Outline

- Private Asset Reallocations
  - Capital
  - Credit and Property
- Private Transfers
  - Inter-household
  - Intra-household
  - Capital transfers
- Concepts and principles, not calculation details
Most Important Graph in the World!

- Mean Consumption and Production
- Labor Production
- Surplus
- Consumption
- Deficits

Age
Total Reallocations: Lifecycle Deficit

Age

Deficits

Surplus
Asset Reallocations

- Involve inter-temporal exchange.
- Asset is acquired in one period (an outflow)
- Asset yields income in subsequent period (an inflow); or,
- Asset is liquidated in subsequent period (an inflow)
- Reallocation is in upward direction – from younger to older ages – except as noted.
Types of Assets

- **Capital**
  - Reproducible: aggregate supply can vary.
  - Material

- **Land**
  - Non-reproducible: aggregate supply is fixed.
  - Material

- **Credit**
  - Non-reproducible: aggregate net credit is zero.
  - Non-material: credit can be negative; can be used to reallocate downward – from older to younger ages.
Examples of Asset Reallocations

- **Capital**: A worker invests in a company; when she retires she receives dividends and eventually sells her share of the company (upward flow).

- **Land**: A worker buys land from a retiree; when he is older he receives rent and eventually sells his land (upward flow).

- **Credit**: A college student borrows from a worker (downward flow); after graduation she repays the worker (upward flow).
Classifying Saving by Asset Type

- Most saving is through financial intermediaries; therefore, acquisition of assets is often indirect.
- Governing principle: saving is classified by \textit{ultimate use} of the funds.
- Credit reallocations: consumer credit only.
Illustration of classification principle

- Sanjay buys a house for $100,000
  - Down payment is $10,000
  - Loan of $90,000 from Rita (through the bank)

- Investment in capital
  - Sanjay $10,000
  - Rita $90,000

- As Sanjay repays Rita his investment increases and hers declines.
A Lifecycle Saving Scenario: US Synthetic Cohort

- Consumption and labor income profiles for US 2000 hold
- US 2000 survival rates, death at age 90
- Asset reallocation only to shift from the working ages to old age
- Saving concentrated at the end of the working ages
- Costless annuities; 6 per cent real rate of interest
Expected Labor Income, Consumption, and Lifecycle Deficit

Annual per capita flows (US$)

-20,000
-10,000
0
10,000
20,000
30,000
40,000
50,000
60,000

45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90

Expected Labor Income
Expected Consumption
Expected LCD
Asset Reallocations, Life Cycle Model

Dis-saving begins
Reallocations turn positive at age 58.
Pure Lifecycle Asset Reallocations

- Reallocations less than zero for ages with a lifecycle surplus (LCD<0)
- Saving (outflow) exceeds asset income (inflow)
- Reallocations > 0 for ages with a lifecycle deficit (LCD>)
- Asset income exceeds saving.
- Eventually dis-saving occurs.
Why asset reallocations deviate from the lifecycle model

- Time effects: short-run economic fluctuations may dominate any particular year

- Other motives
  - Education for children
  - Sandwich years (supporting kids and parents)
  - Raising consumption at young ages
  - Bequest motive
Bequest Motive

- Save during working ages
- Re-invest asset income
- Flows at high survival ages
  - Outflow in the form of saving
  - Inflow in the form of asset income
  - Net reallocations zero or negative
- Flows at low survival ages
  - Dis-saving (inflow) matched by transfer (outflow)
Computation

- Current estimates do not distinguish between the alternative forms of saving (investment, land, credit)
- Saving is a balancing item equal to the difference between inflows and all other outflows

\[
S(a) = I_K(a) + I_M(a) = y_I(a) + y_A(a) + \tau(a) - c(a)
\]
Private Transfers

- Reallocation of economic resources from one age group to another
- Familial transfers
  - Inter-household transfers
  - Intra-household transfers
  - Capital transfers
- Non-familial transfers: transfers through private foundations, religious organizations, etc.
# How important are familial transfers?

