Parental Wealth, Financing Children’s College Attendance, and Its Consequences for Indebtedness & Well-Being

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June 9, 2016

PSID Conference:
\textit{New Directions in Study of Intergenerational Transfers
& Time Use in Later Life}
This research and modules included in 2013 Wave of PSID on Transfers & Family Rosters were funded by grant P01AG029409 from the National Institute on Aging (NIA).
**Figure 1**: Trend in Income Inequality, 1965-2014

(a) Real Mean Household Income by Quintile & Top 5%

<table>
<thead>
<tr>
<th>Household Segment</th>
<th>2014 Mean Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 5%</td>
<td>$332,347</td>
</tr>
<tr>
<td><strong>Top Quintile</strong></td>
<td>$194,053</td>
</tr>
<tr>
<td>2nd Quintile</td>
<td>$87,834</td>
</tr>
<tr>
<td>Middle Quintile</td>
<td>$54,041</td>
</tr>
<tr>
<td>4th Quintile</td>
<td>$31,087</td>
</tr>
<tr>
<td>Bottom Quintile</td>
<td>$11,676</td>
</tr>
</tbody>
</table>

*Source: Census Bureau*
Figure 2: Trends in Home Prices and Homeownership, 1975-2016

(a) Case-Shiller Home Price Index

(b) Homeownership Rates

Sources: St. Louis Fed

Source: S&P Dow Jones Indices LLC
research.stlouisfed.org

Source: US. Bureau of the Census
research.stlouisfed.org
Figure 3: Trends in Costs of College and Student Debt

(a) Average College Costs (2015 $)

(b) Households with Outstanding Student Debt by Age

Note: Includes education loans that are currently in deferment and loans in scheduled repayment period.

Source: Pew Research Center tabulations of Survey of Consumer Finances data

Research Questions

- What is the influence of parental wealth on whether their children attend college & whether parents help finance it?

- What consequences do college attendance & financing decisions have on subsequent:
  - levels of indebtedness of parents & their children?
  - when children leave home?
  - consumption & well-being of parents & children?

- Did these effects differ over time, i.e., before & after Great Recession?
Effects of **parental income & wealth**, particularly **housing wealth**, on:

- **college attendance** (Lovenheim, 2011).
- **“quality” of college attended** (Lovenheim and Reynolds, 2013; Cooper and Luengo-Prado, 2015).
- **child’s income in adulthood** (Cooper and Luengo-Prado, 2015).

College attendance & financing as **parental investments in & transfers to children**:

- Becker and Tomes (1979) model of **parental altruism & investment in children**
- Importance of **credit constraints & “insufficient altruism”** (Behrman et al., 1995; Lochner and Monge-Naranjo, 2011, 2012)
- Possibility of **commitment problems** in intergenerational family interactions (Brown et al., 2012).
Related Literatures 2

- Effects of **wealth on consumption & well-being** of households:
  - Effects of **changes in wealth on consumption** (Skinner, 1996; Case et al., 2005; Campbell and Cocco, 2007; Carroll et al., 2011; Browning et al., 2013; Paiella and Pistaferri, 2015).
  - Effects of **changes in wealth on savings** (Juster et al., 2006).
  - Work focuses on separating effects of **anticipated vs. unanticipated changes** in wealth, especially housing.
  - **In our case:** Does the way children’s college education is financed — e.g., by parents with debt or by students with debt — have **lasting effects** on each generation’s well-being?

- Effects of **parental resources on home-leaving of younger adults** (Manacorda and Moretti, 2006; Kaplan, 2012; Wiemers, 2014).
Data

- **PSID Annual Survey**
  - Parents’ family structure, income, education, etc.
  - Parents’ home ownership, home value & mortgage info (including home equity loans)
  - Child’s home-leaving status
  - Parents’ & adult child’s consumption (food)

- **PSID Wealth Module**
  - Parents’ & adult child’s non-mortgage debt (credit cards, student loans including co-signed loans, medical debt, etc.)

