Transfers, Bequests, and Human Capital Investment in Children Over the Life Cycle

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August 3, 2017
What we do

Using UK data we

- Estimate transfers from parents to children over the life cycle
  - Time with children
  - Schooling investments to children
  - Inter-vivos transfers and bequests to children

- Incorporate these transfers into an estimated lifecycle model (similar to Lee and Seshadri 2017)
  - Separate luck from investments in driving income inequality
  - Estimate extent of intergenerational altruism

- Use the model to understand the behavioral and welfare consequences of tax and Social Security reform
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Motivation: Intergenerational Altruism

- Intergenerational altruism important for understanding potential benefits of Social Security reform
  - Current generations only willing to accept benefit cuts if they are altruistic towards future generations (Fuster, Imrohoroglu, Imrohoroglu, (ReStud 2007))

- Model allows us to estimate intergenerational altruism using data on multiple parental transfers (time + money transfers)
  - Estimates less sensitive to model misspecification, confounding factors than those based on single outcome (e.g. bequests (De Nardi, French, Jones (JPE 2010; AER 2016)))
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UK Data

National Child Development Study (NCDS)

- All individuals born in a particular week of March 1958 - followed up at 7, 11, 16, 23, 33, 42, 50 and 55
- Information on parental background, parental time investments, cognitive ability, school quality, educational outcomes, earnings and inter-vivos transfers
  - Ability measure: test with approx. 30 math, 30 verbal questions.
- Supplement with information on lifetime inheritance receipt for the same cohort from ELSA (UK version of HRS)
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UK: High Intergenerational Persistence of Inequality
The ”Up” documentary series

Machin et al. (1997): using our data, intergenerational correlation:
  • income = 0.45
Ability at 7 by father’s education
Ability at 16 by father’s education
### Intergenerational correlation in education

Child's education by father's education

<table>
<thead>
<tr>
<th>Child's education</th>
<th>High-school dropout</th>
<th>High-school graduate</th>
<th>Some college</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory</td>
<td>30%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>Post-compulsory</td>
<td>10%</td>
<td>47%</td>
<td>43%</td>
</tr>
<tr>
<td>Some college</td>
<td>2%</td>
<td>32%</td>
<td>66%</td>
</tr>
</tbody>
</table>
Differences in lifetime income by parental education compared to those whose fathers had compulsory schooling

<table>
<thead>
<tr>
<th>Father’s education</th>
<th>Some post-compulsory</th>
<th>Some college</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total difference</td>
<td>£159,000</td>
<td>£291,000</td>
</tr>
<tr>
<td>Explained by...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age-16 ability</td>
<td>£118,000</td>
<td>£195,000</td>
</tr>
<tr>
<td>Explained by...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age-7 ability</td>
<td>£65,000</td>
<td>£115,000</td>
</tr>
<tr>
<td>Evolution of ability 7-11</td>
<td>£52,000</td>
<td>£75,000</td>
</tr>
<tr>
<td>Evolution of ability 11-16</td>
<td>£1,000</td>
<td>£5,000</td>
</tr>
<tr>
<td>Education given age-16 ability</td>
<td>£17,000</td>
<td>£59,000</td>
</tr>
<tr>
<td>Transfers and bequests</td>
<td>£24,000</td>
<td>£37,000</td>
</tr>
</tbody>
</table>

Notes: Men only.
Lifetime income for those with low-educated fathers: £736,000.
## Parental time investments at 7 by father’s education

### Reading with child

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Every week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Father reads</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory</td>
<td>30%</td>
<td>36%</td>
<td>34%</td>
</tr>
<tr>
<td>Post-compulsory</td>
<td>20%</td>
<td>35%</td>
<td>45%</td>
</tr>
<tr>
<td>Some college</td>
<td>18%</td>
<td>29%</td>
<td>53%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Every week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother reads</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory</td>
<td>16%</td>
<td>37%</td>
<td>47%</td>
</tr>
<tr>
<td>Post-compulsory</td>
<td>12%</td>
<td>31%</td>
<td>57%</td>
</tr>
<tr>
<td>Some college</td>
<td>10%</td>
<td>23%</td>
<td>67%</td>
</tr>
</tbody>
</table>
# Parental time investments at 7 by father’s education

