Fiscal Surprises at the FOMC[1]

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Outline

Introduction

This paper is a companion to Croushore and van Norden (REStat 2017)

- Same data set: Greenbook Fiscal Forecasts (August 1967 to December 2010)
- We hand-collected and cleaned multiple series

The REStat paper argued that the forecasts were interesting because expected fiscal policy mattered for the formulation of monetary policy.

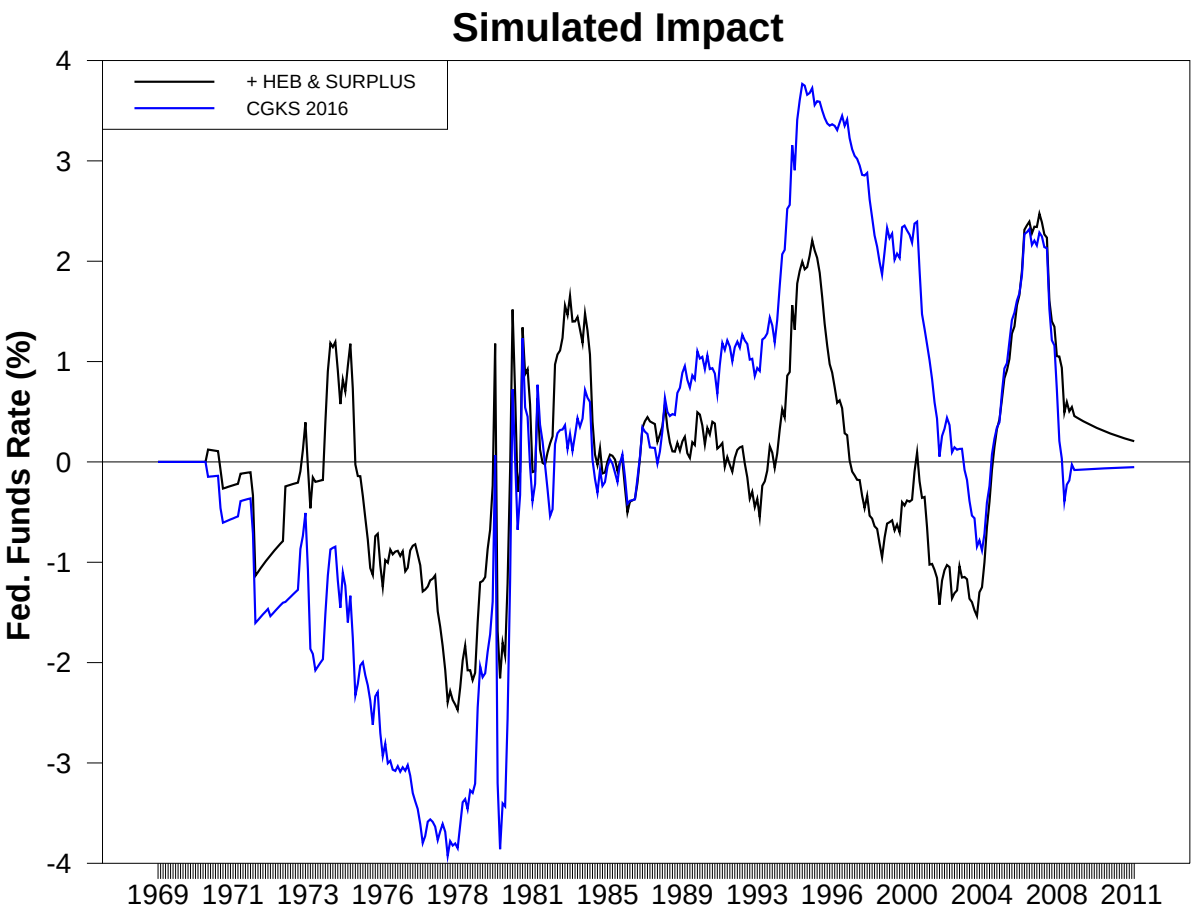
This paper looks at the qualities of those fiscal forecasts in greater detail.

Croushore and van Norden 2017

"Fiscal Forecasts at the FOMC: Evidence from the Greenbooks"

1. Presents narrative evidence (from press releases, congressional testimony, etc.) from the 1960s to 2010s showing that the Board consistently claims to adjust monetary policy to take into account expected fiscal policy.
   - The 2013 Sequestration debate illustrated this vividly.
2. Tests forecast bias and efficiency
3. Examines correlations of fiscal forecast errors with those of other variables.
4. Repeats Romer and Romer (2003) estimation of monetary policy shocks, but now including expected fiscal policy.

Croushore and van Norden 2017



Blue Line: Estimates from Coibion,et al. (2016)

Black Line: as above, plus HEB and SURPLUS

Figure: Cummulated Policy Shocks

Why is This Data Set Interesting?

1. Expertise: non-partisan, unconstrained by unrealistic assumptions, by largest team of US macroeconomic forecasters whose forecasts of inflation, GDP, unemployment compare to the very best available.
2. Real-Time: true forecasts, updated 2x per quarter
3. Breadth: it covers fiscal forecasts over six complete business cycles and several fiscal policy regimes, covering both peacetime and several wars.
4. Pertinent: the forecasts were precisely those presented to monetary policymakers
5. Actual & Cyclically-adjusted surplus forecasts

Summary of Results

What do we find in this paper?

