

A Comparison of Forecast Performance Between Federal Reserve Staff Forecasts, Simple Reduced-Form Models, and a DSGE Model

Edge, Kiley and Laforte

Discussion

by

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Estimation and Empirical Validation of Structural Models for Business Cycle Analysis

7th EABCN workshop

SNB, Zurich, August 2006

The paper

Compares real-time forecasting performances of:

- FED staff (Greenbook)
- Richly specified DSGE model
- Reduced-form model (VARs)
- Naive model (RW)

Great work based on a unique database!!

All models are evaluated on the basis of the information that was available to researchers if they would have run the models in real-time!!!

- first forecast horse race based on truly real-time data!!

The result of the horse race 1996Q3 → 2000Q4

GDP growth:

DSGE ~ VAR > GB ~ RW

PCE growth:

GB ~ VAR > DSGE

GDP Inflation:

GB > RW > VAR > DSGE

PCE Inflation:

GB > RW > VAR ~ DSGE

Conclude

- Richly specified DSGE model has acceptable forecasting performance

⇒ They belong to the forecasting toolbox of a central bank!!

BUT

DSGE and VAR forecasts are better than GB forecast only for GDP growth!!

There is still a lot to improve for inflation and consumption!!!

Some comments

- Choice of the benchmark Naive model
- Choice of the evaluation sample

- From now on let us focus on GDP ...
- Look at performances of poorly specified DSGE model for simplicity (RBC model with exogenous labor supply)
- Use the Survey of Professional Forecasts to extend the evaluation period ...

The choice benchmark/Naive model

Is the RW model an interesting Benchmark?

- YES for inflation!! Atkenson & Ohanian, 2001
- For GDP growth a more reasonable benchmark is a constant growth model (compatible with model!!!)

GDP growth: constant of RW?

Sample: 1996Q3-2000Q4

	rel. to RW					-	-	-
	RBC	SPF	GB					
Q0	0.83	0.81	0.89		-	-	-	-
Q1	0.77	0.87	0.88		-	-	-	-
Q2	0.75	0.95	1.03		-	-	-	-
Q3	0.66	0.78	0.94		-	-	-	-
Q4	0.58	0.65	0.82		-	-	-	-

RBC \succ SPF \succeq GB \succ RW |

The very simple RBC model performs quite well.

GDP growth: constant of RW?

Sample: 1996Q3-2000Q4

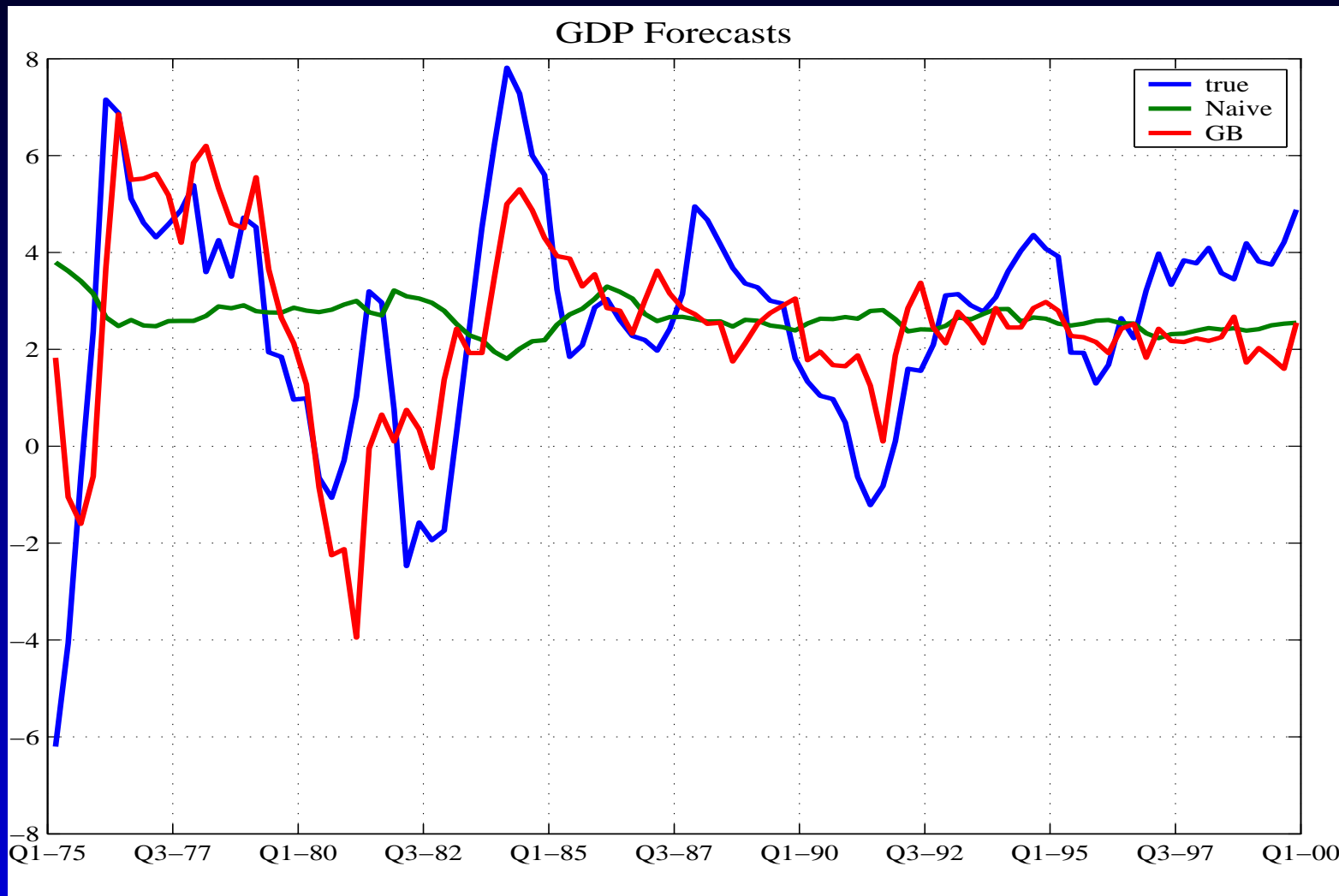
	rel. to RW				rel. to Const. Growth		
	RBC	SPF	GB		RBC	SPF	GB
Q0	0.83	0.81	0.89	Q0	1.27	1.24	1.37
Q1	0.77	0.87	0.88	Q1	1.11	1.25	1.27
Q2	0.75	0.95	1.03	Q2	1.05	1.34	1.45
Q3	0.66	0.78	0.94	Q3	0.99	1.16	1.40
Q4	0.58	0.65	0.82	Q4	1.00	1.14	1.43

