

# Transfers and Assets in the Economic Lifecycle: NTA Evidence

Economics Department Seminar

Andrew Mason

October 17, 2007

# A Quick Overview of National Transfer Accounts (NTA)

- NTAs provide aggregate measures of the economic lifecycle and economic flows across age
- Comprehensive approach:
  - All mechanisms for shifting resources from one age group to another are incorporated into the accounts.
  - Both public and private institutions are incorporated. The role of the family is emphasized.
- NTA is consistent with and complementary to NIPA and GA.
- Accounts are governed by a flow identity.

# The Flow Account Identity

- Inflows
  - Labor Income
  - Asset Income
  - Transfer Inflows
- Outflows
  - Consumption
  - Saving
  - Transfer Outflows

$$\underbrace{Y^l(a) + Y^a(a) + t^+(a)}_{\text{Inflows}} = \underbrace{C(a) + S(a) + t^-(a)}_{\text{Outflows}}$$

$$\underbrace{C(a) - Y^l(a)}_{\text{Lifecycle Deficit}} = \underbrace{Y^a(a) - S(a)}_{\text{Asset-based Reallocations}} + \underbrace{t^+(a) - t^-(a)}_{\text{Net Transfers}}$$

Age Reallocations

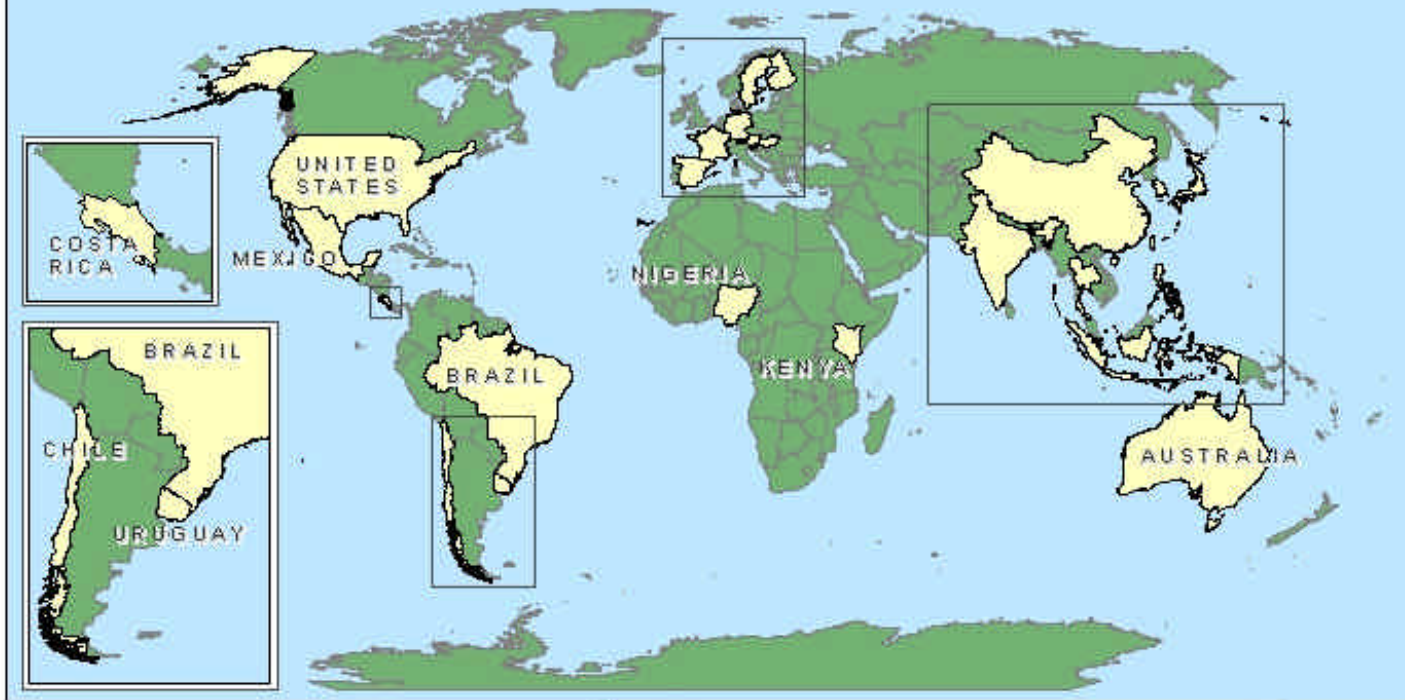
<b>A Classification of NTA Reallocations.</b>			
	<b>Asset-based Age Reallocations</b>		
	<b>Capital and Other Non-Financial Assets</b>	<b>Credit</b>	
<b>Public</b>	Public infrastructure Public land and sub- soil minerals	Public debt Student loans Money	Public education Public health care Unfunded pension plans
<b>Private</b>	Housing Consumer durables Factories, Farms Private land and sub-soil minerals Inventories	Consumer credit	Familial support of children and parents Bequests Charitable contributions

Source: Mason, Lee et al. (forthcoming); adapted from Lee (1994).

# Implementation

- Research teams in 25 countries are constructing NT accounts.
- Project directors are Ron Lee (CEDA, UC-Berkeley) and Andy Mason (UH Econ and EWC)
- Funded by National Institute on Aging, International Development Research Center, United Nations Population Fund, MacArthur Foundation, MEXT Academic Frontier grant to Nihon University Population Research Institute.

# National Transfer Accounts Project Country Members



# Issue: What is the role of assets in the economic lifecycle?

- Conventional wisdom: accumulation of assets during the working years is an important means by which individuals provide for their retirement.
- How important is retirement saving in the US and other industrialized countries? How important in developing countries? Do assets play other lifecycle roles that have been overlooked? These questions will be considered in light of new evidence based on National Transfer Accounts.

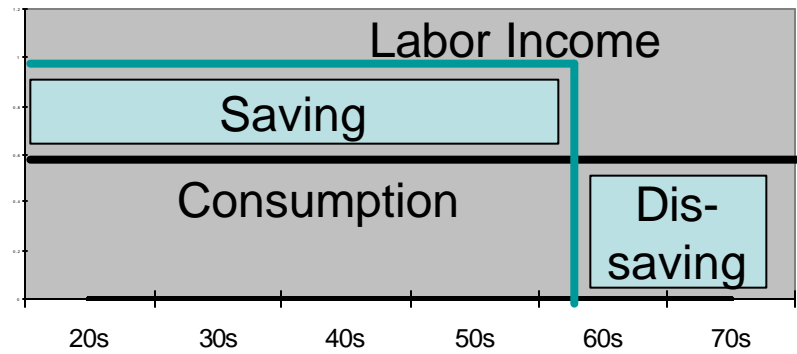
# Warnings

- Estimates are preliminary
- Cross-national comparisons
- Unclear whether age or cohort effects
- One point in time (not all countries have same year) – could be looking at year effects.

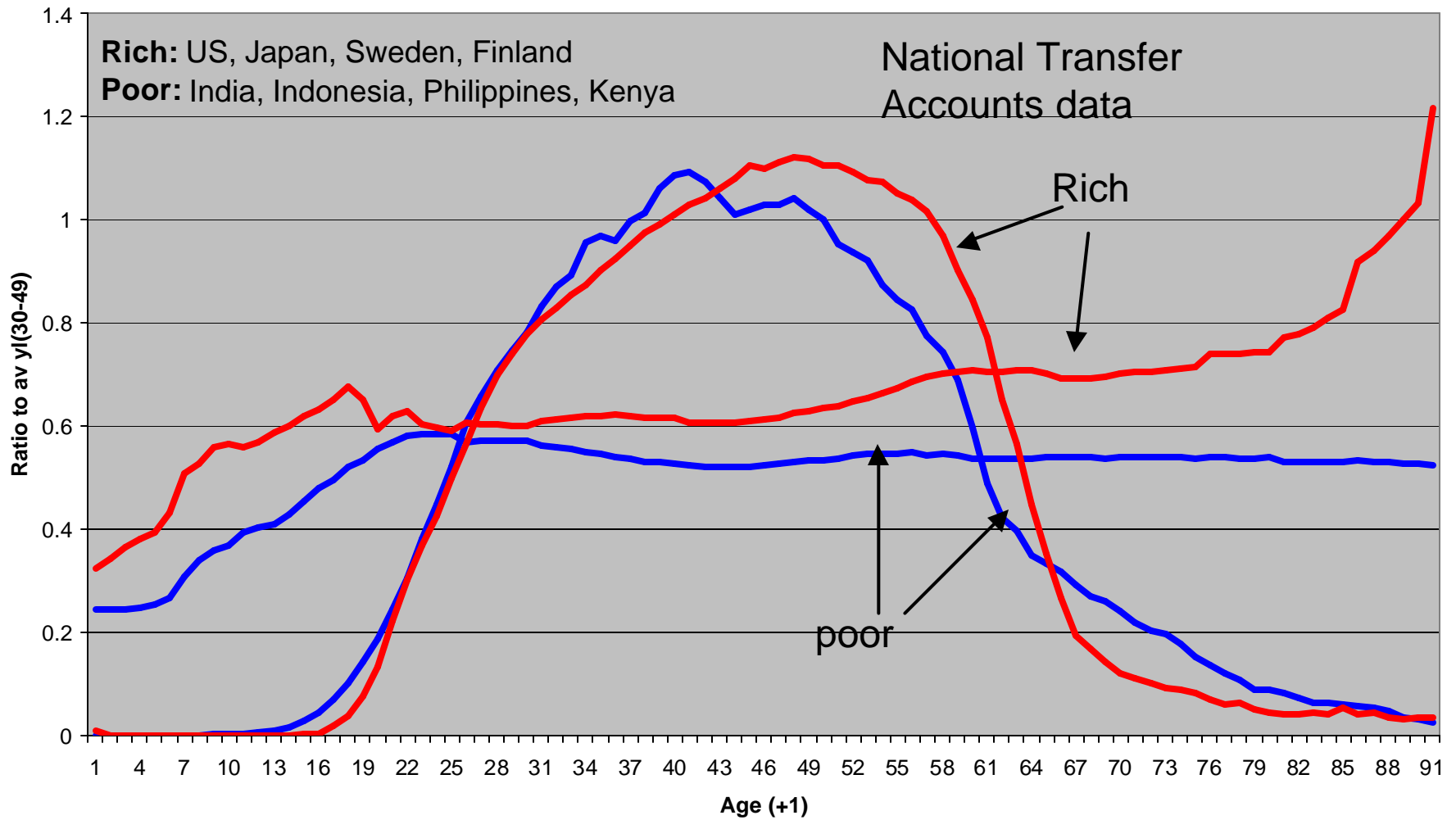


# The Role of Assets in the Simple Lifecycle Model

- Examples: Modigliani, Gordon *Principles*, Mankiw *Intermediate Macroeconomics*.
- Storyline: Labor income is shifted to older ages by accumulating assets using surplus labor income. Retirement funded from asset-income and dis-saving.
- Widely recognized that public transfers may crowd out lifecycle saving.

