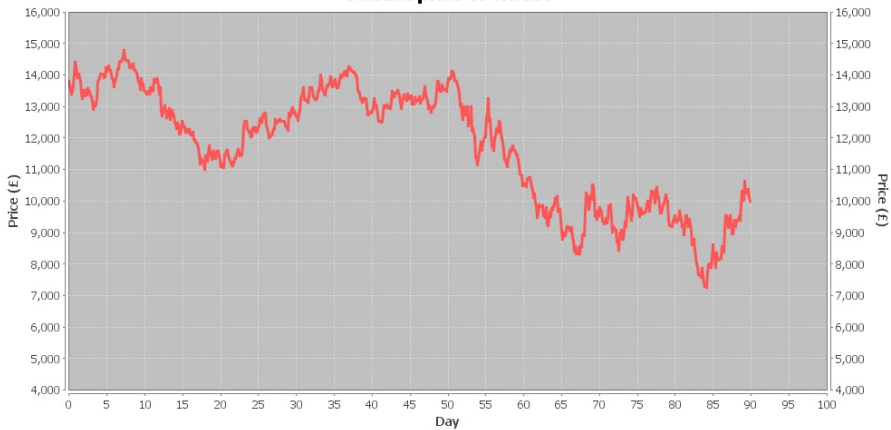


Experiment

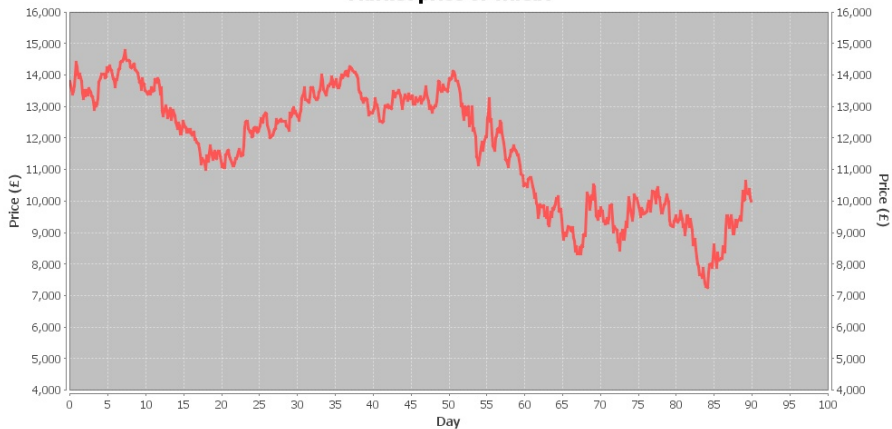
Goals

- Clean example of wishful thinking
- Does bias magnitude depend on its costs?

