"Ego at a price"
Empirical study on biased self-belief with monetary stakes

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Research Question

- To what extent are people biased (over-confidence or inferiority) in the process of adjusting self-evaluation towards their Intelligence Quotient, after receiving imperfect signals about their IQ scores?
- Possible answer: Over-confident(As beliefs related their abilities, people are easier influenced by positive signal rather than negative signals), but to what degree?

Intuition behind biased belief

- Innate: Direct utility today from having a positive belief about yourself;
  Instrumental: Helps you work harder or perform better or convince others more

Theoretical and Empirical Literature

- Theoretical Hypothesis: Rational judgement is common pattern. Do people really hold biased belief towards themselves?
  Seda Erta, Does self-relevance affect information processing? Experimental evidence on the response to performance and non-performance feedback, Journal of Economic Behavior Organization, 2011, vol. 80, issue 3, pages 532-545
- Burks, Carpenter et al(2013): Overconfidence and Social Signalling.
  Eil and Rao (2011):Asymmetric processing of objective information about yourself Favorable news: subjects roughly Bayesian (slightly optimistic) Unfavorable news: discounted, noisy posterior beliefs

Methodology: Experiment with Mechanical Turk

- Why Mechanical Turk? (Fast response; Cheap and easy; Automated analysis)
- Experimental design:
  1. Elicitation of initial confidence
  2. IQ test
  3. Elicitation of post-test confidence(Set the baseline bias degree)
  4. Four binary signals, each correct with 75 percent probability(Randomization for imperfect information; explanatory variable)
  5. Confidence elicited after each signal(Response variables)
- Monetary stakes: elicit beliefs that are close to real decision
- Why IQ test as our measurement? Authentic; Quantitative;

Basic Model: Bayes Rule

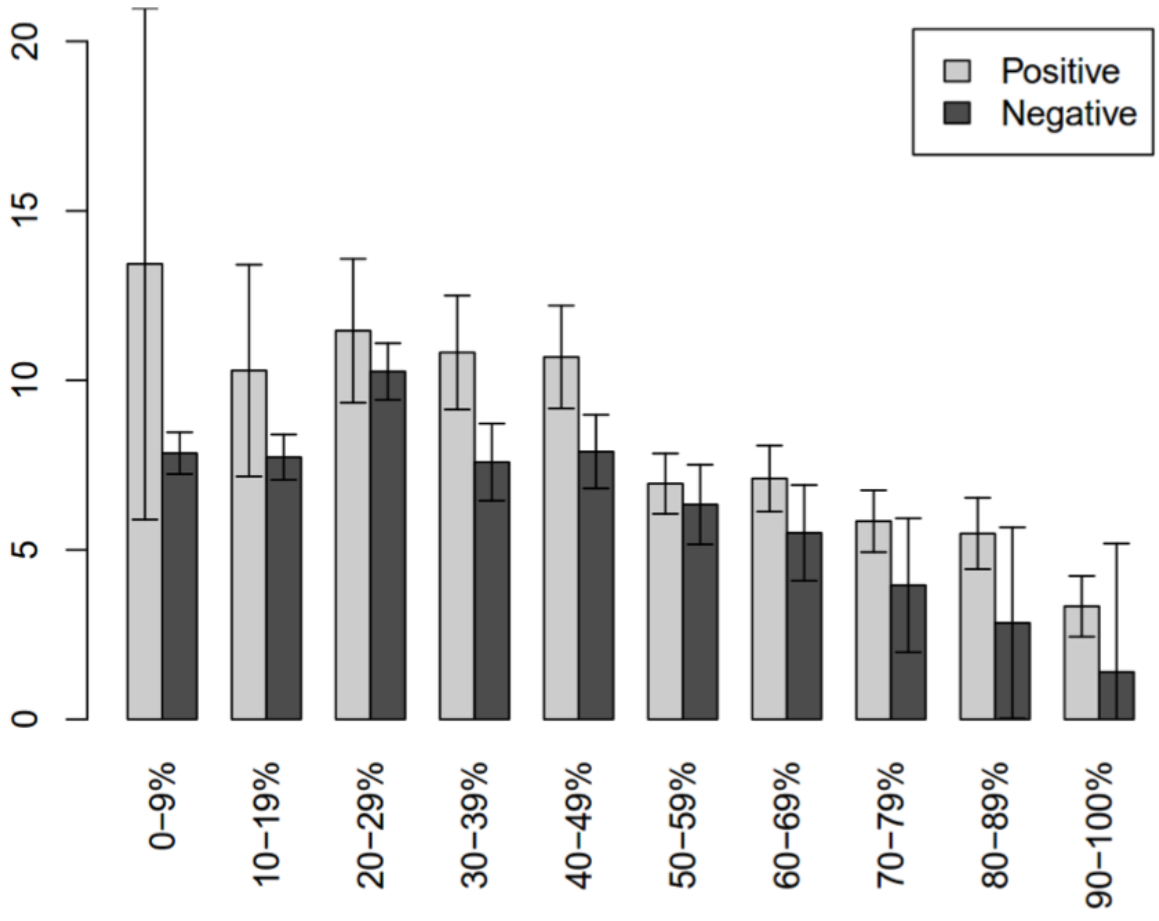
- $\text{logit}(\mu t) = logit(\mu t1) + I(t = H)H + I(st = L)L$
  Assumptions about the evolution of μ

Invariant updates; Fully responsive; Time independent response

Predicted result

- Hypothesis: This belief updating process follow Bayes Rules in the big picture, however, we expect it shows bias in different degrees than past studies, and possibly in following three dimensions.
- Dimensions: Invariance, Stability, Asymmetry

Predicted result



Open Science

- Open information on data and codes: Github
  Open source toolbox: R, Python
  Open Experimental platform: Mechanical Turk