

# Forecaster Performance Characteristics

## Discussion

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Bank of Israel, July 9, 2019

# What this paper does

- Constructs an impressive an original dataset:
  - Inflation and interest rate forecasts made by **480** experts from **440** institutions, before and after the global finance crisis.
  - A rich set of forecasters characteristics: experience (type and time), gender, education (level, type, and quality), and affiliation (type and place).
- Composes a measure of survival rate as well as three measures of forecasting performance - accuracy, courage, and instability.
- Characterizes the factors associated with forecaster survival rate and performance.

# What the paper finds

The following characteristics **improve** forecasting performance, courage, and instability:

1. Level and quality of the education.
2. Localization and type of their affiliation.
3. Experience, as a forecaster in a central bank or academia.

# My Comments

1. Literature
2. Economic Significance?
3. Causality and Policy Implications

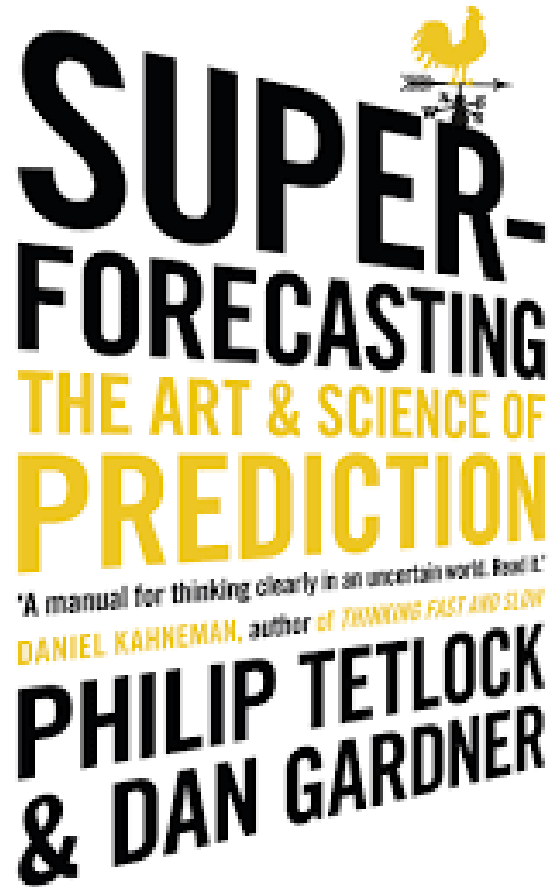
# Comment #1: Literature

# From economics

Cho and Hersch (1998, JoEB):

- draw a panel data from *The Wall Street Journal's* survey of economic forecasts.
- forecasts of interest rates, inflation, and GDP growth rate,
- find a *little* effect of characteristics on accuracy.
- focus on forecast bias, experience, and institutional settings.

# From psychology



According to Tetlock & Gardner, superforecasters typically have:

- Philosophic Outlook: Cautious, Humble, Non-deterministic.
- Thinking Style: Open-Minded, Intelligent and Curious, Reflective, Numerate.
- Forecasting Style: Pragmatic, Analytic, Dragonfly-Eyed, Probabilistic, Thoughtful Updaters, Intuitive Psychologist.
- Work Ethic: Growth Mindset, Grit.

# Comment #2: Economic Significance



# Economic significance

**Table 2:** Panel estimates for the US CPI expert forecasts

	Performance		
	Full sample	Pre-GFC	Post-GFC
Experience as an expert	-0.0003***	-0.0008	-0.0004***
Local expert	-0.0153***	-0.0287	-0.0175***
Local institution	-0.0019	-0.0455**	0.008
Financial institution	-0.018***	-0.0927***	-0.0112*
Experience in central bank	-0.018***	-0.0298*	-0.0169***
Experience in academia	-0.0052	-0.0052	-0.0059
Gender	0.0006	0.0543***	-0.0128
Master	0.024	0.0056	0.0303
Ph.D.	0.0612**	0.0033	0.0686
Economics education	0.0147	0.0351	0.0245
Finance education	-0.0067	-0.0011	-0.0062
Economics and finance education	-0.0233	-0.0025	-0.0213
Shanghai Ranking : Economics	-0.0184***	-0.0177	-0.0205***
Shanghai Ranking : General	0.0008	-0.0166**	0.001
<i>Interactions</i>			
Master in Economics	-0.0214	-0.0139	-0.0313
Ph.D. in Economics	-0.0633**	-0.044	-0.0697
Local financial institution	0.0117	0.1012***	-0.0006
Experience with a Master	-0.0001	-0.0001	0
Ranked university in a financial institution	0.0133***	0.0302*	0.0136***
Experience and gender	0.004	-0.0124	0.0083*
Observations	3115	363	2752
Adjusted R <sup>2</sup>	0.041	0.0954	0.0465

