

Population Aging and the Generational Economy: A Global Perspective

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NBER Summer Institute, AGING & SOCIAL SECURITY

NIA R37 AG025247.

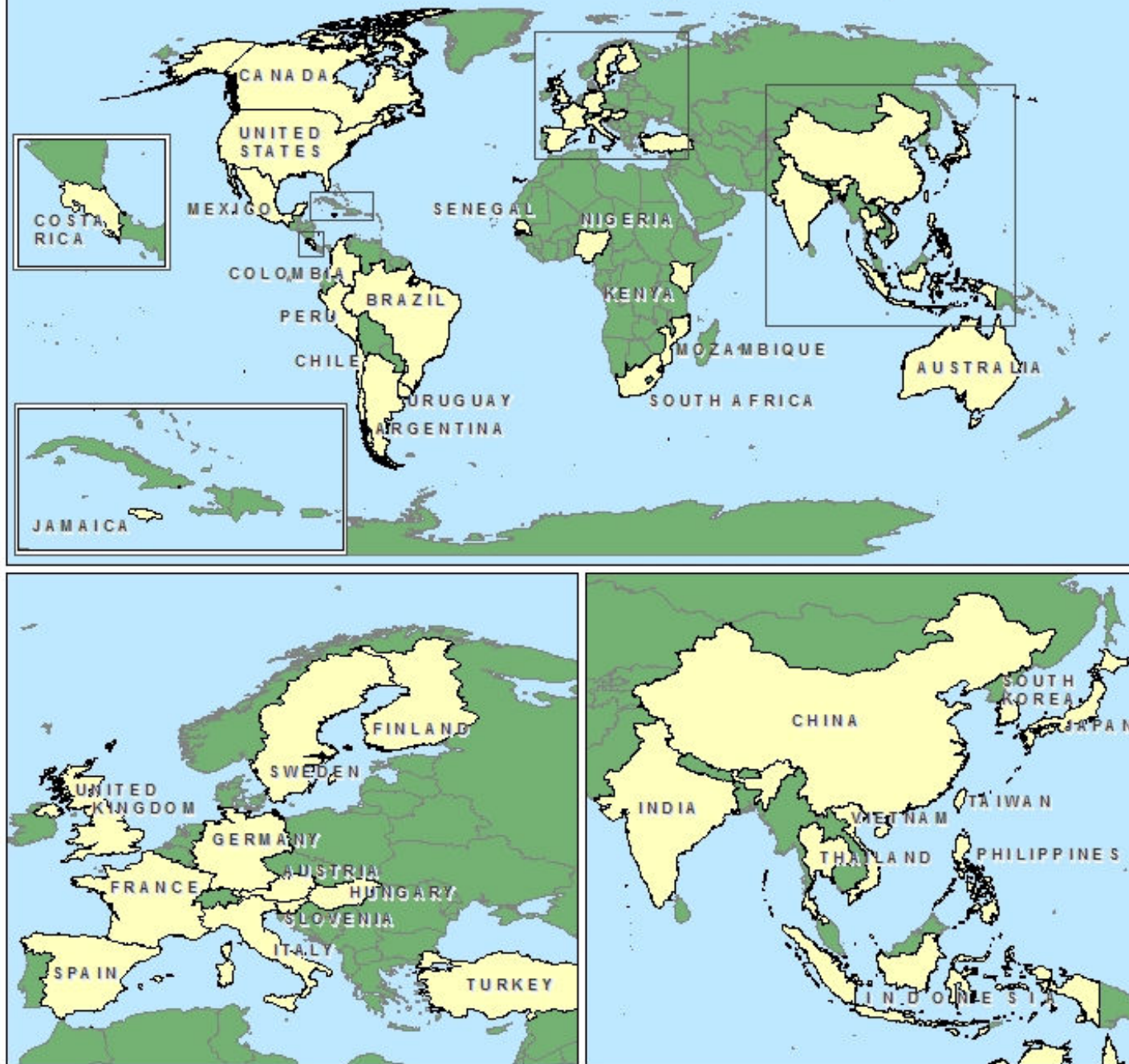
Grateful to National Transfer Account country team members

