

Introducing an Individual-Differences Measure of K-Level Strategic Anticipation

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Summary

Motivation

- Social interactions demand iterative reason about others' minds
- But no psychometrically-valid measure to assess individuals' strategic sophistication to think iteratively

What we do

- Introduce strategic anticipation from economic theory
- Develop an individual-difference measure of K-level strategic anticipation
- This measure predicts real-life social behaviors across diverse contexts beyond abstract economic games

K-Level Measure

Measure development

- We measure strategies and reasonings in economic games
- Using both college undergrads and online Prolific workers as samples
- 3-item scale achieves Cronbach alpha >0.70

Convergent validity

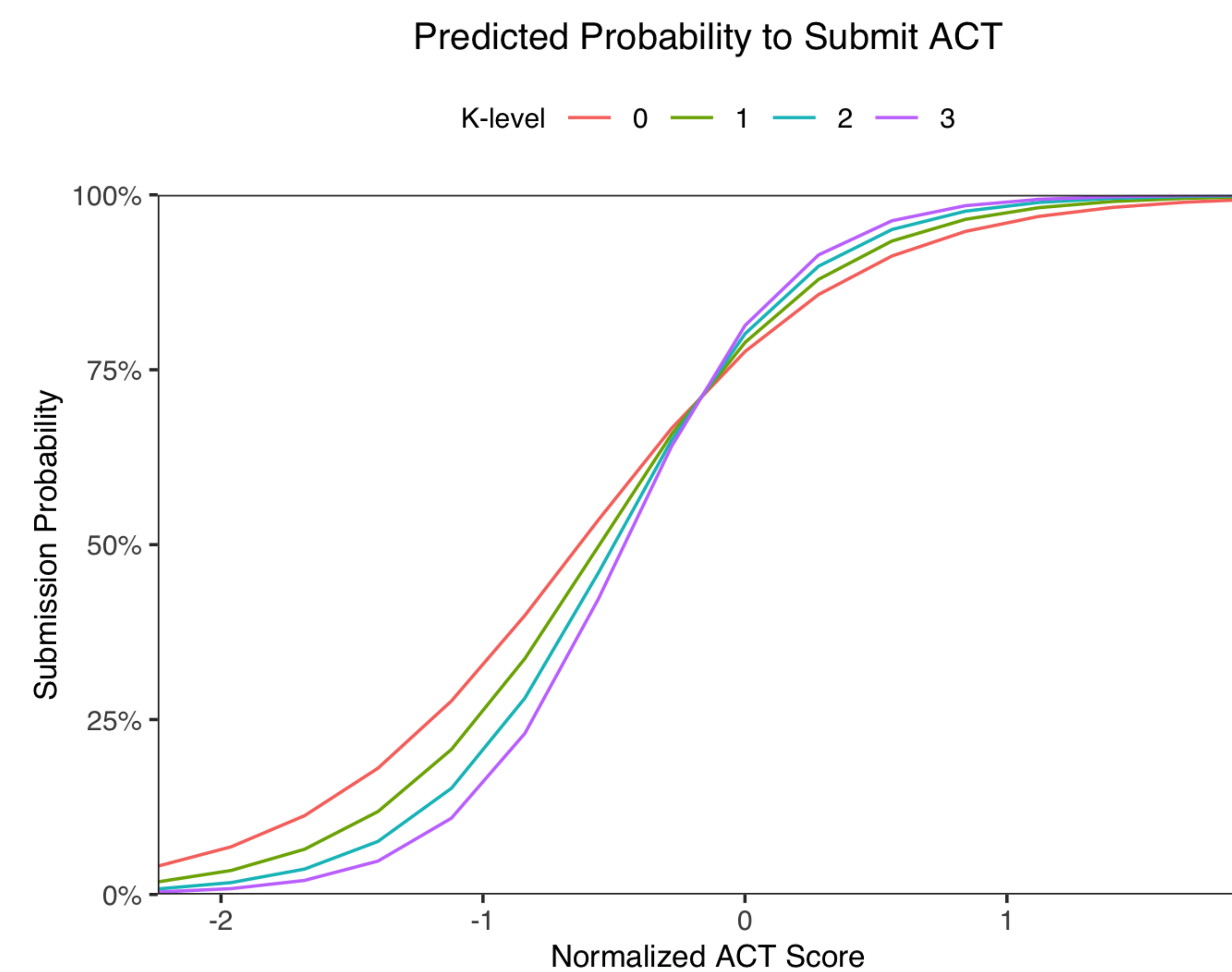
- K-level strategic anticipation is correlated with numerical and verbal CRT, needs for cognition and game theory knowledge



Study 1

K-level predicts information disclosure

- Setting: 300 Prolific participants decide whether to submit advisees' ACT scores in test-optional applications
- Finding: Higher k-level behavior better matches economic theory's predictions on mediocre score submission



