

Wealth Distribution: The Role of Bequests

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Introduction

The challenge:

How to get the top 1% to be as wealthy as they are in the data?

One solution that works: entrepreneurship.

Another plausible solution: bequests.

- ▶ The rich have an incentive to save.
- ▶ Even with limited earnings, large wealth can be built up over generations.

Research Strategy

Suppose you want to answer the question
“How important are bequests for wealth inequality?”

What should you do first?

De Nardi (2004)

De Nardi (2004) takes the logical next step.

- ▶ Add bequests to Huggett (1996).
- ▶ Does the model now get the top 1%?

The finding: Not quite, but the model does much better now.

Ocampo and Yuki (2006) do something quite similar.

Bequest motives

How to model why parents leave bequests?

The literature proposes and tests several theories.

No consensus as to which motives are important.

All theories perform miserably against data.

Each motive that has been tested has also been rejected. This suggests that households may be influenced by several motives, or that the importance of each may vary across households. (Gale and Perozek, 2001)

Bequest motives

Accidental bequests:

- ▶ Bequests arise because households do not hold annuities.

Joy of giving:

- ▶ The amount given provides utility.
- ▶ Easy to implement, but “feels wrong.”
- ▶ This is what De Nardi (2004) assumes

Bequest motives

Altruism:

- ▶ Parents derive utility from utility of their children.
- ▶ Theoretically appealing, but harder to compute.
- ▶ Problems if parents and children overlap: strategic interaction.
- ▶ Implies complete intergenerational risk sharing if bequest motive is operative.

Two-sided altruism:

- ▶ Children also value utility of their parents.
- ▶ If all have the same discount factors: family behaves as if a single decision maker (Laitner).

Bequest motives

Strategic / exchange motive:

- ▶ Parents derive utility from children's behavior (e.g. visiting the parents).
- ▶ Parents "buy" that behavior from the children by promising bequests or by giving inter-vivos transfers.
- ▶ Problem (in my view): the promise of bequests is not time-consistent.

Empirical challenges

Most estates are divided equally (Wilhelm, 1996)

- ▶ Altruism implies that poorer children should receive more.
- ▶ Empirically, the gaps are small (Laitner and Ohlsson, 2001)

Households without children do not dissave faster than households with children (Hurd).

Rich parents do not take advantage of tax-exempt inter-vivos transfers (Poterba, 2001)

Parental income shocks have little effect on child consumption

- ▶ not consistent with full risk sharing implied by operative altruism
- ▶ Hayashi et al. (1996)

3. De Nardi (2004)

Model Overview

The model is basically Huggett (1996) plus

- ▶ joy of giving bequests
- ▶ intergenerational correlation of worker productivity
- ▶ 5 year model period

Modeling Bequests

Joy of giving bequest motive:

$$\phi(b) = \phi_1 (1 + b/\phi_2)^{1-\sigma}$$

- ▶ ϕ_1 governs size of bequests
- ▶ curvature \implies diminishing marginal utility
- ▶ the "1 +" part \implies finite marginal utility when $b = 0$
not all households leave bequests
- ▶ ϕ_2 : governs size distribution of bequests

Modeling Bequests

$$\phi(b) = \phi_1 (1 + b/\phi_2)^{1-\sigma}$$

Marginal utility of b declines more slowly with b than $u'(c)$

$$\phi'(b) = \infty (1 + b/\phi_2)^{-\sigma} \quad (1)$$

Poor household:

- ▶ high $u'(c) > \phi'(0) \implies$ no bequest

Rich:

- ▶ Low $u'(c) \implies$ very high bequest

Bequests are a luxury good.

Parent/Child Linkages

Parents and children overlap.

- ▶ Children are born at age 25.
- ▶ Become adults at age 45.

To keep the child's state space small:

- ▶ children only see parental earnings at age 40 (*yp*)
- ▶ used to form beliefs about future inheritances

Children's earnings are correlated with parental earnings at age 40.

Household Problem

When young (age 20 to 30)

- ▶ Parent survives for sure to next period.
- ▶ Problem looks like Huggett's, except that parental yp is a state.

$$V(t, a, y, yp) = \max u(c) + \beta \mathbb{E}V(t+1, a', y', yp) \quad (2)$$

s.t. standard budget constraint

$$a' = (1+r)a + \varepsilon_t y - c \quad (3)$$

where ε_t is age-efficiency profile.

Middle-aged Household

When middle-aged (age 35 to 55)

- ▶ Child survives for sure, but parent may die
- ▶ Same problem, but may receive inheritance

Retired Household

$$W(t, a) = \max_{c, a'} u(c) + \beta s_t W(t+1, a') + \beta (1 - s_t) \phi(b(a')) \quad (4)$$

subject to

$$a' = (1+r)a - c + p \quad (5)$$

where s_t is survival probability.

Calibration

Standard stuff:

- ▶ Earnings (y) process approximates an AR(1) with 3 states.
- ▶ Capital share, depreciation, survival rates, ...

New (bequest related) parameters:

1. ϕ_1 : matches transfer wealth ratio of 60%
2. ϕ_2 : matches (small) size of bottom 30% of estates (about 7% of average earnings)
3. σ : same as for $u(c)$ [why?]