Note that

- <sup>2</sup> quite low.
- -values ("stars") are not informative about the economic relevance of the effect.

# Suggestion: Superforecasters vs. simple average

- Compile a "portfolio" of forecasters, where inclusion is based on characteristics shown to be associated with excellent performance.
- Run a horse-race between your portfolio and a benchmark (e.g., simple average)
- Test for differences in forecast accuracy (e.g., Diebold-Mariano)

# Comment #3: Causality and Policy Implications

# Econometric approach

In their main analysis, the authors use a two-way fixed effect panel data model to estimate the effects of various forecaster characteristics on forecasting performance:

$$= \beta_0 + \beta_1 + \beta_2 + \beta_3$$

where  $y_{it}$  is a measure of forecasting performance (accuracy, courage, and instability), and  $x_{it}$  is a vector of forecaster characteristics.

**RESEARCH QUESTION:** Which forecasters characteristics **affect** forecasting performance?

# The curse of dimensionality

Presumably, the list of covariates is not sizable:

- experience
- locality
- gender
- degree level
- degree quality
- field
- institution type
- localization

However, attaching causal claims to each one of the above (as well as to interactions) is an ambitious task.

In particular, the inclusion or exclusion of covariates depends on the causal question want to answer.

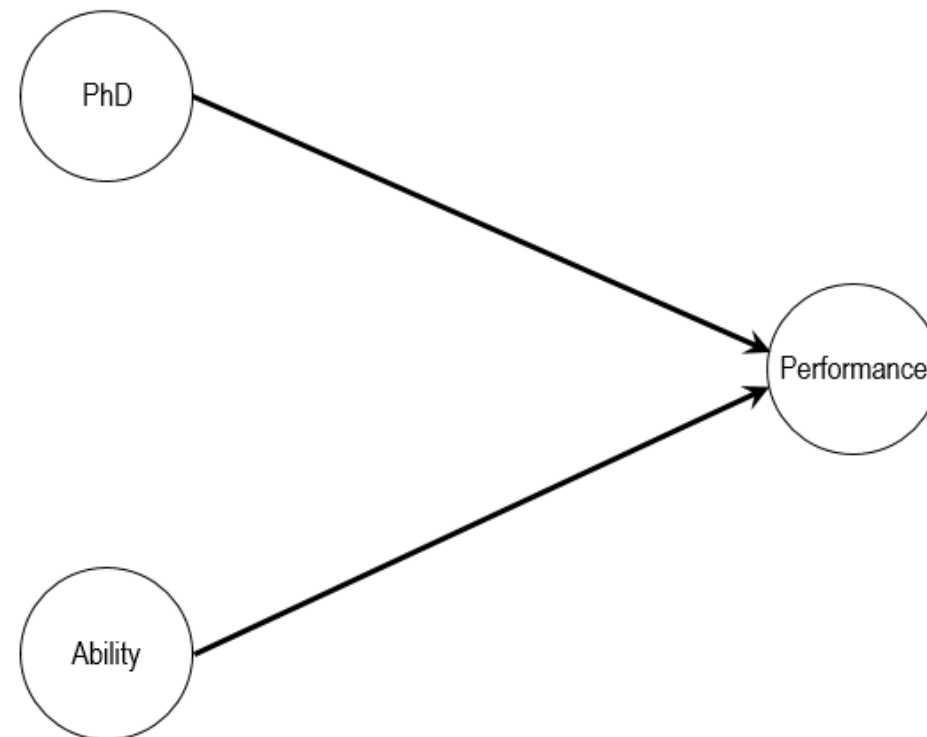
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# Example: Does having a PhD affect performance?

