



How Parents' Beliefs About Their Children's Academic Ability Affect Educational Investments

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Motivation

- Parental educational investment is a primary factor influencing child's educational attainment
 - Inaccurate ability belief: information friction

Question

- Can big data technology help parents improve the accuracy of ability belief?
- What's the effects of parental ability belief on educational investment & outcomes?

Empirical: Field Experiment

- Sample:** Parents of high school students in China
- Incentives:** Free performance report
- Interventions:**
 - Information on machine learning prediction of future performance
 - Information on colleges corresponding to current in-school performance

Data

- Sample Size:** 748
- Baseline & 3 rounds of Follow-up data**
 - Parental ability belief & aspiration
 - Monetary/time investment on children
 - Demographics
- Administrative Performance data**
 - High frequency
 - Rich historical data from past 12 years

Experimental Design & Timeline

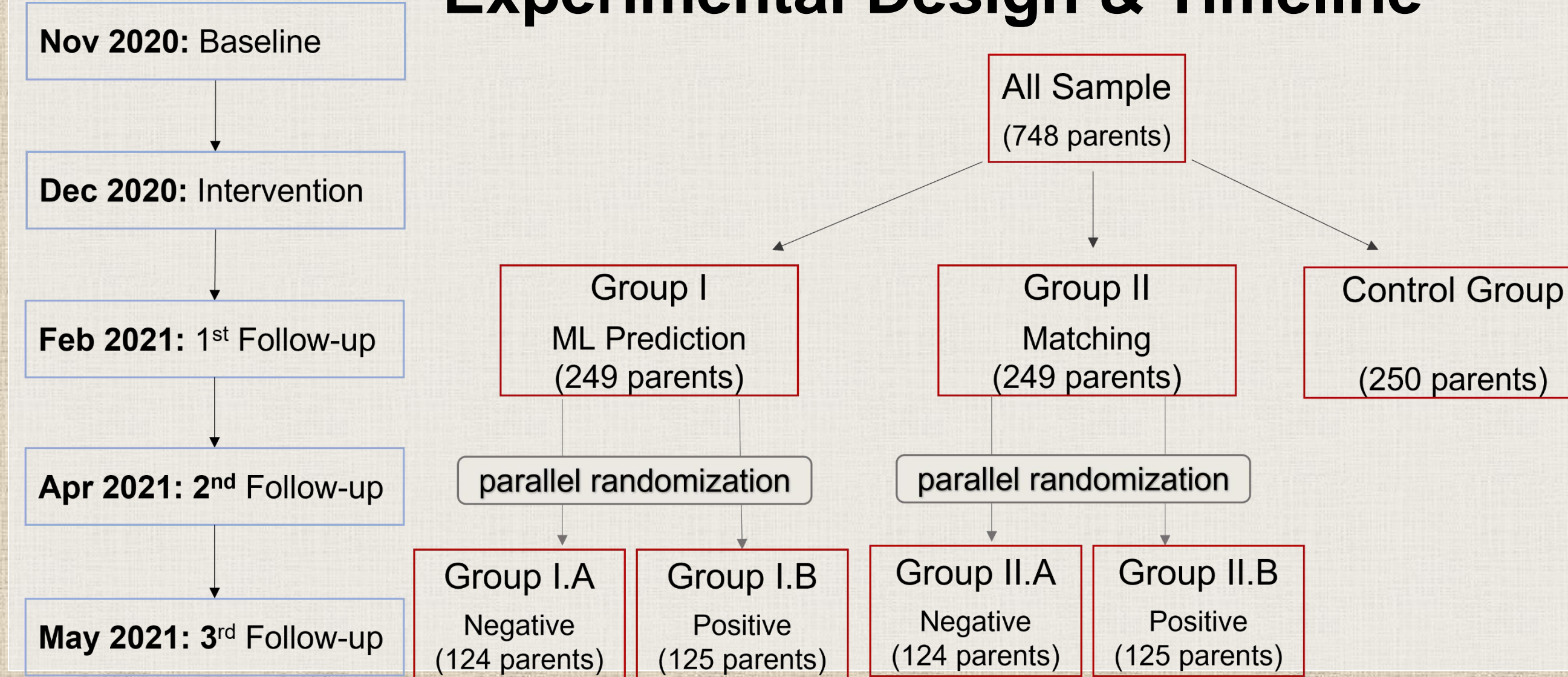


Table 2 - 2SLS

Use treatment to instrument parental ability belief	
	$\ln(\text{Edu. Monetary Investment})$
$\widehat{\text{NoreachAspiration}} \times \ln(\text{RankBelief})$	1.188*** (0.261)
$\widehat{\text{ReachAspiration}} \times \ln(\text{RankBelief})$	-0.483 (0.209)