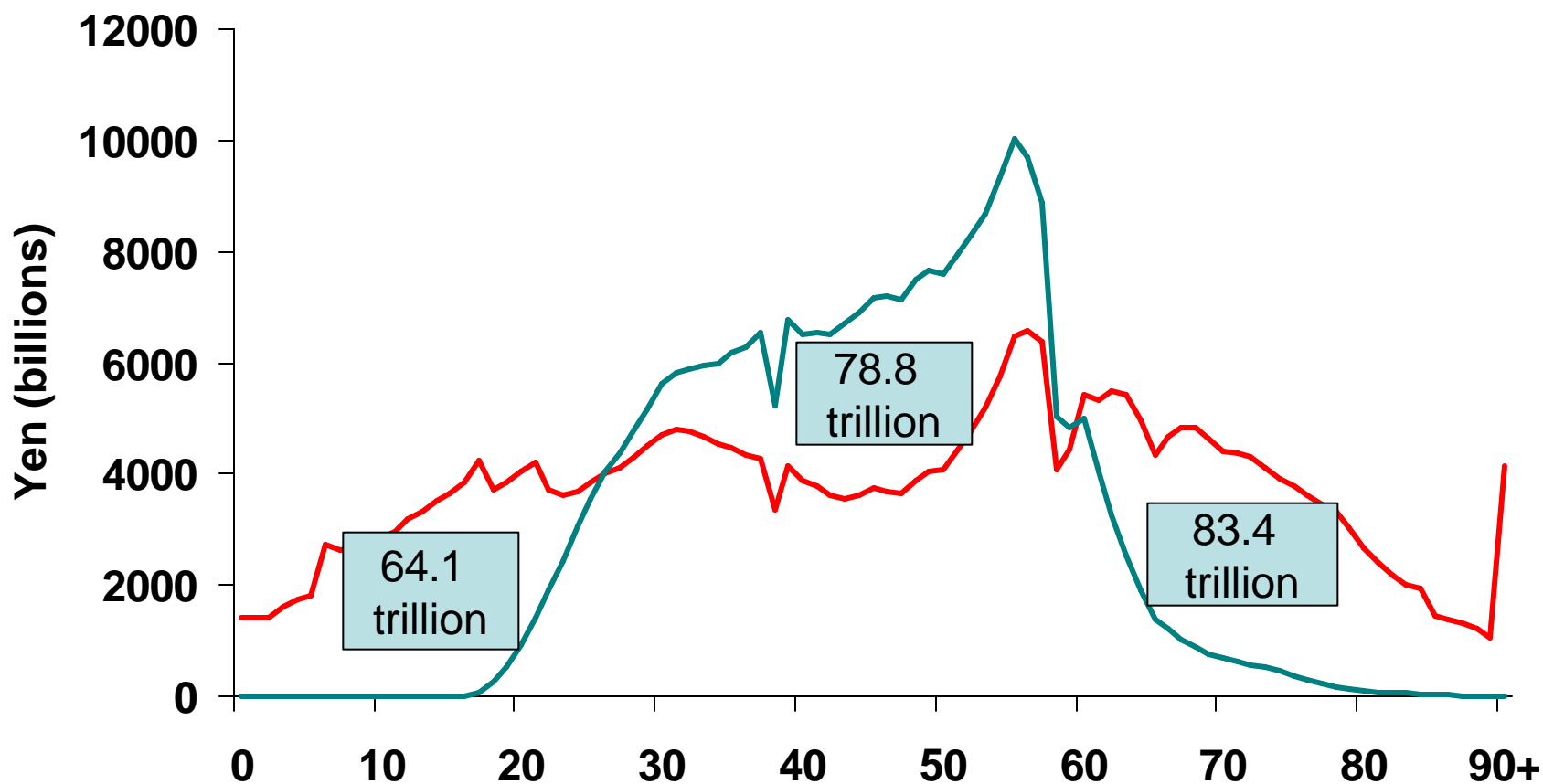


# Age Profiles of Labor Income and Consumption: averaged for Four Rich and Four Poor Countries (Relative to average labor income)



# Theory Meets Reality

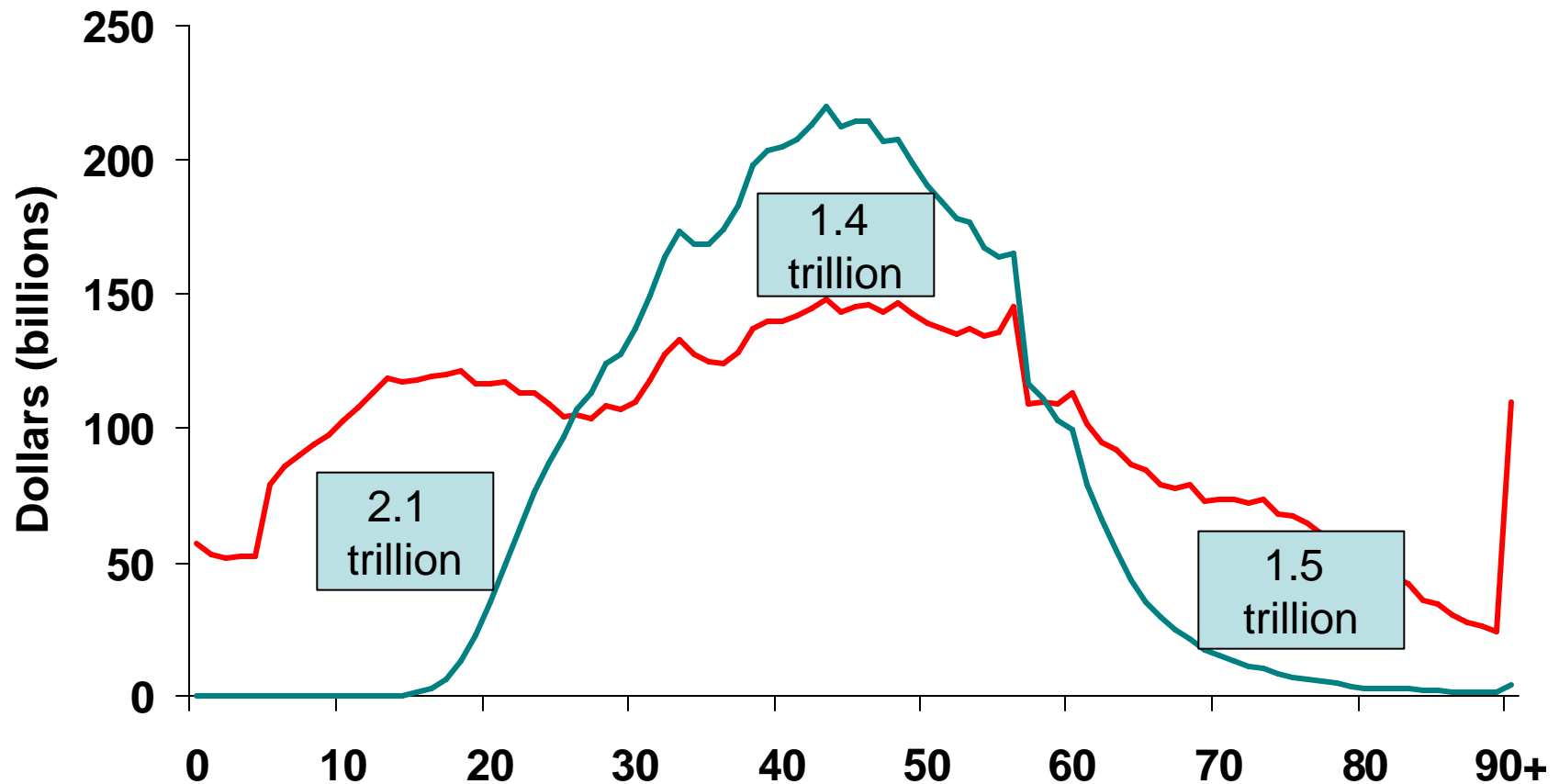
## Aggregate Economic Lifecycle, Japan, 2004



Source: Ogawa et al. 2008.

# Theory Meets Reality

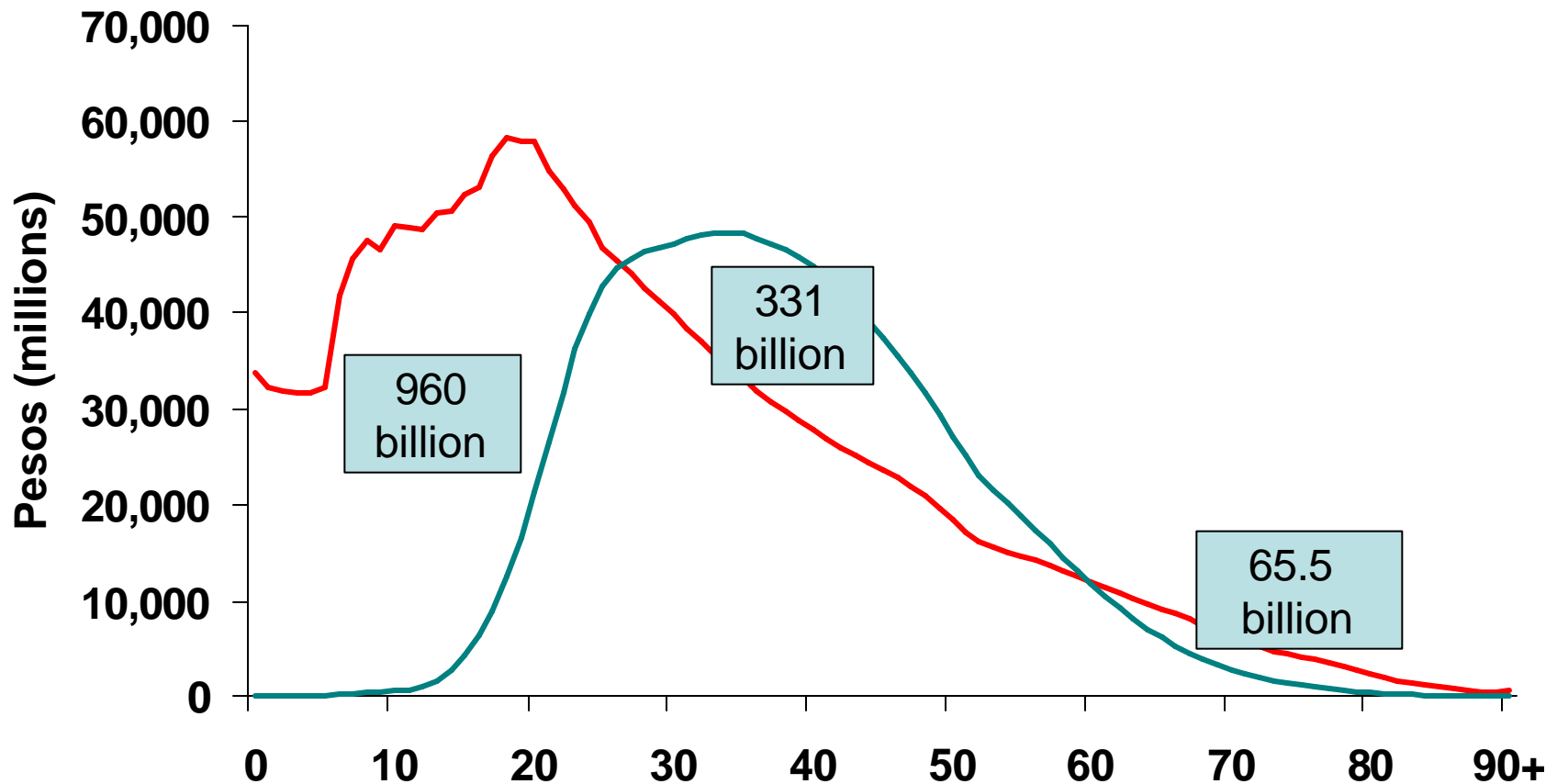
## Aggregate Economic Lifecycle, US, 2003



Source: Lee, et al. 2007; Lee, Mason, and Lee. 2008.

