On the advantages of disaggregated data: Insights from forecasting the U.S. economy in a data-rich environment

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KC Fed Workshop on Central Bank Forecasting

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October 15, 2010

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The big picture

What the paper do:

- Evaluate the forecasting performance of factor models for the U.S.
- Study out-of-sample forecast accuracy at disaggregate levels

$$X_{i,t+h} = \gamma(L)X_{i,t} + \underbrace{\beta(L)F_t}_{\text{useful??}} + \underbrace{\epsilon_{i,t+h}}_{\text{min.}} \tag{1}$$

- Compare direct forecasts vs restricted (national accounting) forecasts

Summary of the key results

- Factor models are better relative to AR for more volatile components
  - ▷ AR generally projects like a RW, in particular for volatile series (good with C but not at X or I)
  - ▷ Factor models use more information than AR
  - ▷ Evaluation period include the crisis (factor model outperforms around turning points)
- Restricted forecasts suffer or there was little improvements over direct forecasts
  - ▷ Positive forecast errors in subcomponents
  - ▷ Forecast errors at higher level of aggregation generally “cancel” each other out

General comments

- The paper is well motivated and contributes to the forecasting literature
- Improvements using factor models maybe overstated (around 40% improvement for Q+1)
- How can we produce more accurate GDP forecasts?

Use real-time data

- In real-time, factor models will have less data to work with
- The paper appears to assume a balance panel, timing of information flow plays a critical role for real time application

Table 1: DFM vs AR model US GDP nowcast/forecast

Nowcast	M1	M2	M3	Forecast +1Q	M1	M2	M3
AR RMSE	2.6	2.6	2.6	AR RMSE	2.7	2.7	2.7
Paper	-	-	-	Paper	2.78	2.78	2.78
DFM RMSE	1.7	2.0	1.8	DFM RMSE	2.2	2.4	2.2
DFM/AR	0.65	0.77	0.70	DFM/AR	0.81	0.89	0.81
Paper	-	-	-	Paper	0.61	0.53	0.66

- If real-time vintages are not available, a couple of suggestions to construct quasi real time data (but still ignores data revisions)
  - ▷ The HAVER database records the date when the series was first released

- Look at the recent data release calendar, impose this over the evaluation period

Forecast combination

- Factor models (extra information) work well for volatile components
- AR models (RW feature) work well for with consumption
- Does combining component forecasts help improve overall GDP forecast?
  - Use RMSEs to weight across different models
  - Combine the forecast of individual components
  - Expand the set of models: Bridge-equations, BVARs etc

Minor comments

- Pre-crisis forecast performance (relative to AR's) of statistical models are generally pretty bad, what would be the forecast performance if the post-2008 data was excluded?
- Clarify how the weights in the restricted forecasts are constructed and applied, does it change over time?
- The DFM uses 3 factors, would be useful to include more/less (Bai and Ng 2002 type selection criteria) as robustness check.
- A bit more details on the design of the forecast experiment, cut-off for data, timing etc.