# Risk in the lab vs. the world: Which Measure(s) of Risk Attitude Predict Real World Risk Taking?

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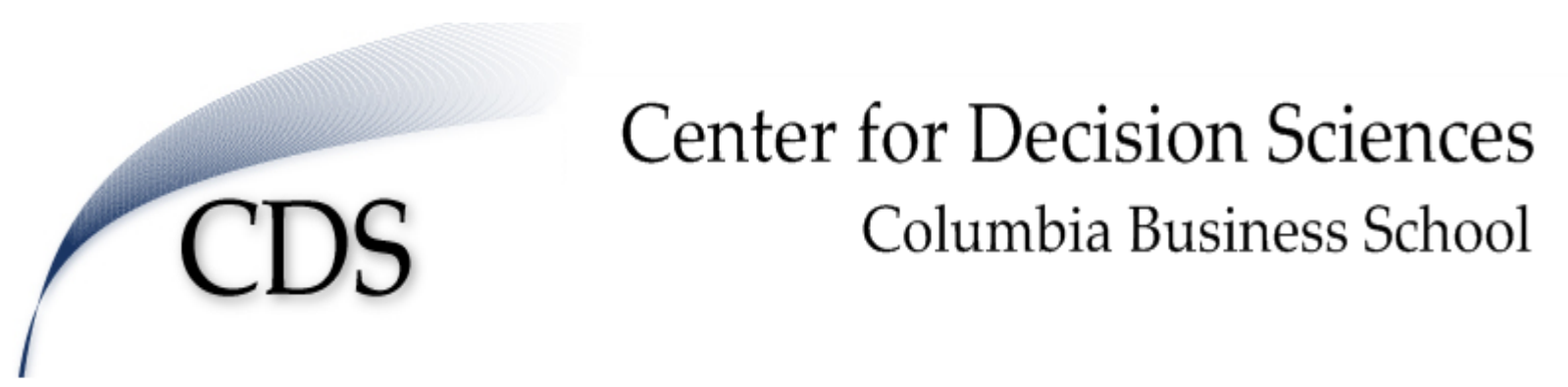
Abstract

- Do risk attitude scales measure the same construct?
- Do they predict risk attitudes in the real world?
- Psychometric Domain-Specific Risk-Taking scale is more stable and predictive than two revealed preference measures.

Introduction

- Two measures of risk attitude:
1. Revealed-preference measures using gambles (Holt&Laury 2002 (HL), Toubia et al. 2013 (DEEP)).
2. Psychometric scales (Weber et al.2006)