Let's assume for simplicity that PhDs are randomly assigned.

In this case, estimating the effect of having a PhD on forecasting performance is straightforward: Regress performance onto a PhD dummy.

**QUESTION:** Shouldn't we adjust for institution type?

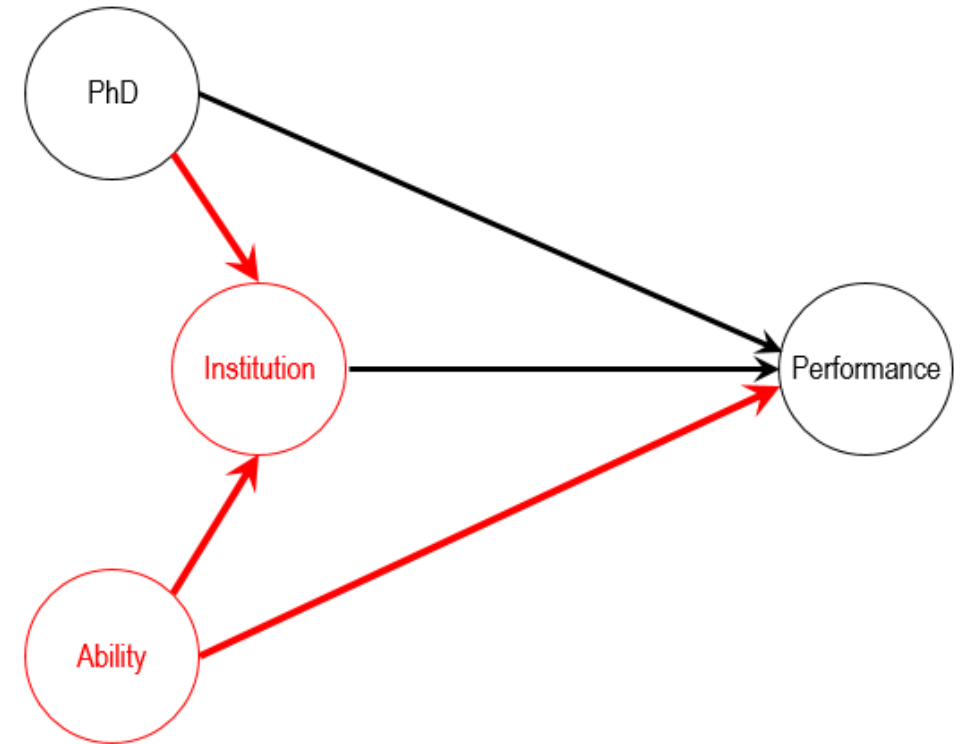


# Institution affiliation bias

**ANSWER:** No.

Controlling for **Institution** generates selection bias: it opens up a back-door path between **Ability** and **Performance**.

In this example, the bias is probably *negative*. It seems reasonable to think that someone who gets into a financial institution without the benefit of a PhD probably has higher than average innate ability.



# What to do?

**OPTION 1:** Try to focus on estimating the causal effect of a low-dimensional vector of characteristics (preferably one) and treat other covariates as potential controls.

- Challenge: What to focus on?

**OPTION 2:** Look for other exogenous variation in the data and see how its effect varies with forecasters characteristics.

- e.g., Coibion and Gorodnichenko (JPE 2012).

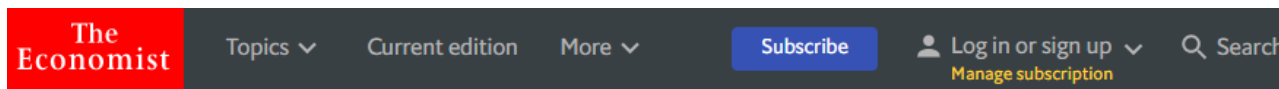
**OPTION 3:** Stay in the realm of descriptive studies, but refine the research question, e.g.,

- Is there evidence of superforecasters? If so, what are their characteristics?
- Do forecasters carry their performance level when they switch jobs?