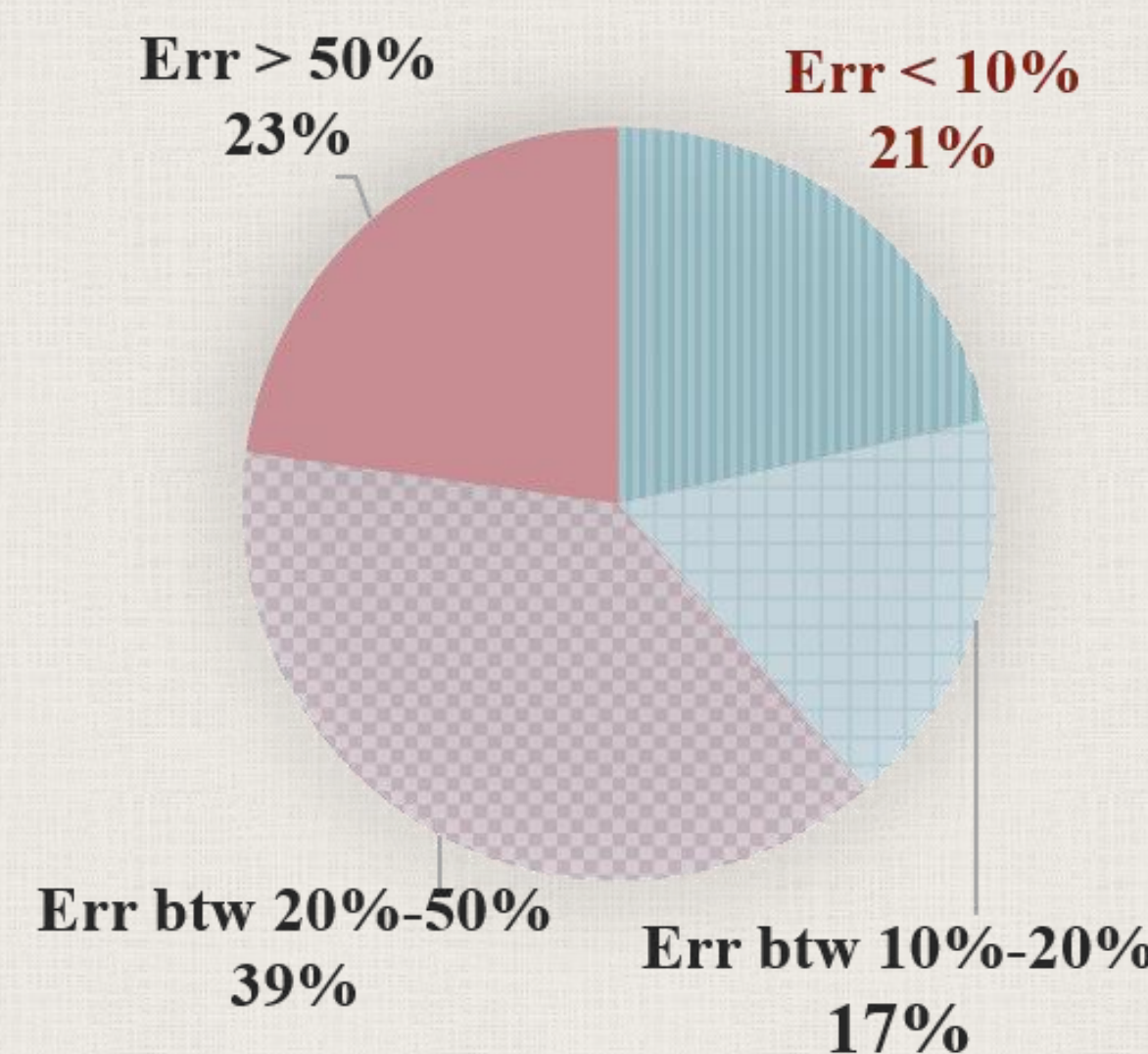
Table 3 - 2SLS

Use treatment to instrument parental investments	
	$\ln(\text{Prov. Rank})$
$\ln(\widehat{\text{Edu. Monetary Investment}})$	-1.374*** (0.379)