1. There is little bias and the forecasts look pretty efficient.
2. Despite that, forecast errors can sometimes be big, even at relatively short forecast horizons.
3. While the accuracy of unemployment rate forecast errors improved after 1990, that of most fiscal variables deteriorated considerably.
4. Cyclically-adjusted-deficit forecasts appear to be over-optimistic around both business cycle peaks and troughs.

FOMC Greenbook Forecasts I

Board Staff Projections

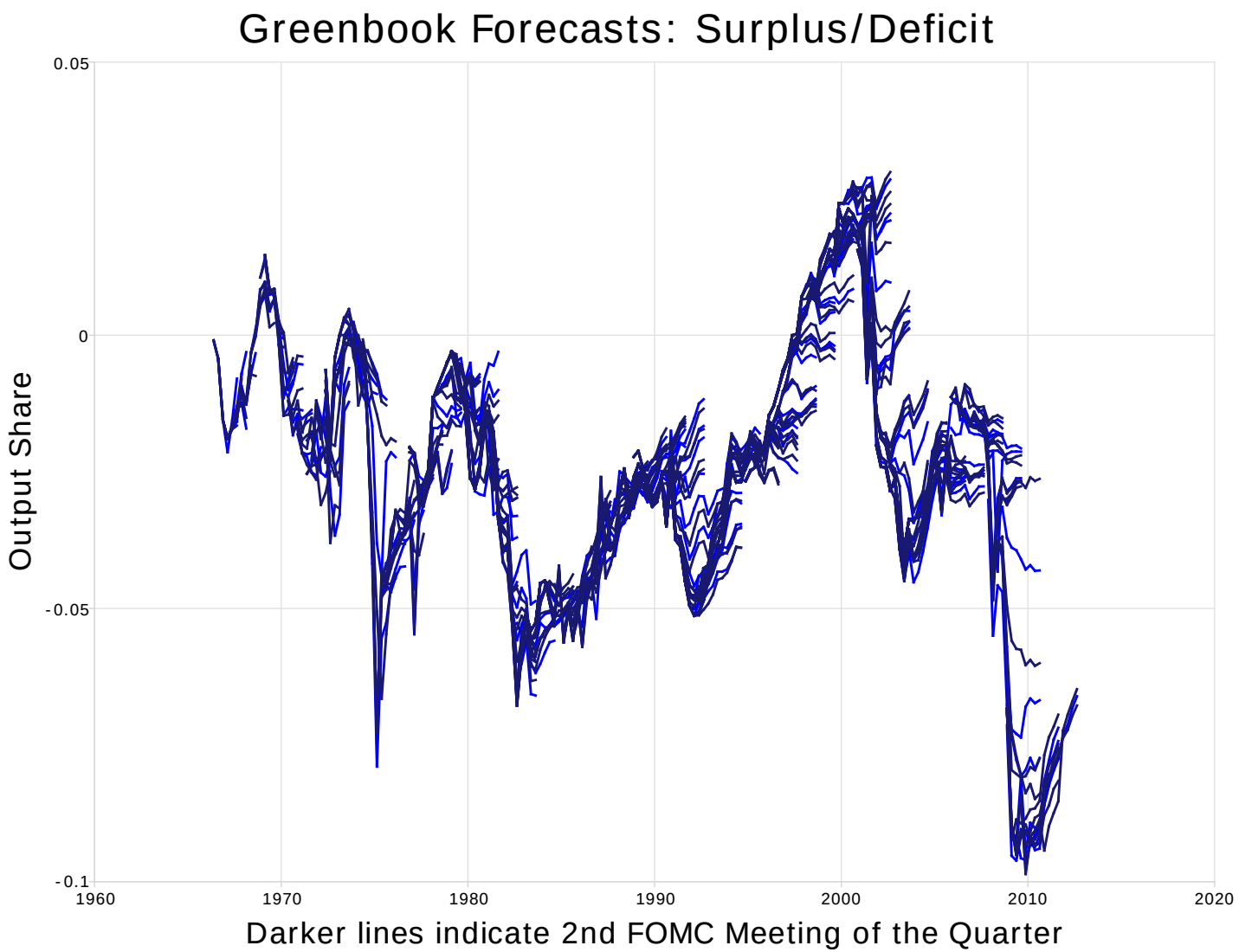
- FOMC meetings from August 1967 to Dec. 2010
- Use first & last meeting of each quarter
- Five-year embargo