# Switching jobs

Does switching jobs change outcomes? The case of football managers:



Football

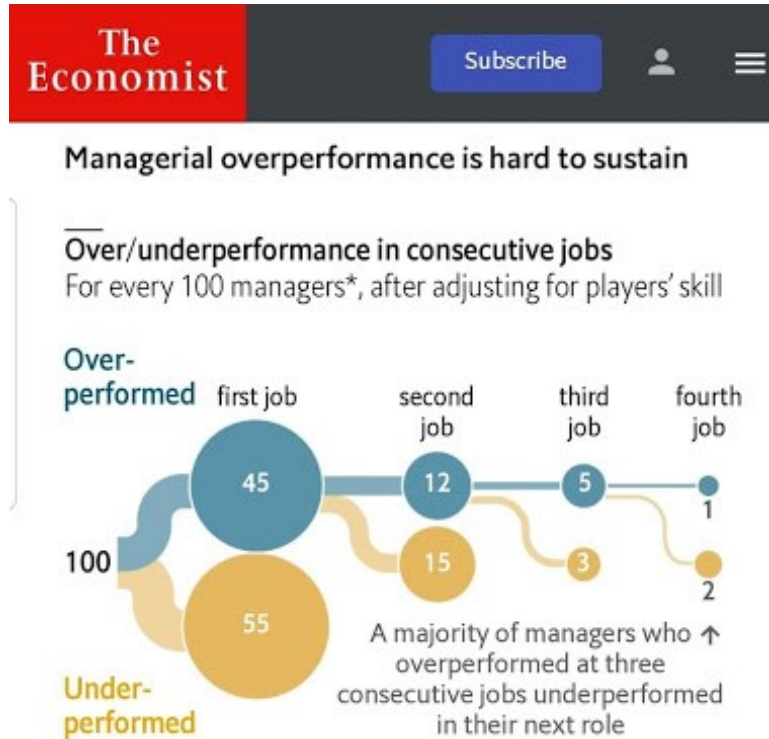
## Managers in football matter much less than most fans think

*They struggle to sustain success when switching clubs*

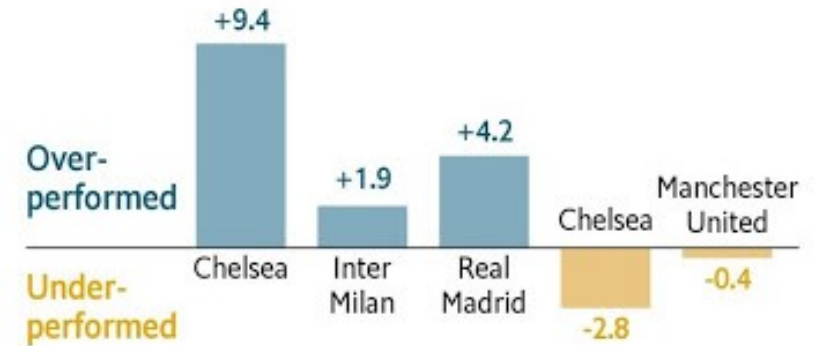
Print edition | Graphic detail > Jan 19th 2019

“I THINK I am a special one,” José Mourinho boasted in 2004. One of football’s most lauded managers, he won six domestic titles in his first 11 seasons in top leagues. But his powers have deserted him of late. He was sacked by Chelsea in 2015, and by Manchester United last month.

# How special is "the special one"?



**José Mourinho's managerial performance**  
Teams' league points per season above/below expected



\*Tenures of at least 15 games

Source: [The Economist](#).

# Miscellaneous comments

- Descriptive statistics: Average years of experience? How many have PhD? How many economists? How many women? Etc.
- Survival analysis: Is it relevant?
- Non-linearity in **experience**?
- Add figures!
- Missing data and imputations.

# Summary of comments and suggestions

- Great database!
  - Interesting findings
  - Refine causal analysis
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```
slides %>% end()
```

[Source code](#)

# References

Cho, D. W., & Hersch, P. L. (1998). **Forecaster characteristics and forecast outcomes**. *Journal of Economics and Business*, 50(1), 39-48.

Coibion, O., & Gorodnichenko, Y. (2012). **What can survey forecasts tell us about information rigidities?** *Journal of Political Economy*, 120(1), 116-159.

Tetlock, P. E., & Gardner, D. (2015). *Superforecasting: The Art and Science of Prediction*. New York: Crown/Archetype. Print.