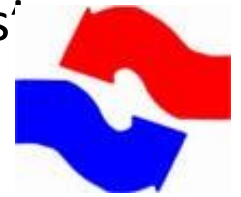National research university 'Higher school of economics'
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Predicting the US Recessions: Does a "Wishful" Bias Exist?

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My Proposition

I strongly *believe* that there exists an "over-optimistic" bias while predicting recessions

My Aim

To convince others

My Understanding

❖Quality of a forecast is dependent on:

- Information used;

- Model used;

- Final expert's decision

The Data

❖ **SPF by PhilFed**

- Real GDP growth rates;
- Consensuses (medians), not individual forecasts;
- 1968:Q4 – 2013:4 (181 quarters, 151 belonging to expansions, 27 belonging to contractions; 7 pairs of peaks and troughs)

❖ **BEA**

- Real GDP growth rates;
- First ("advance") estimate;

❖ **NBER**

- Turning points (quarterly version)

First Argument: Forecasts of Real GDP Growth Rates Made at Peaks are Usually Positive for All Horizons of Forecasting

Turing points	Actual, First estimate	Horizons of Forecasting				
		t+0	t+1	t+2	t+3	t+4
Peaks						
1969:Q4	-0.1	0.2	0.3	0.6	2.5	3.1
1973:Q4	1.3	1.4	-0.3	-0.6	2.1	2.7
1980:Q1	1.1	0.0	-2.5	-0.7	0.8	2.2
1981:Q3	-0.6	0.0	2.1	3.5	4.0	4.3
1990:Q3	1.8	1.4	0.8	0.8	0.8	2.4
2001:Q1	2.0	0.8	2.2	3.3	3.7	3.7
2007:Q4	0.6	1.5	2.2	2.3	2.7	2.8
Troughs						
1970:Q4	-3.3	-1.3	5.9	4.5	2.9	3.8
1975:Q1	-10.4	-5.5	-0.5	3.3	4.9	5.7
1980:Q3	1.0	-3.8	-1.6	4.0	2.3	4.9
1982:Q4	-2.5	1.1	2.4	3.3	4.3	4.0
1991:Q1	-2.8	-1.9	0.2	1.7	2.9	3.2
2001:Q4	0.2	-1.9	0.1	2.4	3.6	4.0
2009:Q2	-1.0	-1.5	0.4	1.7	2.2	2.9

Source: PhilFed, BEA, NBER

Designations

❖ f_{t+0}, f_{t+1}, f_{t+2}, f_{t+3}, f_{t+4}, - forecasts of real GDP growth rates in quarters t+0, t+1, t+2, t+3, t+4, made in quarter t.

❖ a_{t+0}, a_{t+1}, a_{t+2}, a_{t+3}, a_{t+4}, - actual real GDP growth rates for the same quarters.

Second Argument: mean (f_t)> mean (a_t)

Horizons of Forecasting					
t+0	t+1	t+2	t+3	t+4	All horizons pooled
Whole period, 1968:Q4 – 2013:Q					
0.117	-0.211	-0.442	-0.734	-0.857	-0.427
(0.398)	(0.269)	(0.044)	(0.002)	(0.000)	(0.000)
Periods of Expansion					
0.333	0.001	-0.264	-0.596	-0.705	-0.250
(0.017)	(0.996)	(0.150)	(0.004)	(0.003)	(0.003)
Periods of Contraction					
-1.105	-1.406	-1.432	-1.505	-1.743	-1.434
(0.014)	(0.073)	(0.164)	(0.162)	(0.060)	(0.000)

The probabilities of random rejection of the null hypothesis (H0: D = 0) with the alternative hypothesis (H1: D ≠ 0) are in parentheses.

Mean (D_t) = mean (a_t - f_t) = 0 → no bias;

Mean (D_t) = mean (a_t - f_t) > 0 → negative bias, excessive pessimism;

Mean (D_t) = mean (a_t - f_t) < 0 → positive bias, excessive optimism

Third Argument: In the Mincer-Zarnowitz equation ($a_t = \alpha + \beta\,f_t + e_t$), α is usually positive and/or $\beta < 1$

Probability of a random rejection of a H_0

H_0	$t + 0$	$t + 1$	$t + 2$	$t + 3$	$t + 4$	All horizons
$\alpha = 0$, $\beta = 1$	0.154	0.512	0.075	0.001	0.000	0.000
No α, $\beta = 1$	0.072 (1.076)	0.332 (0.587)	0.023 (0.846)	0.000 (0.747)	0.000 (0.722)	0.000 (0.864)

Note: estimates of β are in parentheses

$\alpha = 0$, $\beta = 1 \rightarrow$ no bias;

$\alpha > 0$ and/or $\beta > 1 \rightarrow$ negative bias, excessive pessimism;

$\alpha < 0$ and/or $\beta < 1 \rightarrow$ positive bias, excessive optimism

Fourth Argument: dummies for peaks (D_p) and troughs (D_t) are significantly different from zero for horizons t+1 and t+2

Coefficients for D_p and D_t added to Mincer-Zarnowitz equation $a_t = \alpha + \beta f_t + e_t$

Dummy	t + 0	t + 1	t + 2	t + 3	t + 4	All horizons
D_p	0.158	-3.806[+]	-1.854[x]	-1.193	-2.459[*]	-1.842[+]
D_t	-0.232	2.542[+]	3.153[+]	1.209	0.291	0.944[*]

Notes: [+] significant at 0.01 level;[*] significant at 0.05 level; [x] significant at 0.1 level;

D_p and/or D_t = 0 → no bias at peaks and/or troughs;

D_p and/or D_t > 0 → negative bias, excessive pessimism;

D_p and/or D_t < 0 → positive bias, excessive optimism

Therefore, over-optimism exists in the following cases

❖ For t+3 and t+4:

- mean $(a_t - f_t) < 0$;
- $\beta < 1$ (Mincer-Zarnowitz equation)

❖ At peaks

- usually $f_{t+j} > 0$ (j=0,..4);
- For t+1 and t+2: $D_p < 0$

Two possible explanations for positive bias while predicting recessions

❖ Experts rely too heavy on extrapolations

- But there is no "symmetry" between over-optimism and over-pessimism (it should be if an extrapolation is the reason)

❖ There is a wishful bias against predicting recessions

- It may be rooted in psychological factors

We believe in the second explanation. Are you agree?