Macroeconomic and Fiscal forecasts

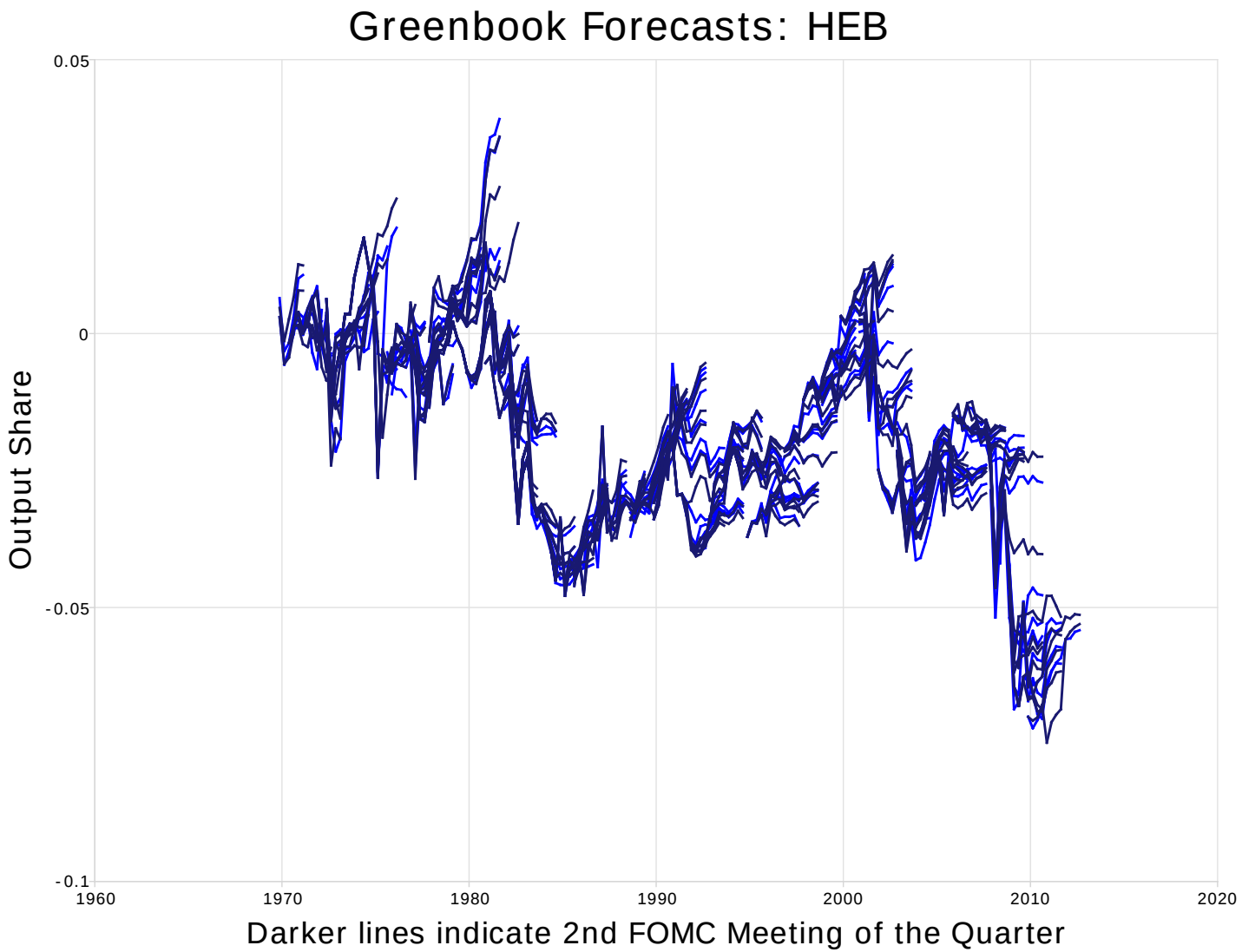
- Nominal and real GDP (GNP before 1992)
- Unemployment rate
- Surplus/Deficit
- Receipts
- Expenditures
- High-Employment Budget Surplus (HEB & HEB6)