RBC \succ SPF \succeq GB \succ RW | RW \succeq RBC \succ SPF \succeq GB

Constant growth is a more appropriate benchmark!!

⇒ Both model based and judgemental forecasts are bad!!!

The Great Moderation in Predictability



Year on Year Growth Rate

The choice of the evaluation sample

1996Q4-2000Q4 is a short period of extraordinary strong and unexpected expansion!! What if we include the last recession?

1996Q3-2003Q4

	RBC	SPF
Q0	0.99	0.86
Q1	0.97	1.01
Q2	0.99	1.18
Q3	0.96	1.12
Q4	0.99	1.13

⇒ Judgemental forecasts outperform the Naive model but only for the current quarter (nowcast!!!)

Unpredictability beyond the current quarter (D'Agostino, Giannone and Surico, 2005)

⇒ There is room for improvement over the Naive model but the structural model is not able to get it!!!

Question 1: What happens with richly specified DGSE model?

Question 2: Does the richness of the DGSE model help forecasting?

How to exploit current quarter predictability?

Need to exploit timely monthly info (Giannone, Reichlin and Small, 2005):

	RBC	SPF	GRS
Q0	0.99	0.86	0.82
Q1	0.97	1.01	0.80
Q2	0.99	1.18	0.86
Q3	0.96	1.12	1.01
Q4	0.99	1.13	1.05

⇒ Conjunctural information matters for now-casting!!!

Can we get good nowcast and still tell a story?

Incorporating timely info in DSGE models

- Combine model with Judgement: SPF, GB... (Monti, 2006)

	RBC	SPF	Factors	RBC+SPF
Q0	0.99	0.86	0.82	0.90
Q1	0.97	1.01	0.80	0.97
Q2	0.99	1.18	0.86	0.97
Q3	0.96	1.12	1.01	0.96
Q4	0.99	1.13	1.05	0.98

- Combine model with timely variables ... DSGE + Factor model (Giannone, Monti and Reichlin, 2006)

Summing up

The reasonable forecasting performances of DSGE models is an artifact due to:

- Specification of benchmark (naive) model
- Specificity of the sample considered.

Fixing these two problems a quite different picture emerges:

- There is some predictability of output growth but only in the current quarter!!

- Structural/quarterly models are not able to exploit it

⇒ To make DSGE models credible in forecasting they have to be combined with judgemental/conjunctural analysis!!!