# Theory Meets Reality

## Aggregate Economic Lifecycle, Philippines, 1999

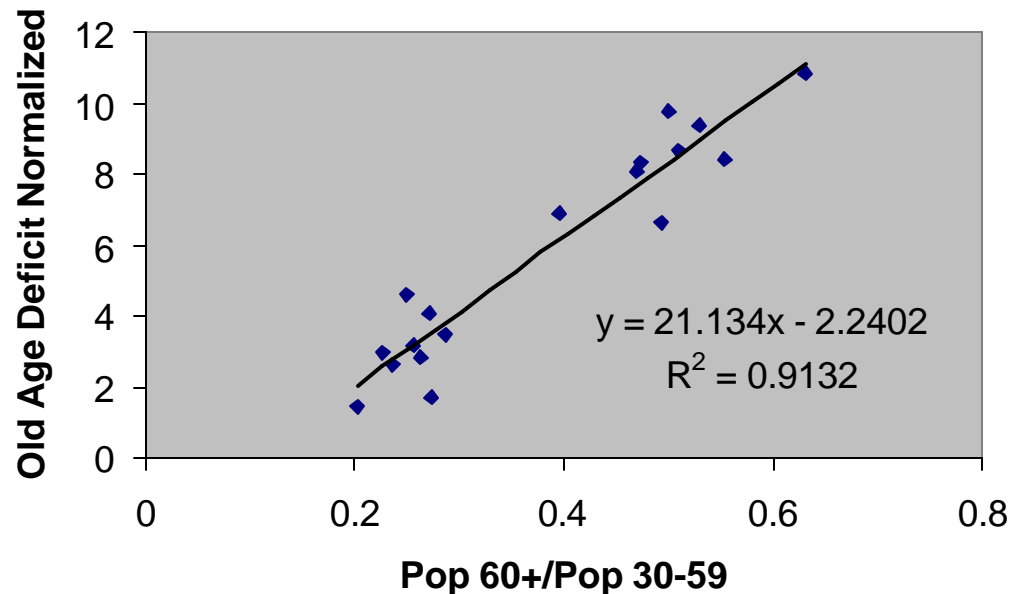


Source: Racelis and Salas. 2007.

# Two Striking Features of LC

- The lifecycle deficit of children is very large even in low fertility Japan
  - Quantity-quality tradeoff
  - Few children but high HK spending per child
  - Implications of large deficits discussed later
- Old age deficit is much greater in Japan and US as compared with Philippines
  - Age structure only?
  - Or are other factors important?

## Age Structure and Old Age Deficit



LCD normalized on aggregate labor income/35.

Estimated elasticity of 1.54

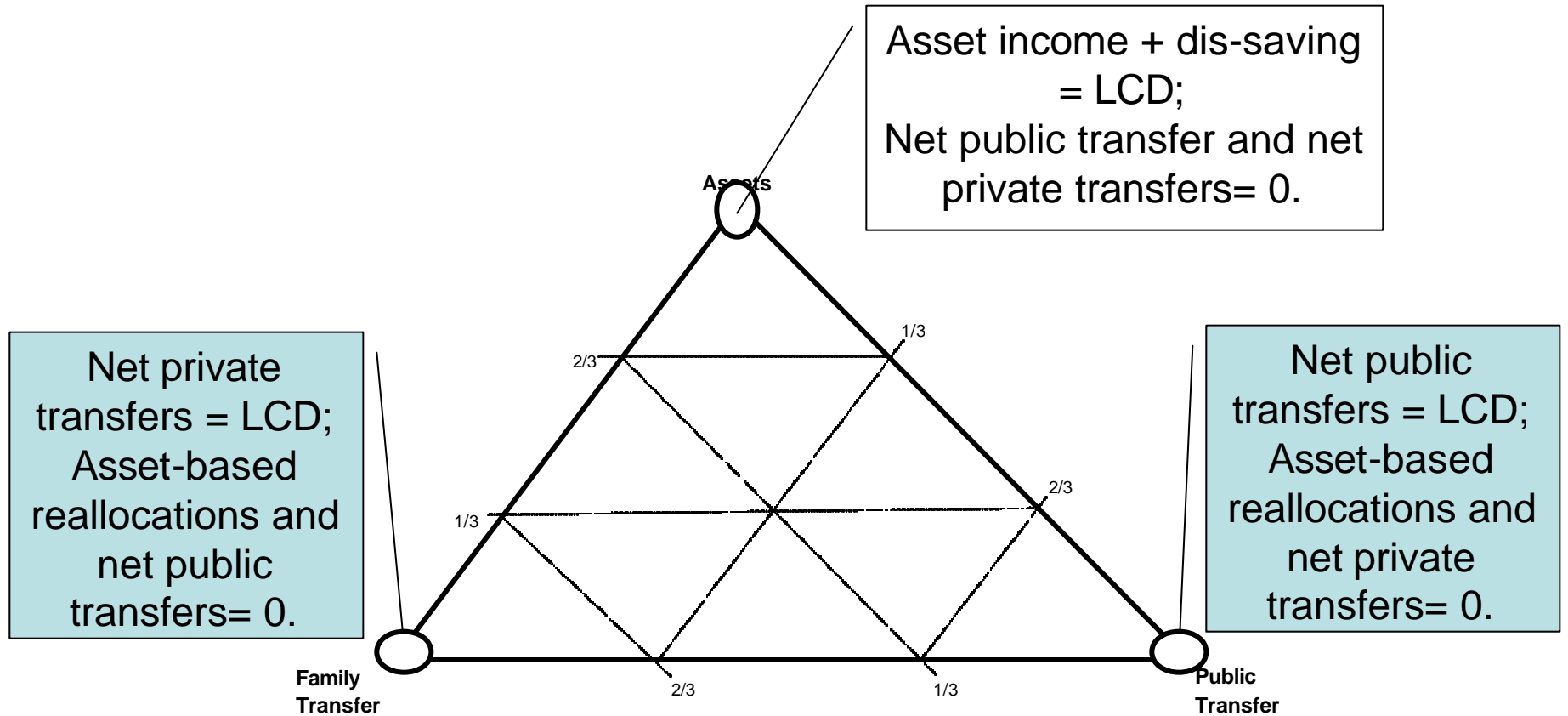
- Economy aging more rapidly than population.
- Many possible explanations, e.g.,
  - Increased demand for leisure
  - Increased demand for health care
  - Political power of elderly.

Whatever the reasons the demand for old-age reallocation systems is very substantial in old, mostly high-income countries.

