Children and Household Wealth

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The Paper Examines the Effects of Children on Wealth Accumulation

- There are several possible mechanisms.
  - Family size is correlated with lifetime earnings.
    - Like many others, we take the earnings process as being exogenous.
  - Children eat resources.
  - With uncertainty in earnings, health, and lifespan, the timing of fertility affects consumption decisions.
- We show
  - Children are a key to understanding wide wealth disparities.
  - Children have a much larger effect than asset tests associated with means-tested transfers.
  - Takeaway point: adults in families with children grow accustomed to lower standards of living than adults in otherwise equivalent families.

Children Do Not Appear in the Two Most Closely Related Literatures

- Explain the wealth distribution.
  - Life Cycle Model: Modigliani & Brumberg (1954)
  - Buffer Stock Framework: Deaton (1991)
  - Precautionary Savings: Aiyagari (1991)
  - Bequests: De Nardi (2004)
  - Variation in Time Preference: Krusell and Smith (1998)
- Explain low wealth of the very poor.
  - Variation in Time Preference: Lawrance (1991),
  - Time-Inconsistent Preferences: Laibson (1997)
  - Effect of Safety Net: Hubbard Skinner and Zeldes (1995)
- **Common theme**: Given an earnings distribution, what is the implied wealth distribution? The studies typically find that the concentration of wealth (absent bequests) implied by models is lower than in the data.

Figure 1: Net Worth in 1992 as a Percentage of Summed, Real Lifetime Earnings, By Family Size, HRS Data