Study 3

K-level predicts behaviors in economic games

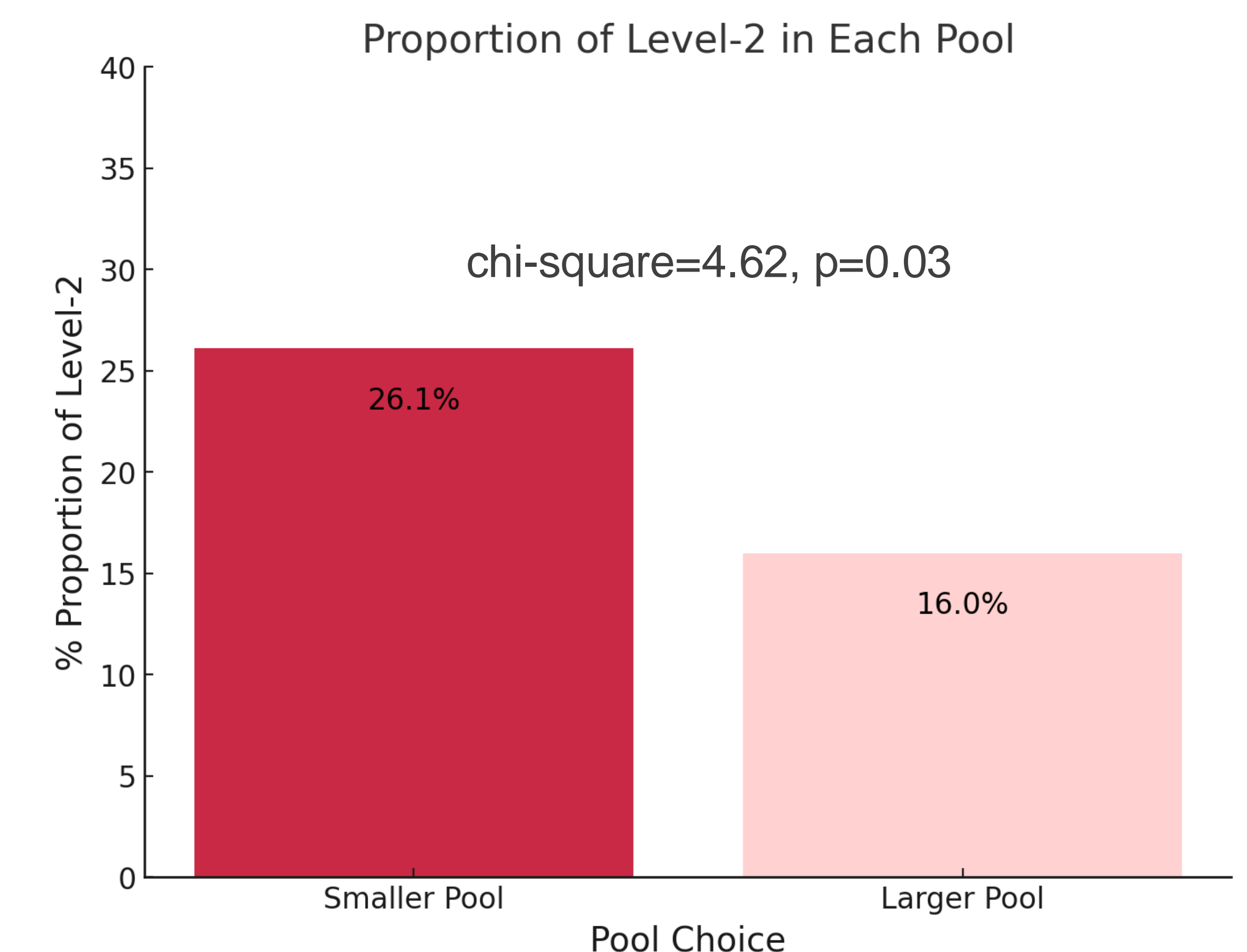
- Setting: 100 Prolific participants play the two-player game a simplified version of the Beauty contest
- Finding: Higher k-levels chose significantly lower numbers, consistent with game theory predictions (beta=-8.6, SE=1.90, p<0.001 after controlling for cognitive measures)



Study 2

K-level predicts resource competition

- Setting: 300 Prolific participants choose: \$45 (smaller) vs. \$55 (larger) bonus pool (Hsee et al. (2021) "undershooting bias")
- Finding: Consistent with Hsee et al. (2021), people scoring as level-2 on our measure prefer the smaller pool (logit regression, beta=0.68, SE=0.28, p=0.01 after controlling for cognitive measures)



Discussion

- K-level measure predicts behavior in both abstract games and real-world interactions
- Predictive power persists beyond cognitive and intelligence measures
- Higher k-level individuals behave more in line with economic theory