Fiscal variables converted to nominal GDP shares

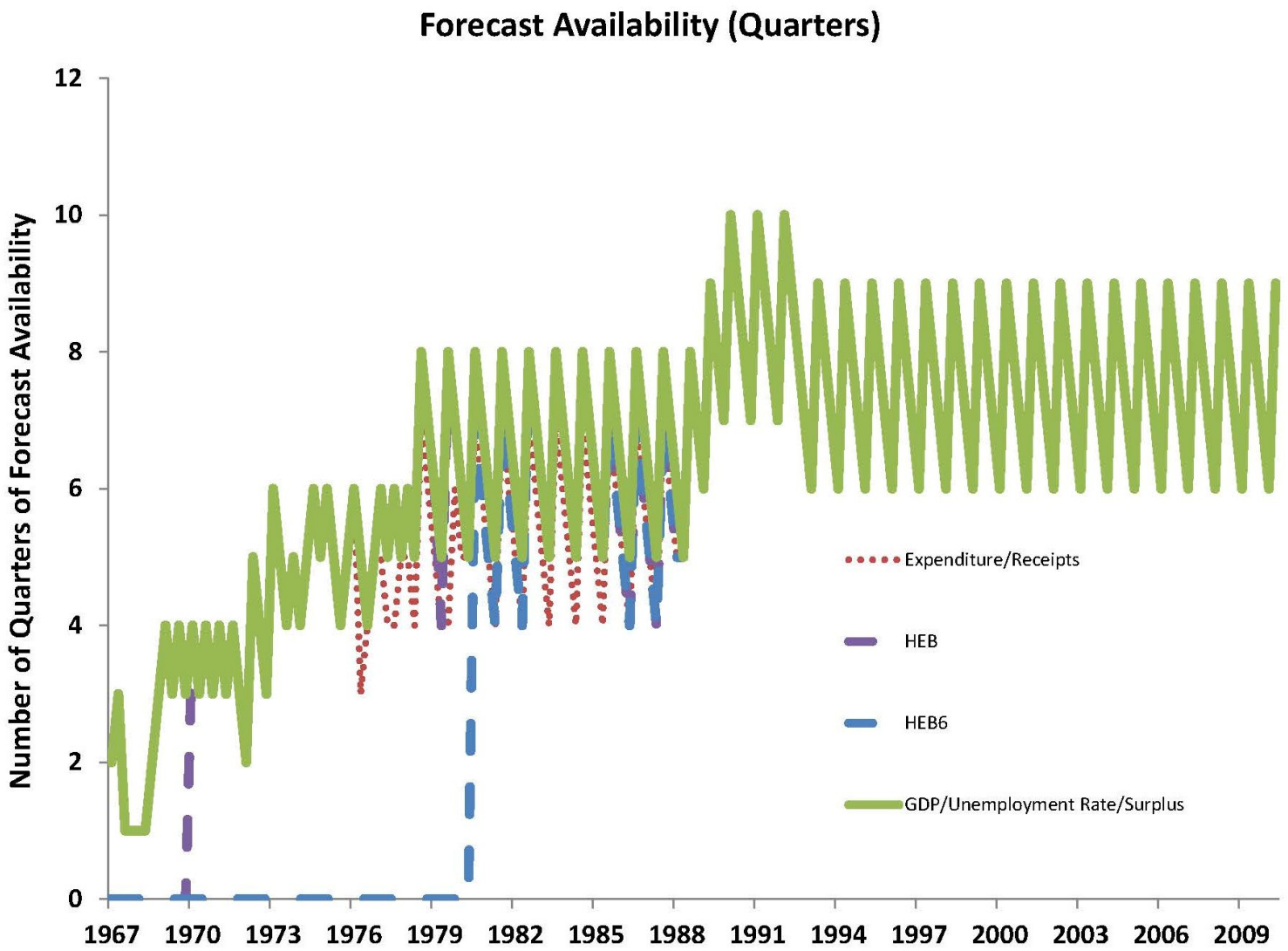
FOMC Greenbook Forecasts II



FOMC Greenbook Forecasts III



FOMC Greenbook Forecasts IV



FOMC Greenbook Forecasts V

We constructed forecast errors several ways, taking account of data revisions.

- First Release
- 1 Year
- Last Greenbook
- Pre-Benchmark
- Current Vintage

Most of the results we present use **Pre-Benchmark**

- Civilian Unemployment Rate is **Current Vintage**
- HEB and HEB6 is **Last Greenbook**

Testing for Forecast Bias

We do extensive testing for forecast bias.

- tests at each forecast horizon
- joint tests across forecast horizons
- tests for zero mean (or median) error
- tests using alternative outcome measures (Last, Initial, 1 Yr., Pre-Benchmark)
- full sample and split-samples

There is little evidence of bias, with the following exceptions

- Forecast errors have non-zero **medians** in several cases (esp. Unemployment)
- Nowcasts sometimes appear to be biased
- Long Horizon ($> 4Q$) forecasts of the Surplus tend to be overoptimistic by 1.0-1.5% of GDP on average
- HEB (and HEB6) forecasts were overoptimistic pre-1990 (but not the Surplus!)

Bias Tests: p-Values I

	Surplus		Expenditures		Receipts	
Horizon	First	Last	First	Last	First	Last
			1974Q4 to 1992Q4			
0	0.13	0.23	< 0.01***	< 0.01***	0.12	< 0.01***
1	0.62	0.65	0.22	0.16	0.42	0.36
2	0.88	0.98	0.69	0.56	0.33	0.37
3	0.48	0.59	0.95	0.85	0.18	0.18
4	0.31	0.35	0.86	0.96	0.04**	0.07*
1-4	0.76	0.68	0.94	0.92	0.19	0.35
			1993Q1 to 2010Q4			
	Surplus		Expenditures		Receipts	
Horizon	First	Last	First	Last	First	Last
0	0.47	0.17	0.38	0.15	0.95	0.95
1	0.63	0.79	0.54	0.47	0.97	0.67
2	0.32	0.32	0.39	0.42	0.38	0.38
3	0.24	0.29	0.43	0.51	0.18	0.22
4	0.25	0.26	0.47	0.51	0.16	0.16
1-4	0.32	0.31	0.47	0.46	0.28	0.27