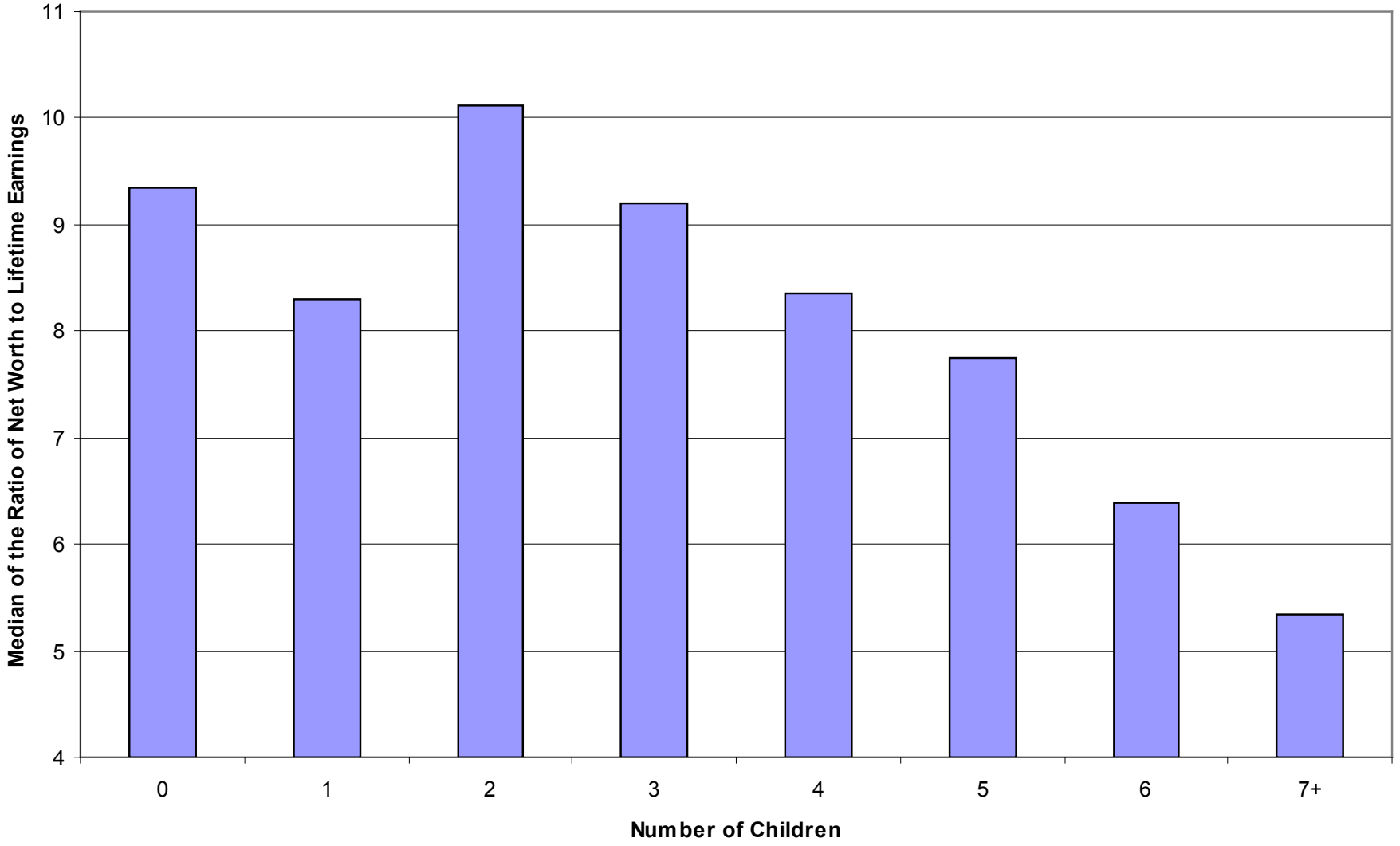


Table 2: Variation in Net Worth, Fertility and Earnings by Lifetime Earnings Deciles, Weighted

Married Couples					
Lifetime Earnings Decile /1	Median 1992 Net Worth	Mean 1992 Net Worth	Mean Number of Children	Mean Age of Head When Last Child is Born	Mean %age of Earnings After Last Child is Born
Lowest	$35,450	$111,991	4.6	35.3	69.1
2	65,600	166,974	4.1	33.4	74.2
3	90,962	171,847	3.9	32.7	77.3
4	114,000	199,800	3.5	32.5	77.9
Middle	124,348	238,961	3.7	32.3	78.2
6	136,672	214,699	3.6	32.4	78.3
7	184,000	286,538	3.3	32.1	79.0
8	206,253	330,984	3.3	32.7	79.0
9	266,800	451,280	3.3	32.4	80.3
Highest	433,326	687,277	3.1	33.3	82.1
All Married Couples	142,885	280,549	3.7	32.9	77.4

A Permanent Income Model

$$\max \sum_{j=0}^{T} \beta^j n_j U\left(c_j / n_j\right) \quad \text{subject to} \quad \sum_{i=0}^{T} \frac{c_j}{(1+r)^{j-1}} = \sum_{i=0}^{T} \frac{y_j}{(1+r)^{j-1}}$$

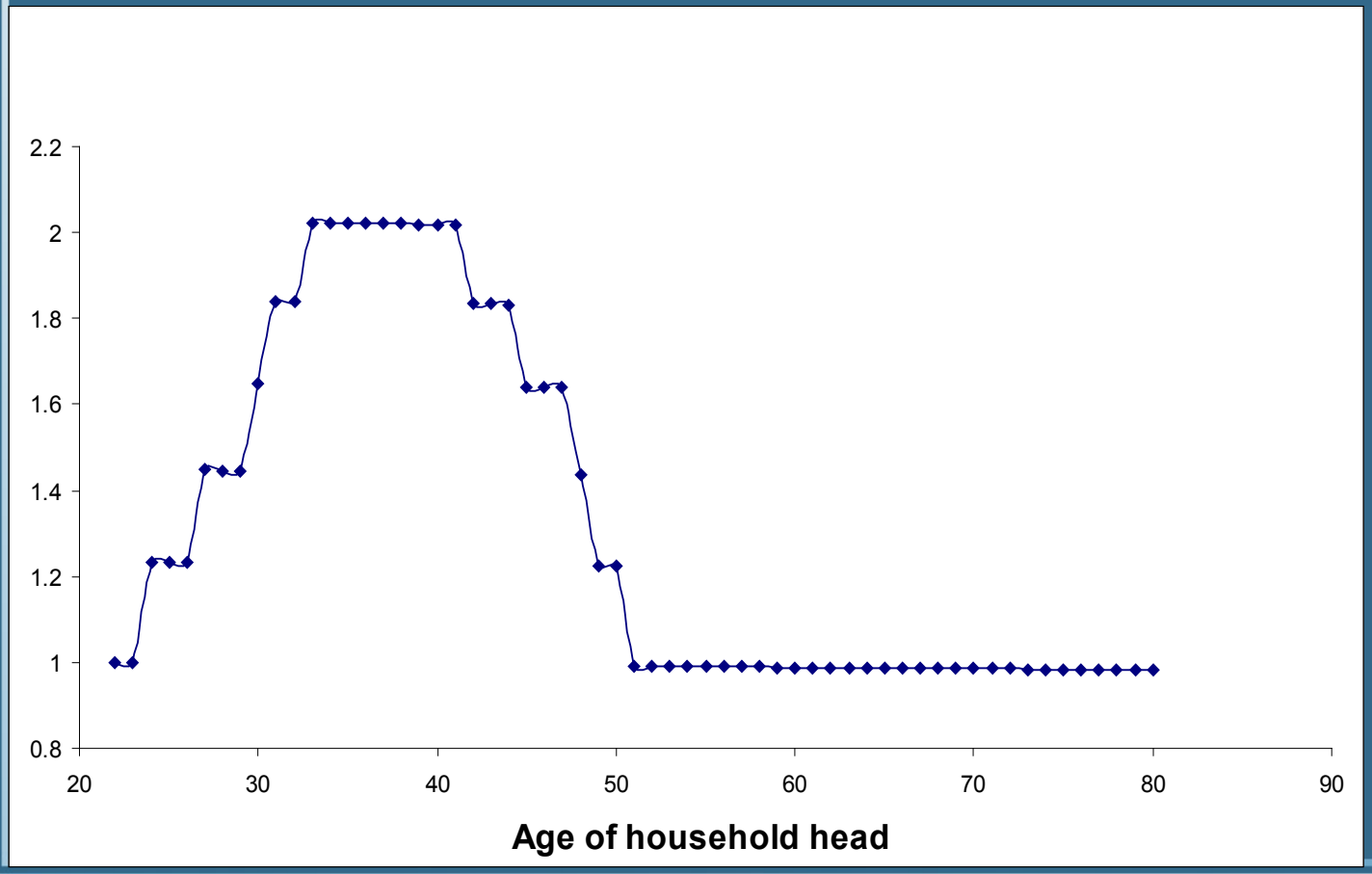
- Optimal consumption (assuming CRRA preferences) is given by