- **2013 PSID Roster and Transfers Modules** *(Schoeni et al., 2015)*
  - Parent reports educational attainment of each adult child
  - Long-term transfers for post-secondary education for each adult child

- All **monetary variables** are expressed as **10K of 2013$**.
In 2013 Roster and Transfers Module, PSID Head/Wives reported on all of their adult children.

We “look back” in PSID waves to find these children when they were age 18
   - link in financial & family characteristics of their biological or adopted father & mother

Then “look forward” in PSID waves for when child was age 25 and
   - link in financial characteristics, including debt, of parents & child
Sample sizes:
- 8,641 child-parent(s) pairs when child age = 18
- 7,022 parents when child age = 25
- 3,877 children who at age = 25 are Heads/Wives & have indebtedness & consumption data.

We differentiate three periods in our analyses:
- 1975 – 1999 (Per0)
- 2000 – 2007 (Per1) pre-Recession Housing Boom
- 2008 – 2013 (Per2) Great Recession & aftermath
Table 1A: College and Financing Choices (% of Sample)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Per0</th>
<th>Per1</th>
<th>Per2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EduFin0</td>
<td>Child does not attend</td>
<td>41.0</td>
<td>43.6</td>
<td>47.4</td>
</tr>
<tr>
<td>EduFin1</td>
<td>Child attends, parents do not make transfer</td>
<td>40.8</td>
<td>28.9</td>
<td>22.3</td>
</tr>
<tr>
<td>EduFin2</td>
<td>Child attends, parents make a transfer</td>
<td>18.2</td>
<td>27.5</td>
<td>30.3</td>
</tr>
<tr>
<td>N</td>
<td>Sample Size</td>
<td>4,455</td>
<td>2,738</td>
<td>1,448</td>
</tr>
</tbody>
</table>
Table 1B: Education and Transfers to Children, by Parental Housing Wealth Distribution

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>% Attend</td>
<td>If Attended,</td>
<td>% Attend</td>
<td>If Attended,</td>
<td>% Attend</td>
<td>If Attended,</td>
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<tr>
<td></td>
<td></td>
<td>Transfer</td>
<td></td>
<td>Transfer</td>
<td></td>
<td>Transfer</td>
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<tr>
<td></td>
<td></td>
<td>Incidence</td>
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<td>Incidence</td>
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<td>Incidence</td>
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<tr>
<td></td>
<td></td>
<td>Amt.</td>
<td></td>
<td>Amt.</td>
<td></td>
<td>Amt.</td>
</tr>
<tr>
<td>Negative Net Equity</td>
<td>0.53</td>
<td>0.37 $21,904</td>
<td>0.46</td>
<td>0.36 $6,123</td>
<td>0.52</td>
<td>0.51 $10,564</td>
</tr>
<tr>
<td>Zero Net Equity</td>
<td>0.43</td>
<td>0.23 $8,873</td>
<td>0.40</td>
<td>0.24 $12,237</td>
<td>0.34</td>
<td>0.40 $12,362</td>
</tr>
<tr>
<td>Positive Net Equity</td>
<td>0.52</td>
<td>0.23 $12,738</td>
<td>0.46</td>
<td>0.33 $14,208</td>
<td>0.50</td>
<td>0.50 $10,617</td>
</tr>
<tr>
<td>Bottom 3rd</td>
<td>0.61</td>
<td>0.30 $15,207</td>
<td>0.66</td>
<td>0.62 $29,874</td>
<td>0.65</td>
<td>0.63 $19,360</td>
</tr>
<tr>
<td>Top 3rd</td>
<td>0.78</td>
<td>0.40 $23,824</td>
<td>0.86</td>
<td>0.67 $51,234</td>
<td>0.89</td>
<td>0.77 $35,936</td>
</tr>
</tbody>
</table>
Let $U_{kij,18}$ denote the utility/payoff to choice $EduFink_{ij,18}$, $k = 0, 1, 2, 3$ for $j$th child of parent $i$ when child is age 18:

$$U_{kij,18} = \lambda_{k00} + \lambda_{k10} NetEquity_{ij,18} + \lambda_{k20} X_{ij,18}$$

$$+ \sum_{\tau=1}^{2} \left[ \lambda_{k0\tau} + \lambda_{k1\tau} NetEquity_{ij,18} + \lambda_{k2\tau} X_{ij,18} \right] \cdot Per_{\tau ij,18}$$

$$+ \zeta_{kij,18},$$

where $NetEquity_{ij,18}$ is parents’ net housing equity & $X_{ij}$ includes parents’ income ($FamInc_{ij,18}$), education ($ParEduc_{ij,18}$), etc.

- Estimate as multinomial logit, with choice $k = 0$ be base category.

- Also estimate linear probability models (LPM) of college attendance & financing conditional on attending, respectively.
  - Use Lovenheim and Reynolds (2013) IV strategy – parents’ lagged housing value relative to local market – to account for potential endogeneity of $NetEquity_{ij,18}$. 
## College & Financing Choices

### Table 2A: Marginal Effect Estimates from Multinomial Logit Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Don’t Attend &amp; No Transfer</th>
<th>Attends &amp; No Transfer</th>
<th>Attends &amp; Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetEquity in Per0</td>
<td>−0.0036</td>
<td>0.0013</td>
<td>0.0024**</td>
</tr>
<tr>
<td>NetEquity in Per1</td>
<td>−0.0054***</td>
<td>0.0025</td>
<td>0.0029***</td>
</tr>
<tr>
<td>NetEquity in Per2</td>
<td>−0.0038**</td>
<td>0.0025</td>
<td>0.0013</td>
</tr>
</tbody>
</table>

### Table 2B: OLS & IV Estimates for LPM of college attendance & financing

<table>
<thead>
<tr>
<th>Dependent Variables:</th>
<th>Attended College</th>
<th>Transfer Conditional on Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>OLS</td>
<td>IV</td>
</tr>
<tr>
<td>NetEquity</td>
<td>0.0032***</td>
<td>0.0102</td>
</tr>
<tr>
<td>NetEquity × Per1</td>
<td>-0.0005</td>
<td>0.0123***</td>
</tr>
<tr>
<td>NetEquity × Per2</td>
<td>-0.0016</td>
<td>-0.0007</td>
</tr>
</tbody>
</table>
Initial Conclusions on college attendance & financing choices

- Consistent with Lovenheim (2011), exogenous increases in housing wealth during early 2000s increased likelihood of college enrollments.

- However, with subsequent housing bust (& recovery), we did not see symmetric declines in enrollments.

- We also find that exogenous increases in housing wealth increased likelihood of parental transfers conditional on enrollment in both housing boom & bust.

Parents’ & Child’s Indebtedness

Whether child goes to college & how college is funded may affect indebtedness of either parent or child.

- Let $Y_{ij,25}^n$ denote indebtedness of person-type $n$, $n = p$ for parent and $n = c$ for child, respectively, & we measure indebtedness when child $j$ is age $= 25$.

- For parents, we analyze:
  1. mortgage debt

- For children, we analyze:
  1. whether child is PSID Head/Wife of own household
  2. non-mortgage debt only

- Because of child-age-25 requirement, only have adequate sample sizes for Per0 (1975 – 1999) & Per1 (2000 – 2007)
Parents’ & Child’s Indebtedness

Reduced Form (*NetEquity as collateral*):

\[ Y_{ij,25}^n = \gamma_{00}^n + \gamma_{10}^n NetEquity_{ij,18}^n + \gamma_{20}^n X_{ij,25}^n + \left[ \gamma_{01}^n + \gamma_{11}^n NetEquity_{ij,18}^n + \gamma_{21}^n X_{ij,25}^n \right] \cdot Per1_{ij,18} + \epsilon_{ij,25}^n \]  

(2)