Market price of wheat

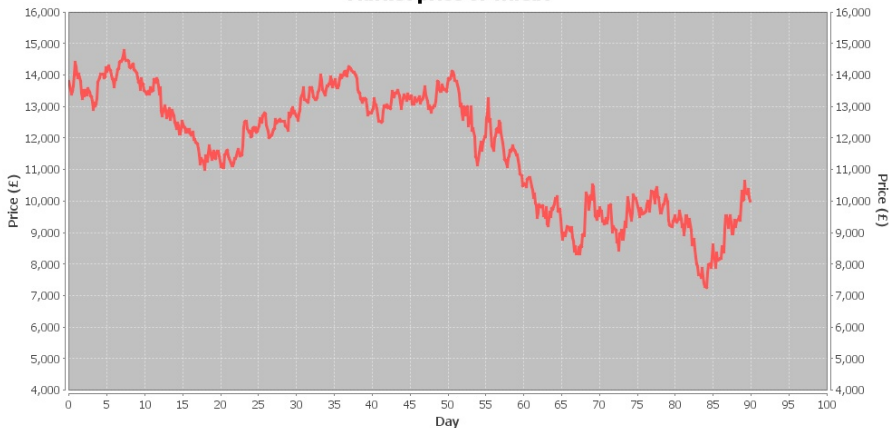


Market price of wheat



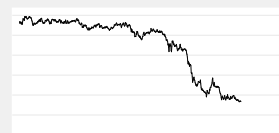
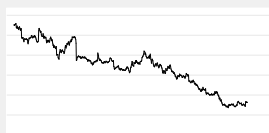
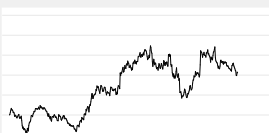
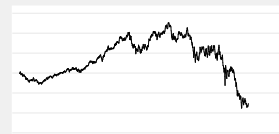
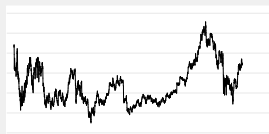
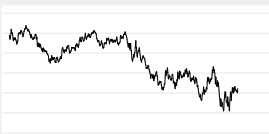
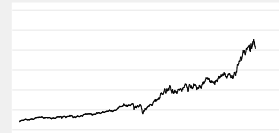
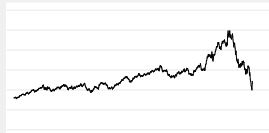
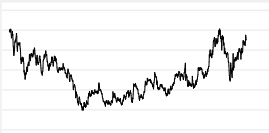
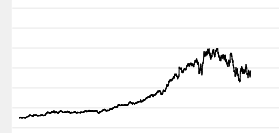
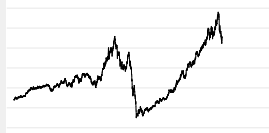
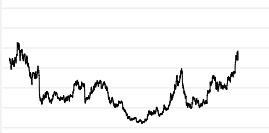
Task: predict the day 100 price

Market price of wheat

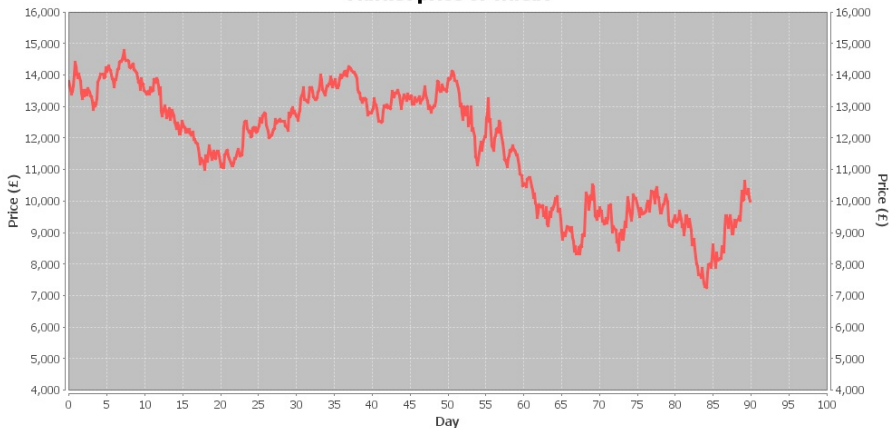


Task: predict the day 100 price

Accuracy bonus for good predictions.