$$c_j = \left(\frac{n_j}{\sum_{j=0}^{T} \frac{n_j \left[\beta(1+r)\right]^{j/\gamma}}{(1+r)^{j-1}}} \right) \left(\sum_{j=0}^{T} \frac{y_j}{(1+r)^{j-1}} \left[\beta(1+r)\right]^{j/\gamma} \right)$$

- The family size adjustment (the first term in parentheses) is quantitatively important

Household Consumption over the Life-Cycle (couple w/ 5 children)

$$n_j = (A_j + 0.7K_j)^{0.7};\ r = .03;\ \beta = 0.97;\ \gamma = 3$$



This model, however, yields too little dispersion in wealth. The poor save nothing. The wealthy save too little, relative to the data. We need a richer model with precautionary saving, credit constraints, and uncertainty in earnings, lifespan, and longevity.

The First Experiment: Alter the Number of Children (in a more realistic life-cycle model)

- To explore the effects of the number of children on life-cycle wealth accumulation…
  - We give all married and single households the mean number of children (by marital status), born at the median ages for "3.6" and "2.8" child families.
  - Married couples get children at ages 23, 26, 29, and 0.6 of a child arrives at 33. Singles get them at 23, 26 and 0.8 at 29.
    - Fractional children make the aggregate number of children in the simulations match the aggregate in the population.

Altering the number and timing of children increases wealth of low-income households and reduces the dispersion of net worth.

Table 4: The Effects of Eliminating Variation in the Number and Timing of Children

	Baseline		No Variation in kids	
Decile of Lifetime Earnings Distribution	**Median Net Worth**	**Credit Constrained Until Age…**	**Median Net Worth**	**Credit Constrained Until Age…**
Lowest	$1,350	34	$16,403	26
2	10,749	32	27,584	27
3	24,281	31	31,475	27
4	36,539	29	38,576	28
5	45,733	28	45,638	28
6	63,639	27	64,372	29
7	74,250	27	67,463	30
8	93,618	29	87,394	31
9	127,082	30	115,394	31
Highest	221,434	32	180,463	34

Children or the Safety Net?

- It is straightforward in the context of our model to eliminate the safety net and examine the effect of doing so on wealth accumulation.
  - The structure of the safety net is very similar to Hubbard, Skinner, and Zeldes (1995).
    - Their consumption floor (for a single parent with two children) is $7,000 (in 1984$), ours (in 1984) is roughly $6,300.
  - A similar fraction of the population receives benefits.
    - 25.3% of no HS diploma people get transfers in 1980 (their average age is 44) – 23.7% of households 40-49 in PSID get transfers in 1984. There is a similar close correspondence in 1990.

In contrast to the conclusions of HSZ (1995), the means-tested transfer system has an almost imperceptible effect on optimal wealth accumulation in a life-cycle model with children.

Table 5b: Effect of Altering the Timing of Children, Earnings, and The Transfer System on Median Optimal Net Worth, HRS Data

	Median Optimal Net Worth	
Decile of Lifetime Earnings Distribution	**Baseline Model**	**No Means tested transfer**
Lowest	$1,350	$1,483
2	10,749	11,302
3	24,281	25,056
4	36,539	36,897
5	45,733	46,088
6	63,639	63,858
7	74,250	74,382
8	93,618	93,656
9	127,082	127,131
Highest	221,434	221,437

Why Are There Such Stark Differences Between HSZ (1995) and Our Results?

