

Macroeconomic and Financial Modeling  
Discussion

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## Research Workshop 1: Macroeconomic and Financial Modeling

- Papers capture parameter instability/heterogeneity in different contexts
  - Evidence that many phenomena of interest require nonlinear methods
1. Nonlinearities in Peruvian Economy - *F. J. Pérez Forero*  
TVP-VARs to estimate effects of MP in turbulent times
  2. Predictive Power of Yield Curve in Tunisia - *C. Khalfaoui*  
estimate TV slope of yield curve, predictor of downturns, for emerging market
  3. Financial Literacy & Anchoring Inflation Expectations - *A. Tsapin & O. Faryna*  
estimate effect of financial literacy on HHs' inflation expectations along distribution

# Nonlinearities in Peruvian Economy

- *F. J. Pérez Forero*

- Sudden periods with large fluctuations  
→question parameter stability in standard econometric models
- Granger's "White Theorem": can approximate any nonlinear model with linear model + TVPs
- Author estimates a Bayesian VAR (M1) + 4 versions with TVPs (SV, SV+mean-vol., SV+feedback, SV+feedback+regimes)
- Particular interest in responses to MP shocks
- Results:
  - Inclusion of Covid-19 does not affect mean IRFs much in M1
  - Estimated volatility appears like uncertainty index
  - Shocks to volatility resemble negative supply shock ( $Y-$ ,  $\pi+$ )

# Nonlinearities in Peruvian Economy

- *F. J. Pérez Forero*

- Yes, mean IRFs similar in constant parameters- and TVP-models
- You conclude Covid-19 inclusion (as opposed to non-inclusion?) has little consequence
  1. I'd rather say constant parameters (as opposed to TVPs) has little consequence ...
  2. ... and only on mean; uncertainty much lower with TVPs
- Echoes results in literature, e.g. Carriero, Clark, Marcellino & Mertens (2024)
- Uncertainty seems further reduced when allowing for TV means (extracted from expectations?) → not seen in literature yet
- Fix y-axes in IRFs to compare
- Conduct model selection? (need to obtain MDDs)

## Nonlinearities in Peruvian Economy

- *F. J. Pérez Forero*

- Appeared at first like ID via Cholesky decomposition  
→emphasize you're doing sign and zero restrictions
- Even then, I was puzzled by Table 1, appearing to mix sign and zero (S,F) restrictions for each IRF
- Of course, results likely unchanged
- Results show MP effects under given ID assumptions (assumptions on transmission mechanism)
- To do inference on transmission mechanism, need overidentifying ID restrictions in VAR (e.g. two different ones) or structural model (DSGE)

## Predictive Power of Yield Curve in Tunisia

- *C. Khalifaoui*

- Slope of yield curve acknowledged as good predictor of economic downturns
- Literature focuses on advanced economies, whereas author estimates yield curve and assesses forecasting ability for emerging market
- Author applies quantile regression to capture whole distribution of yields
- Pooling observations across time yields single distribution over time, and mean parameter estimates at each point in time (month) can be interpreted as movements within this distribution (?)
- Results:
  - Significant variability in yield curve parameters
  - Subsequent VAR analysis: higher slope associated with  $Y_+$  and  $\pi_-$

## Predictive Power of Yield Curve in Tunisia

- *C. Khalifaoui*

- Written as if quantiles are not constant over time, and as if parameters are observed (and vary over time)
- However, it seems you estimate fixed distribution (quantiles) of parameters over time, but different means (parameters are unobserved)?
- If so, it's incoherent
- Why not estimate TVP Yield curve model to obtain time-variation in slope?
- Can stay with QR: allow for regime changes or time-variation in quantiles
- Spike-and-slab priors appropriate: relative stability mixed with sudden, large changes

## Predictive Power of Yield Curve in Tunisia

- *C. Khalifaoui*

- QR appears imperfect remedy for illiquidity in emerging markets
  - Computing monthly averages of daily returns clearly is helpful
  - Could model liquidity premium (e.g. function of bid-ask-spread, amount outstanding, etc.) (see e.g. Dharba (2004))
- Unclear how Kernel Smoothing fits into the analysis
- Subsequent IRF analysis is partial correlation analysis (yield curve est. in first step not exogenous to  $\pi$  and  $Y$ ), but that's enough for predictive purposes!
- Zoom in on negative correlation of slope and  $\pi$  (supply rather than demand channels?)



# Financial Literacy & Anchoring Inflation Expectations

- *A. Tsapin & O. Faryna*

- Anchoring inflation expectations (IE) important for MP
- Unanchored IE due to: low trust in CB/gov./..., low financial literacy (FL)
- Little evidence on implications of FL in emerging markets, where it is arguably most of interest
- Literature paid little attention to skewness of IE distribution across HHs
- Authors estimate causal effect of FL on IE and inflation perceptions (IP) using QR and addressing potential endogeneity issues
- Results:
  - HHs with high FL expect lower inflation in next year, but higher inflation in three years
  - Residence in urban areas strongest predictor of IE and IP

## Financial Literacy & Anchoring Inflation Expectations

- *A. Tsapin & O. Faryna*

- HHs asked about inflation faced by themselves or by “average Ukrainian” (published CPI)?
- Depending on individual consumption basket (notably affected by income), I face different inflation
- If latter, all good! If former (likely based on Section 2):
  - not accounting for differences in baskets yields bias (e.g. income is correlated with IP/IE, FL and your IVs)(you don’t, do you?)
  - cannot speak of “accuracy of individual IPs”
- Urban residency, age, trust in banks are all correlated with income
- Would be interesting to see if endogeneity issues stay even after controlling for that...

# Financial Literacy & Anchoring Inflation Expectations

- *A. Tsapin & O. Faryna*

- How to interpret “one-point increase in FL”?
- Additional advantage of QR over split-sample-mean-regressions: unified framework increases efficiency/precision (on top of dealing with outliers and non-iid errors)
- You motivate citing two sources of unanchored IE, and you analyze effects of both! Why do you emphasize only FL? (more easily influenced, sure, but still)