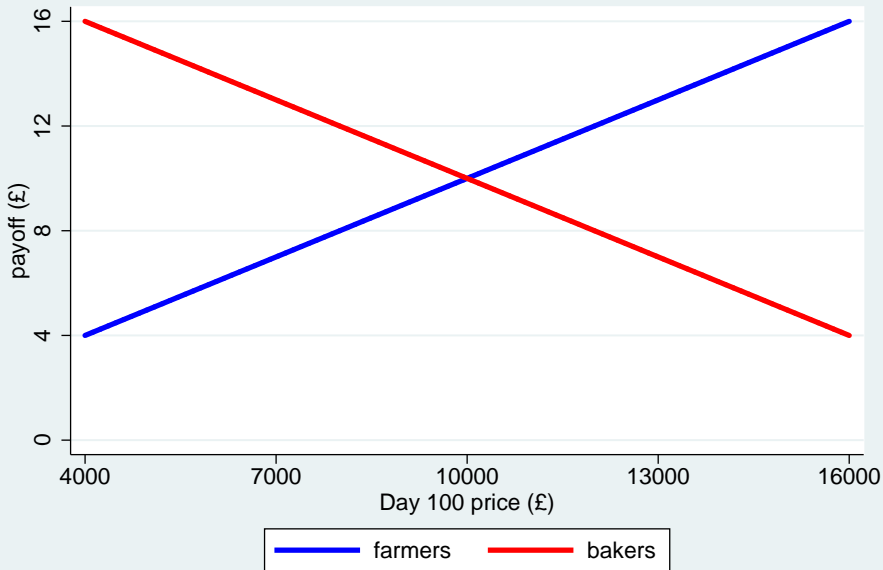
Market price of wheat



Farmers: gain if day 100 price is **high**.

Bakers: gain if day 100 price is **low**.

Payoff function



Accuracy bonus

- £1 for a good prediction.
- Logarithmic scoring rule.

Universal (non strategic): all subjective judgments

Universal (strategic): subjective judgments with small-stake decisions

Ego-utility



Experiment

Cognitive-bias

Test statistic

Treatment effect = mean prediction by farmers
– mean prediction by bakers

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Null: treatment effect ≤ 0

Test statistic

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Wishful thinking: treatment effect > 0

Test statistic

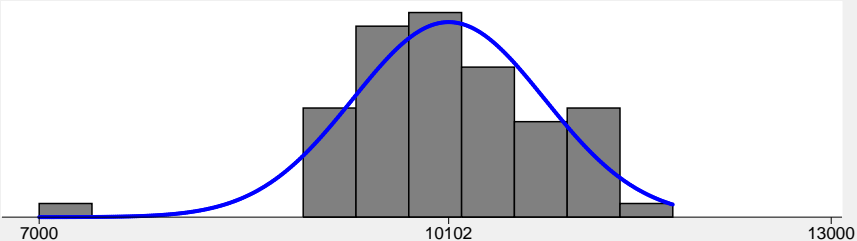
Treatment effect = mean prediction by farmers
– mean prediction by bakers

Null: treatment effect ≤ 0

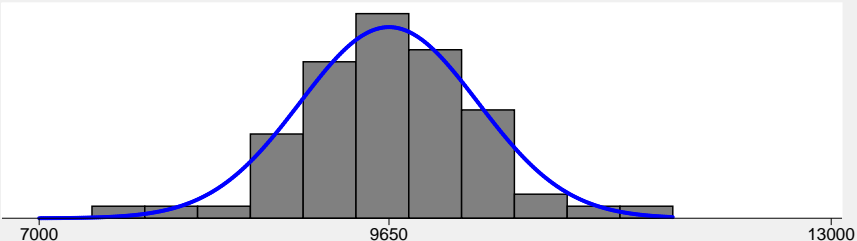
Wishful thinking: treatment effect > 0

Result

Farmers



Bakers



Result

Sample	Treatment Effect	Observations
All subjects	452*** (s.e. 123)	1584 (132)

Result

Sample	Treatment Effect	Observations
All subjects	452*** (s.e. 123) <i>negative?</i> $p < 0.0002$	1584 (132)

