Asset-based Reallocations: Concepts and Estimates

Mason, Ogawa, Chawla, and Matsakura

Outline

- What do economic models imply about asset-based reallocation patterns?
  - Lifecycle saving
  - Bequest saving
  - Downward asset-based reallocations
  - Other considerations
- NTA concepts, definitions, and assumptions
- Evidence: Total and Private (no public)
  - Stylized facts
  - Consistency or inconsistency with theory

An Observation

- NTA provides cross-sectional information (pseudo-cohort data if repeated cross-sections are available; not in this paper).
- In most AR theory, the cohort is fundamental.
- Simple models (steady-state and/or golden rule assumptions) facilitate drawing cross-sectional implications from cohort models.
- Make inferences about AR theory based on observed cross-sectional patterns is very difficult and requires considerable caution.

Asset-based Reallocations Defined

- Asset-based reallocations are defined as the net flows to each age that arise from the existence of assets including debt.
- Inflows consist of asset income and dis-saving.
- Outflows consist of saving and negative asset income, e.g., interest expense.

Theory

- Purpose is to illustrate relationship between some economic models and NTA flows including asset-based reallocations.
- Rely on two steady-state models
  - 3 period OLG model
  - Model w/ detailed age profiles based on Taiwan NTA
- Theories
  - Lifecycle model w/ child transfers
  - Lifecycle model w/ transfers to children and elderly
  - Retirement funded by bequests
  - Costly children: asset-based funding of transfers

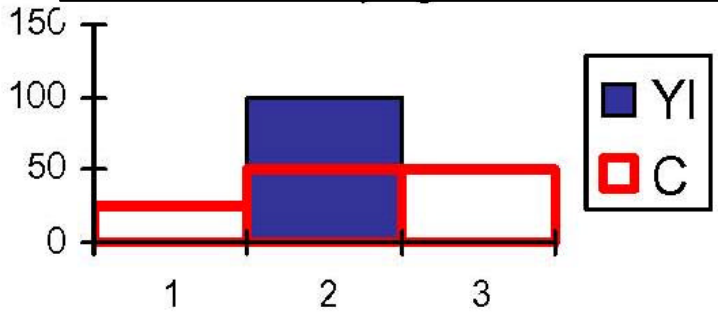
Simple OLG Model

- Three generations (ages)
  - Children (1)
  - Workers (2)
  - Retirees (3)
- Steady-state
- Dynamic efficiency, but not golden rule
- Hence, aggregate consumption exceeds labor income.
- Return to capital exceeds population growth rate n plus productivity growth.

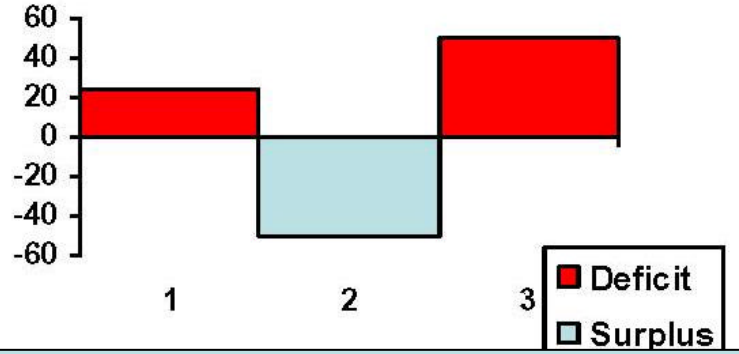
Model with Age Detail

- Steady state, dynamically efficient
- Detailed consumption and labor income profiles based on Taiwan NTA estimates
- Transfers to the elderly (where relevant) adjusted to deal with population aging (Taiwan's steady state population is much older than its current population)
- "Split the difference" method to determine transfers to elderly.

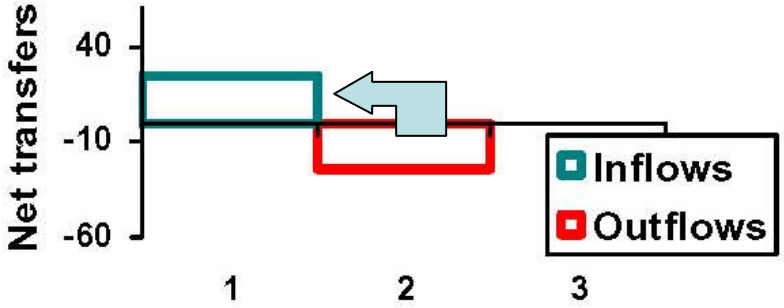
Economic Lifecycle: Consumption and labor income



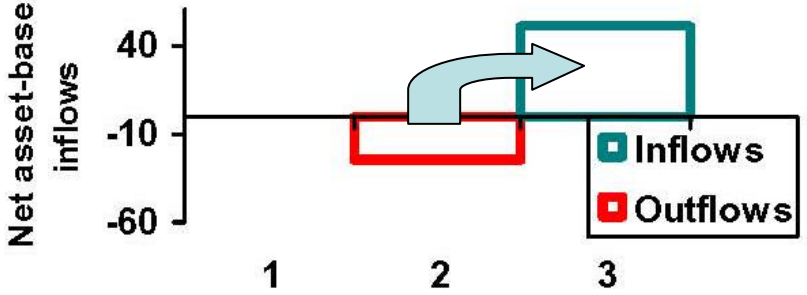
Lifecycle deficit: Consumption – Labor Income



Transfers from workers fund child deficit



Asset-based reallocations fund old age deficit



Aggregate Flows.
Retirement funded entirely by life cycle saving.

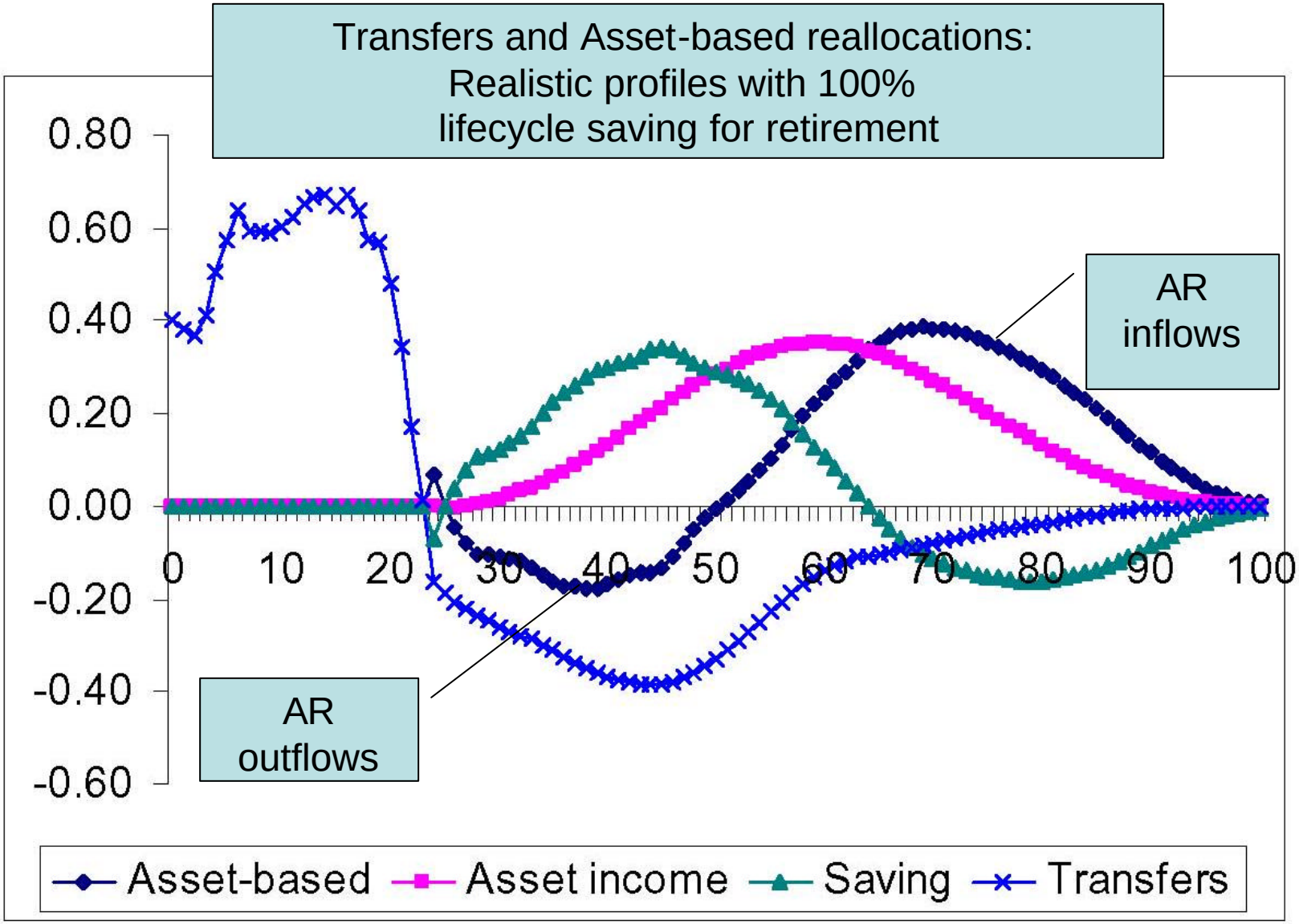


Figure 2. Asset-based reallocations for the lifecycle model, downward transfers to children, no upward transfers, economic lifecycle and transfer estimates based on NTA for Taiwan 1998.