# I. Role of Assets and Transfers in Old-age

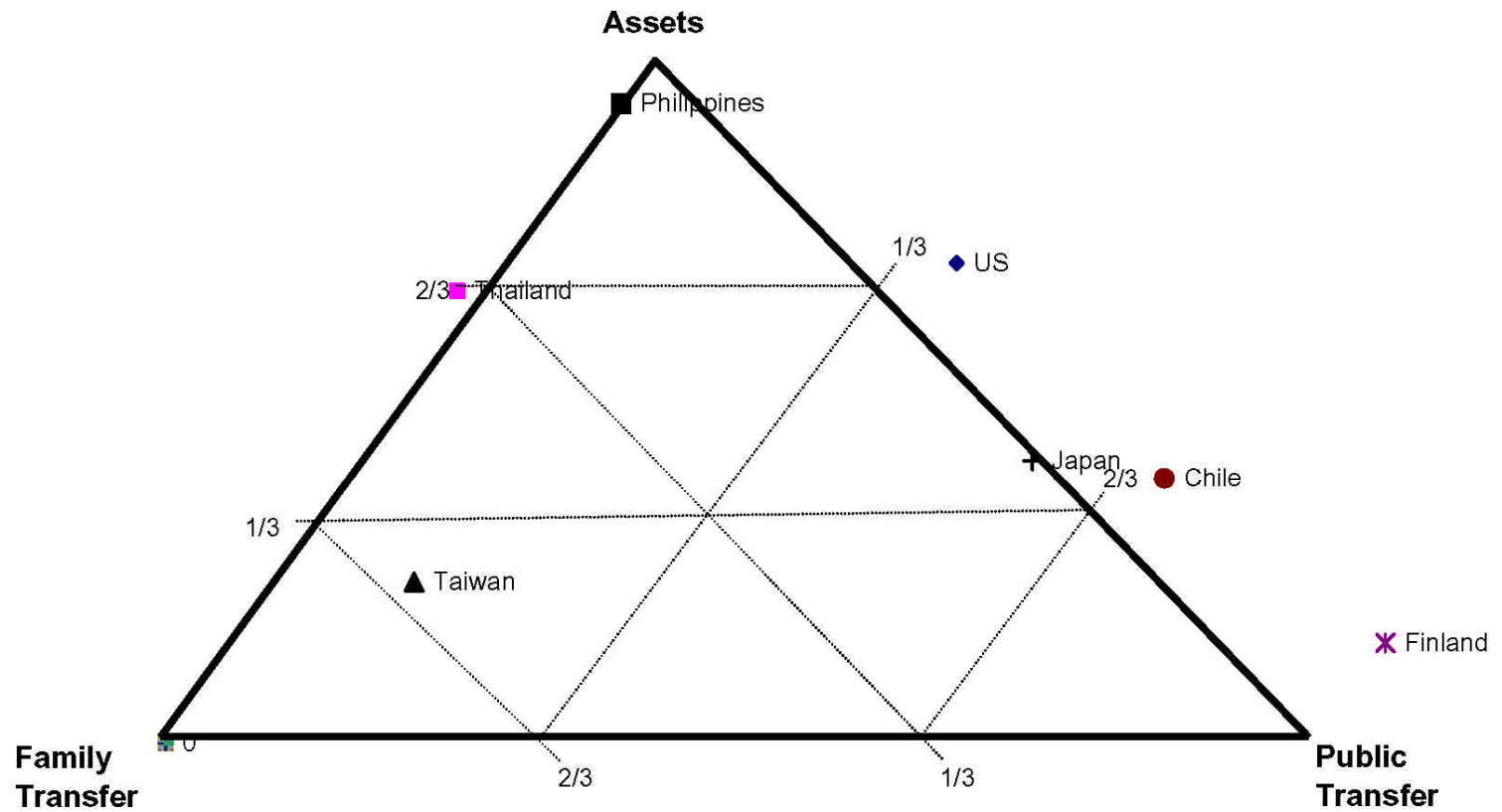


# Old-age Reallocation System, Three Components



# Old-age Reallocation Systems, Seven Countries, Recent Year

## Proportion of Old-age LC Deficit Funded by Assets and Transfers



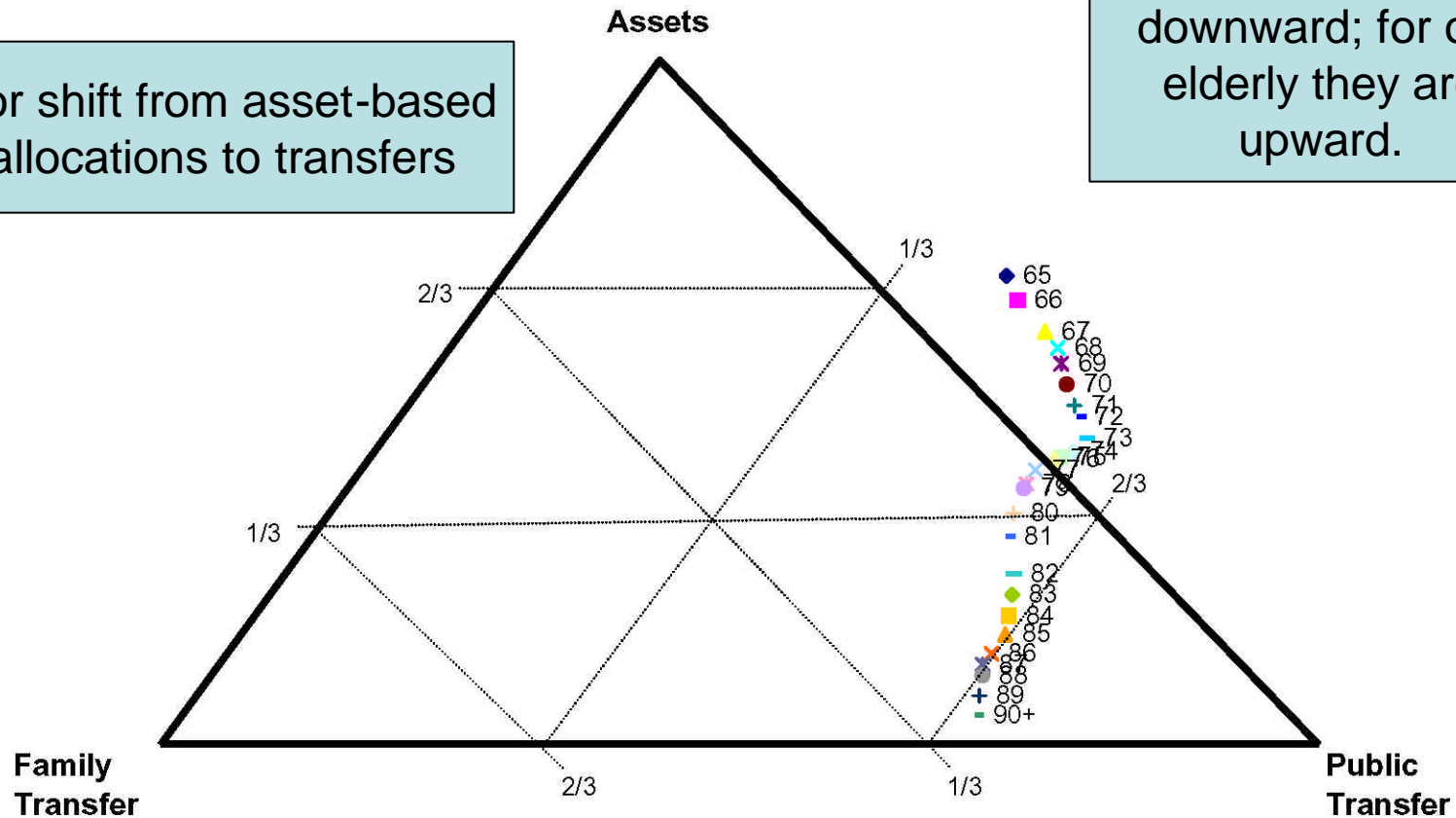
# Some Observations

- Public transfers and asset-based or private transfers and asset-based.
- Time series data (not presented) shows transition from public to private transfers in Taiwan and Japan.
- Extent to which countries rely on asset-based transfers doesn't correlate with aggregate saving rates.

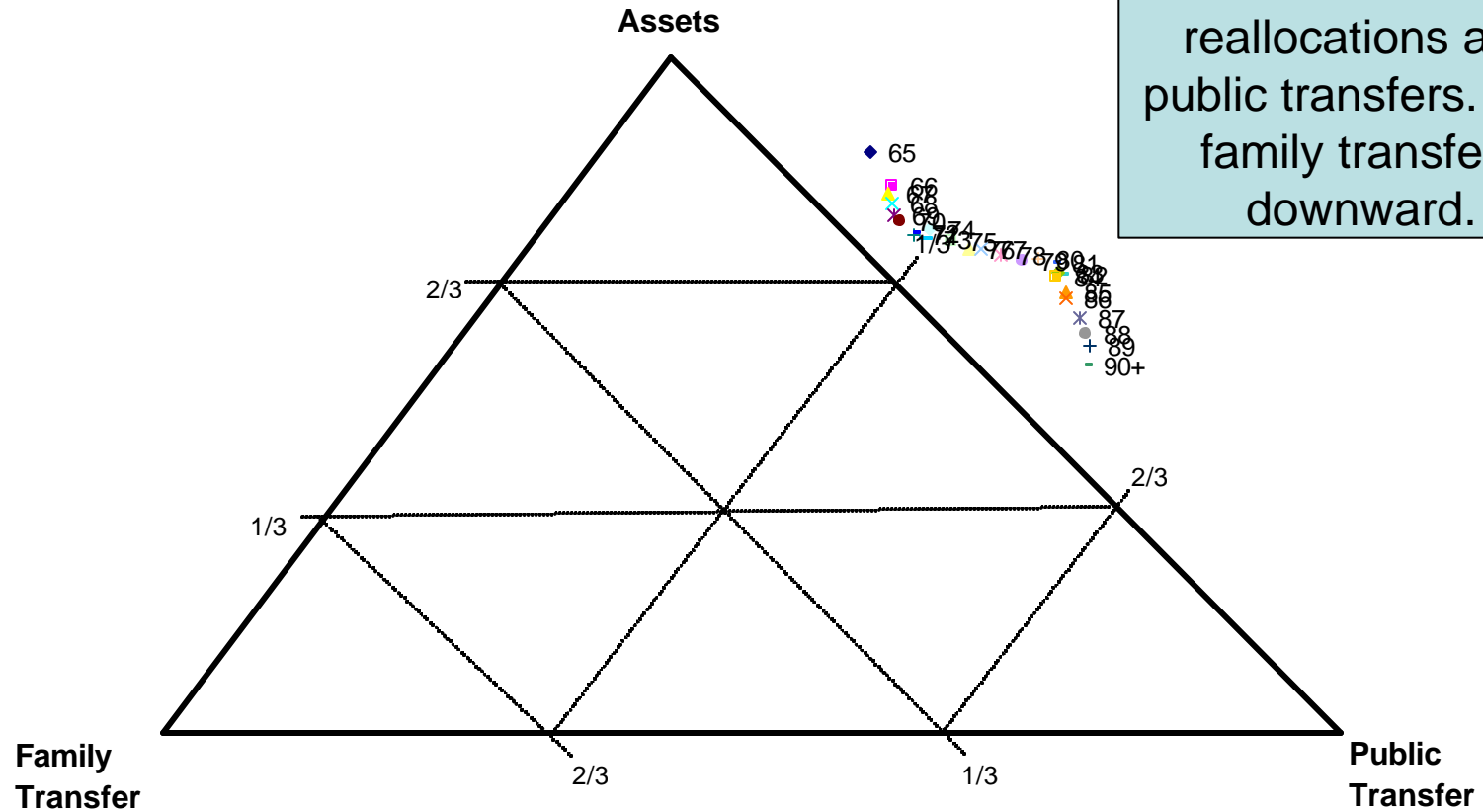
# Funding the Old-age Deficit Japan, 2004.

Major shift from asset-based reallocations to transfers

For young elderly familial transfers are downward; for old elderly they are upward.

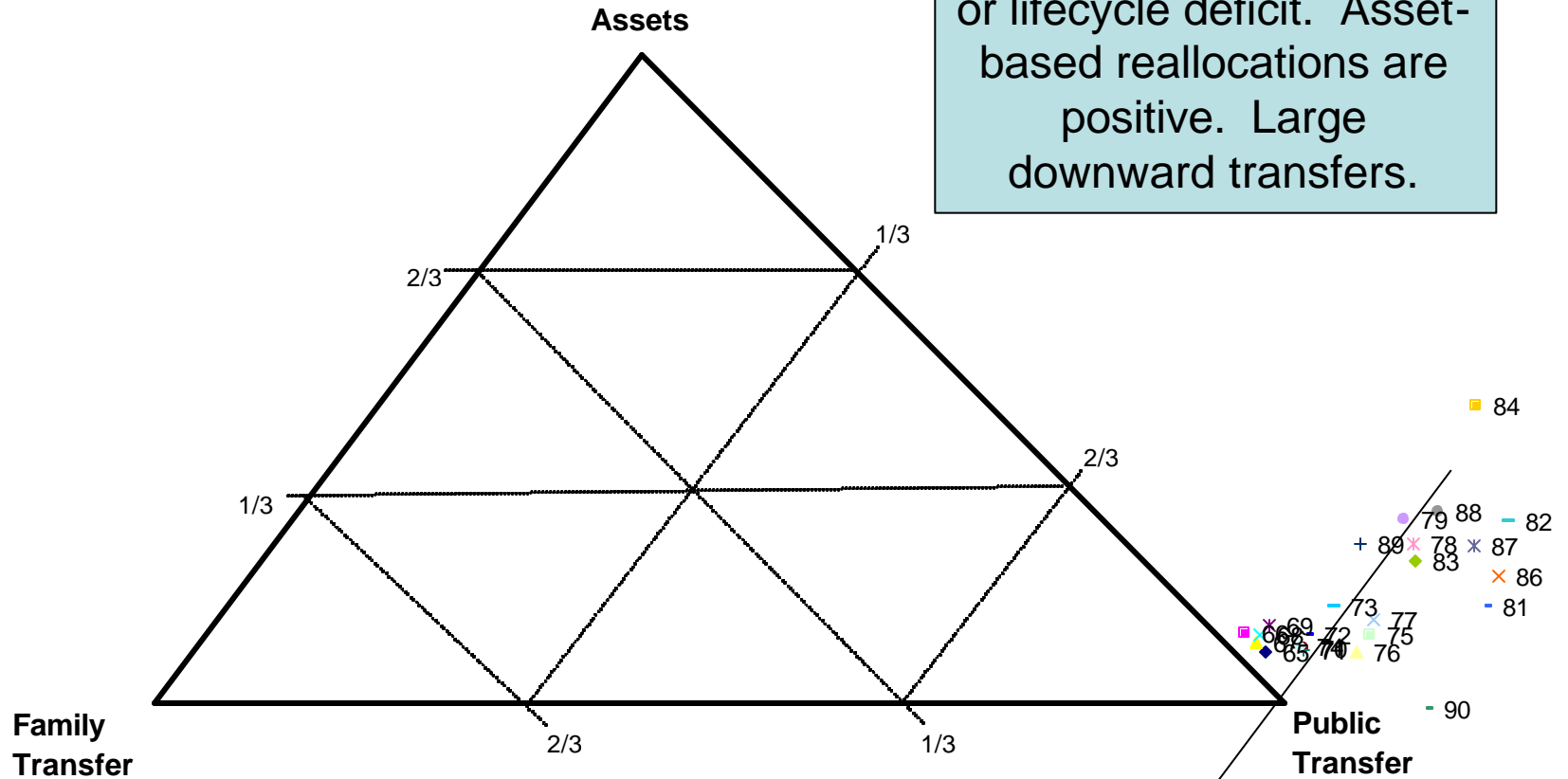


# Funding the Old-Age Deficit, United States, 2004



Source: Lee, Lee and Mason. 2008.