Confidence

	Sample	Treatment Effect	Observations
	All subjects	452*** (s.e. 123)	1584 (132)
Average confidence: <i>high</i>		628*** (s.e. 169)	792 (66)
Average confidence: <i>low</i>		276* (s.e. 174)	792 (66)

high \leq *low* $p < 0.0732$

Prices predictable? <i>no</i>	292** (s.e. 174)	792 (66)
Prices predictable? <i>yes</i>	613*** (s.e. 174)	792 (66)

no $>$ *yes* ? $p < 0.0997$

Cost of bias beliefs

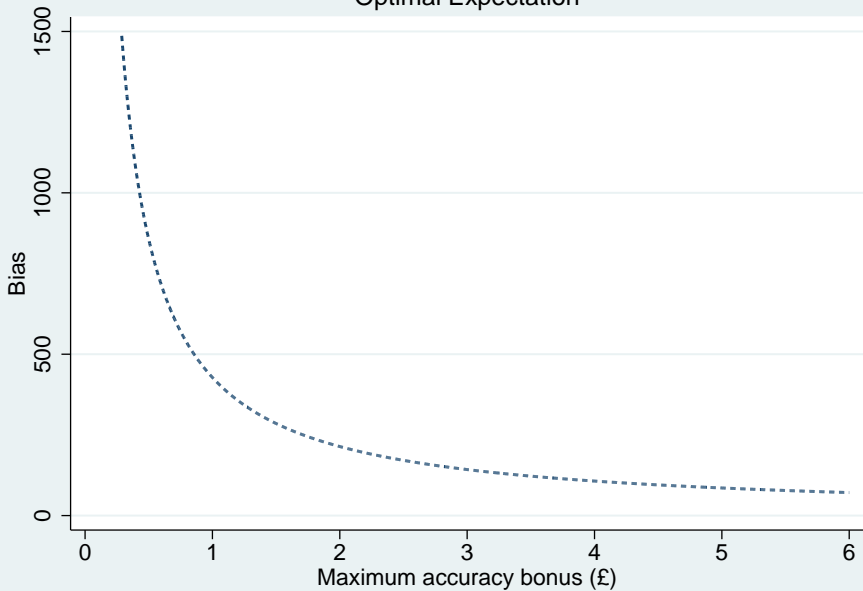
Strategic (Optimal Expectations)

Magnitude of bias **inversely proportional** to accuracy bonus scale
(assuming risk neutrality)

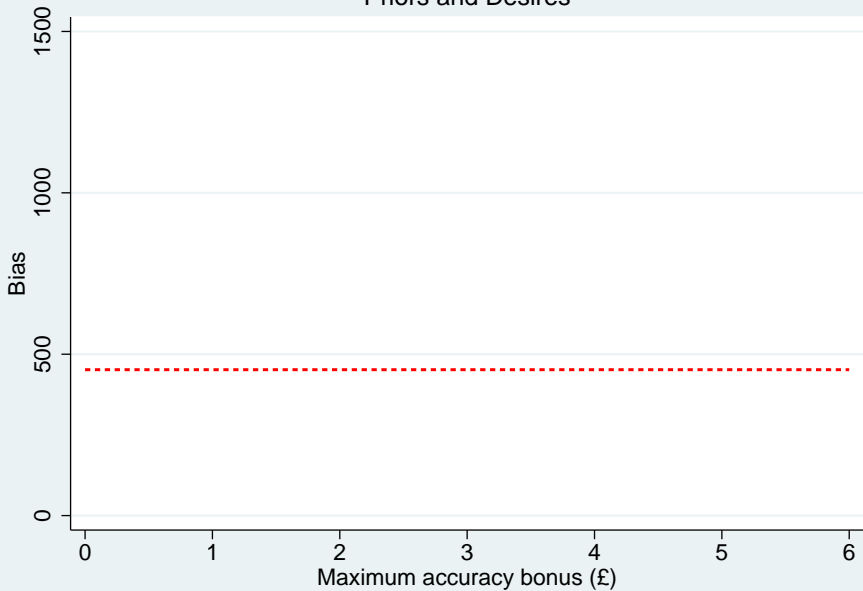
Non-strategic

Magnitude of bias **independent** of accuracy bonus scale.