Transfer wealth

- ▶ the amount of wealth that a person holds that is “due to” inheritances.
- ▶ not clear how it is defined here

Only 2 bequests data points are used in calibration.

Results

Capital-output ratio	Transfer wealth ratio	Wealth Gini	Percentage wealth in the top					Percentage with negative or zero wealth
			1%	5%	20%	40%	60%	
U.S. data 3.0	0.60	0.78	29	53	80	93	98	5.8–15.0
No intergenerational links, equal bequests to all 3.0	0.67	0.67	7	27	69	90	98	17
No intergenerational links, unequal bequests to children 3.0	0.38	0.68	7	27	69	91	99	17
One link: productivity inheritance 3.0	0.38	0.69	8	29	70	92	99	17
One link: parent's bequest motive 3.0	0.55	0.74	14	37	76	95	100	19
Both links: parent's bequest motive and productivity inheritance 3.0	0.60	0.76	18	42	79	95	100	19

Bequests increase fraction of wealth held by top 1% from 8% to 18%.

Still quite a bit short of the data (29%)

Size distribution of estates

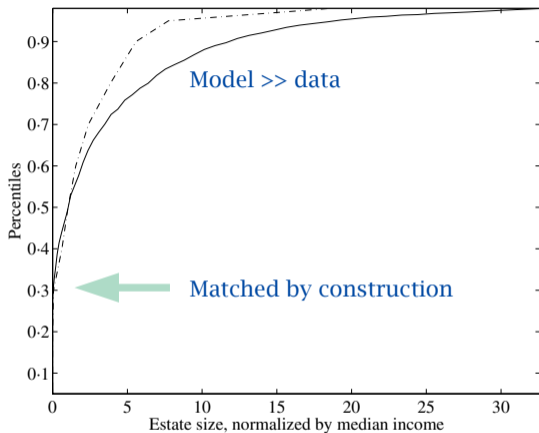


FIGURE 3

Cumulative distribution of estates, solid = model, dash-dot = AHEAD data

The top 10% of estates are far too large

Importance of Inheritances

There are no rich households without inheritances.

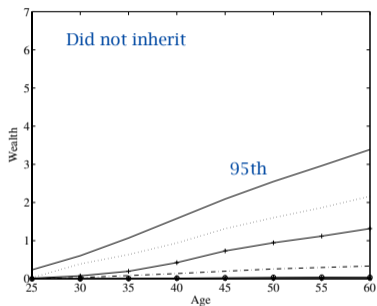


FIGURE 7

U.S. calibration. Wealth quantiles: 0-1, 0-25, 0-5, 0-75, 0-85, 0-95, conditional on not having inherited

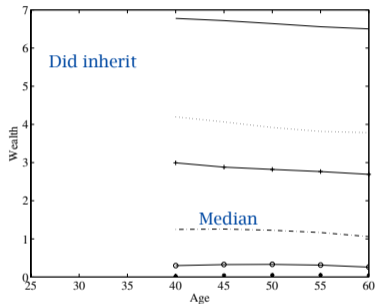


FIGURE 8

U.S. calibration. Wealth quantiles: 0-1, 0-25, 0-5, 0-75, 0-85, 0-95, conditional on having inherited

The 90th percentile without inheritances holds less than the median with inheritances.

What's the Story?

Two main ingredients:

1. Bequests allow families to build large estates **over many generations**.
Resolves the Huggett issue: earnings are not large enough to build up top 1% wealth.
2. Rich households have an **incentive to save**.
They know that their heirs will be poorer.
Consumption-smoothing across generations.

A key implication:

Almost all wealth-rich households received large inheritances.

Assessment

Pros:

- ▶ The hypothesis sounds reasonable.
- ▶ The economic mechanism can clearly work.
- ▶ The model is the logical benchmark.
Minimal departure from Huggett (1996)

Looks like the next logical paper to write.

But ... what did the authors not do?

What could go wrong?

The paper, like much of the literature, **uses almost no data**.

Data questions:

1. Do most rich households inherit a large share of their wealth?
If not, the role of bequests is probably overstated.
2. Is the size distribution of inheritances about right?
The paper's results suggest that most inheritances are too large.
3. An important detail: Most estates are divided among siblings.
Large estates often give to other relatives and charities (Joulfaian, 1994).

Some additional data moments

1. **About half of households in the top 1% inherit nothing.**
From Yanran Guo's dissertation. SCF data.
2. **The ratio of inheritances to lifetime earnings is below 2 percent.**
For all lifetime earnings quintiles.
My calculations. PSID data.

Open question:

How important are inheritances in a model that is consistent with these data points?

- ▶ But see Yanran's dissertation...

A general lesson

Before you write down a model, **figure out your story**.

- ▶ A model is a story in math.

Before you decide on a story, make sure you **know the data**.

- ▶ In U.S. data, most wealth rich households report small inheritances.
- ▶ Getting that right in the model is of first-order importance.
- ▶ Suggests that de Nardi's model overstates the role of bequests.

Reframing the Question

What does Huggett do?

- ▶ He asks: “What does the benchmark model of saving imply for the wealth distribution?”
- ▶ What does that model get / not get?

It would have made sense to write an analogous paper for bequests.

The question:

What does the benchmark model of saving and bequests imply for the distribution of bequests?

What does it get / not get?

That might still be a useful paper to write today.

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