- Evidence suggests risk taking is domain specific and risk attitudes from gambles are disappointing predictors of risk-taking in different contexts (Sutter 2013, Dohmen 2011)
- H1: Money lottery risk attitudes alone do not measure the same underlying construct as psychometric scales.
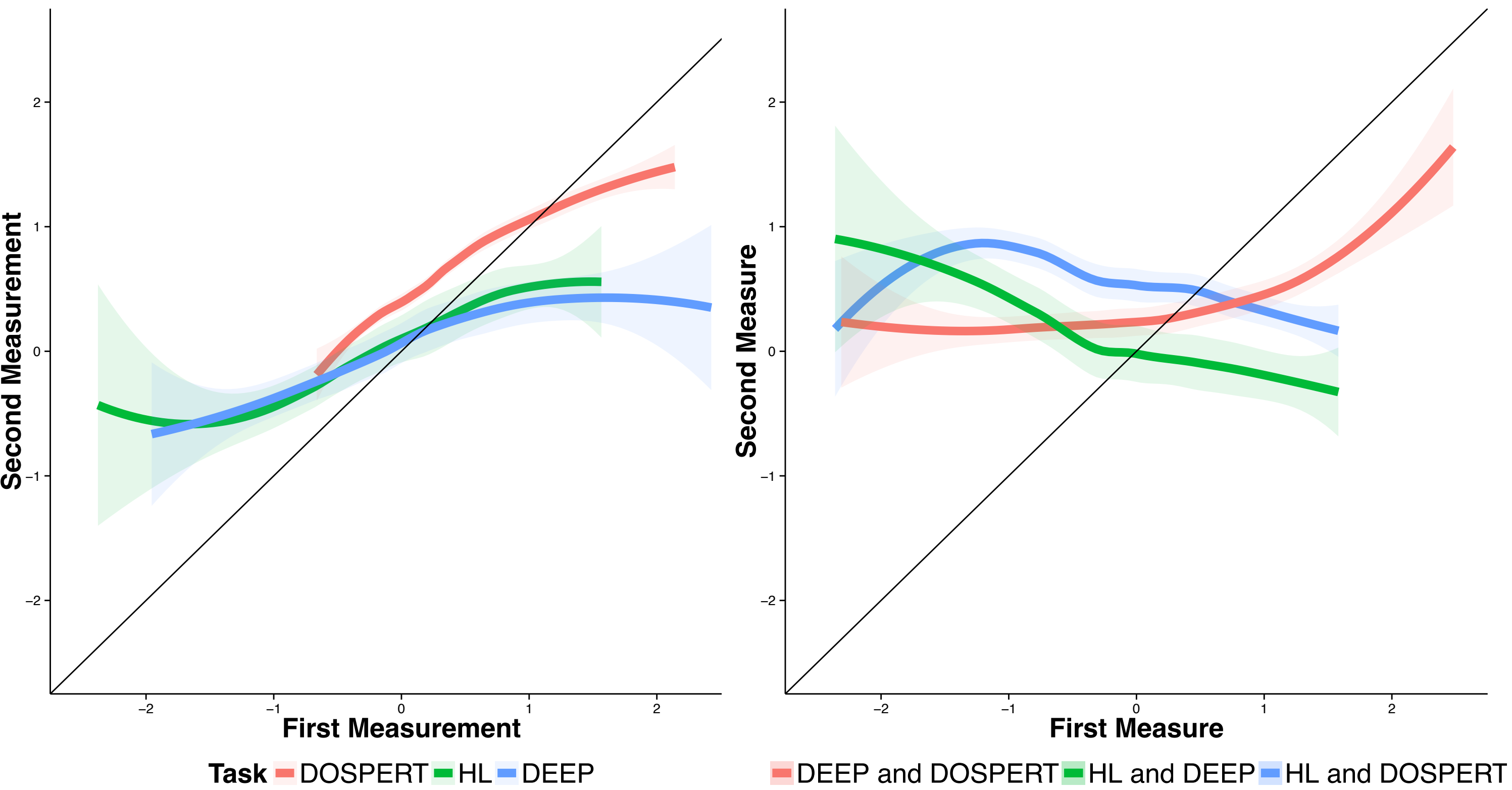- H2: Psychrometric measures are better predictors of real world risk.

Methods

- N = 376 US residents (60% F, M_{age} = 47.3, SD_{age} = 16.1)
- DV: FICO, smoking
- IV: 3 measures of risk attitude: DOSPERT, HL, DEEP (sigma)
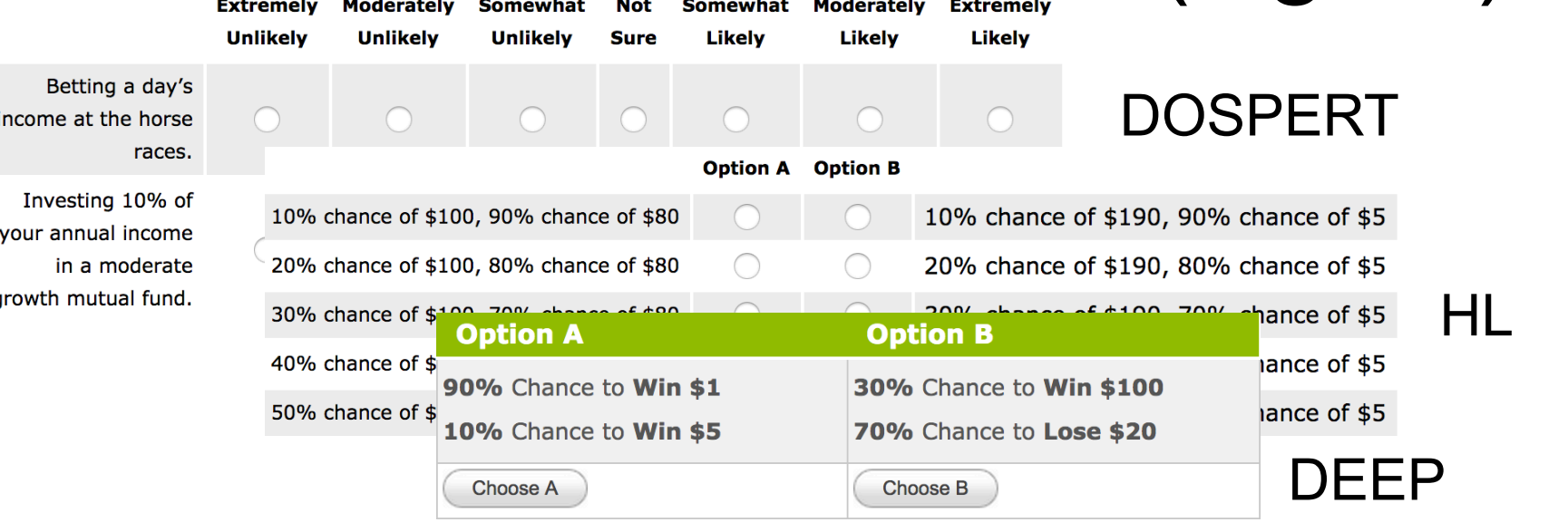
Results