Bias Tests: p-Values II

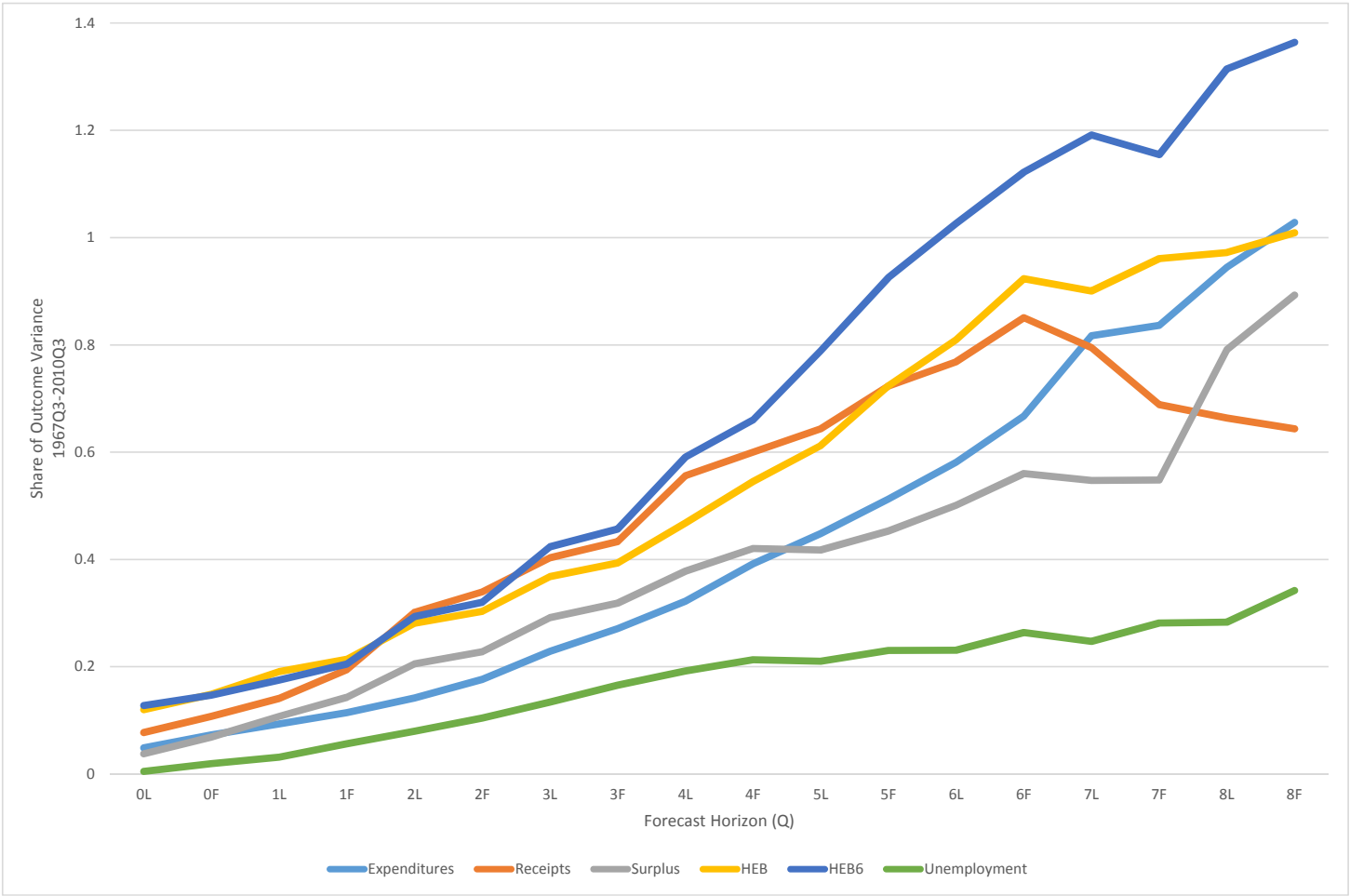
	HEB		HEB6		Unemployment	
Horizon	First	Last	First	Last	First	Last
			1974Q4 to 1992Q4			
0	$< 0.01^{***}$	$< 0.01^{***}$	0.01^{**}	0.05^{**}	0.06^{*}	0.05^{*}
1	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	0.02^{**}	0.23	0.09^{*}
2	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	0.47	0.34
3	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	0.69	0.57
4	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	0.64	0.59
1-4	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	$< 0.01^{***}$	0.39	0.31
			1993Q1 to 2010Q4			
0	0.43	0.21	0.43	0.21	0.07	0.77
1	0.49	0.72	0.49	0.72	0.33	0.20
2	0.28	0.33	0.28	0.33	0.79	0.62
3	0.17	0.23	0.17	0.23	0.99	0.84
4	0.15	0.16	0.15	0.16	0.91	0.98
1-4	0.29	0.31	0.29	0.31	0.92	0.82

