Forecasting Canadian GDP: Evaluating Point and Density Forecasts in Real-Time

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[1]The views expressed do not represent those of the Board of Governors or its staff.

Summary

Contributions

Suggestions

Conclusions and General Comments

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- Outlined methods of constructing point and density forecasts of Canadian GDP and ways to evaluate them.

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- It includes six dynamic non-linear models and a benchmark linear AR model. For density forecasts, the additional assumption that errors are normal is added.
- Point forecasts are evaluated by MSFE (and a break down of bias and variance). Density forecasts are evaluated by PIT type of tests.

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- Showed how some nonlinear models perform in forecasting relative to linear models.
- *Most Importantly*: provided results on the effect of window size. Forecast performance varied significantly with the size of the rolling window, and AR model with appropriate size out-performs most nonlinear models!

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- Point forecasts using same methods with revised data?

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- The PIT suggests directions in which models can be improved. For instance, the fact that the PIT for the AR and STAR models concentrate around small and large z's indicates that many out-of-sample realizations of y_{t+h} are at the tails of the predictive distribution. Again, would something with fat-tails help?

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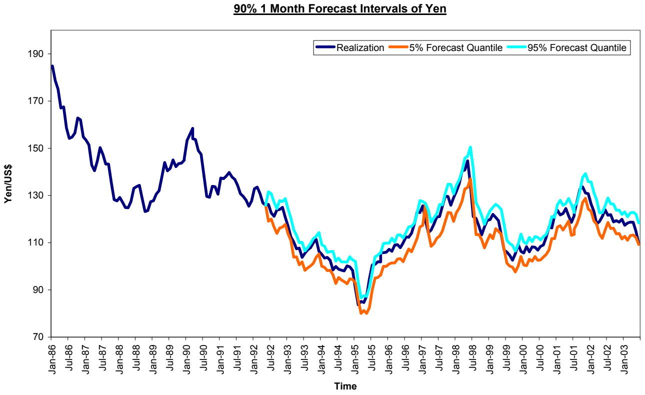
- Graphical representations of the forecast densities would be helpful. For example...

Density Forecasts



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- Two suggestions:
    1. Tests of Corradi and Swanson (2004,2005,2006): Comparing density-level loss functions for a pair of possibly misspecified density forecasts. Assumes $S \to \infty$.
    2. Tests of Giacomini and White (2006)(again): comparing the population characteristics of density forecasts for a given fixed and finite S. Loss function is flexible. For instance, Wu (2007) use the GW06 framework to compare the empirical *coverages* and *lengths* of interval forecasts derived from different models.

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- Density forecasts should be evaluated in a more practical manner.
- Given a univariate model, real time GDP data will likely predict future real time GDP better than revised data, and vice versa. Is the distinction between real time and revised data important?