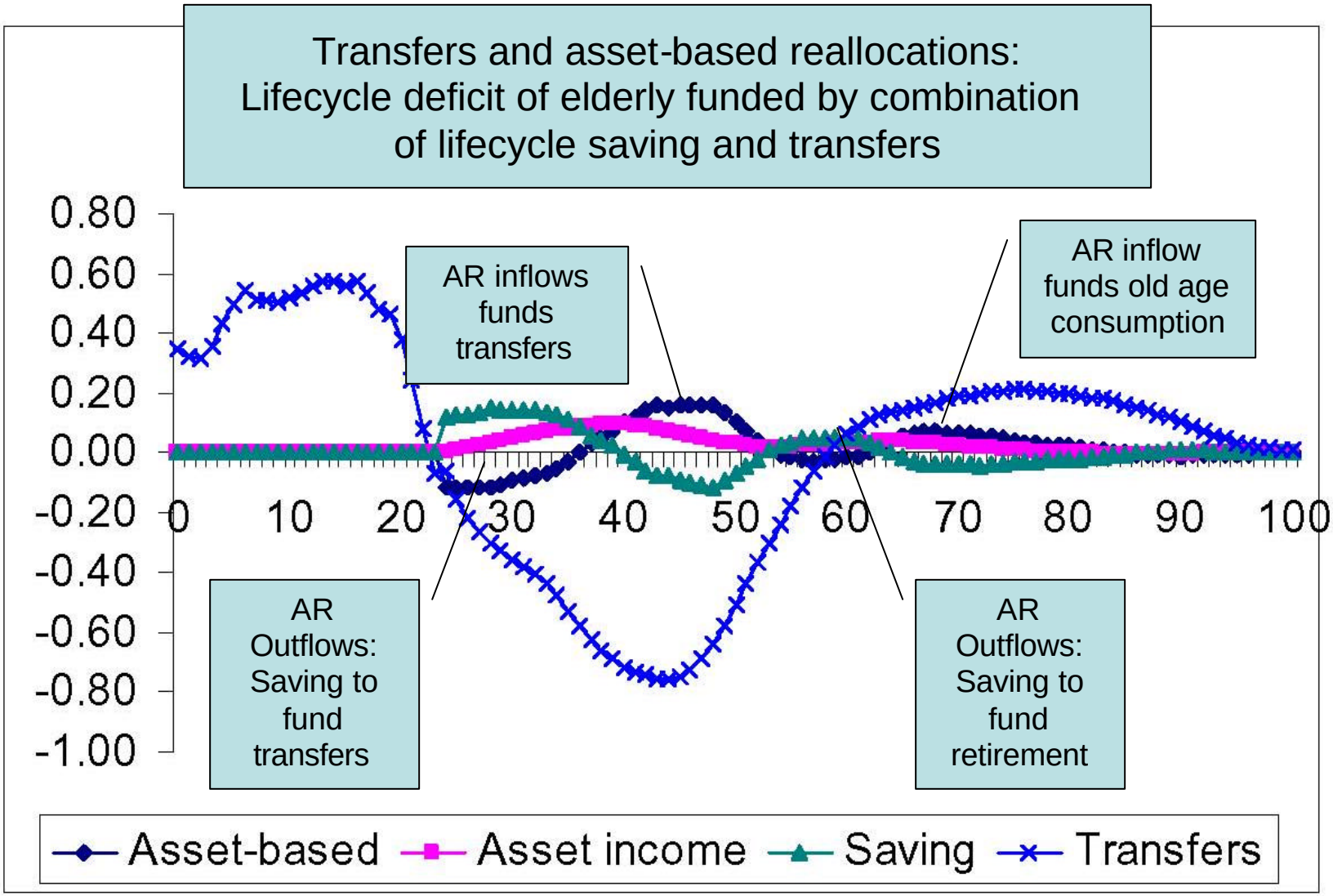
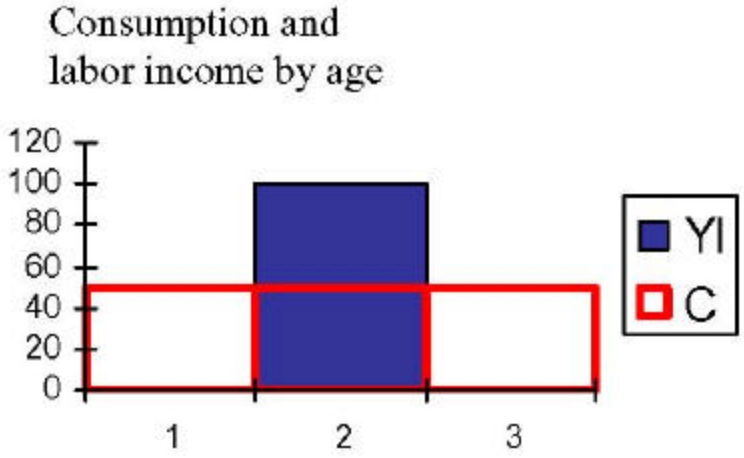
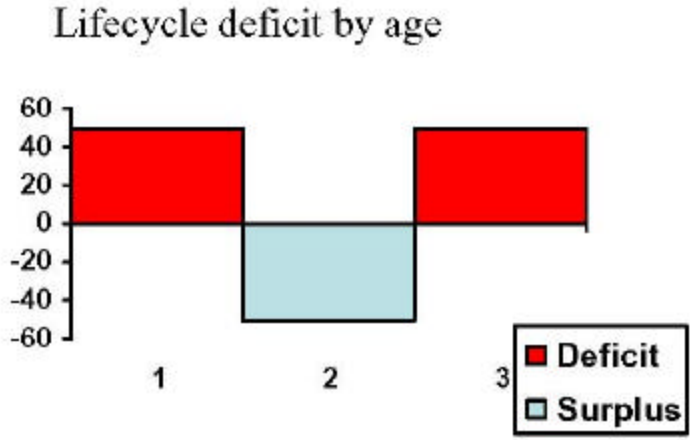
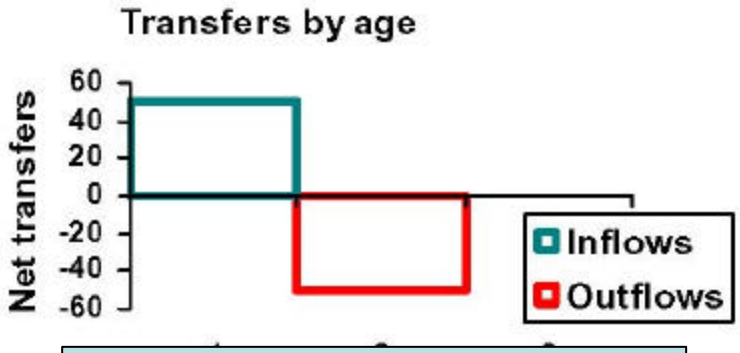


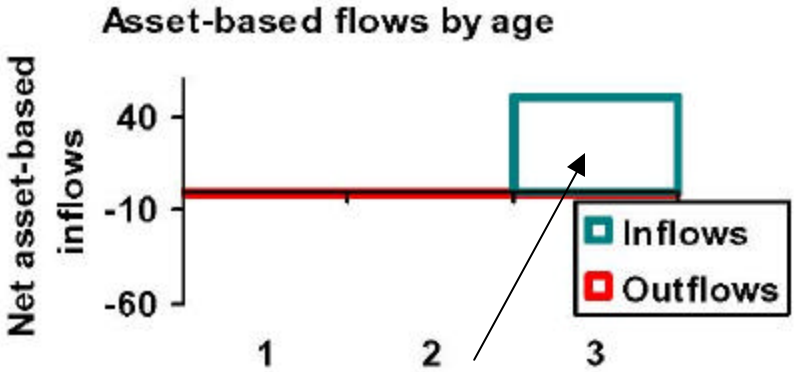
Figure 3. Asset-based reallocations for the lifecycle model, downward and upward transfers allowed, economic lifecycle and transfer estimates based on NTA for Taiwan 1998.

Costly Children:
Retirement funded by bequests









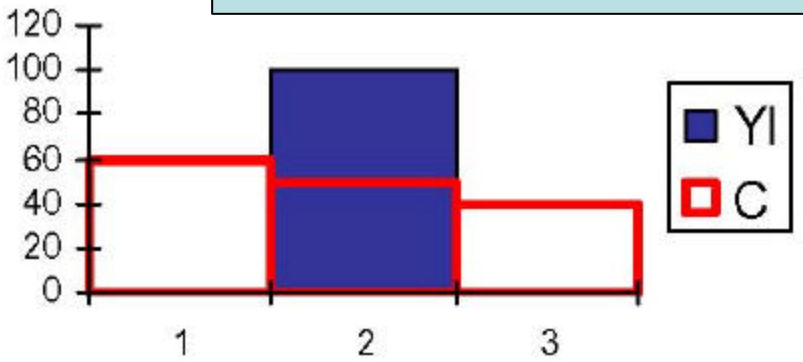
Entire surplus is transferred to children in this example.

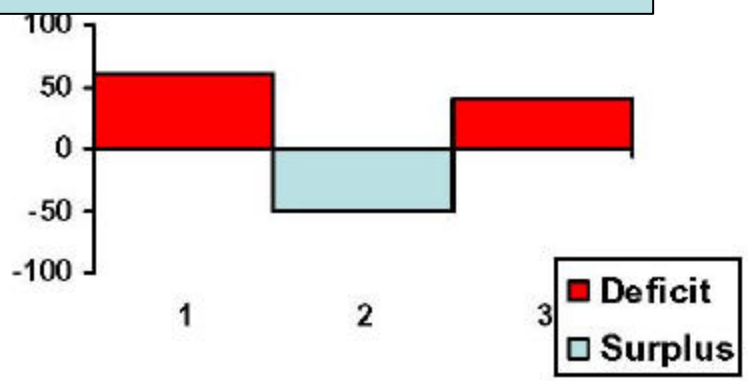
Asset income from bequests funds retirement; some asset income saved.

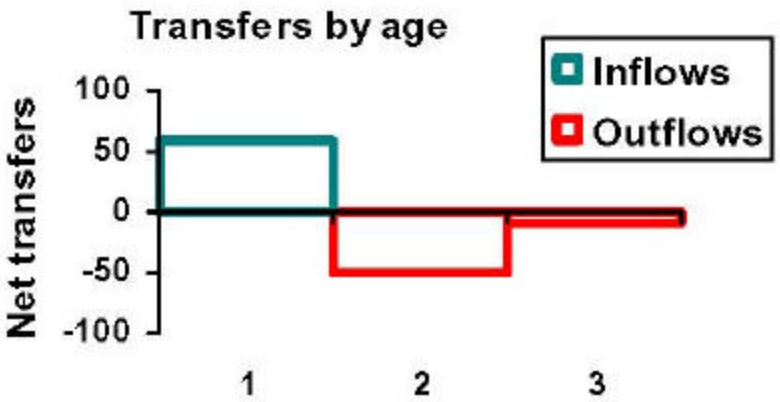
Figure 4. NT Flows for a 3 Generation OLG M
Costs. Asset Income from Bequests Fund Reti

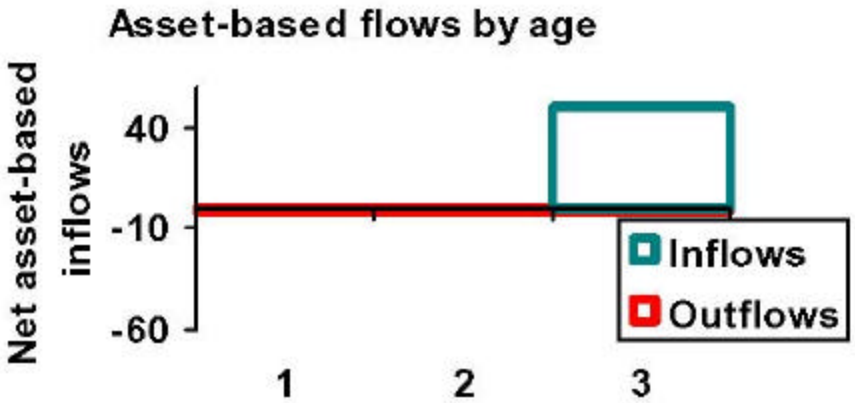
Consur
labor ir

Very Costly Children:
Funded by transfers and indirectly by bequests







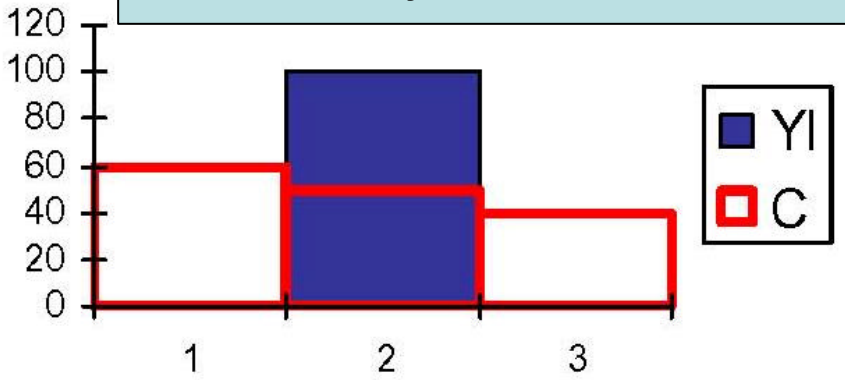


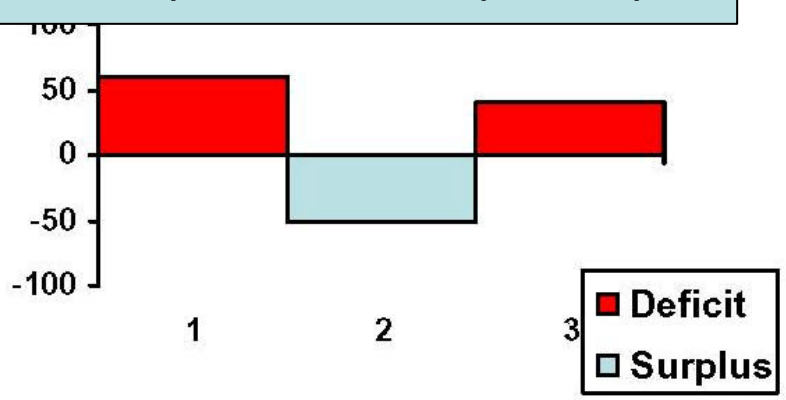
Transfers to children by parents and grandparents

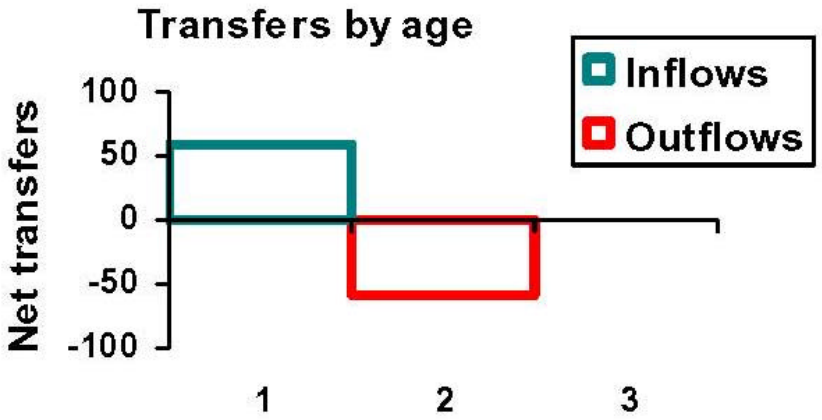
Asset income from bequests funds old age consumption and transfers from elderly to children

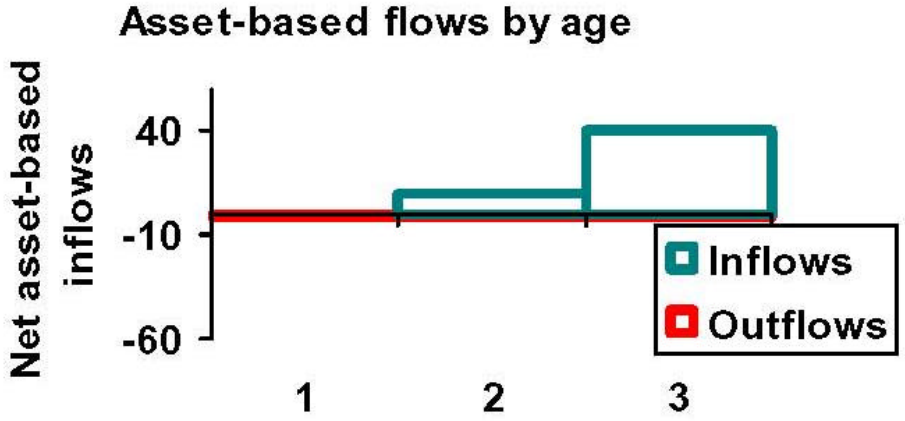
Figure 5. NT Flows for a 3 Generation OLG M
Childrearing Costs. Asset Income from Bequests Fund Retirement and Indirectly Some Child Costs.