# Funding the Old-Age Deficit, Finland, 2004

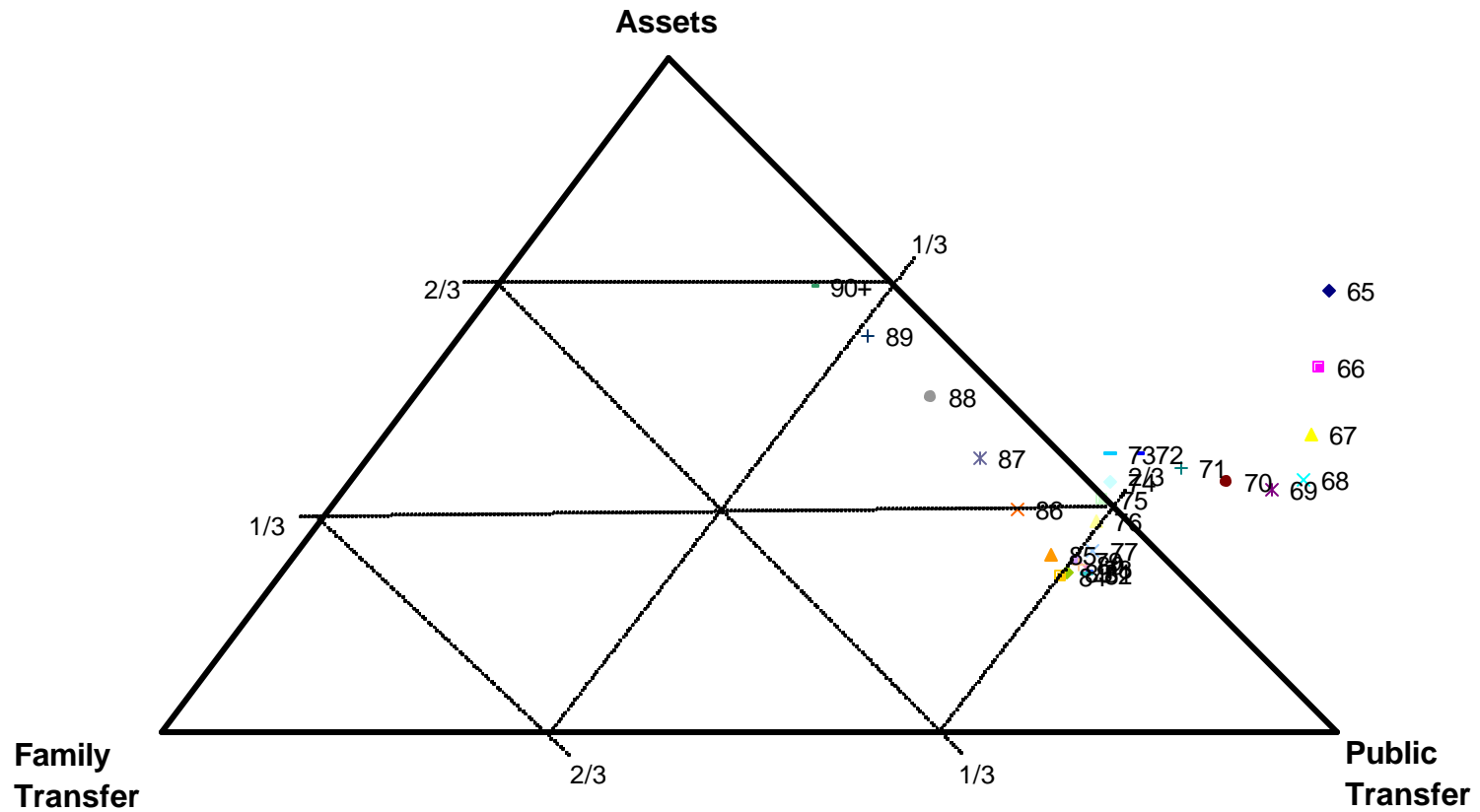


Net public transfers equal or lifecycle deficit. Asset-based reallocations are positive. Large downward transfers.

Source: Risto and Vanne. 2008.

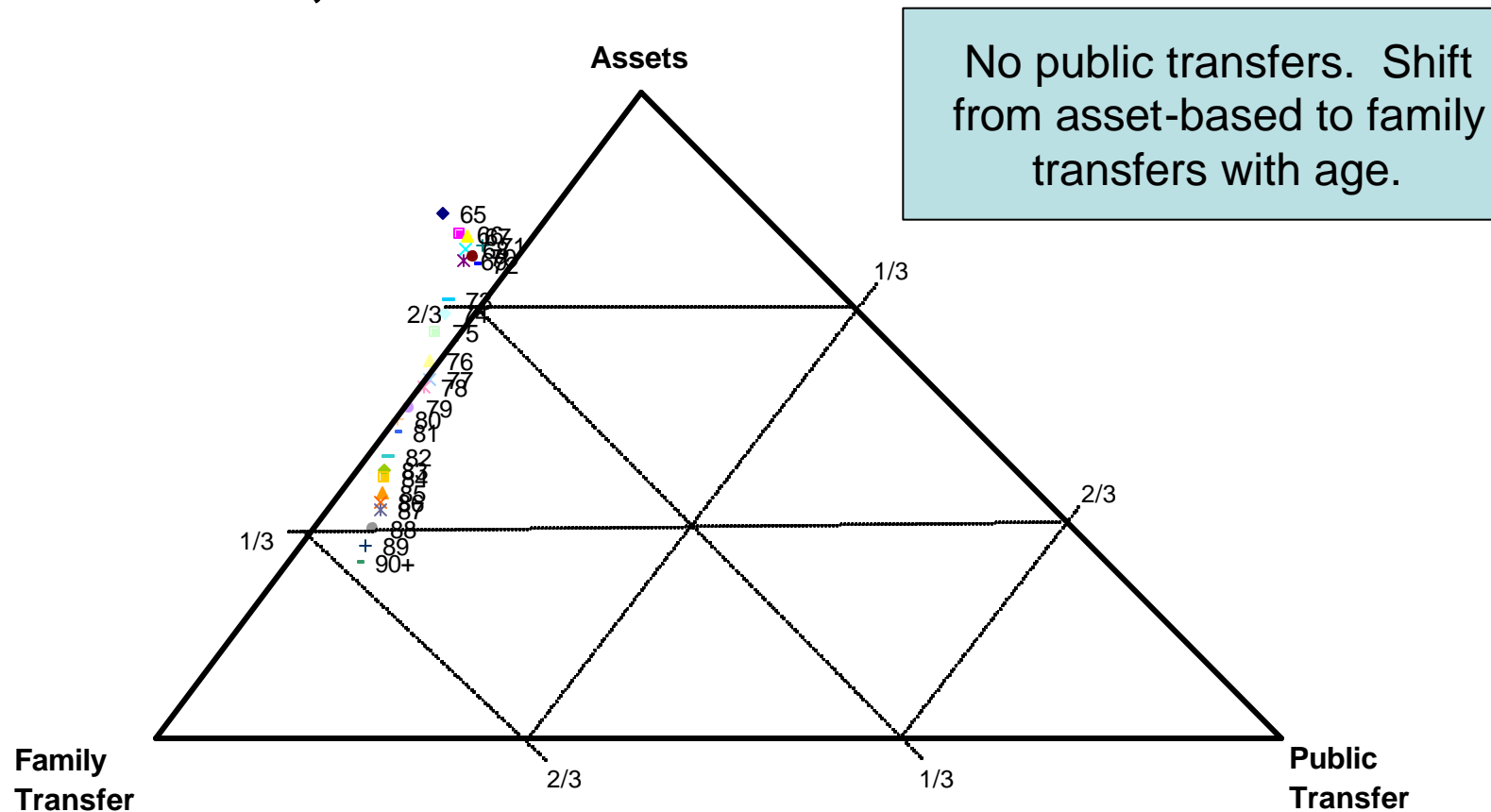
Net public transfers = LCD

# Funding the Old-Age Deficit, Chile, 1997



Source: Bravo and Holz. 2007

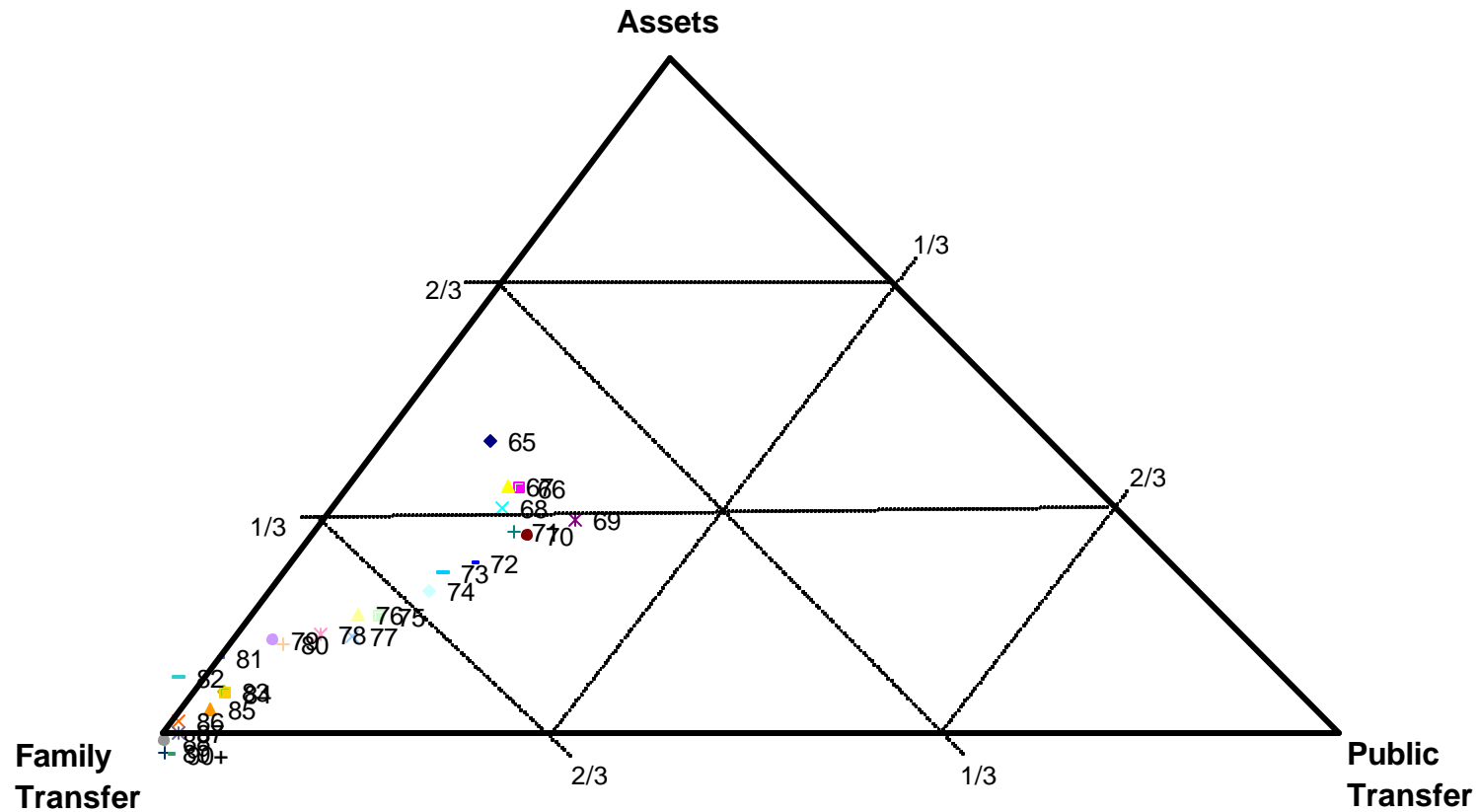
# Funding the Old-Age Deficit, Thailand, 2004



Source: Chawla. 2008.