Forecast Performance and Encompassing Tests

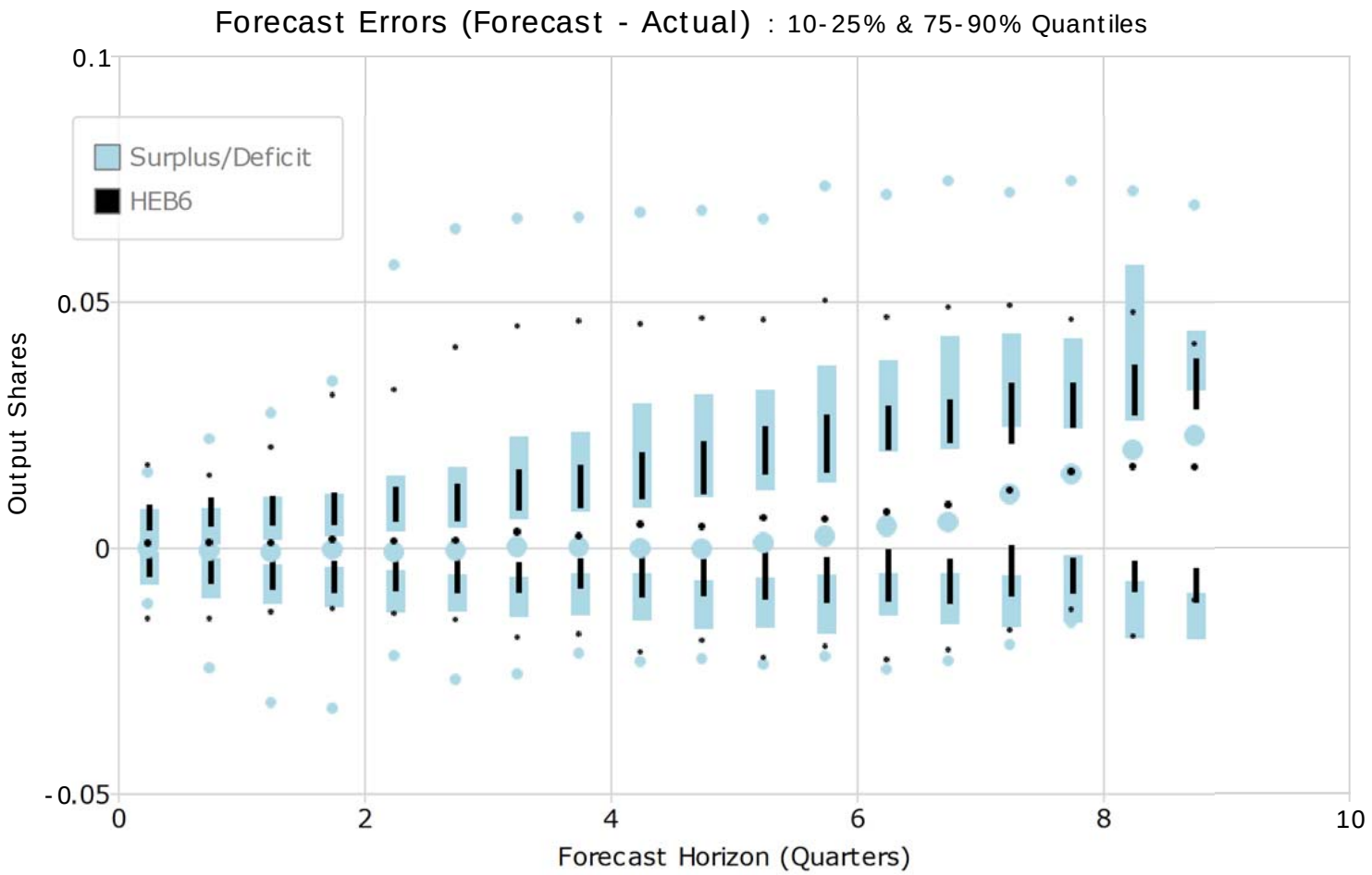
Variable	**Surplus**		**Receipts**		**Expenditures**	
Horizon (Years)	**0**	**1**	**0**	**1**	**0**	**1**
RMSFE - Greenbook	0.0086	0.0141	0.0049	0.0103	0.0052	0.0088
RMSFE - CBO	0.0092	0.0171	0.0067	0.0121	0.0058	0.0107
RMSFE - Random Walk	0.0110	0.0178	0.0068	0.0128	0.0064	0.0091
Greenbook versus CBO						
H_0 : Equal Quadratic Loss	0.726	0.251	**0.031**	**0.034**	0.342	0.142
H_0 : Equal Absolute Loss	0.578	0.221	**0.020**	0.156	0.671	0.333
H_0 : GB encompasses CBO	0.465	0.378	0.800	0.099	0.564	0.375
H_0 : CBO encompasses GB	0.252	0.185	**0.003**	**0.015**	**0.017**	0.071
Greenbook versus Random Walk						
H_0 : Equal Quadratic Loss	0.337	0.136	0.124	0.121	0.140	0.872
H_0 : Equal Absolute Loss	0.203	0.163	0.073	0.096	0.189	0.851
H_0 : GB encompasses RW	0.328	0.552	0.900	0.211	0.514	0.552
H_0 : RW encompasses GB	0.076	0.052	**0.042**	0.079	**0.026**	0.139

RMSFE indicates the Root-Mean-Squared Forecast Error.
Figures shown for hypothesis tests are p-values.
Boldface denotes p-values $< 5\%$.