Very Costly Children:
Funded by transfers and indirectly from capital transfers (or debt)









Transfers to children from Parents (G2) exceed Ic surplus

AR inflows to parents (G2) fund transfers
- AR inflows could be debt
- AR inflows could be income on capital transfers

Figure 6. NT Flows for a 3 Generation OLG M
Childrearing Costs. Asset Income from Capit
Retirement and Indirectly Some Child Costs.

Summary

- Lifecycle model
  - AR outflows during working ages
  - AR inflows during retirement ages
  - With realistic IG transfers lifecycle patterns may by more complex
- Bequests
  - AR inflows during retirement ages, but not necessarily any AR outflows during working ages.
- Costly children
  - Assets may indirectly fund the cost of children
  - AR inflows to parents

II. NTA Methods (very briefly)

NT Flow Constraint:

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

Labor income + asset income + transfer inflows =

consumption + saving + transfer outflows

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

Components of Asset-based Reallocations

- Public and private asset-based reallocations are estimated
- Asset income includes
  - Operating surplus of corporations and households
  - Capital's share of mixed income
  - Property income, e.g., interest, dividends, rent
- Saving is net national saving

Age allocation

- Public assets-based flows are assigned by age using the “general” tax profile
  - Public asset income (and expense) and public saving is assigned to each group in proportion to their share of the tax bill.
- Private asset-based flows are assigned to the head of the household
  - Asset income assigned using age profiles of household asset income.
  - Private saving is the balancing item (residual).
  - Asset income and expense and saving and dis-saving are assigned to the head.
  - Many well-known problems associated with this approach.

Problems

- Misclassification of head: Principle earner in most surveys rather than principle asset-owner.
- Comparability: Different surveys use different headship definitions.
- Assumes away saving and asset income by more than one household member.
- Capital transfers accompany change in headship designation whether appropriate or not.
- Selectivity problems: decline in assets may lead to household mergers or changes in headship designation.

III. NTA Estimates

- Combined asset-based reallocations (available for more countries)
- Private asset-based reallocations (available for a few countries)
  - Asset income
  - Saving

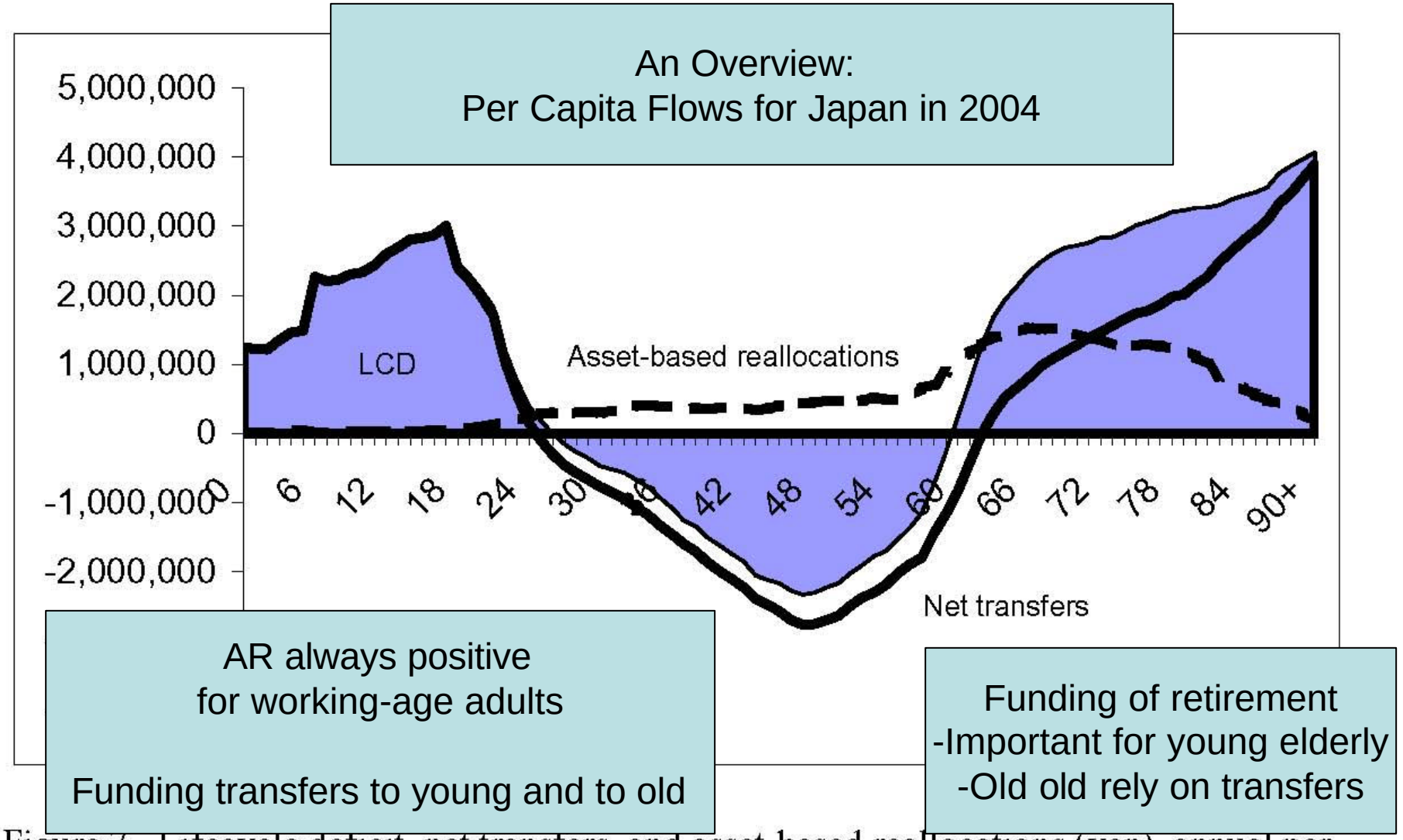
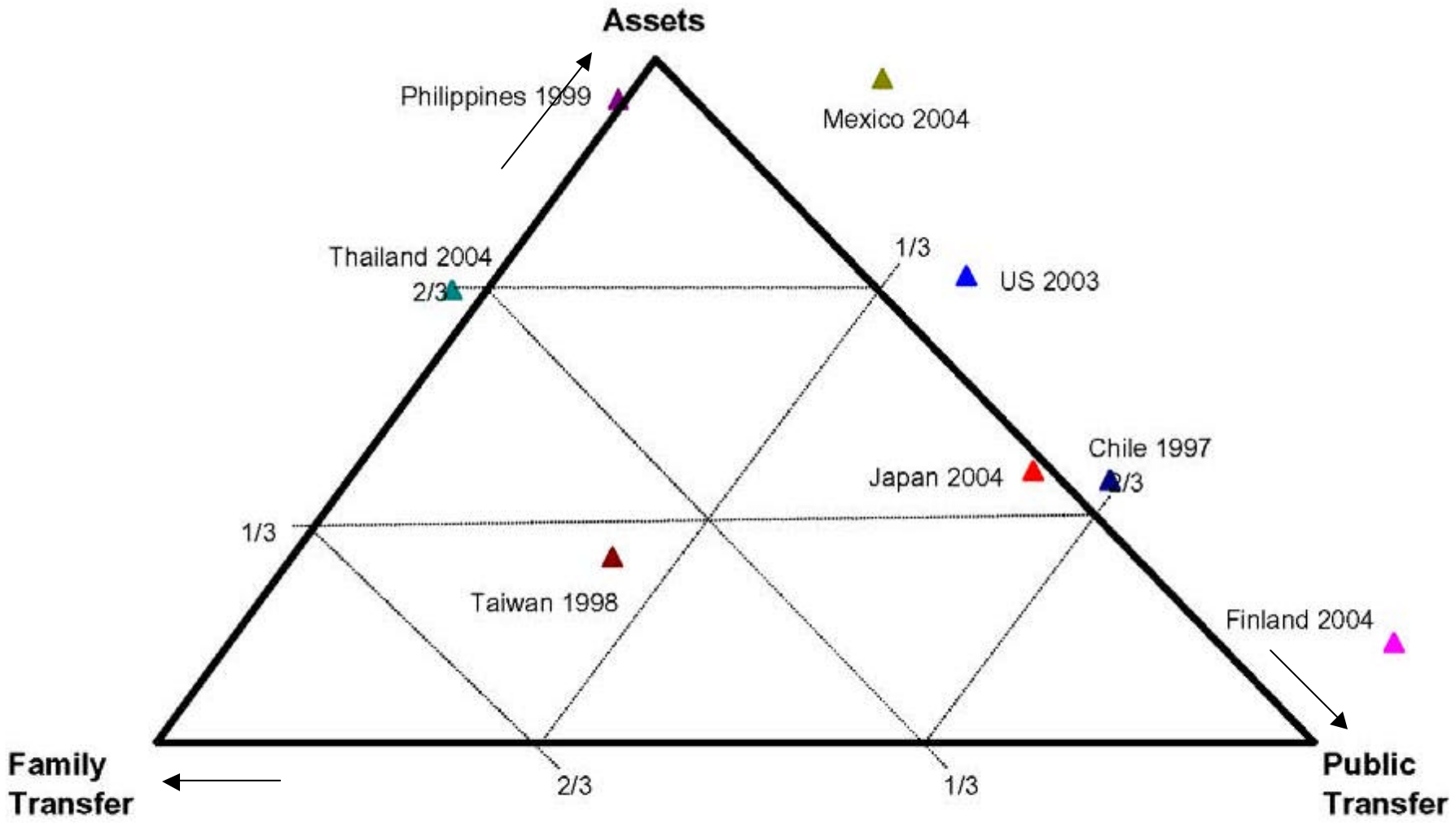
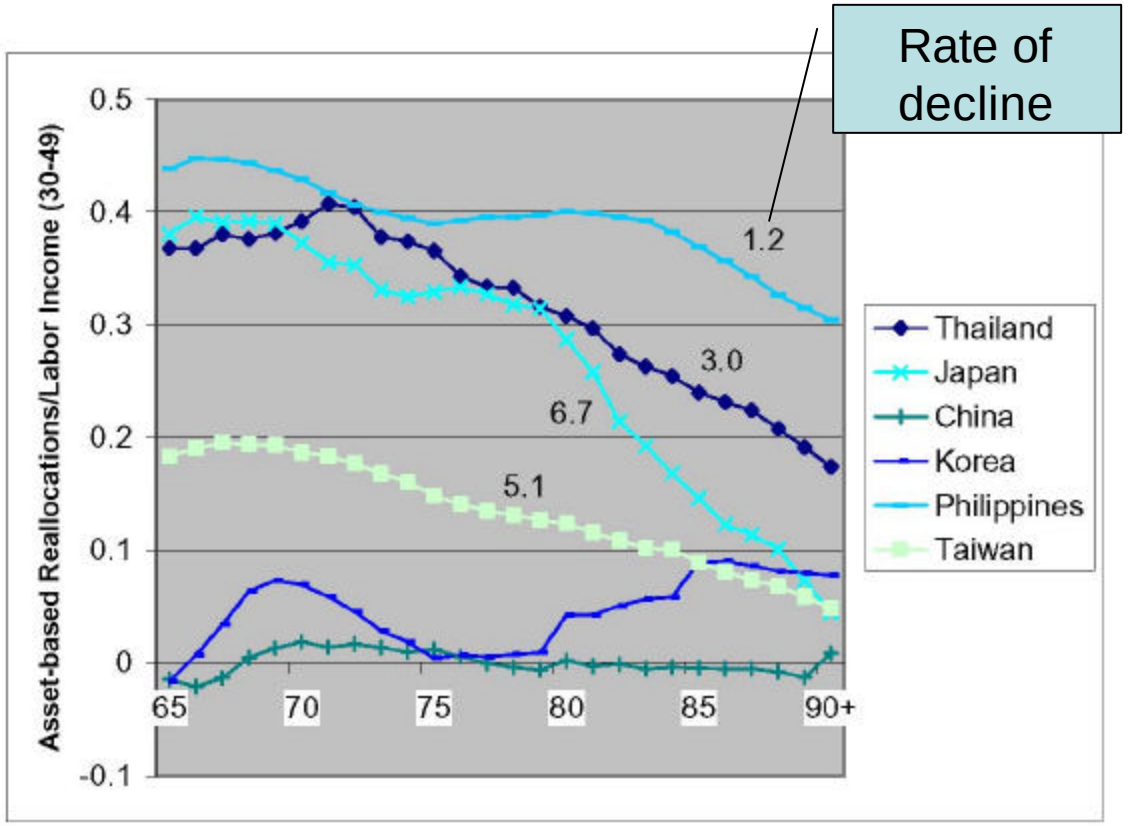