Effects of College & Financing Choices:

\[ Y_{ij,25}^n = \delta_{00}^n + \delta_{10}^n EduFin1_{ij,18}^n + \delta_{20}^n EduFin2_{ij,18}^n + \delta_{30}^n X_{ij,25}^n + \left[ \delta_{01}^n + \delta_{11}^n EduFin1_{ij,18}^n + \delta_{21}^n EduFin2_{ij,18}^n + \delta_{31}^n X_{ij,25}^n \right] \cdot Per1_{ij,18} + \epsilon_{ij,25}^n \]  

(3)

Effects of College Attendance & Amount of Transfers:

\[ Y_{ij,25}^n = \phi_{00}^n + \phi_{10}^n Collc_{ij,18}^c + \phi_{20}^n Transfer_{ij,18}^n + \phi_{30}^n X_{ij,25}^n + \left[ \phi_{01}^n + \phi_{11}^n Collc_{ij,18}^c + \phi_{21}^n Transfer_{ij,18}^n + \phi_{31}^n X_{ij,25}^n \right] \cdot Per1_{ij,18} + \epsilon_{ij,25}^n \]  

(4)

where \( Collc_{ij,18}^c \) is whether child \( j \) attended college & \( Transfer_{ij,18}^n \) is amount of parental transfer.
Table 3: Effects of College Attendance & Financing and Other Variables on Parent’s & Child’s Indebtedness & Child’s Homeleaving, at Child Age 25

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parental Mortgage Debt ($10K) OLS</th>
<th>Parental Mortgage Debt ($10K) IV</th>
<th>Child is Head/Wife at Age 24 OLS</th>
<th>Child is Head/Wife at Age 24 IV</th>
<th>Child’s Other Debt ($10K) OLS</th>
<th>Child’s Other Debt ($10K) IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Form Estimates Eqn (2):</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>$\text{NetEquity}_{18}$</td>
<td>-0.117***</td>
<td>-0.030</td>
<td>0.0027*</td>
<td>-0.0074**</td>
<td>-0.022***</td>
<td>-0.026</td>
</tr>
<tr>
<td>$\text{NetEquity}_{18} \times \text{Per}_1$</td>
<td>0.213***</td>
<td>0.508***</td>
<td>-0.0079***</td>
<td>-0.0057***</td>
<td>0.011</td>
<td>-0.004</td>
</tr>
<tr>
<td>Effects of College &amp; Financing Choices Eqn (3):</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>$\text{EduFin}_1$</td>
<td>-0.388</td>
<td>0.011</td>
<td>0.435***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{EduFin}_1 \times \text{Per}_1$</td>
<td>1.313***</td>
<td>0.0005</td>
<td>0.988***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{EduFin}_2$</td>
<td>-0.321</td>
<td>0.0591**</td>
<td>0.444***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{EduFin}_2 \times \text{Per}_1$</td>
<td>4.754***</td>
<td>-0.0016*</td>
<td>0.843***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effects of College Attendance &amp; Amount of Transfers Eqn (4):</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>$\text{Coll}^c$</td>
<td>-0.541**</td>
<td>0.0158</td>
<td>0.421***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{Coll}^c \times \text{Per}_1$</td>
<td>2.432***</td>
<td>-0.0005</td>
<td>0.989***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{Transfer}$</td>
<td>0.443***</td>
<td>0.0112</td>
<td>0.068*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{Transfer} \times \text{Per}_1$</td>
<td>0.132</td>
<td>-0.0081</td>
<td>-0.081**</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: IV = Use same Instrumental Variables as in Lovenheim and Reynolds (2013). All specifications include location-specific fixed effects.
Parents’ & Child’s Indebtedness

Initial Conclusions on effects of college financing on indebtedness

- For each $1 \text{ exogenous increase} \text{ in NetEquity} \text{ when child age 18, parents go $0.50 further in debt} \text{ by when child age 25.}

- Parents during \text{ housing boom (Per1)}, parents who made transfers relative to those who child went to college without transfers had:
  - $34,000 \text{ of additional mortgage debt.}

