ *The significance levels of the coefficients on the short and long term ERPT obtained in the first stage are not reported.*

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