Figure 7. Lifecycle deficit, net transfers, and asset-based reallocations (yen), annual per capita flow, Japan, 2004.

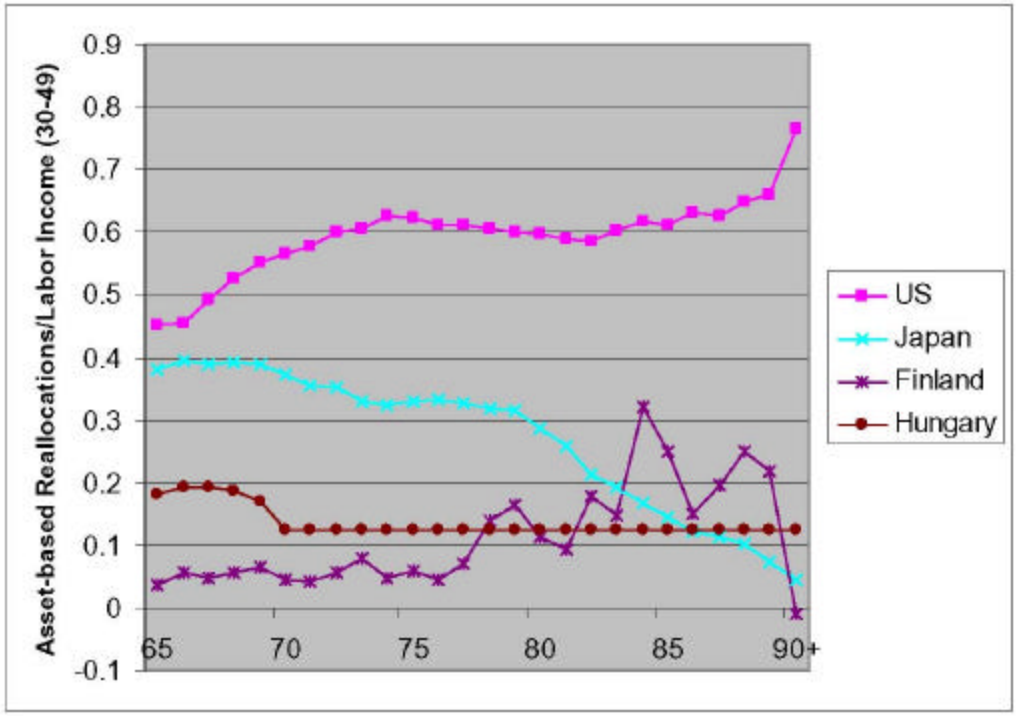


Age Reallocations as a Share of the Lifecycle Deficit of the Elderly (65%)

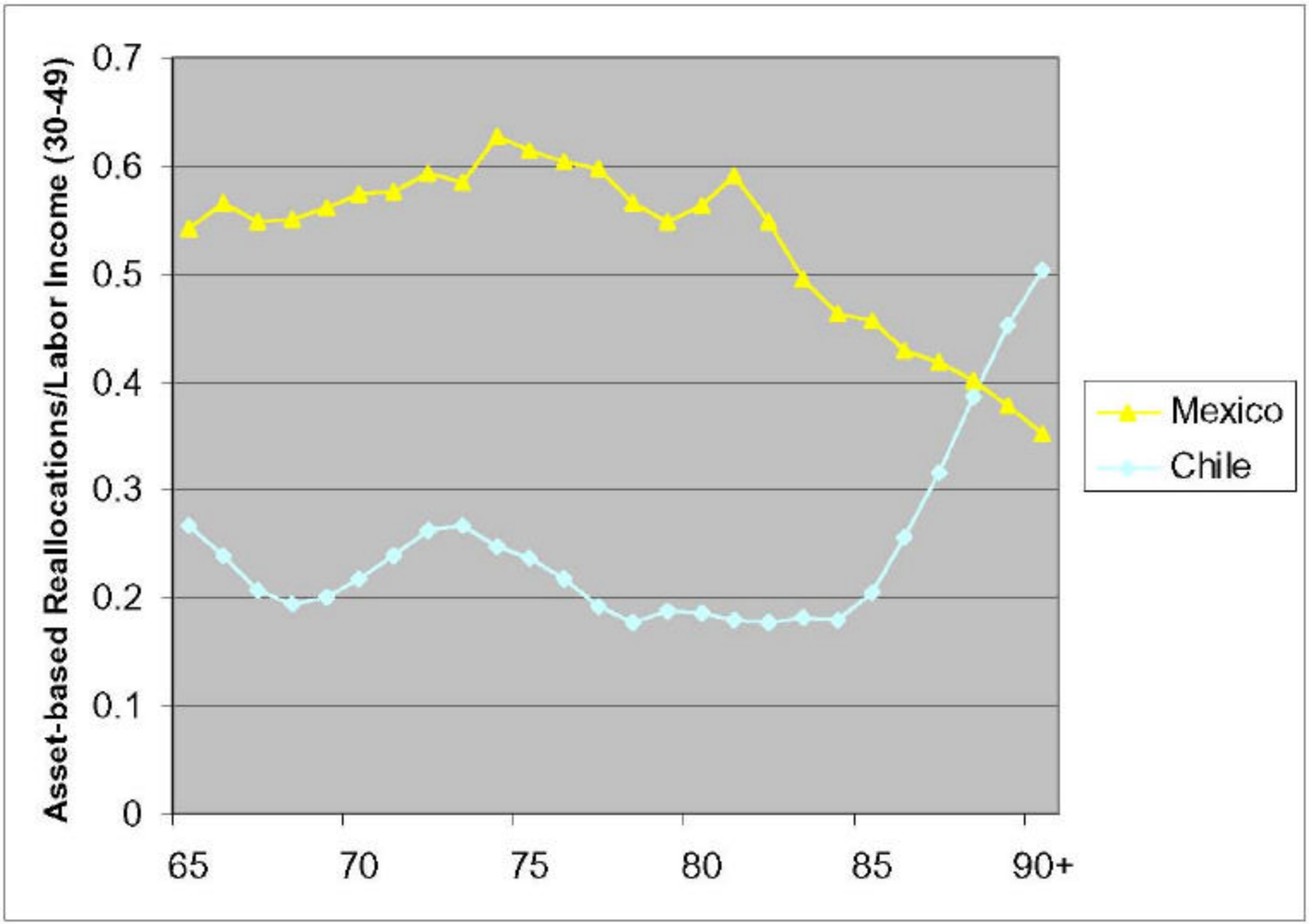
- Age effects
  - longevity risk
- Cohort effects
  - Regime change (China)
  - Wage growth
  - e0, fertility
- Selectivity effects



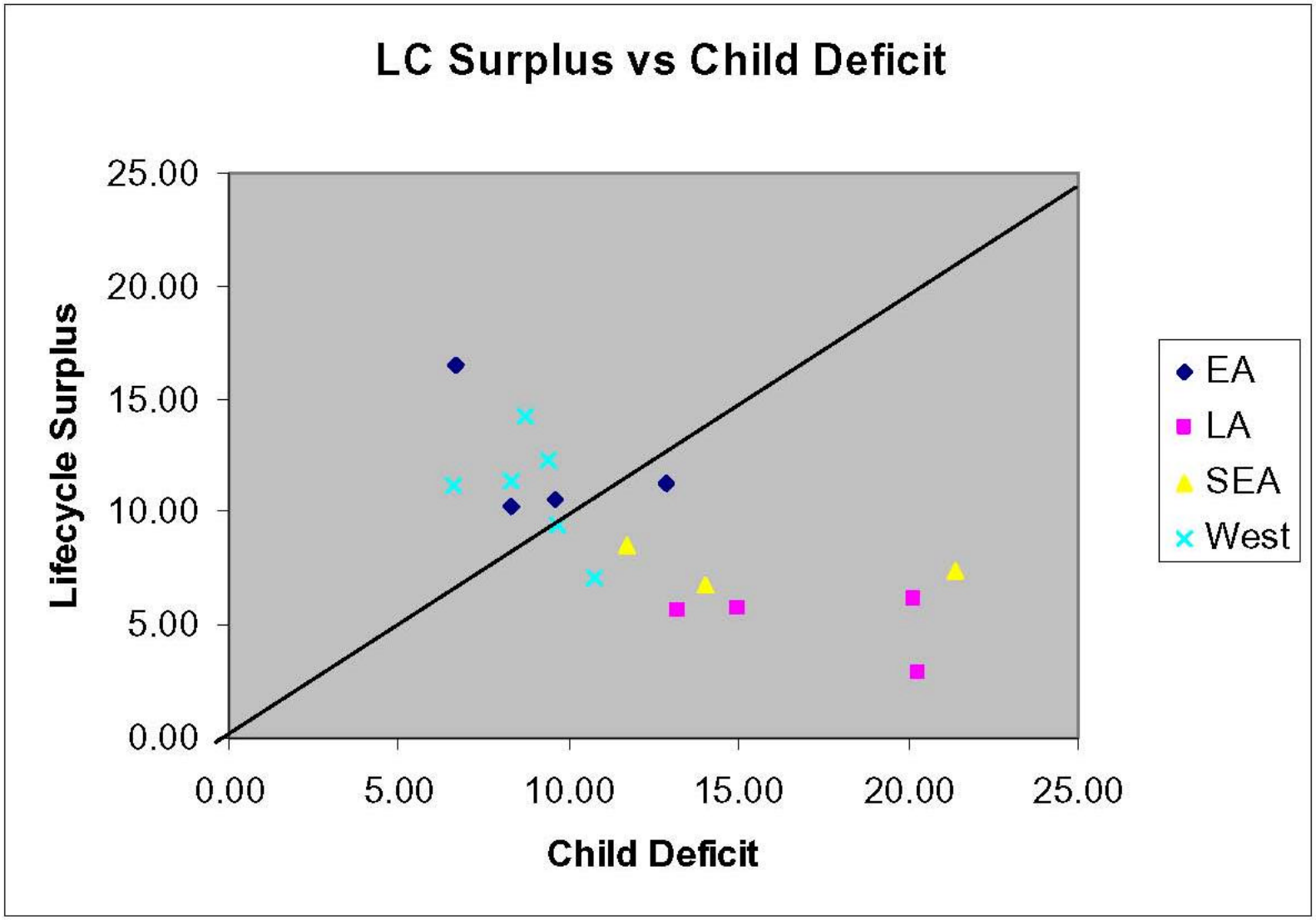
Asia: Per Capita asset-based reallocations (normalized on labor income 30-49)