Relative Forecast Accuracy



Forecast Error Distribution



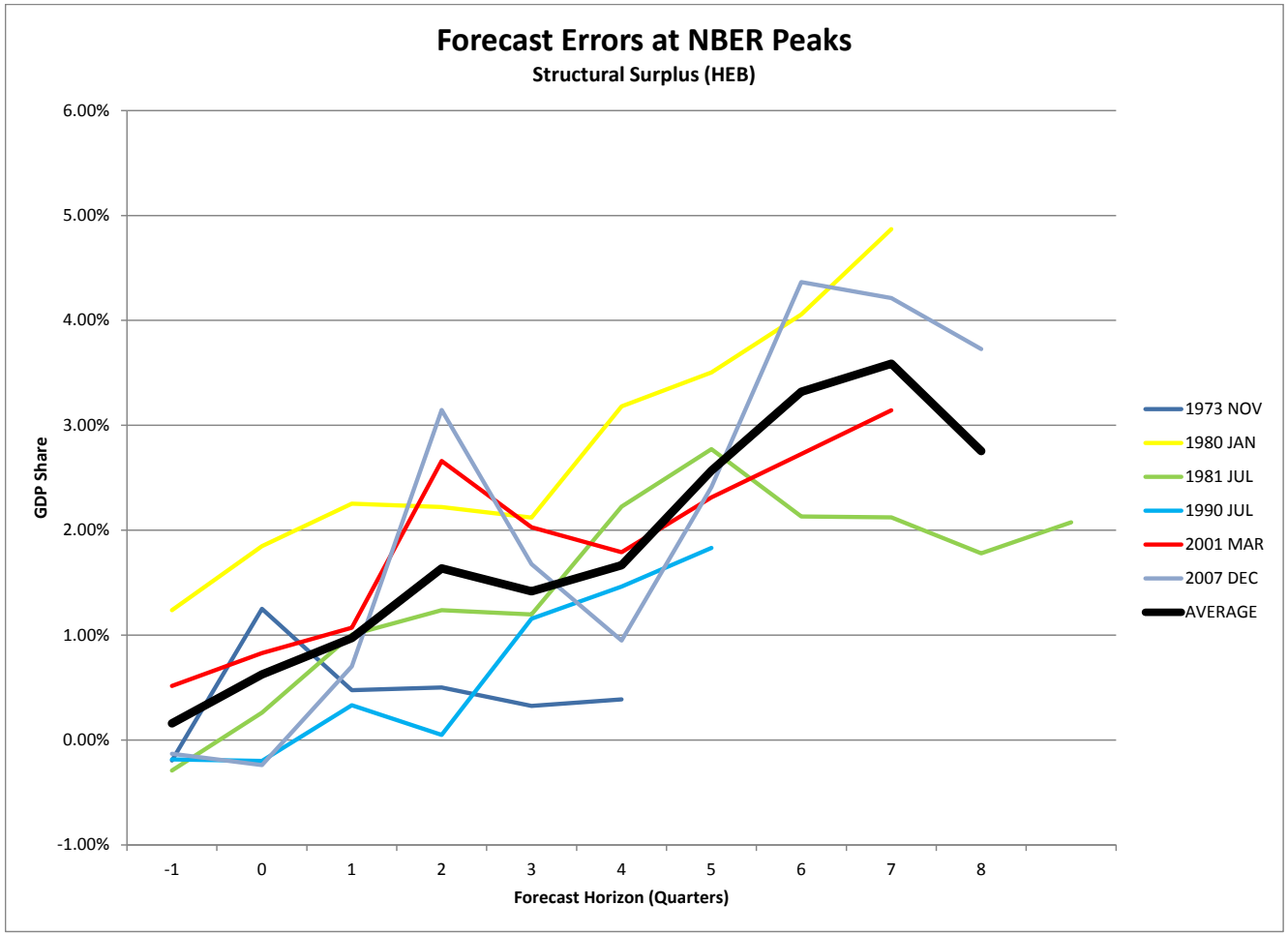
The Great Moderation Puzzle

Forecast Error Variances
(relative to unconditional variance 1967Q3–2010Q4.)

Horizon	Expenditures	Receipts	Surplus	HEB	HEB6	Unemployment
			1967Q3–1990Q4			
0F	0.073	0.106	0.078	0.166	0.089	0.027
1F	0.141	0.198	0.177	0.230	0.085	0.080
2F	0.192	0.291	0.246	0.276	0.068	0.151
3F	0.275	0.292	0.303	0.310	0.088	0.236
4F	0.340	0.330	0.332	0.406	0.084	0.299
5F	0.323	0.125	0.141	0.498	0.229	0.330
6F	0.342	0.099	0.164	0.868	0.326	0.377
			1991Q1–2010Q4			
0F	0.061	0.108	0.053	0.131	0.178	0.009
1F	0.074	0.196	0.096	0.201	0.271	0.024
2F	0.156	0.409	0.212	0.336	0.454	0.042
3F	0.276	0.597	0.357	0.487	0.659	0.078
4F	0.435	0.818	0.545	0.692	0.936	0.122
5F	0.613	1.007	0.726	0.894	1.209	0.158
6F	0.790	1.063	0.808	1.030	1.393	0.196