Teacher's assessment of interest in child’s education

<table>
<thead>
<tr>
<th></th>
<th>Father</th>
<th>Mother</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Little interest</td>
<td>Some interest</td>
</tr>
<tr>
<td>Compulsory</td>
<td>55%</td>
<td>24%</td>
</tr>
<tr>
<td>Post-compulsory</td>
<td>34%</td>
<td>22%</td>
</tr>
<tr>
<td>Some college</td>
<td>20%</td>
<td>15%</td>
</tr>
</tbody>
</table>
### Effect of time investments on the ability

<table>
<thead>
<tr>
<th></th>
<th>Norm. age-11 ability</th>
<th>Norm. age-16 ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norm. age-7 time investments</td>
<td>0.127 (0.008)</td>
<td></td>
</tr>
<tr>
<td>Norm. age-11 time investments</td>
<td>0.0911 (0.007)</td>
<td></td>
</tr>
<tr>
<td>Norm. age-7 ability</td>
<td>0.596 (0.008)</td>
<td></td>
</tr>
<tr>
<td>Norm. age-11 ability</td>
<td>0.770 (0.007)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9609</td>
<td>7196</td>
</tr>
</tbody>
</table>

Regression includes controls for parental education and family background.
School quality at 16 by father’s education
Effect of ability, school quality on educational attainment

<table>
<thead>
<tr>
<th></th>
<th>Complete HS</th>
<th>Attend college</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalised age-16 ability</td>
<td>0.226</td>
<td>0.224</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>School quality quintile=2</td>
<td>0.022</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>School quality quintile=3</td>
<td>0.028</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>School quality quintile=4</td>
<td>0.046</td>
<td>0.040</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>School quality quintile=5</td>
<td>0.018</td>
<td>0.070</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.731</td>
<td>0.252</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>N</td>
<td>7803</td>
<td>6070</td>
</tr>
</tbody>
</table>

Linear probability model. Excluded category is bottom quintile of school quality. HS dropouts not included in college regression.
Model: timing of parental investments

Parental investments

Age of child

Outcomes
Model: timing of parental investments

Age of child

Parental investments

Time investments

Outcomes
Model: timing of parental investments

Parental investments

Time investments

Ability evolves

Outcomes

Age of child

0 7 11 16 23
Model: timing of parental investments

Parental investments

Time investments

Money investment in education

Ability evolves

Outcomes
Model: timing of parental investments

Parental investments

Time investments

Money investment in education

Ability evolves

Education realised

Outcomes

Age of child

0 7 11 16 23
Model: timing of parental investments

Parental investments

Time investments

Money investment in education

Ability evolves

Education realised

Matching into couples occurs

Outcomes

Age of child

0 7 11 16 23

Outcomes

Parental investments

Time investments

Money investment in education

Ability evolves

Education realised

Matching into couples occurs

Outcomes
Model: timing of parental investments

**Parental investments**

- **Time investments**
- **Money investment in education**
- **Inter-vivos transfer**

**Outcomes**

- **Ability evolves**
- **Education realised**
- **Matching into couples occurs**
Model: timing of parental investments

Parental investments

Time investments
Money investment in education
Inter-vivos transfer

0 7 11 16 23

Ability evolves
Education realised
Matching into couples occurs
Initial earnings realised, adult life begins

Outcomes
Model: timing of parental investments

Child’s choices
Consumption, savings, labour supply

Age of child
0 7 11 16 23
Model: timing of parental investments

Child’s choices
Consumption, savings, labour supply

Age of child
0 7 11 16 23

Age of child’s child
0 7 11 16 23
Model: timing of parental investments

Age of child

0 7 11 16 23

Child’s choices
Consumption, savings, labour supply and investments in children

Parental investments

0 7 11 16 23

Age of child’s child
Model: timing of parental investments

- **Child’s choices**
  - Consumption, savings, labour supply and investments in children
  - Bequests

- **Parental investments**
  - Outcomes
Summary

- We estimate the importance of time investments, educational investments and cash transfers in driving inequalities over the lifecycle
  - Preliminary estimates suggest all channels are quantitatively important
- Goal is to build model to unpick intergenerational links
  - Will allow us to model household responses to counterfactual policies