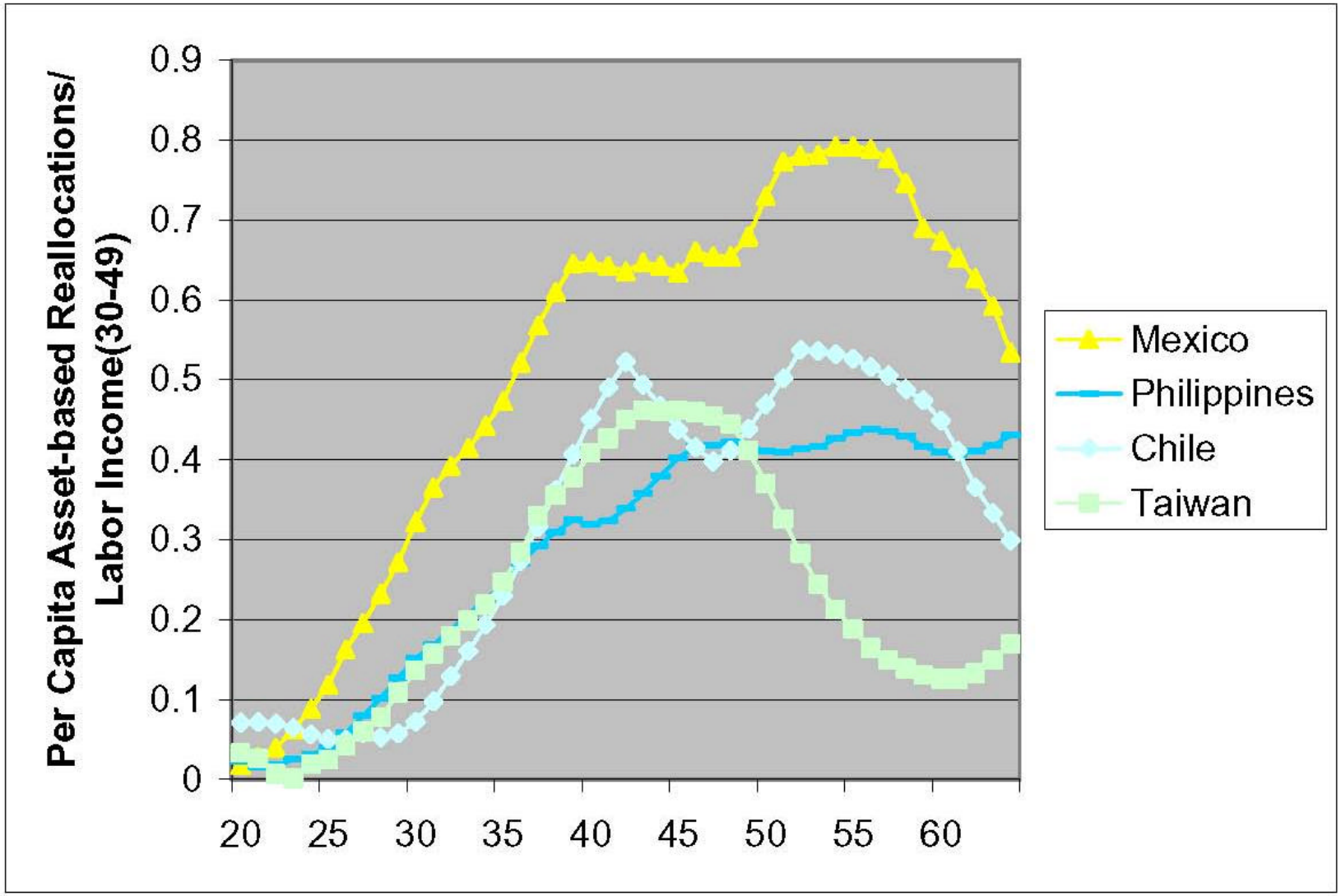
Industrialized countries:
Per Capita asset-based reallocations
(normalized on labor income 30-49)



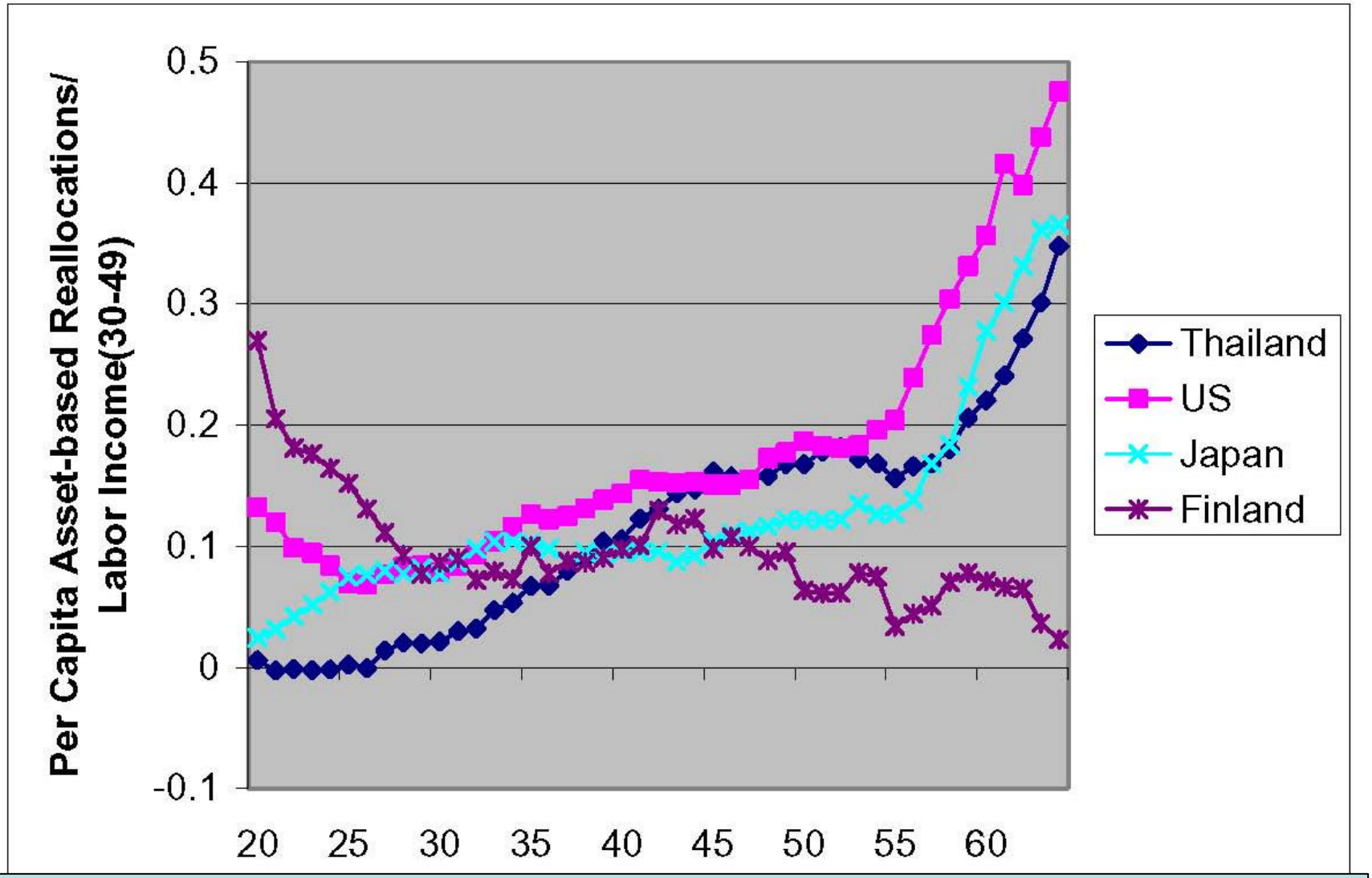
Latin America:
Per Capita asset-based reallocations
(normalized on labor income 30-49)



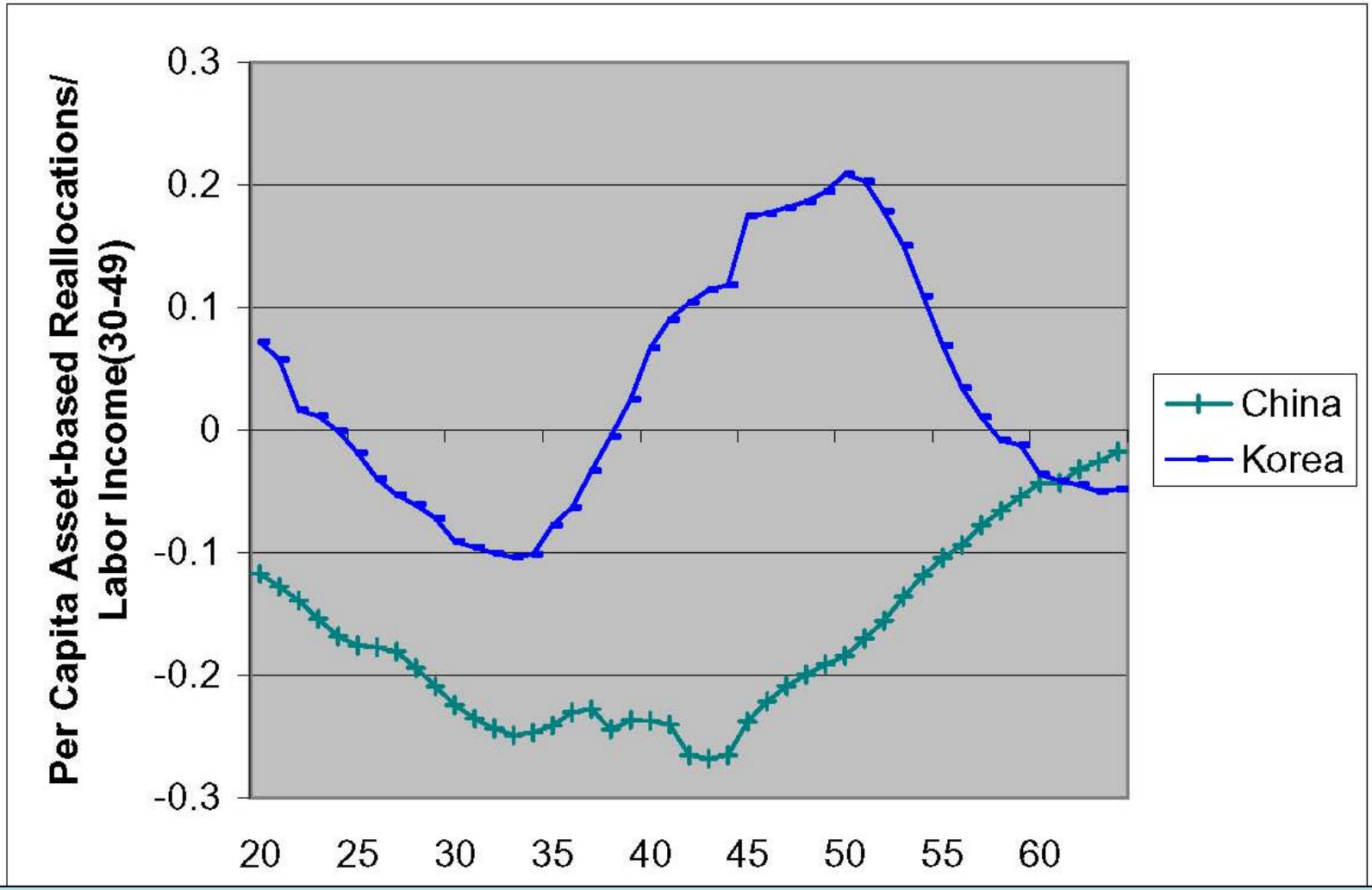
Are Children Costly?
A Comparison of the Aggregate Child Deficit to the Lifecycle Surplus