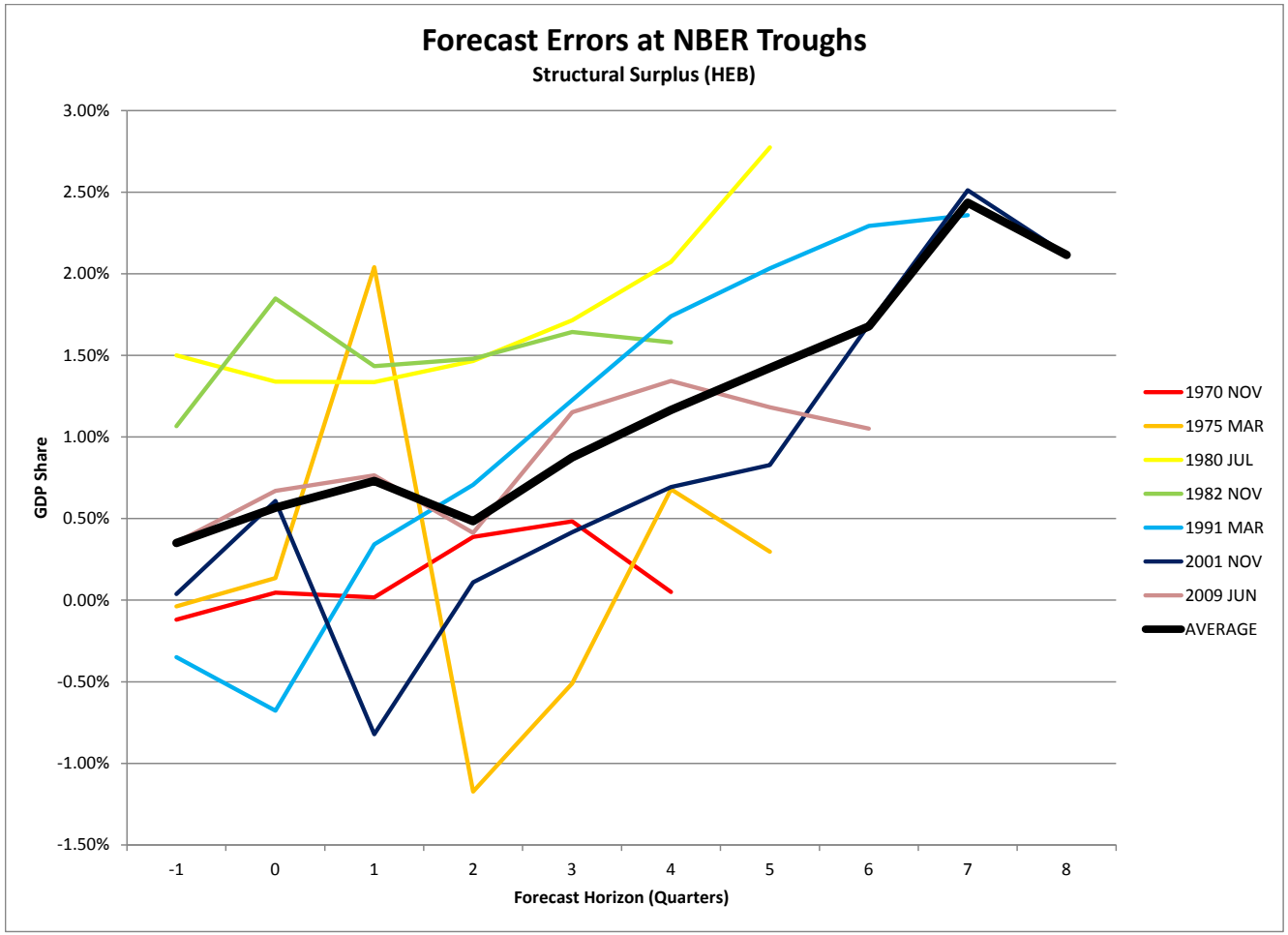
The Turing Point Puzzle

Business Cycle Peaks



The Turing Point Puzzle

Business Cycle Troughs



The Turing Point Puzzle

We think this is new, in part because we cover more business cycles than other fiscal forecast datasets.

This is **not** your standard Turning Point bias!

- Size of errors much larger than the mean forecast bias
- HEB should exclude variations due to cyclical variation in unemployment (i.e. through "automatic stabilizers")
- Positive errors after Peaks (i.e. in downturns) are consistent with **discretionary** fiscal stimulus.
- But so soon? and after troughs?

Has fiscal policy usually been more counter-cyclical and discretionary than we thought?
Or does the Board Staff revise the relationship between unemployment and the deficit after every downturn?

Conclusions

What did we learn?

1. There is little bias and the forecasts look pretty efficient.
2. But forecast errors can sometimes be big (even at shorter horizons.)
3. **Fiscal** forecast accuracy deteriorated greatly after 1990.
4. Cyclically-adjusted-deficit forecasts have been too optimistic around both business cycle peaks and troughs.

Open questions:

1. How does accuracy compare to other forecasts, countries?
   What does it imply for the conduct of fiscal policy?
2. How did fiscal policy change after 1990?
   Did we see similar drops in accuracy in other countries?
3. What explains the bias around turning points?
   Discretionary policy? Revisions in "structural" relationships?