- The approaches have similar transfer systems, social security benefits, and similar numbers of households receive transfers.
- HSZ, however, do not model the effects of children.
  - As we've seen, low-income families have more children.
- Not accounting for children is critical as shown in the next table

Effect of Shutting Down the Variation in Children, and Shutting Down the Means Tested Transfer System				
	Median Net Worth in the HRS (average age 55.7)			
Decile of Lifetime Earnings Distribution	Baseline Model (w/ Transfers)	No variation in Children (w/ Transfers)	No Children At all (w/ Transfers)	No Means tested transfer, No Children
Lowest	1,350	16,403	23,456	44,483
2	10,749	27,584	45,694	53,302
3	24,281	31,475	65,043	65,356
4	36,539	38,576	89,304	90,897
5	45,733	45,638	100,594	100,594
6	63,639	64,372	110,594	110,594
7	74,250	67,463	132,045	132,045
8	93,618	87,394	159,405	159,405
9	127,082	115,394	194,096	194,096
Highest	221,434	180,463	284,059	284,059

Why Do Asset- and Income-Tested Transfers Have Such a Small Effect on Optimal Wealth Accumulation?

- 40% of households in the lowest lifetime income decile have SS replacement rates above the consumption floor.
- For the remaining 60%, SS and DB pensions replace, on average, 55% of income in the 5 years prior to retirement. Retirement consumption relative to consumption when 5 children are in the house would optimally be 50% lower (given our equivalence scale).
  - Children, therefore, can largely account for the low asset accumulation of households in the lowest lifetime income deciles.
    - HSZ (1995) appear to find very large effects of the income- and asset-tested transfer system because they fail to account for the role of children.

Endogenizing Fertility

- We model fertility decisions in the spirit of Becker and Barro (1988)
- Assume all children are born at a specific date (B).
- Children are attached to parents for 18 years.

Household's decision problem is

$$\max E\left[\sum_{j=S}^{D}\beta^{j-S}U\left(c_j\right)+\sum_{j=B}^{B+17}\beta^{j-S}b(f)U\left(c_j^k\right)\right]$$

The budget constraint when children are around is

$$c_j+fc_j^k+a_{j+1}=y_j+a_j-\tau\left(e_j+ra_j\right),\ j\in\left\{B,...,B+17\right\},\ \text{where}$$

$$y_j=(1-\kappa f)e_j+ra_j+T(e_j,a_j,j,n_j),\ \ j\in\left\{S,...,R\right\}.$$

Each child requires κ of the parent's earnings (think of these as indirect time costs)

Endogenous Fertility, Married Couples

Decile of Lifetime Earnings Distribution	Net Worth Baseline	Birth Rate Data Baseline	Net Worth Endogenous Fertility Model	Birth Rate Endog. Fertility Model	Net Worth No transfer Endog. Fertility	Birth Rate No transfer Endog. Fertility
Lowest	20,714	4.6	22,643	4.5	26,221	4.3
2	38,254	4.1	37,546	4.2	41,573	4.1
3	53,894	3.9	53,172	4.0	54,903	4.0
4	71,996	3.5	71,021	3.7	72,035	3.7
5	74,718	3.7	74,215	3.5	74,734	3.5
6	79,159	3.6	79,021	3.4	79,163	3.4
7	111,280	3.3	114,593	3.3	111,282	3.3
8	134,092	3.3	139,563	3.3	134,092	3.3
9	153,326	3.3	157,221	3.2	153,326	3.2
Highest	270,442	3.1	262,430	3.2	270,442	3.2

Endogenizing fertility increases, somewhat, the effect of income transfers. Shutting down the transfer program decreases fertility for low income households and net worth increases. A modest increase in self insurance coupled with a modest reduction in fertility, therefore, leads to higher net worth.

In Closing

- Children increase the consumption of families when they are being supported by their parents.
  - Replacing the actual number (and timing) of children with the sample averages by marital status results in a change in optimal median net worth from $1,350 to $16,403, and from $38,537 to $63,472 in mean net worth in the lowest lifetime income decile.
  - Our approach does not require heterogeneity in discount rates to generate the distribution of wealth.
- Children, and not income- and asset-tested transfers or discount rate differences we believe, are central to understanding the skewness of the wealth distribution and low asset accumulation of low-income households.
  - Read more at http://www.ssc.wisc.edu/~scholz/Research/Children.pdf