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

Department of Agricultural and Resource Economics, University of Maryland, College Park, MD, 20740
Tianqi Gan, tgan1@umd.edu  https://www.tianqigan.com/

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 1 - Reduced Form Results

<table>
<thead>
<tr>
<th></th>
<th>Rank – RankBelief</th>
<th>ln(Edu. $ Invest.)</th>
<th>ln(Prov. Rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post x ML</td>
<td>-0.489***</td>
<td>0.048***</td>
<td>-0.065***</td>
</tr>
<tr>
<td></td>
<td>(0.078)</td>
<td>(0.017)</td>
<td>(0.024)</td>
</tr>
<tr>
<td>Post x Matching</td>
<td>-0.198**</td>
<td>0.031*</td>
<td>-0.048**</td>
</tr>
<tr>
<td></td>
<td>(0.078)</td>
<td>(0.017)</td>
<td>(0.024)</td>
</tr>
</tbody>
</table>

Table 2 - 2SLS

<table>
<thead>
<tr>
<th></th>
<th>ln(Edu. Monetary Investment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NoreachAspiration x ln(RankBelief)</td>
<td>1.188*** (0.261)</td>
</tr>
<tr>
<td>ReachAspiration x ln(RankBelief)</td>
<td>-0.483 (0.209)</td>
</tr>
</tbody>
</table>

Table 3 - 2SLS

<table>
<thead>
<tr>
<th></th>
<th>ln(Prov. Rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(Edu. Monetary Investment)</td>
<td>-1.374*** (0.379)</td>
</tr>
</tbody>
</table>

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

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