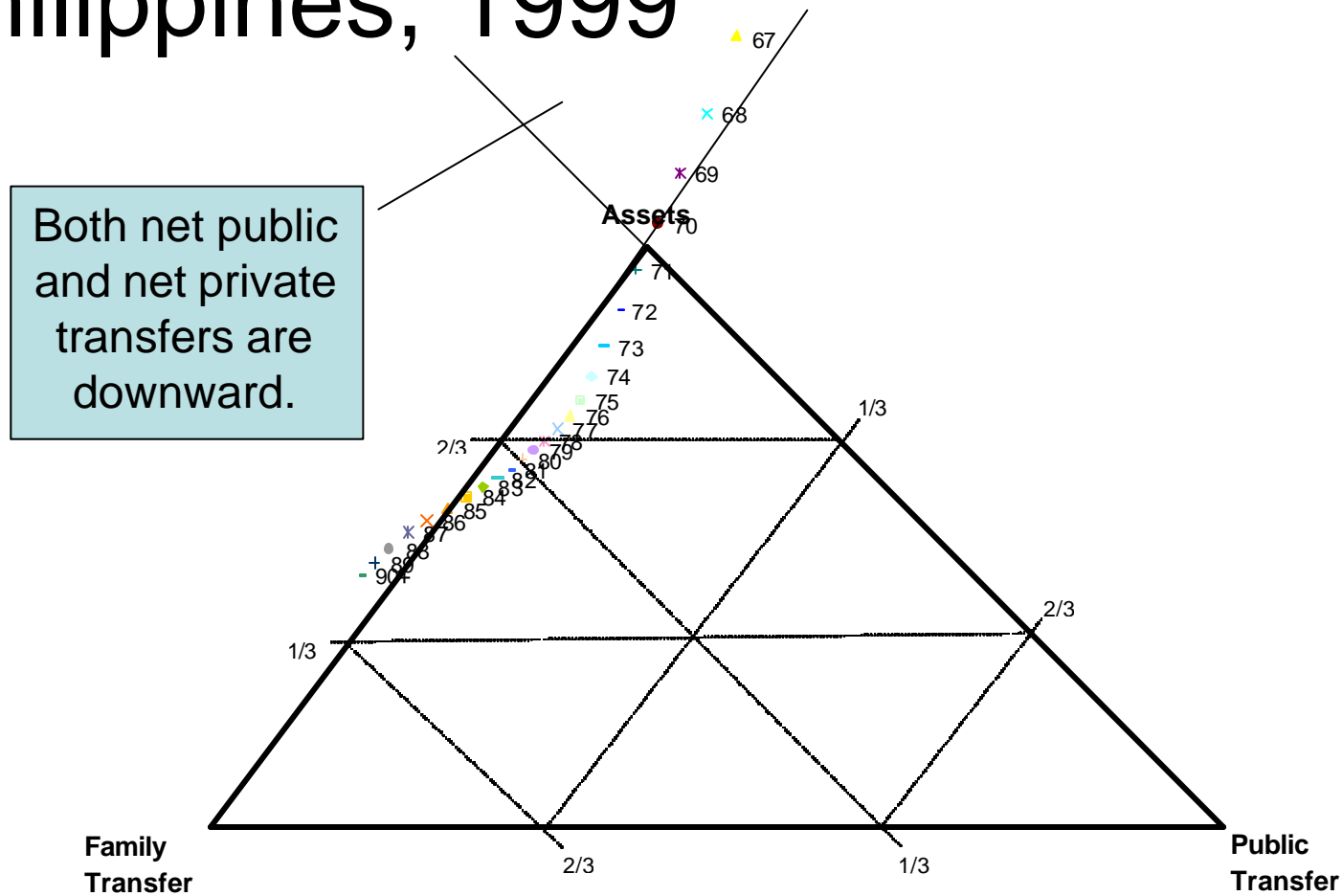


# Funding the Old-Age Deficit, Taiwan, 1998



Source: Mason et al., forthcoming. [www.ntaccounts.org](http://www.ntaccounts.org).

# Funding the Old-Age Deficit, Philippines, 1999



Source: Racelis and Salas. 2007.

# What might explain “shift” from assets to transfers with age?

- Myopia: Elderly are running out of assets.
- Poor annuity markets; transfer systems are insuring against longevity.
- Cohort effect, e.g., old people had lower lifetime earnings and, hence, fewer assets.
- Capital transfers; elderly are transferring assets to children and subsequently receiving compensating current transfers.

## II. Roles of transfers and asset-based reallocations in supporting children

- Direct support for children is overwhelmingly through public and private transfers
- In some countries direct support of child deficit realized through credit transactions. School loans are an example.
- Issue is the extent to which lifecycle deficit is funded indirectly through assets income or dis-saving (on the part of those making the transfers to children).
- An important piece of evidence was highlighted above – the child deficit exceeds the lc surplus in many countries.

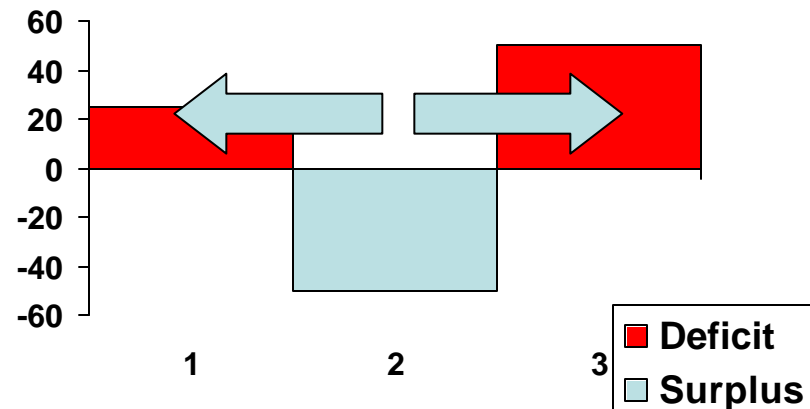
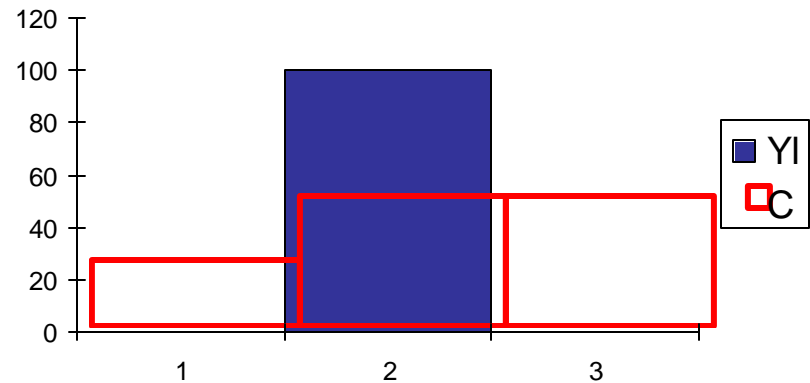


# OLG Perspective on Supporting Children

- Three generations (ages)
  - Children (1)
  - Workers (2)
  - Retirees (3)
- Steady-state
- Dynamic efficiency, but not golden rule

# Dynamic Efficiency, not Golden Rule, Low Childrearing Costs

- Aggregate consumption exceeds labor income
- Economy as a whole has a lifecycle deficit
- Return to capital exceeds to biological rate of interest  $n$ .
- Funded pensions yield a higher rate of return than paygo pensions.



# Intergenerational Flows: A: Lifecycle Saving

## Case A. Standard lifecycle

- Transfers from generation 2 fund consumption by children
- Remaining surplus is saved (asset-based outflow)
- Inflows to age 3 will exceed outflows from age 2 because  $r > n$ .



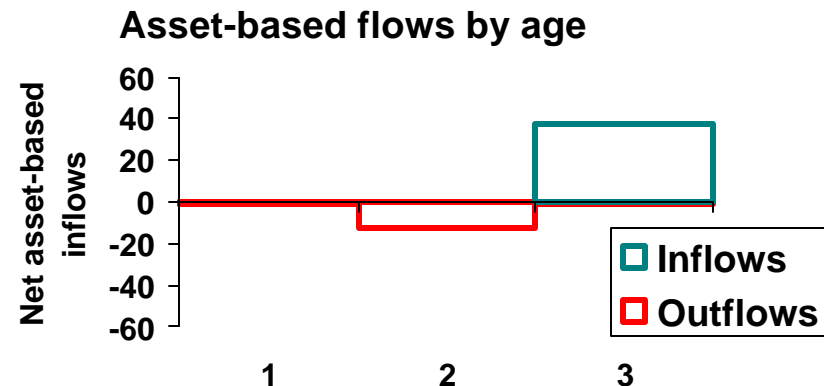
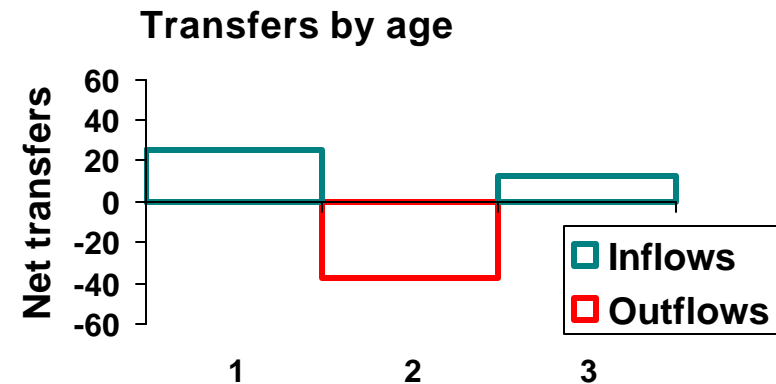


# Intergenerational Flows:

## B: Mixed Old-age Reallocations

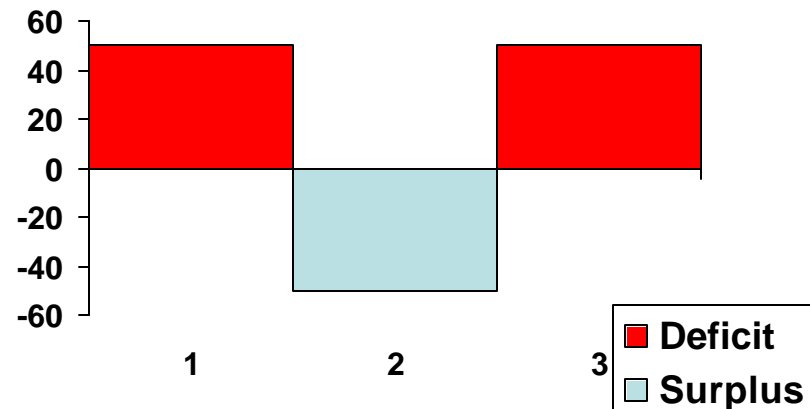
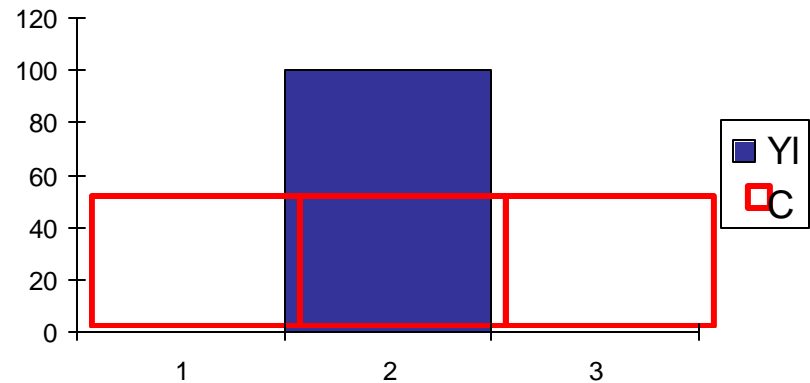
### Case B: Mixed reallocations

- Transfers from generation 2 fund consumption by children
- Remaining surplus divided between transfers to elderly and Ic saving
- Inflows to age 3 will equal transfers from generation 2 + asset-based flow.
- Consumption is lower because of reliance on transfers. Here shown as lower consumption for generation 3.