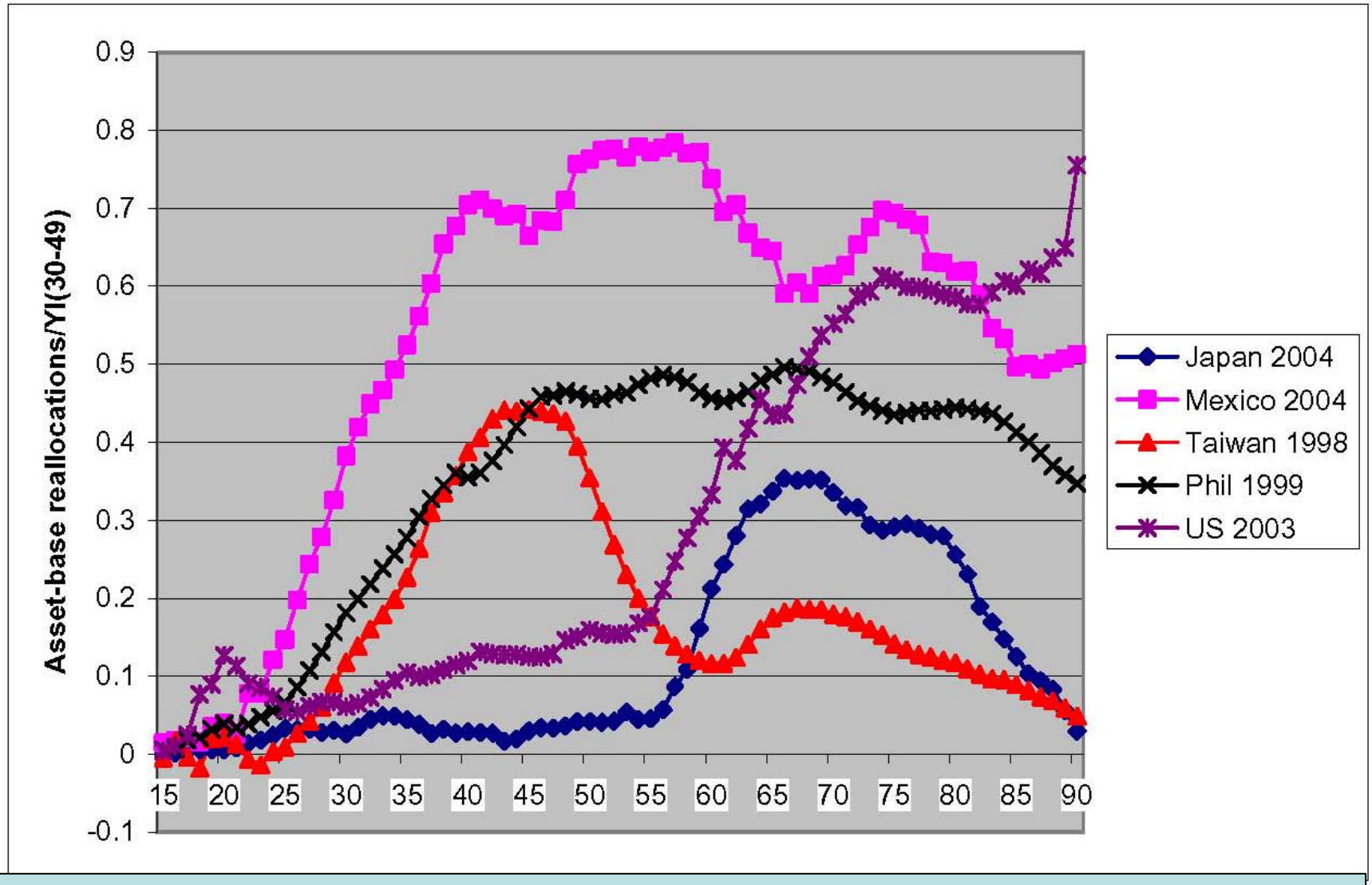
Asset-based reallocations for prime-age adults are very high in four countries.



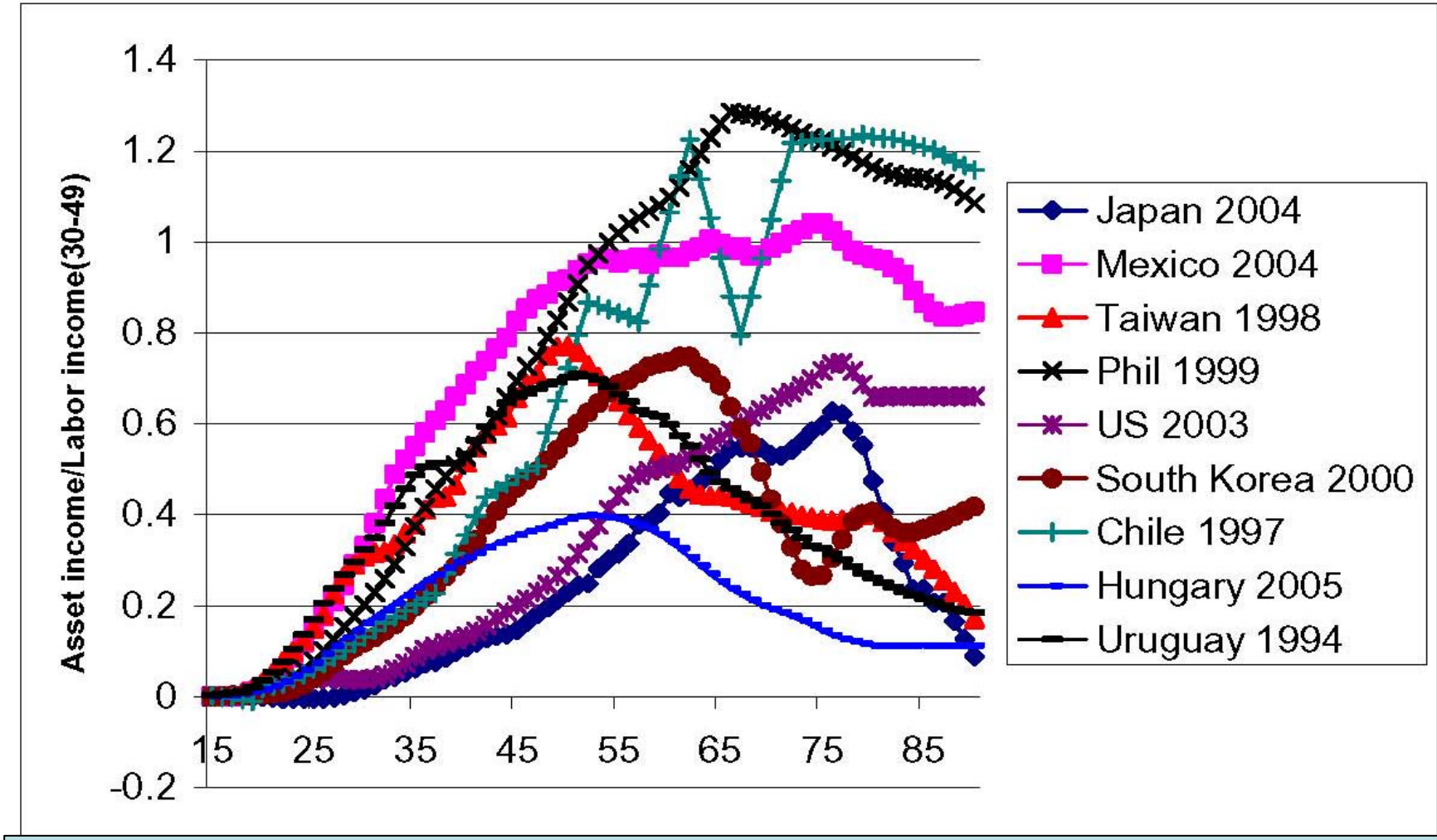
Asset-based reallocations to prime age adults are moderate but positive in four countries



Asset-based reallocations are negative for prime-age adults only in China and perhaps in the Republic of Korea

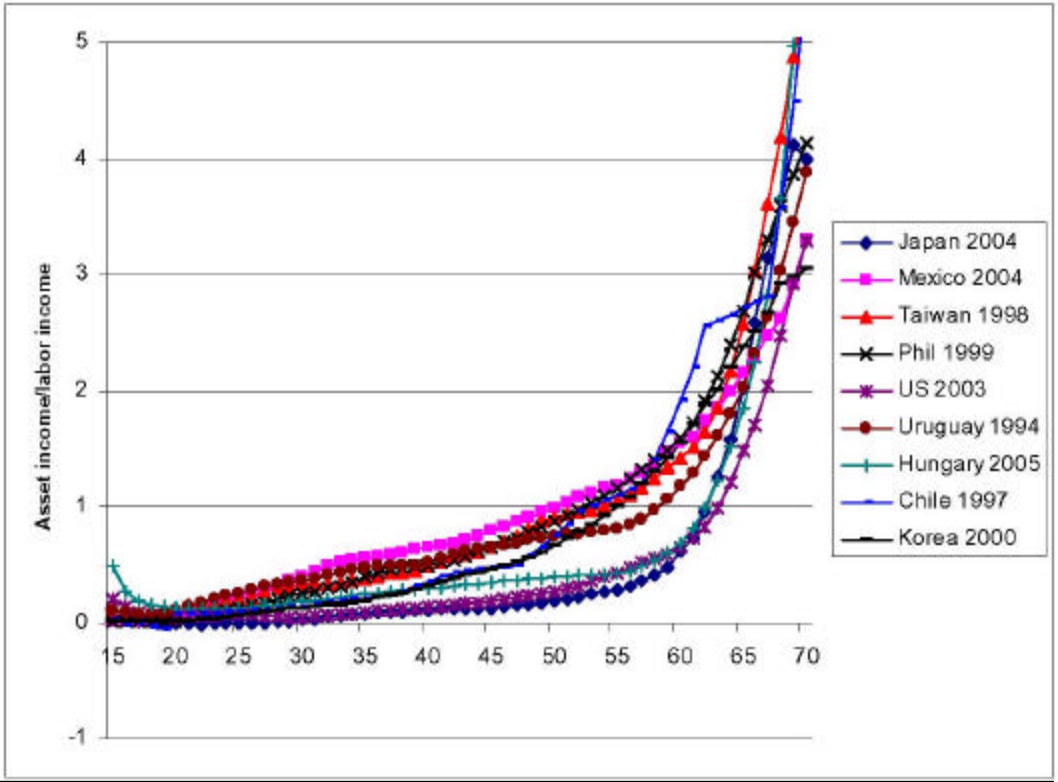


Private asset-based reallocations
are very similar to combined asset-based reallocations

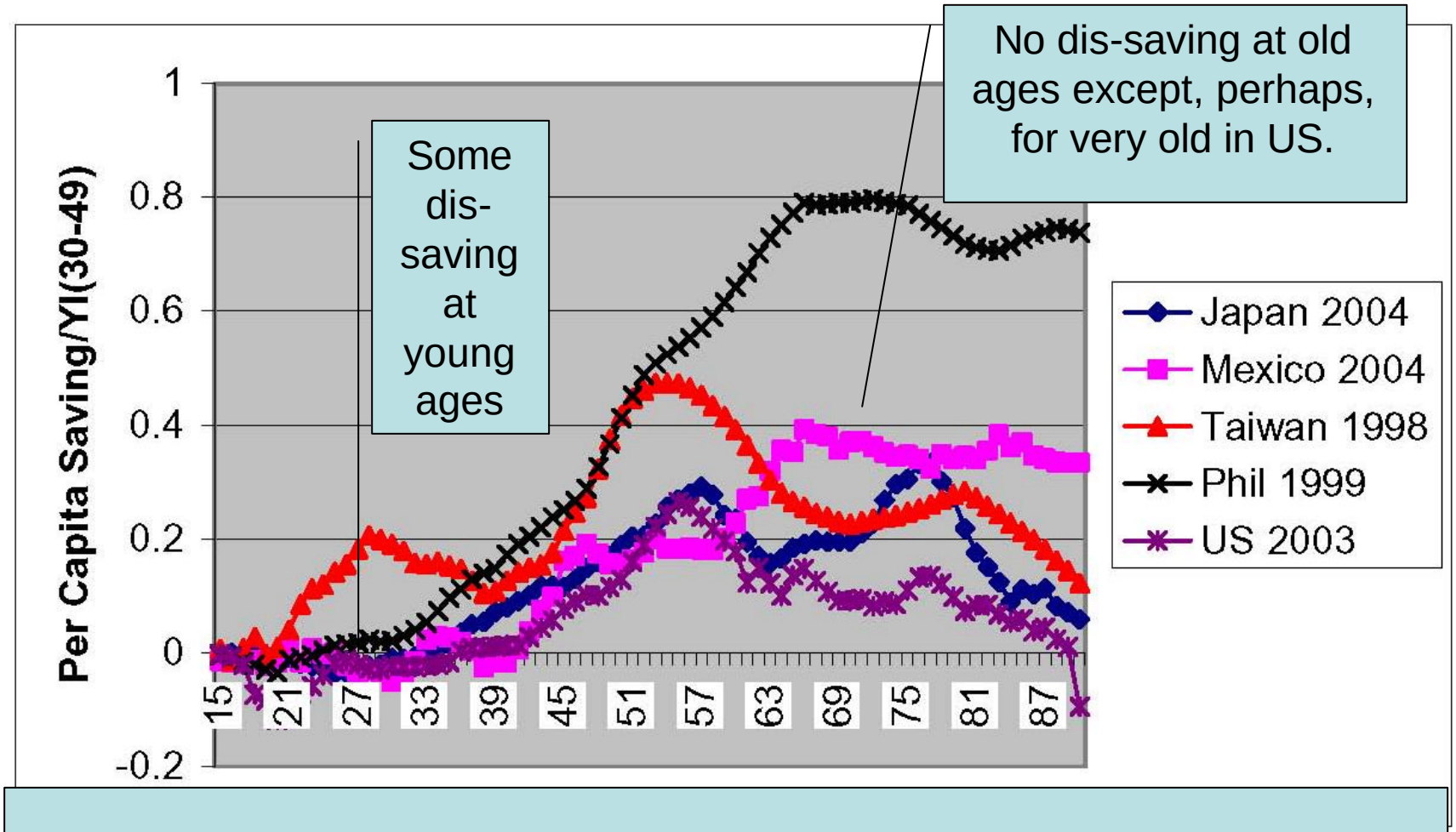


Per Capita Private Asset Income (normalized on labor income 30-49)