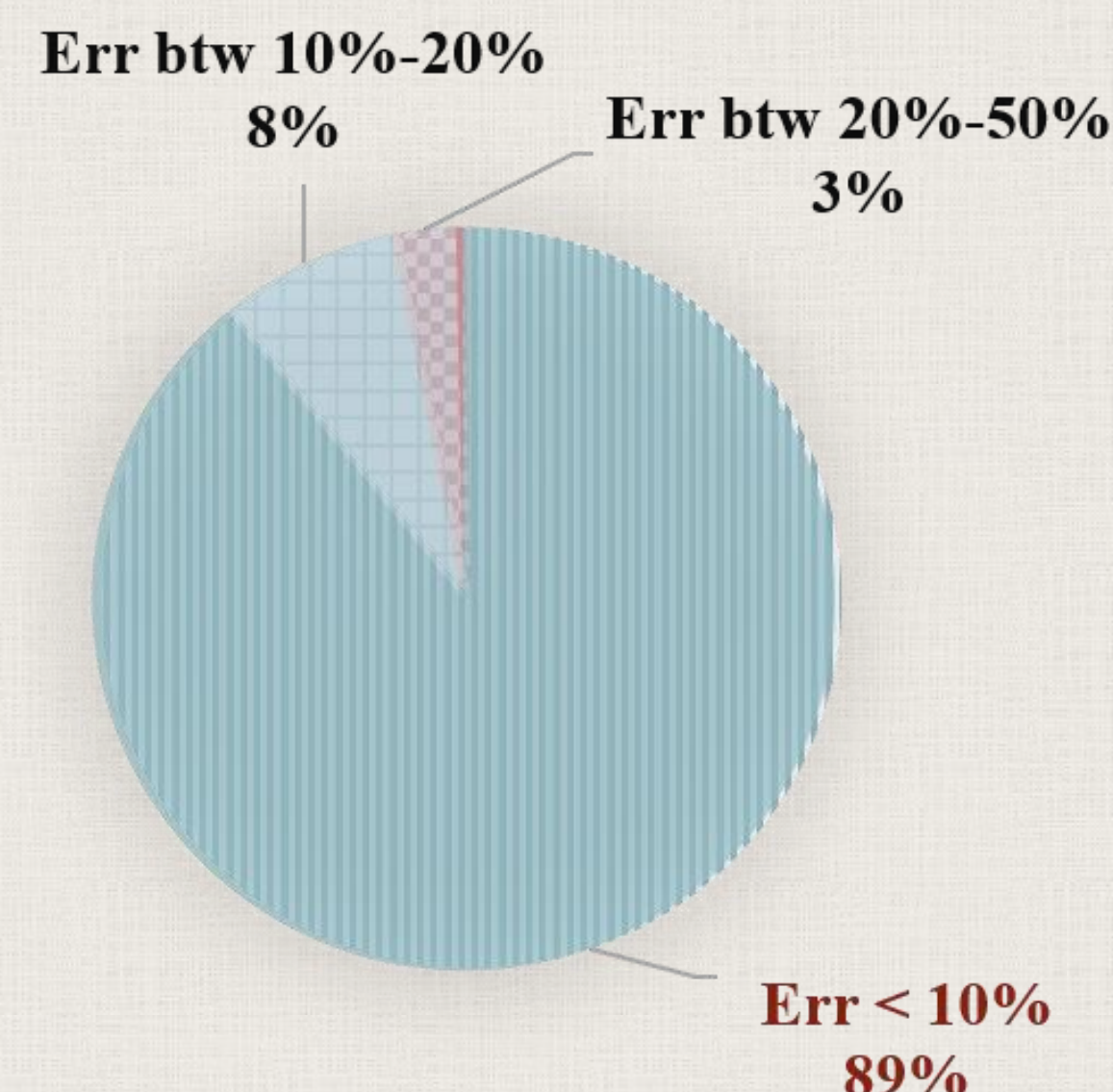
Table 1 - Reduced Form Results

	$ \text{Rank} - \text{RankBelief} $	$\ln(\text{Edu. \$ Invest.})$	$\ln(\text{Prov. Rank})$
<i>Post x ML</i>	-0.489*** (0.078)	0.048*** (0.017)	-0.065*** (0.024)
<i>Post x Matching</i>	-0.198** (0.078)	0.031* (0.017)	-0.048** (0.024)

Parents' Prediction Errors



ML's Prediction Errors



Conclusion

- The two interventions can **significantly eliminate biases and improve educational investment and outcomes**
- The causal effects of parental belief on educational investments are **non-linear around parents' aspiration**
- Additional parental educational investments initiated by the interventions are effective