<table>
<thead>
<tr>
<th>Familial Transfers (Inflows) as a Percentage of Consumption, Taiwan and US</th>
<th>Taiwan</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children*</td>
<td>64%</td>
<td>62%</td>
</tr>
<tr>
<td>Elderly*</td>
<td>39%</td>
<td>5%</td>
</tr>
<tr>
<td>Bequests</td>
<td>-17%</td>
<td>-17%</td>
</tr>
</tbody>
</table>

*Inter-vivos transfers only.
Forms of Familial Transfers

- Inter-household *inter vivos* transfers
- Intra-household *inter vivos* transfers
- Bequests and other capital transfers
Inter-household Familial Transfers

- **Assumption:** All inter-household transfers are between household heads
- Inter-household transfers are estimated directly from FIES or similar surveys
- Capital transfers are excluded
- Differences between inflows and outflows
  - Reporting error: giving > receiving
  - Gifts to and from ghost households
  - Transfers to and from row
Intra-household Transfers: Principles and Assumptions

- Net inflows to individuals with consumption in excess of their net disposable income.
- Net outflows from individuals with net disposable income in excess of their consumption.
- Net disposable income is defined as labor income + net public transfers + net inter-household transfers.
- Disposable income is “taxed” at the same rate within each household.
- Residual is transferred to the household head and saved.
Warning!

- Method requires estimates of key variables for individuals or detailed imputation methods;

- For Taiwan, we have labor income and net public cash transfers for each household member;

- Controlling for age, consumption is assumed to be independent of an individuals income.
Per Capita Intra-household Transfer Inflows, Taiwan, 1998

- other
- housing
- health
- education
Per Capita Intra-household Transfers, Taiwan, 1998

-400000
-350000
-300000
-250000
-200000
-150000
-100000
-50000
0
0
10
20
30
40
50
60
70
80
90

Other
Housing
Health
Education
Intra-household Transfers: Issues

- Intra-household transfers are only as good as consumption estimates;
- Importance of imputing income variables, e.g., labor income and public transfers to individual members;
- In the absence of information about individual heterogeneity, only net intra-household transfers can be estimated.
Generational Succession:
Familial Capital Transfers

- Inter- and intra-household transfers support current consumption
- Capital transfers are intended to transfer wealth, per se, to descendant generations
A Simple Model of Patrilineal Succession

- Households consist of father and his sons; Father is the head until his death; eldest son takes over as head; brothers remain.
- Mortality of eldest males and households equivalent.
- Capital outflows:
  - Identical to bequests;
  - Depend on mortality of males/households and co-variance between mortality and wealth.
- Capital inflows:
  - New households are reconstituted ghost households (with sons as heads)
  - Estate taxes.
Complexities

- Head may abdicate household leadership prior to his or her death
  - Household fusion
  - Headship succession
- In NTA system wealth follows headship: death of the household not death of an individual leads to a capital transfer.
Complexities

- Intra-generational succession
  - In many societies, household leadership passes to the surviving spouse if any;
  - In NTA, this is a non-event in the sense that the household of age $a$ survives;
  - However, the death of the head may precipitate an inter-generational transfer even though the household persists;
  - Relevant to modeling relationship between household transitions and mortality.
Complexities

- Intra-generational transfers II
  - If individuals or couples purchase annuities, their death leads to an intra-generational transfer rather than an inter-generational transfer;
Complexities

- Sharing rules for intergenerational transfers
  - Eldest son
  - Equal division
  - Other?
- Estate taxes
  - Bequests
  - Other capital transfers
Complexities

- Other Capital Transfers
  - Estate tax avoidance
  - Other *inter vivos* capital transfers
    - Dowry
    - Bride price
    - Fancy wedding
    - Help with house
NTA Bequests

- Transfers that arise due to the decline in the number of households:

\[ l^h(a, t) = \frac{H(a + 1, t + 1)}{H(a, t)} \text{ for } a > a^* \]

- Decline is due to:
  - Death to the household head
  - Fusion (parents move in with their children)
  - Generational succession (headship designation passes to younger generation)
Household Survival Rate, Taiwan, 1978-1998

Proportion surviving on year

Age

40 50 60 70 80 90

0.700 0.750 0.800 0.850 0.900 0.950 1.000
Cumulative Survival, Taiwan, 1978-1998

Proportion surviving from age 50

Age
NTA Bequests - Outflows

\[ l^A(a,t) = l^h(a,t) + \rho_{Ah} CV_A \sqrt{l^h(a,t)(1-l^h(a,t))} \]

Survival of cohort wealth: \( l^A(a,t) \)
Survival of households: \( l^h(a,t) \)
Correlation between wealth and survival: \( \rho_{Ah} \)
Coefficient of variation for wealth: \( CV_A \)
NTA Bequests - Outflows

- The correlation between wealth and household survival captures some of the complexities:
  - Effect of wealth on individual survival
  - Effect of wealth on household fusion and headship transition
NTA Bequests - Inflows

- Sharing Rules
  - Equal sharing among offspring
  - Parity bias, e.g., eldest or eldest son
  - Gender bias – no effect

- Inflows are to households of non-head beneficiaries
Other Issues

- Estate taxes
- Other capital transfers
The End