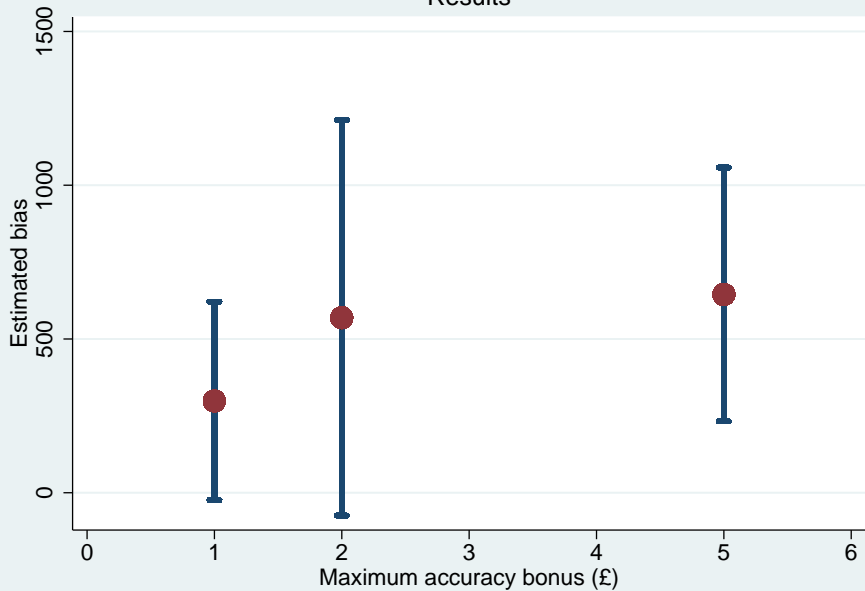
Optimal Expectation



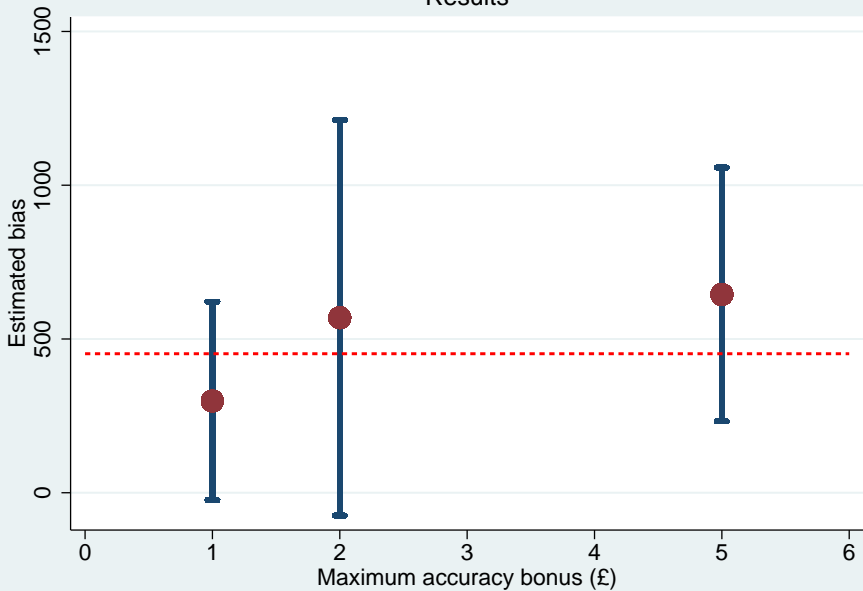
Priors and Desires



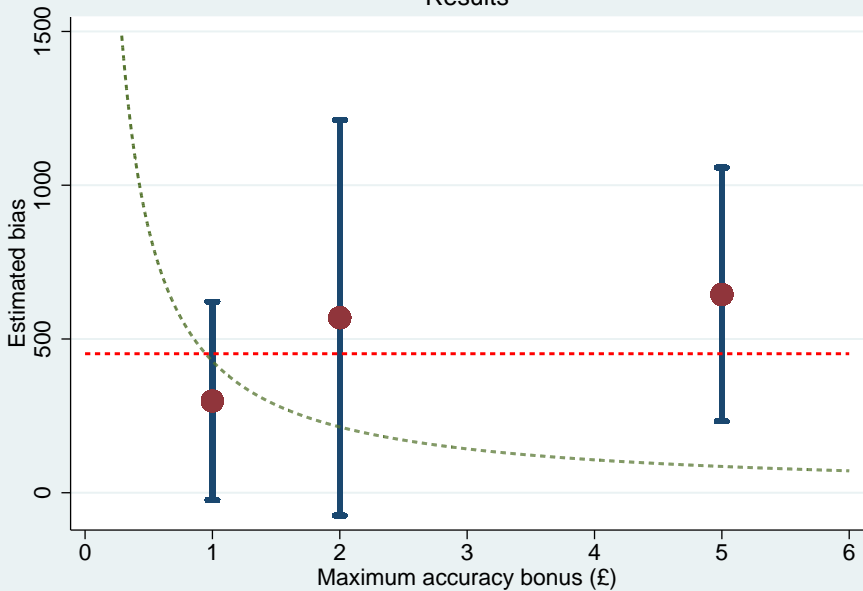
Results



Results



Results



Results

Cost of biased beliefs

	Sample	Treatment Effect	Observations
	All subjects	452*** (s.e. 123)	1584 (132)
	Max bonus: <i>low</i> (£1)	298** (s.e. 164)	816 (68)
	Max bonus: <i>medium</i> (£2)	569** (s.e. 328)	300 (25)
	Max bonus: <i>high</i> (£5)	645*** (s.e. 210)	468 (39)

Results

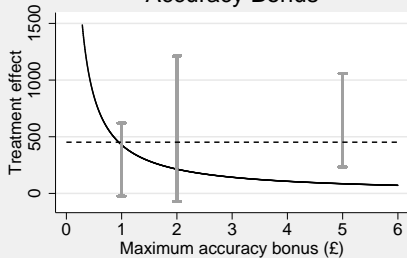
Cost of biased beliefs

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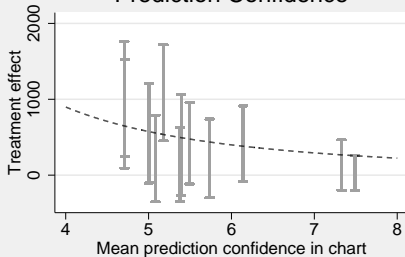
low = 2 · *medium* = 5 · *high* $p < 0.0140$

low = *medium* = *high* $p < 0.4026$

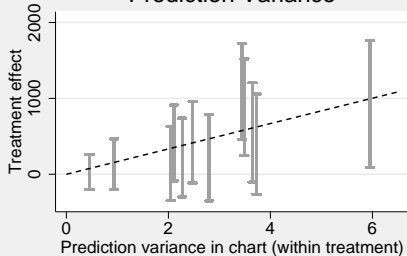
Accuracy Bonus



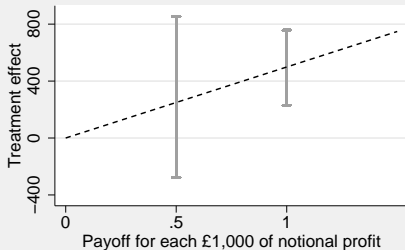
Prediction Confidence



Prediction Variance



Stakes



Conclusion

Key results

- 1 Wishful-thinking in the absence of ego, cognitive bias.
- 2 Bias independent of incentives for accuracy, increases with uncertainty, appears to be increasing with what's at stake.

Conclusion

Key results

- 1 Wishful-thinking in the absence of ego, cognitive bias.
- 2 Bias independent of incentives for accuracy, increases with uncertainty, appears to be increasing with what's at stake.

Implications

- 1 Wishful-thinking does not appear to be strategic.
- 2 We should expect bias whenever decisions are based on **subjective judgment**, including environments in which biased beliefs have costly consequences.