Testing for Nature vs. Nurture

- The same person tested twice: 87
- Identical twins raised together: 86
- Identical twins raised apart: 76
- Fraternal twins raised together: 55
- Biological siblings: 47
- Parents and children living together: 40
- Parents and children living apart: 31
- Unrelated people living apart: 0

Barbara Herbert/Daphne Goodship
- Born to Finnish single mom who killed herself soon after their birth
- Adopted by separate families living outside of London
- Both left school at 14
- Fell down stairs at 15
- Worked in local government
- Met their future husbands at town hall dance at age 16
• Tinted hair auburn when younger
• Squeamish about heights and blood and drank coffee cold
• Miscarried in same month
• Both gave birth to 2 boys and a girl
• Both pushed their nose with the palm of their hand – both called it squidging
• When reunited, both wore cream colored dresses and velvet jackets

Oscar Stohr/Jake Yufe
• Born to Jewish F/Christian M in Trinidad in 1930
• Oscar – raised by Catholic family in Nazi Germany
• Jake – raised by Jewish family in Trinidad and Israel
• When they met, both wore wire rimmed glasses and mustache. Wore 2 pocket shirt with epaulets.

• they like spicy foods and sweet liqueurs, are absentminded, have a habit of falling asleep in front of the television, think it’s funny to sneeze in a crowd of strangers, flush the toilet before using it, store rubber bands on their wrists, read magazines from back to front, dip buttered toast in their coffee. Oskar is domineering toward women and yells at his wife, which Jack did before he was separated. [Holden, 1980]

James Arthur Springer/
James Edward Lewis
• Reunited at age 39 after being given up by their mother and separately adopted as 1-month-olds.
• Each married and divorced a woman named Linda and remarried a Betty.
• Shared interests in mechanical drawing and carpentry;
• Favorite school subject had been math, their least favorite, spelling.
• Smoked and drank the same amount and got headaches at the same time of day.
**Intergeneration transmission literature**

- Typical model for biological children
- \( y_i = \text{child outcome (level of education)} \)
- \( x_i = \text{measure of family background (such as parents’ education)} \)
- \( y_i = \beta_0 + \beta_1 x_i + e_i \)
- What does the estimate for \( \beta_1 \) measure, nature or nurture?

---

**Holt International Adoption Services**

- “Holt International Children's Services is dedicated to carrying out God's plan for every child to have a permanent, loving family.”
- “…develop and maintain programs overseas to give orphaned, abandoned and vulnerable children safe and nurturing environments in which to develop.”

---

- Start by Harry and Bertha Holt
- Sought to aid Amer-Asian children in Korean orphanages
- Adopted 8 children themselves
- Had to have special legislation passed

---

- Started the agency in 1956
- Largest adoption agency – placing 40K children
- Place 300 kids/year from a variety of countries
Adoptions process

• Takes 12-18 months
• Application, home study, criminal check, adoption classes, adoptee comes to the US, adopted in family court
• Adoptions covered by US/Korean laws
• Parents must have
  – >125% of FPL
  – Adoptive parents 25-45 years of age
  – No more than 4 kids in house

Holt adoptions are first come, first serve
• Timing of when application completed determines
• Therefore, placement of children into household is quasi random
• Parents cannot specify gender of a child, but families with all boys or girls can request a child of the opposite sex
• After assignment, takes 4.5 months for the child to come home

Consider the following model

Let $y_i$ be an outcome for a child
Children can be adopted or not
$A_i = 1$ if the child is adopted, 0 otherwise
$E_i = \text{education of parents}$
$w_i = \text{characteristics of kid}$

$y_i = \beta_0 + w_i \beta_1 + A_i \beta_2 + (1-A_i)E_i \beta_3 + A_i E_i \beta_4 + \epsilon_i$

what if $\beta_4 = \beta_3$
what if $\beta_4 < \beta_3$
Data

- Survey of children placed by Holt 1964-85
- Data from Holt records and survey conducted 2004/5
- Target of sample were adoptees aged 24-34 but collected data on all adoptees
- Low response rate (34%)
- Relied on parents’ responses about outcomes for adult children

\[ y_i = \beta_0 + \beta_1 d_{i1} + \beta_2 d_{i2} + \beta_3 x_{i3} + \beta_4 x_{i4} + \epsilon_i \]

\[ x_{i1} = \text{dad's educ} \quad x_{i3} = \text{ln(family income)} \quad x_{i4} = \text{ln(med incom in zip)} \]

\[ H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0 \]

### Table 1

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoptees who went on to higher education</td>
<td>0.994 (1.271)</td>
<td>0.010 (0.336)</td>
<td>0.598 (0.253)</td>
<td>0.133 (0.920)</td>
<td>0.069 (0.398)</td>
<td>0.306 (0.174)</td>
<td>0.131 (0.398)</td>
</tr>
<tr>
<td>Adoption by age at adoption</td>
<td>0.869 (1.614)</td>
<td>0.480 (0.441)</td>
<td>0.832 (0.330)</td>
<td>0.830 (0.306)</td>
<td>0.227 (0.025)</td>
<td>0.305 (0.170)</td>
<td>0.094 (0.235)</td>
</tr>
<tr>
<td>Mother's years of education</td>
<td>0.605 (0.833)</td>
<td>0.027 (0.667)</td>
<td>0.014 (0.649)</td>
<td>0.003 (0.390)</td>
<td>0.033 (0.089)</td>
<td>0.129 (0.345)</td>
<td>0.019 (0.17)</td>
</tr>
<tr>
<td>Father's years of education</td>
<td>0.165 (0.206)</td>
<td>0.284 (0.205)</td>
<td>0.260 (0.223)</td>
<td>0.618 (0.920)</td>
<td>0.507 (1.181)</td>
<td>-3.622 (2.125)</td>
<td>-6.199 (1.11)</td>
</tr>
<tr>
<td>Family income</td>
<td>1.000</td>
<td>1.100</td>
<td>1.200</td>
<td>1.500</td>
<td>1.200</td>
<td>1.000</td>
<td>1.200</td>
</tr>
<tr>
<td>Dummies</td>
<td>0.113</td>
<td>0.170</td>
<td>0.100</td>
<td>0.070</td>
<td>0.227</td>
<td>0.100</td>
<td>0.100</td>
</tr>
<tr>
<td>p value</td>
<td>0.012</td>
<td>0.084</td>
<td>0.253</td>
<td>0.184</td>
<td>0.800</td>
<td>0.429</td>
<td>0.020</td>
</tr>
</tbody>
</table>

### Figure

**Figure I**

Mean Child's Years of Education vs. Mother's Years of Education

**Figure II**

Mean Child's Years of Education vs. Mother's Years of Education

Dashed line is for nonadoptees. Solid line is for adoptees.