Stability and Correlation of measures

Task ■ DOSPERT ■ HL ■ DEEP

	DSPRT	DSPRT Fin	DSPRT HS	HL	DEEP
DOSPERT	**0.81*****				
DSPRT Financial	0.82***	**0.67*****			
DSPRT Health &Safety	0.86***	0.58***	**0.69*****		
HL	-0.33***	-0.32***	-0.22***	**0.40*****	
DEEP	0.26***	0.20***	0.22***	-0.32***	**0.29*****

- DOSPERT (Risk Taking subscale) is the most stable measure in test-retest reliability in all domains.
- Little support for a single "risk attitude" construct across methods with low correlations.

External validity: Relationship with real-world risky behavior

■ DEEP ■ DOSPERT Financial ■ HL   ■ DEEP ■ DOSPERT H&S ■ HL
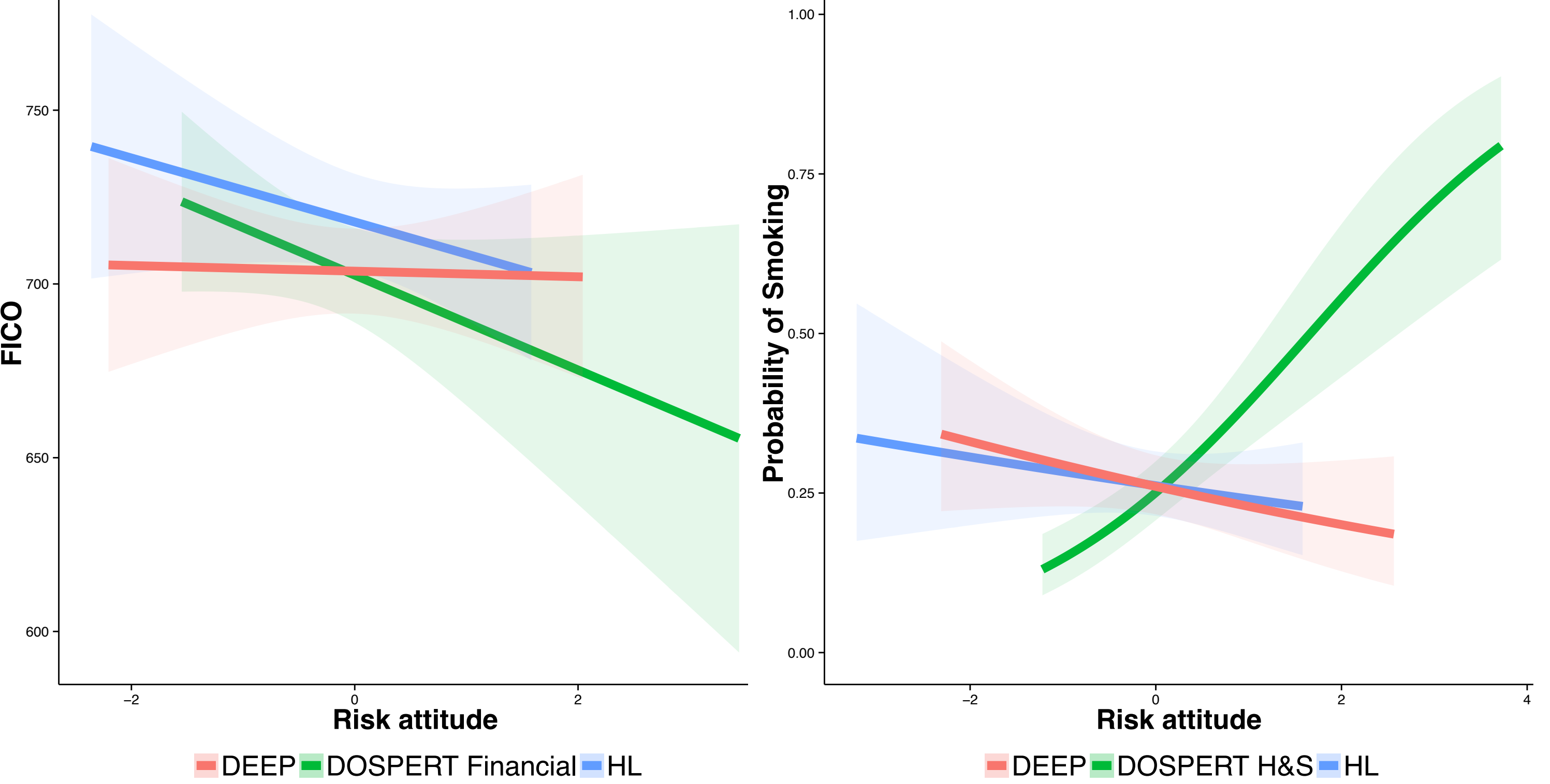
- Relevant – financial for FICO and health for smoking - domains of DOSPERT (Risk Taking subscale) have the strongest relationship with real-world risky behavior.

	DOSPERT	HL	DEEP
FICO	**–0.19*****	–0.06	–0.05
Adj R²	0.30	0.22	0.28
Smoking	**0.54*****	–0.01	–0.10
AIC	398.9	326.1	369.2

- Higher risk taking in DOSPERT
  → lower credit score
  → higher probability of smoking
- Standardized coefficients controlling for age, gender, education, income, intelligence, experience and temporal discounting
- Credit score data is <u>not</u> self-reported

Discussion

- We compared three measures of risk attitudes in predicting real-world risky behavior.
- Psychometric scale is more stable and predictive of real-world risk than gamble-based measures.
- DOSPERTs power may stem from its theoretical foundation in the risk-return framework allowing different perceptions of risk and return.
- Future research should clarify what constructs are being measured by these metrics.

References

Blais, A., and E. U. Weber. 2006. "A Domain-Specific Risk-Taking (DOSPERT) Scale for Adult Populations." *Judgment and Decision Making* 1 (1): 33–47.
Dohmen, Thomas, A. Falk, D. Huffman, U. Sunde, J. Schupp, and G. G. Wagner. 2011. "Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences." *J. of the Euro. Econ. Assoc.* 9 (3) (June 31): 522–550.
Holt, C. A., and S. K. Laury. 2002. "Risk Aversion and Incentive Effects." *The American Economic Review* 92 (5): 1644–1655.
Sutter, M., M. G. Kocher, D. Glätze-Rützler, and S. T. Trautman. 2013. "Impatience and Uncertainty : Experimental Decisions Predict Adolescents ' Field Behavior." *American Economic Review* 103 (1): 510–531.
Toubia, O., E. J. Johnson, T. Evgeniou, and P. Delquie. 2013. "Dynamic Experiments for Estimating Preferences: An Adaptive Method of Eliciting Time and Risk Parameters." *Management Science* 59 (3): 613–640.

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