# Dynamic Efficiency, not Golden Rule, High Childrearing Costs

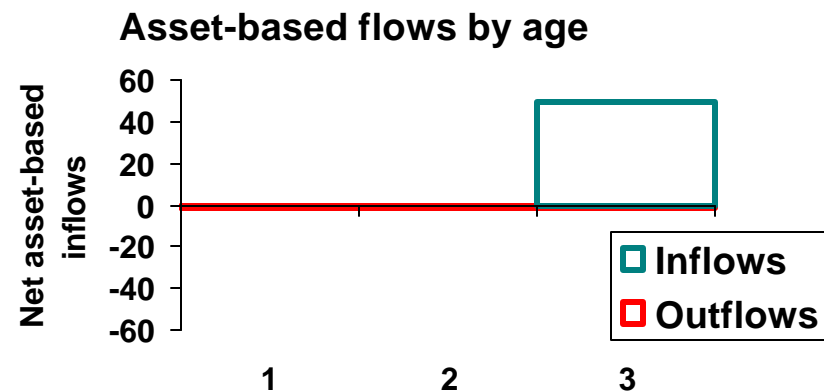
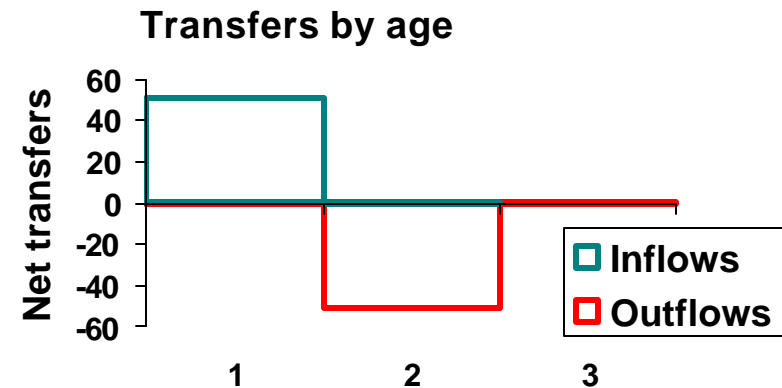
- Aggregate consumption exceeds labor income
- Economy as a whole has a lifecycle deficit
- Return to capital exceeds the biological rate of interest  $n$ .
- Funded pensions yield a higher rate of return than paygo pensions.



# Intergenerational Flows: Bequests

## Case A

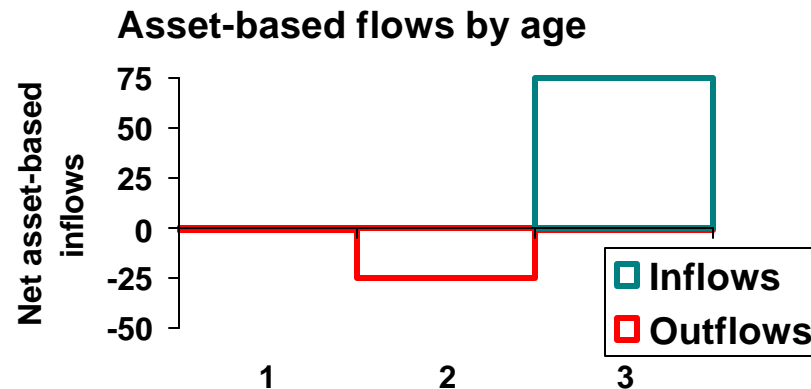
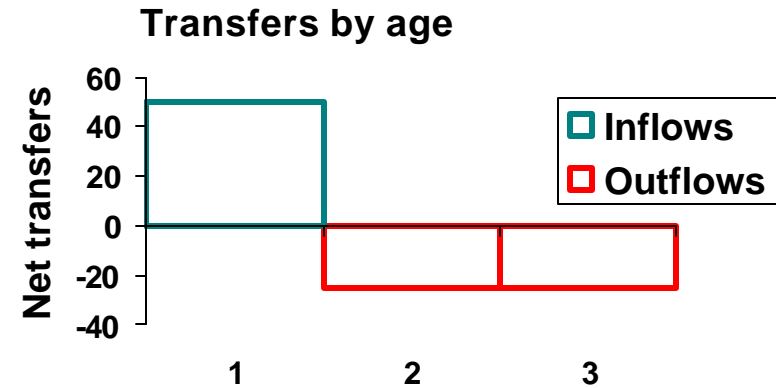
- Transfers from generation 2 fund consumption by children
- Given high level of child consumption, asset-based flows = 0 for generation 2.
- Thus,  $S(2) = YA(2)$ . However, if age group 2 only saves asset income, assets must be zero. Hence,  $S(2) = YA(2) = 0$ .
- Net asset-based flows are large and positive for age group 3.
- Not lifecycle assets
  - $A(3,t) = S(2,t-1) = 0$ .
- Age group 3 must have inherited assets from parents.



# Intergenerational Flows: Bequests and Multi-generational Support of Children

## Case B

- Transfers from generation 2 and 3 fund consumption by children
- Generation 2 saves a portion of its labor income (asset-based flows are negative)
- Assets for generation 3 consist of lifecycle assets and bequests.
- A portion of asset income received by generation 3 is consumed and a portion is transferred to grandchildren (or to parents who transfer to grandchildren).

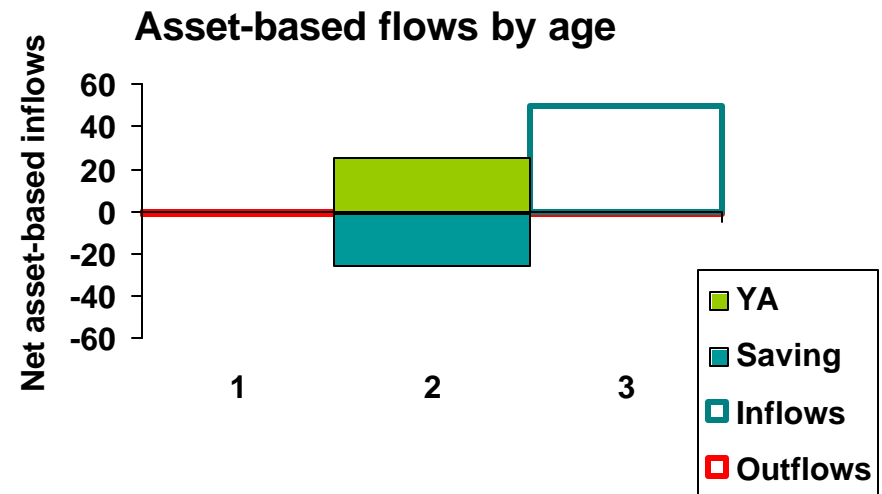
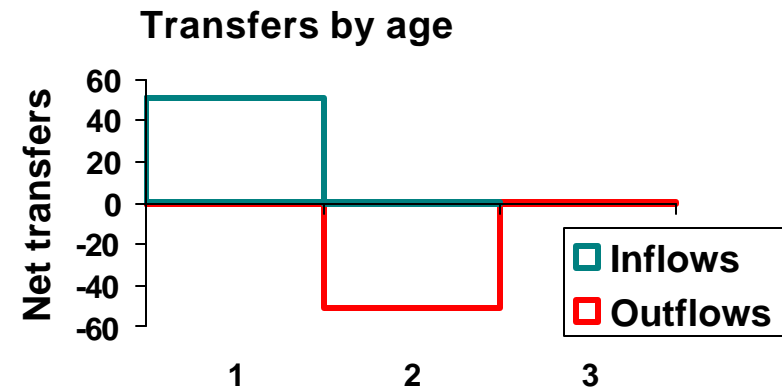


# Intergenerational Flows: *Inter vivos* Capital Transfers

## Case C

- Transfers from generation 2 fund consumption by children
- Generation 2 has capital transferred by generation 3.
- Asset income from capital transfer can be used to fund transfers to children, own consumption, or saving. Net effect in this case is that:  

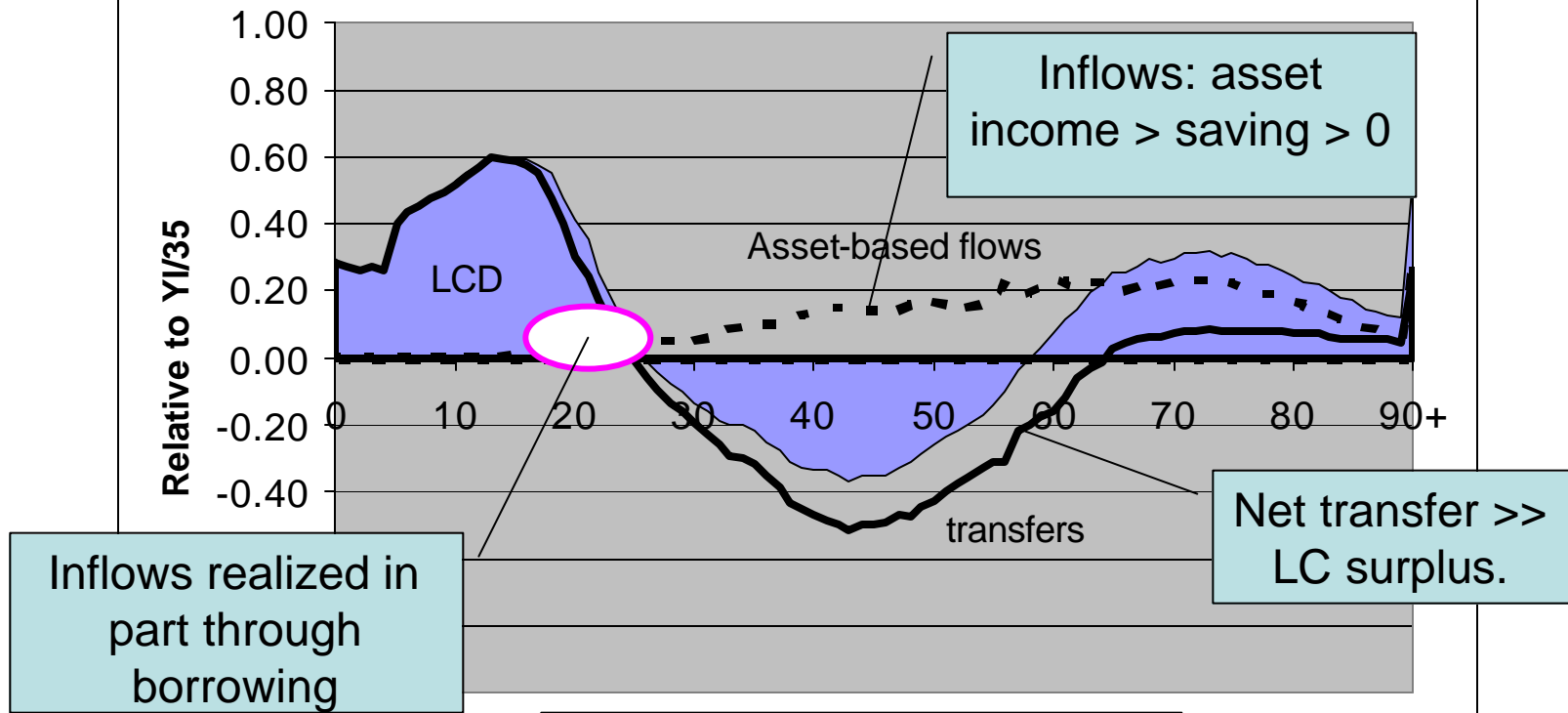
$$S(2) = YA(2) > 0$$
- Net asset-based flows and transfers are identical to Case A, but more detailed information would reveal the differences.