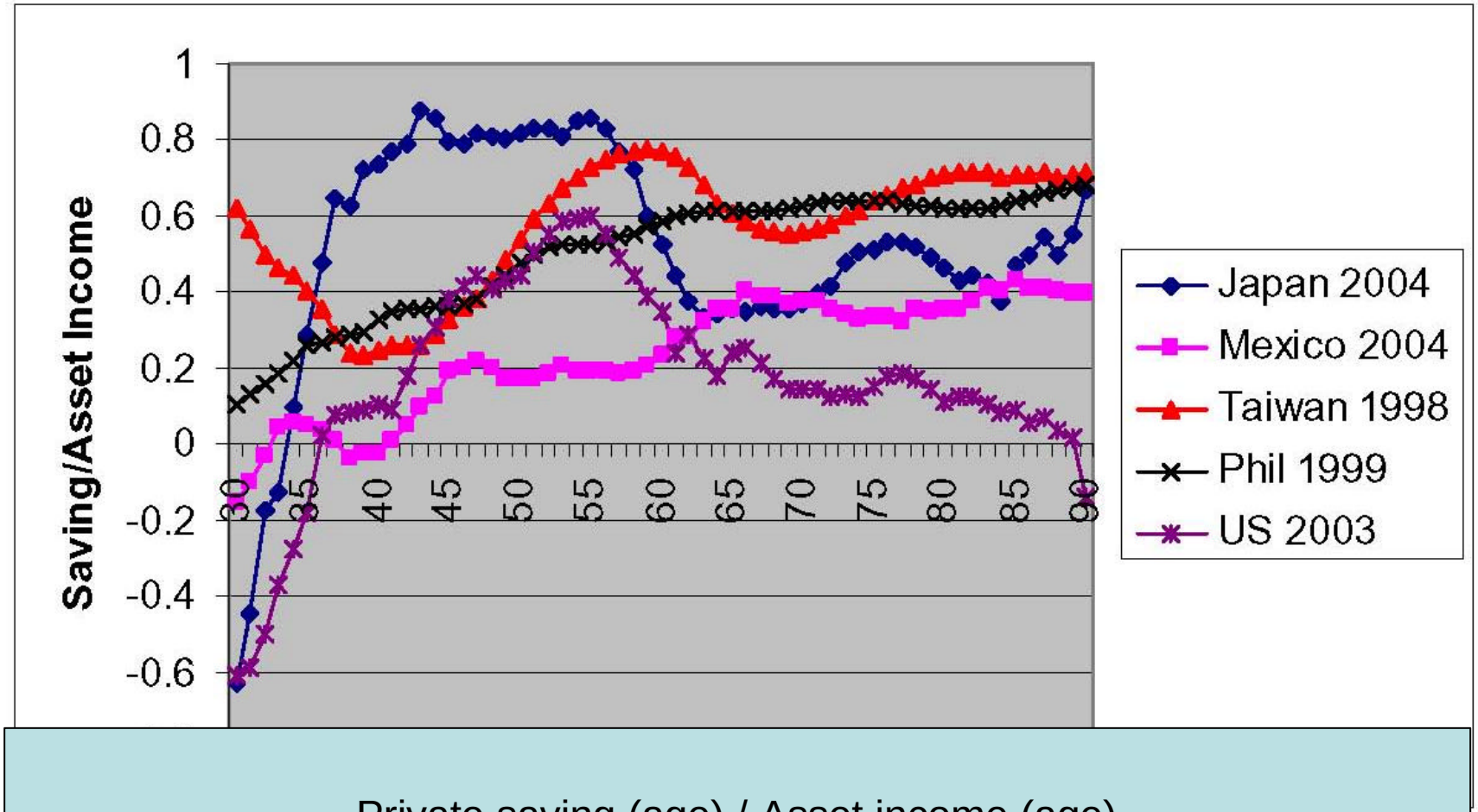
- Saving rates?
- Asset transfers?
- Rates of return?
- None of the above?



Asset income (age)/Labor income (age)



Per capita private saving normalized on labor income 30-49



Private saving (age) / Asset income (age)
Relatively flat at old age except in the US

Three “Findings”

- Importance of asset-based reallocations to the elderly varies substantially across countries
- Two features of AR inconsistent with simple lifecycle model
  - No dis-saving by elderly
  - Asset-based outflows are positive for working-age adults
  - Suggests that bequests are very important
- Children are very costly relative to lc surplus
  - Asset-based reallocations play a significant role in the funding of transfers to children
  - Seems likely that capital transfers are more important than generally realized

Sources for NTA Estimates

Chile

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.

Costa Rica

Rosero-Bixby, L. & Robles, A. (2008). Los dividendos demográficos y la economía del ciclo vital en Costa Rica”. Papeles de Población 55: 9-34.

Finland

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

India

Narayana, M.R., and Ladusingh, L. (2008) “Public sector resource allocation and inter-generational equity: Evidence for India based on National Transfer Accounts”, 83rd Annual Conference of the Western Economic Association International_, June 29 – 3 July 2008, Sheraton Waikiki, Honolulu, Hawaii, USA.

Narayana, M.R., and Ladusingh, L. (2008) "Construction of National Transfer Accounts for India, 1999-00", _Working Paper#08-01, National Transfer Accounts Database, University of Hawaii (Honolulu, USA)_: March 2008, pp.57:http://www.schemearts.com/proj/nta/doc/repository/NS2008.pdf

Indonesia

Maliki (2007), "Indonesia Social Security and Support System of the Indonesian Elderly," NTA Working Paper. Additional data at http://www.ntaccounts.org.

Sources for NTA Estimates

Japan

Naohiro Ogawa, Andrew Mason, Amonthep Chawla, and Rikiya Matsukura (2008) "Japan's Unprecedented Aging and Changing Intergenerational Transfers". NTA Working Paper. Additional data at http://www.ntaccounts.org.

Mexico

Mejía-Guevara, I. (2008), "Economic Life Cycle and Intergenerational Redistribution: Mexico 2004", IDRC/ECLAC Project.

Philippines

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.

Salas, J.M. Ian S. and Rachel H. Racelis. "Consumption, Income and Intergenerational Reallocation of Resources: Application of National Transfer Accounts in the Philippines, 1999." Makati City: Philippine Institute for Development Studies, Discussion Paper Series No. 2008-12, March 2008.

South Korea

The National Transfer Accounts Project. http://www.ntaccounts.org.

Sweden

Forsell, Charlotte, Hallberg, Daniel, Lindh, Thomas & Gustav Öberg & Intergenerational public and private sector redistribution in Sweden 2003. Arbetsrapport 2008 nr 4 (Working Paper), Institute for futures studies. http://www.framtidsstudier.se/filebank/files/20080516$125822$fil$nj09JKk75GmJX4vbXVcT.pdf

Sources for NTA Estimates

Taiwan

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). Additional data at http://www.ntaccounts.org.

Thailand

Chawla, Amonthep (2008) "Macroeconomic Aspects of Demographic Changes and Intergenerational Transfers in Thailand." Ph.D. dissertation submitted to the University of Hawaii at Manoa. Additional data at http://www.ntaccounts.org.

US

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). Additional data at http://www.ntaccounts.org.

Uruguay

Bucheli, Marisa, Ceni, Rodrigo and González Cecilia (2007). "Transerencias intergeneracionales en Uruguay", Revista de Economía 14(2): 37-68, Uruguay.

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We are grateful to Ronald Lee and the country research teams in the NTA project for the use of their data.

The End

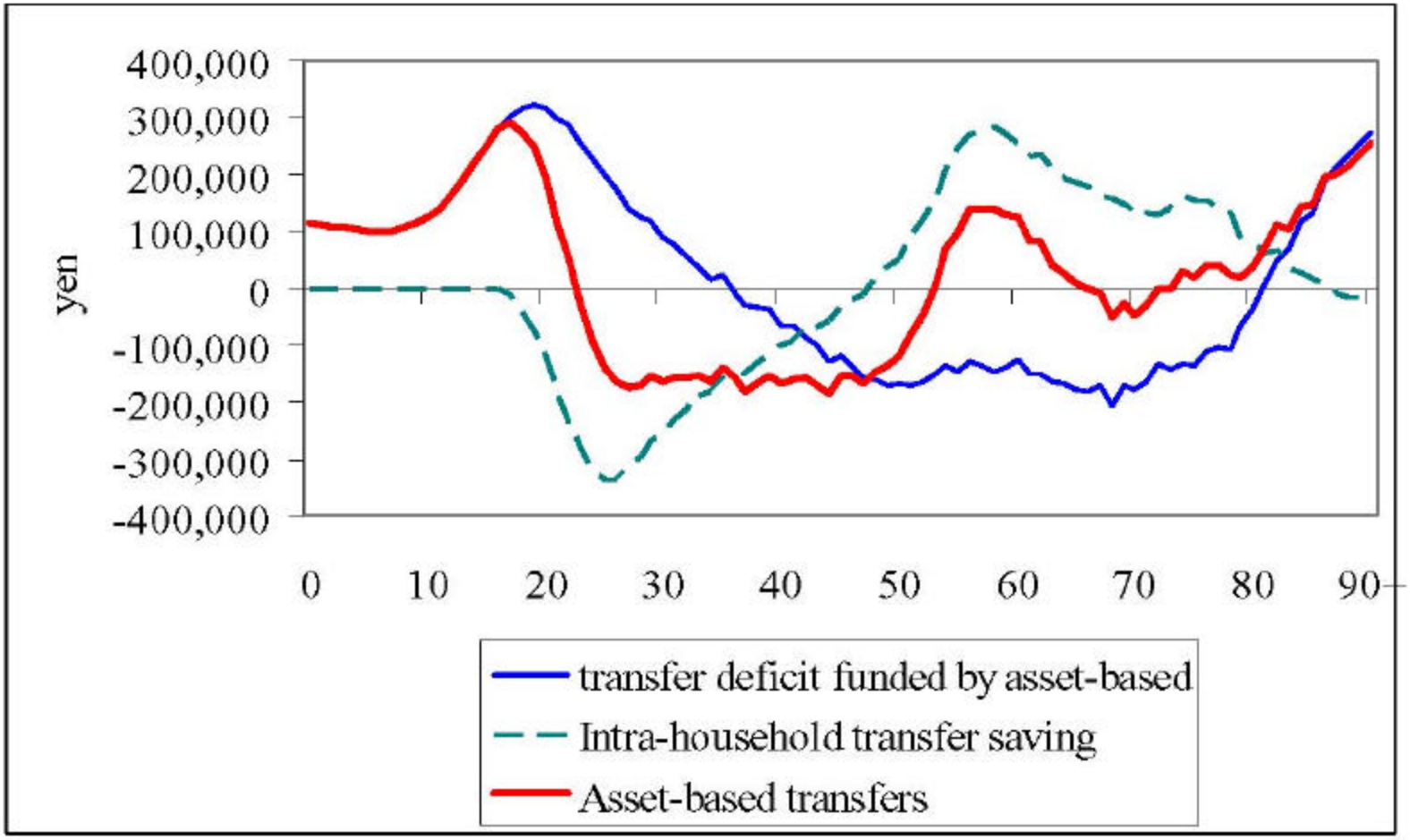

Figure 21. Asset-based transfers, per capita values, Japan 2004.