- Each additional $1 \text{ of Transfers} \text{ correlated with $0.44 in additional mortgage debt later.}

- \text{Children whose parents provide transfers have more debt} \text{ at age 25 (although not in all specifications).}
  - Is this because parental & student financing of college are \text{ complements} rather than \text{ substitutes}, e.g., do parents/children use student loans to pay for some of increase in college “quality”?
  - \text{Caveat:} we have not included children who have not yet formed their own households (TA Sample)

- \text{IV estimates suggest that Transfers decrease home leaving} \text{ but OLS show positive correlations.
Parents’ & Child’s Consumption

Background:

● Using debt to finance children’s college education may be efficient, if parents or children have access to capital markets &/or can insure against unforeseen changes in wealth/income.

● But some parents &/or children may not have adequate access to capital markets &/or realize unforeseen shocks to wealth, e.g., housing bust.

● One way to assess: Examine impact of financing & debt on parents’ & child’s consumption.

Let $C_{ij,25}^n$ denote consumption (expenditures in $10K) of person $n$, where $n = p$ for parent & $n = c$ for child, where we measure $C^n$ when child $j$ is age $= 25$.

For both parents & children, two measures of consumption expenditures:

1. food eaten at home
2. food at restaurants

We estimate same regression specifications as used for indebtedness.

Again, due to child-age-25 requirement, only have adequate sample sizes for Per0 (1975 – 1999) & Per1 (2000 – 2007)
Table 4: Effects of College Attendance & Financing and Other Variables on Parent’s & Child’s Consumption, at Child Age 25

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parental Consumption ($10K)</th>
<th>Child’s Consumption ($10K)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food at Home</td>
<td>Eating at Restaurants</td>
</tr>
<tr>
<td></td>
<td>OLS  IV</td>
<td>OLS  IV</td>
</tr>
</tbody>
</table>

**Reduced Form Estimates Eqn (2):**

- \( Net Equity_{18} \)
  - OLS: -0.002
  - IV: -0.001
  - Eating at Restaurants: 0.006

- \( Net Equity_{18} \times Per1 \)
  - OLS: 0.017**
  - IV: 0.008
  - Eating at Restaurants: -0.019***

**Effects of College & Financing Choices Eqn (3):**

- \( EduFin1 \)
  - Eating at Restaurants: 0.042

- \( EduFin1 \times Per1 \)
  - Eating at Restaurants: 0.048

- \( EduFin2 \)
  - Eating at Restaurants: 0.067

- \( EduFin2 \times Per1 \)
  - Eating at Restaurants: -0.253***

**Effects of College Attendance & Amount of Transfers Eqn (4):**

- \( Coll^c \)
  - Eating at Restaurants: 0.030

- \( Coll^c \times Per1 \)
  - Eating at Restaurants: -0.003

- \( Transfer \)
  - Eating at Restaurants: 0.062***

- \( Transfer \times Per1 \)
  - Eating at Restaurants: -0.121***

**Notes:** IV = Use same Instrumental Variables as in Lovenheim and Reynolds (2013). All specifications include location-specific fixed effects.
Parents’ & Child’s Consumption

Initial Conclusions on effects of college financing on consumption

- Parents who make *Transfers*, consume more food at home and less food away from home, especially during housing boom (*Per1*).

- **No differences in parents’ consumption** for those whose children attend college but who do not provide *Transfers*.

- Fewer consistent patterns for child’s consumption.
Next Steps

- Investigate additional consequences of Financing for Well-Being of Parents
  - Are results we found for effects on consumption really indications of lasting impacts?
  - Does debt financing of college by parents affect parents’ retirement?
  - Other aspects of parents’ later lives?

- Investigate additional consequences of college financing on Well-Being of adult children
  - Are our findings of little effect of college financing affecting adult child really true?
  - Need to look more closely at whether college financing affected life cycle events like first home purchase, age of first marriage, etc.
  - Are using TA sample & its data to look at these questions.

- Are parents’ & children’s debt-financing of latter’s college substitutes or complements?
References