# Summary

- Assets must be indirectly funding consumption by children.
- Not just lifecycle assets, but existing assets that are transferred from one generation to the next.
- One plausible mechanism: grandparents receive bequests and rely on asset-income to fund transfers to their grandchildren.
- A second plausible mechanism: grandparents make capital transfers to the parents (at the time of marriage, for example). Parents rely on those transfers to support children.
- In the first case, bequests are the means by which intergenerational capital transfers are achieved.
- In the second case, *inter vivos* intergenerational capital transfers are important.

### LCD, Transfers, and Asset-based Flows, Normalized aggregate values, US 2003



Inflows: asset income > saving > 0

Inflows realized in part through borrowing

Net transfer >> LC surplus.

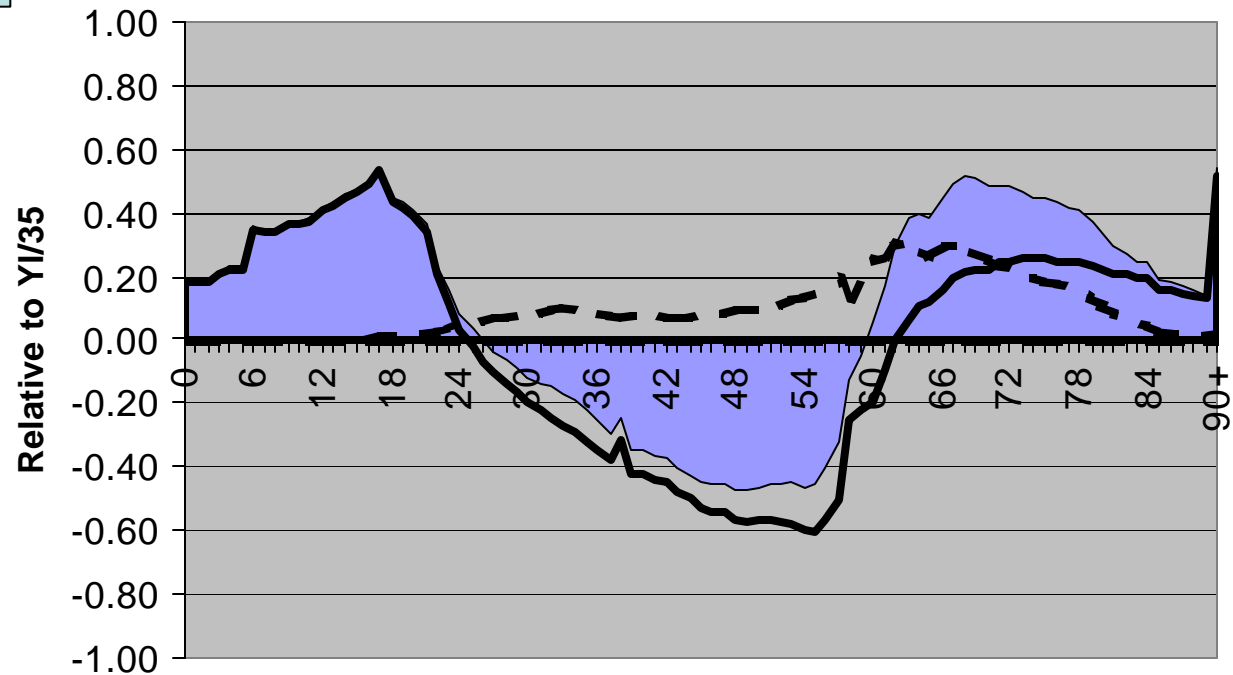
Important Point  
At no age is saving coming out of labor income.  
Always from asset income.

Source: Lee, Lee and Mason. 2008.

Credit not important  
for young

In other respects,  
the picture is  
similar to the US.

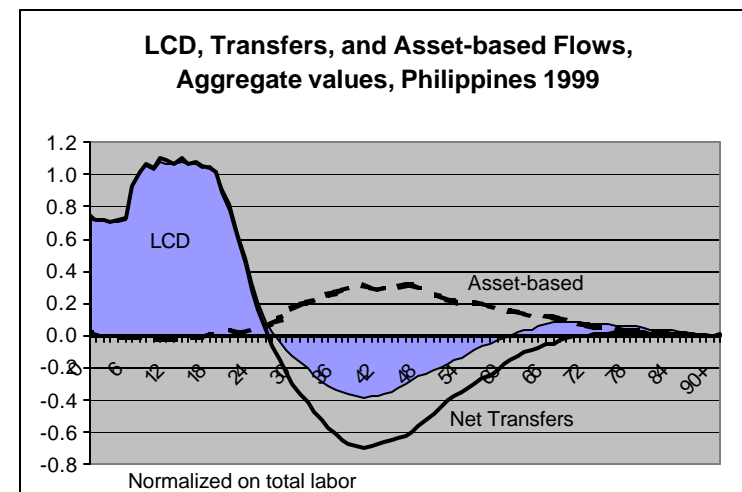
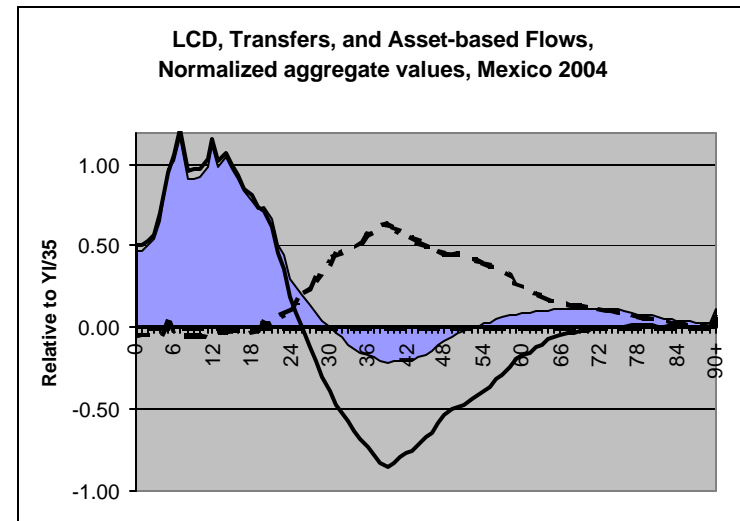
**LCD, Transfers, and Asset-based Flows,  
Normalized aggregate values, Japan 2004**



Source: Ogawa et al. 2008.

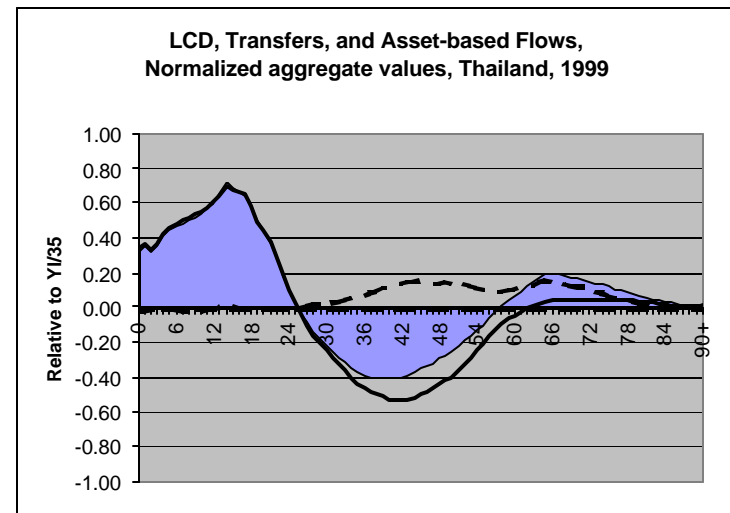
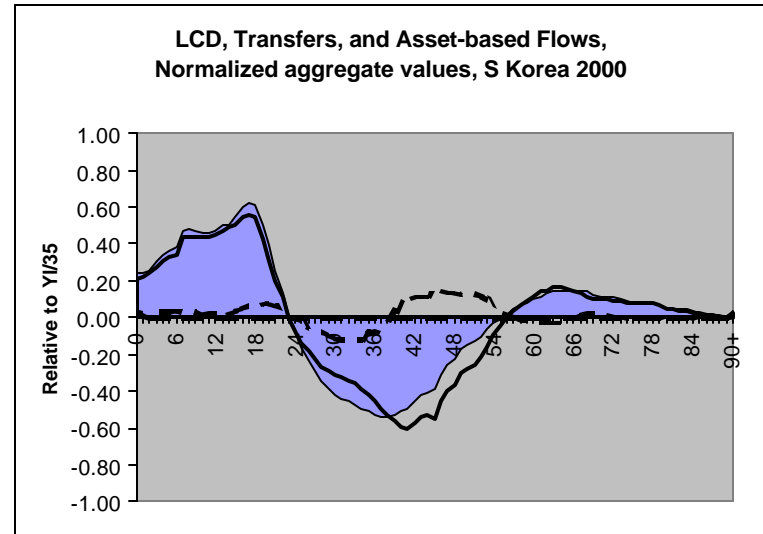


- Mexico and the Philippines have very large LCDs for children
- Net transfers for adults far greater than lifecycle surplus
- Asset-based flows are large positive



Source: Mejia-Guevara. 2008; Racelis and Salas. 2007.

- S Korea and Thailand have similar LCDs for children seniors.
- Thailand reallocation system similar to other countries.
- Surplus is relative large in S Korea
- S Korea has asset-based outflows (saving > asset income) for young adults – unusual.



Source: [www.ntaccounts.org](http://www.ntaccounts.org); Chawla. 2008

# Significance

- Rethink the economic lifecycle, the importance of flows to children, and implications for accumulation and intergenerational equity.
- Emphasis on bequests vis-à-vis lifecycle saving may be misplaced. *Inter vivos* intergenerational capital transfers may be much more important than realized.
- Impact of financial crisis may not be concentrated on retirees. Effect on children may be much more important than realized.

# Words of Caution

- Estimates are preliminary and subject to revision.
- Estimates are totals or per capita values.
- Typical behavior (as judged by the median for example) may be very different.
- Aggregates conceal an enormous amount of heterogeneity.

# References

Bravo, Jorge and Mauricio Holz (2007) "Inter-age transfers in Chile 1997: economic significance". Paper presented at the Conference on "Asia's Dependency Transition: Intergenerational Transfers, Economic Growth, and Public Policy", Tokyo, Japan, 1-3 November, 2007.

Chawla, Amonthep (2008) "Macroeconomic Aspects of Demographic Changes and Intergenerational Transfers in Thailand." Ph.D. dissertation submitted to the University of Hawaii at Manoa.

Lee, Ronald, Sang-Hyop Lee, and Andrew Mason (2007) "Charting the Economic Life Cycle," in Population Aging, Human Capital Accumulation, and Productivity Growth, Alexia Prskawetz, David E. Bloom, and Wolfgang Lutz, eds., a supplement to Population and Development Review vol. 33. (New York: Population Council).

Mason, Andrew, Ronald Lee, An-Chi Tung, Mun Sim Lai, and Tim Miller (forthcoming) "Population Aging and Intergenerational Transfers: Introducing Age into National Income Accounts," Developments in the Economics of Aging edited by David Wise (National Bureau of Economic Research: University of Chicago Press).

Ogawa, Naohiro, Andrew Mason, Amonthep Chawla, and Rikiya Matsukura (2008) "Japan's Unprecedented Aging and Changing Intergenerational Transfers". NTA Working Paper

Racelis, Rachel H. and J.M. Ian S. Salas. "Measuring Economic Lifecycle and Flows Across Population Age Groups: Data and Methods in the Application of the National Transfer Accounts (NTA) in the Philippines." Makati City: Philippine Institute for Development Studies, Discussion Paper Series No. 2007-12, October 2007.

Vaithinen Risto and Reijo Vanne (2008) Intergenerational Transfers and Life-Cycle Consumption in Finland, Finnish Centre for Pensions Working Papers 2008:6.