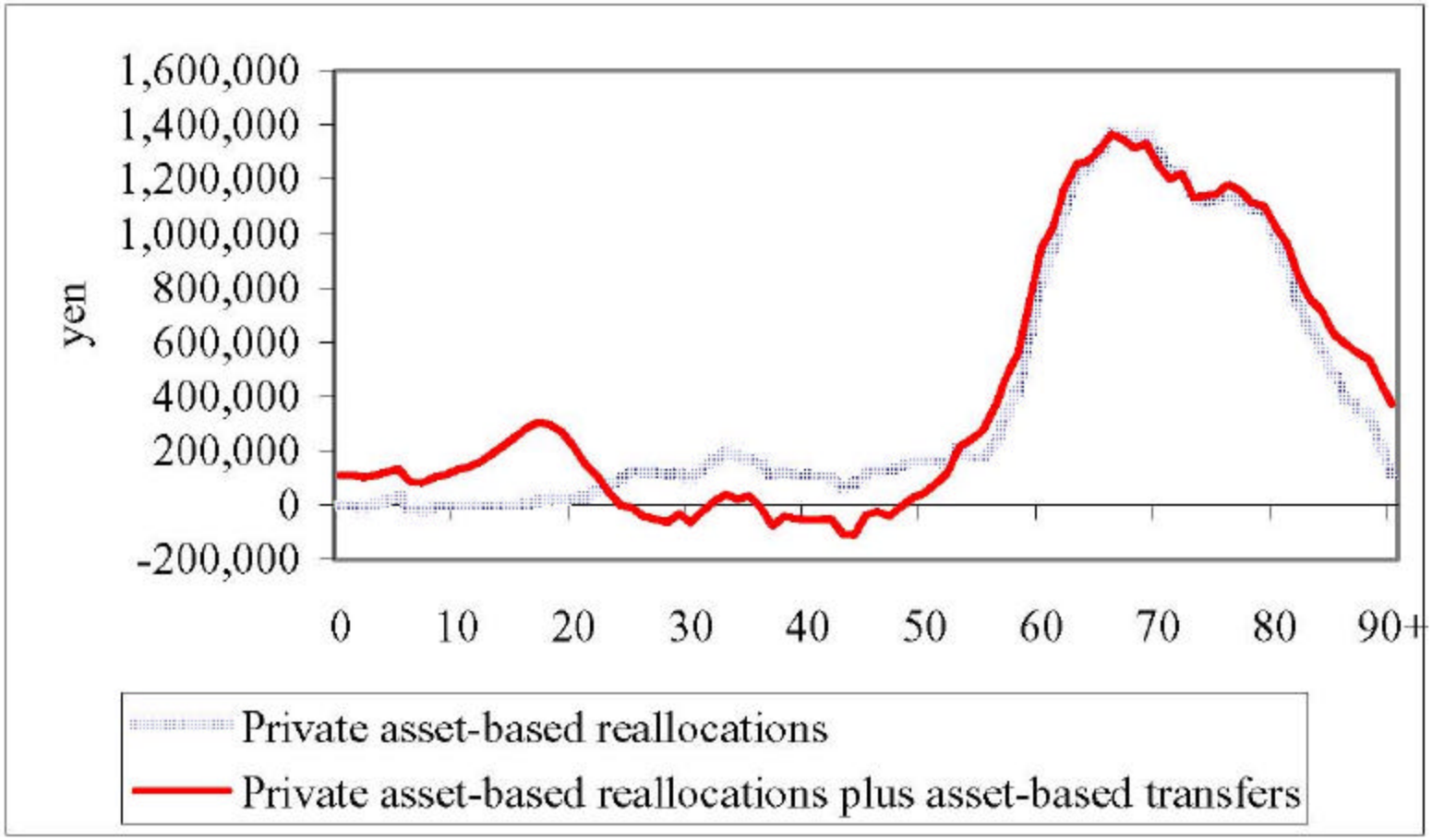

Figure 22. Direct and indirect private asset-based reallocations, per capita, Japan, 2004.

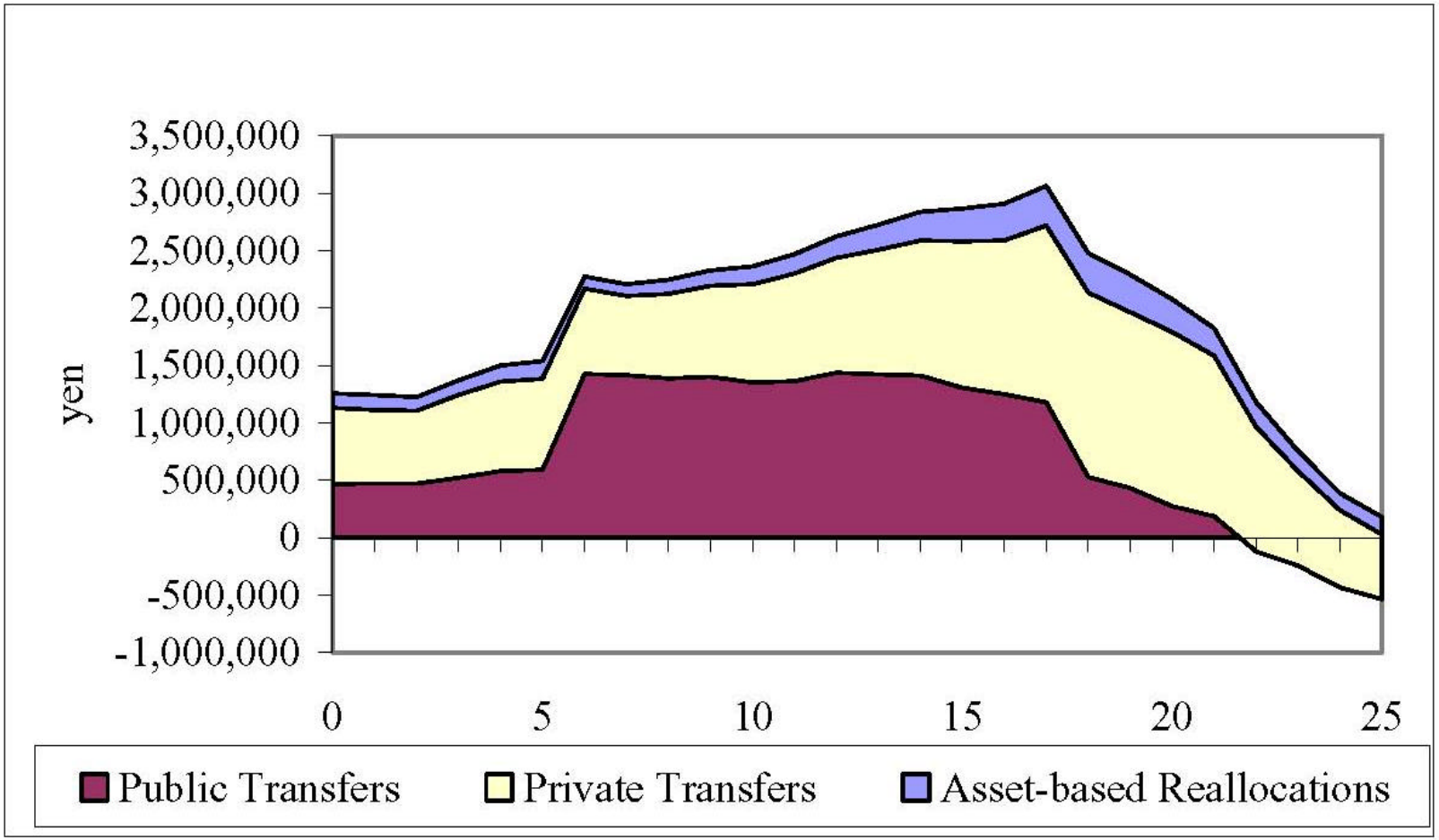

Figure 23. Age reallocations, per capita values, Japan 2004.

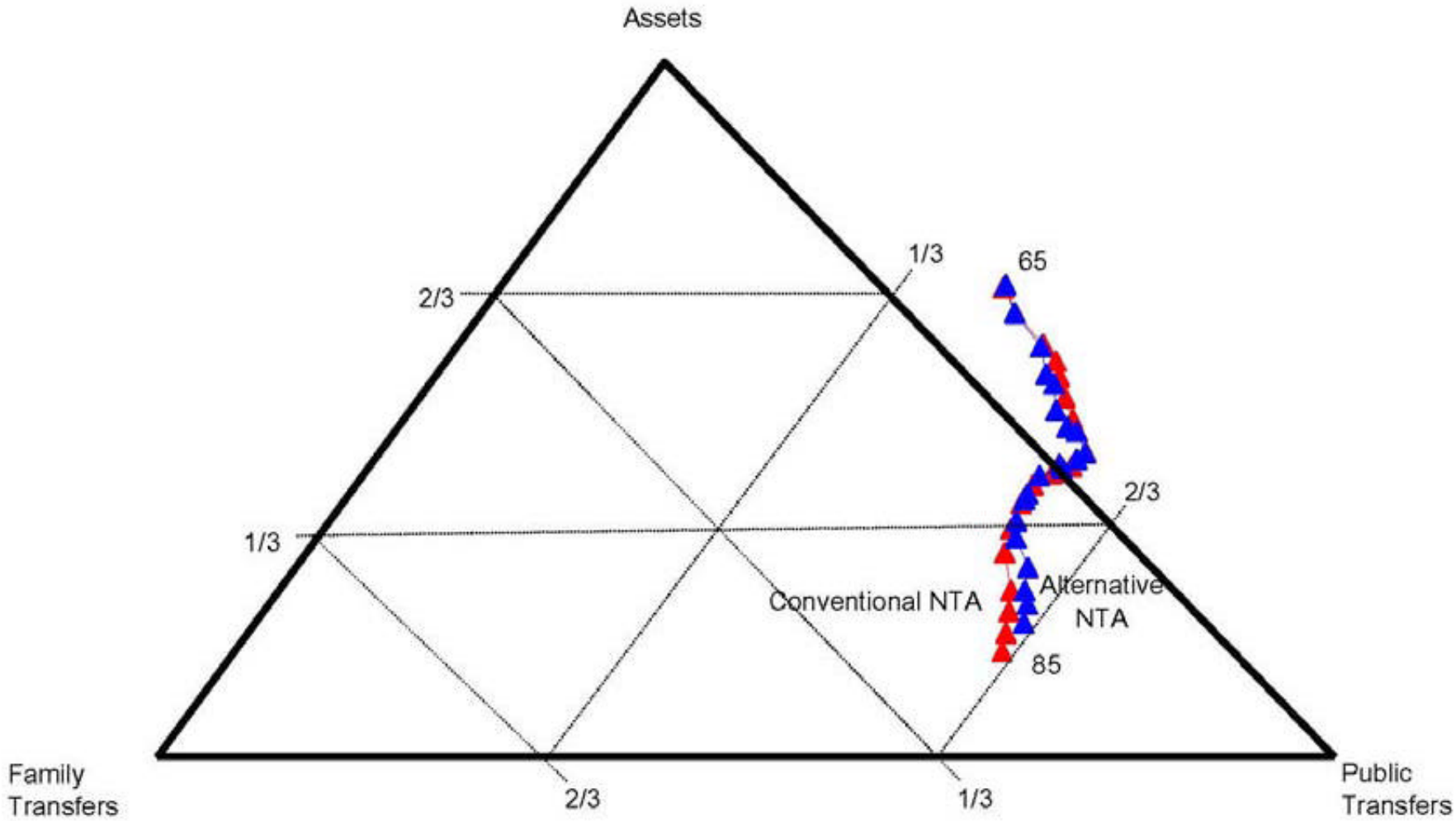
Assets
1/3
65
2/3
2/3
1/3
Conventional NTA
Alternative
NTA
85
Family
Transfers
2/3
1/3
Public
Transfers

Figure 24.