Other NTA funding: IDRC, UNFPA, UNPD, EU, EWC, CEDA

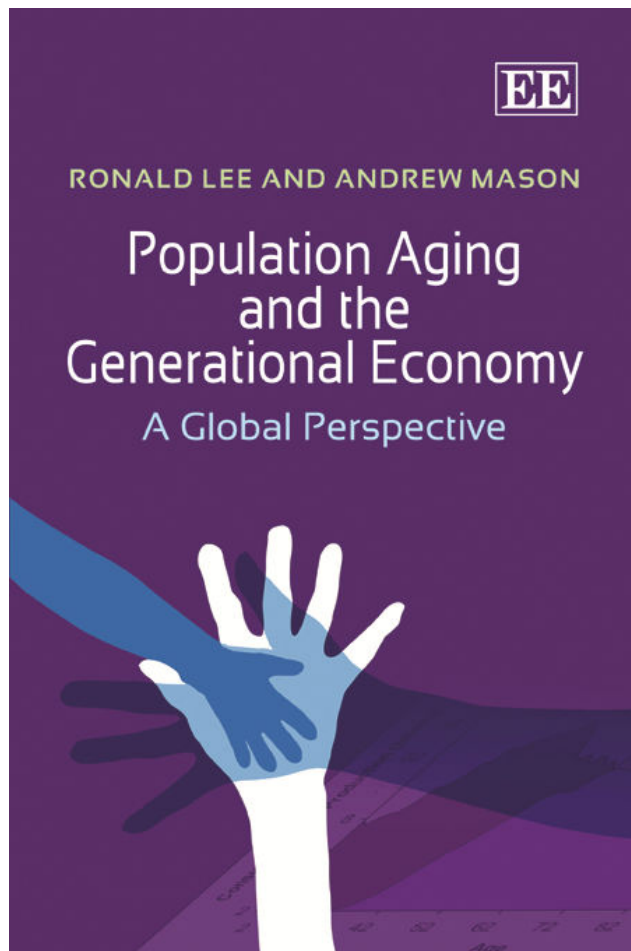
National Transfer Accounts (NTA) project

- Co-directed by Lee (Berkeley) and Mason (East West Center, Hawaii)
- 37 countries, each with own research team (and growing).
- Consistent with United Nations System of National Accounts (SNA) by construction
- Based on existing surveys, demographic data, administrative data. Uniform methods.

National Transfer Accounts Project Country Members



Selected results from National Transfer Accounts (NTA) project: **NTAccounts.org**



Free download of book – see
NTA website

I will present some results with an emphasis on the US, but with some comparative context.

Please hold your questions if you can.

The Flow Account identity for an individual or a generation

$$\underbrace{Y^I(x) + Y^A(x) + \tau^-(x)}_{\text{Inflows}} = \underbrace{C(x) + S(x) + \tau^-(x)}_{\text{Outflows}}$$

- $Y^A(x)$ is asset income
 - Private Y^A includes returns to capital, dividends, interest, rent, and the imputed return from owner-occupied housing.
 - Public Y^A includes the income earned from publicly owned assets and interest paid on public debt (a negative value).
- $\tau^+(x)$ and $\tau^-(x)$ are transfer inflows and outflows.
- $Y^I(x)$ includes fringe benefits and 2/3 of self employment inc
- $C(x)$ includes household cons and public in-kind transfers

Flow identity arranged to emphasize life cycle

$$\underbrace{C(x) - Y^l(x)}_{\text{Lifecycle deficit}} = \underbrace{\tau^+(x) - \tau^-(x)}_{\text{Net transfers}} + \underbrace{Y^A(x) - S(x)}_{\text{Asset-based reallocations}} \quad (3.1)$$

Age reallocations

- NTA estimates these flows, and their subcomponents, public and private.
- Bequests are not yet included.

Start with cross-sectional age profiles of labor income and consumption (left side of flow equation)

- Age profiles
 - Population averages at each age, combining males, females, including 0's
 - Age profiles multiplicatively adjusted to match National Accounts (SNA) totals (given pop age distr)
- For comparative purposes, standardize by dividing each economy's age profiles by its average labor income ages 30-49.

Consumption includes

- Private household expenditures imputed to individuals
- Public in-kind transfers (e.g. education, health care, long term care)

Imputation of hshld consumption expenditure to hshld members

- health and education – if not given directly in survey
 - Each hshld total is regressed on household composition dummies in each country (e.g. on number of enrolled kids by age group)
 - Coefficients used to allocate household totals to individuals within each household
 - Test various methods in countries with richer data
- Remaining household consumption (“Other”) is allocated in proportion to assumed equivalent adult consumer weights, same across all countries, pre consumption taxes:
 - .4 for ages 0-4
 - Increases linearly to 1.0 at age 20
 - Tried various other methods, e.g. “adult goods” method; very unstable, poor outcomes. Deaton recommends more or less what we do.
- Calculate average imputed consumption across all individuals in all households at each given age, male and female.

Public in-kind transfers

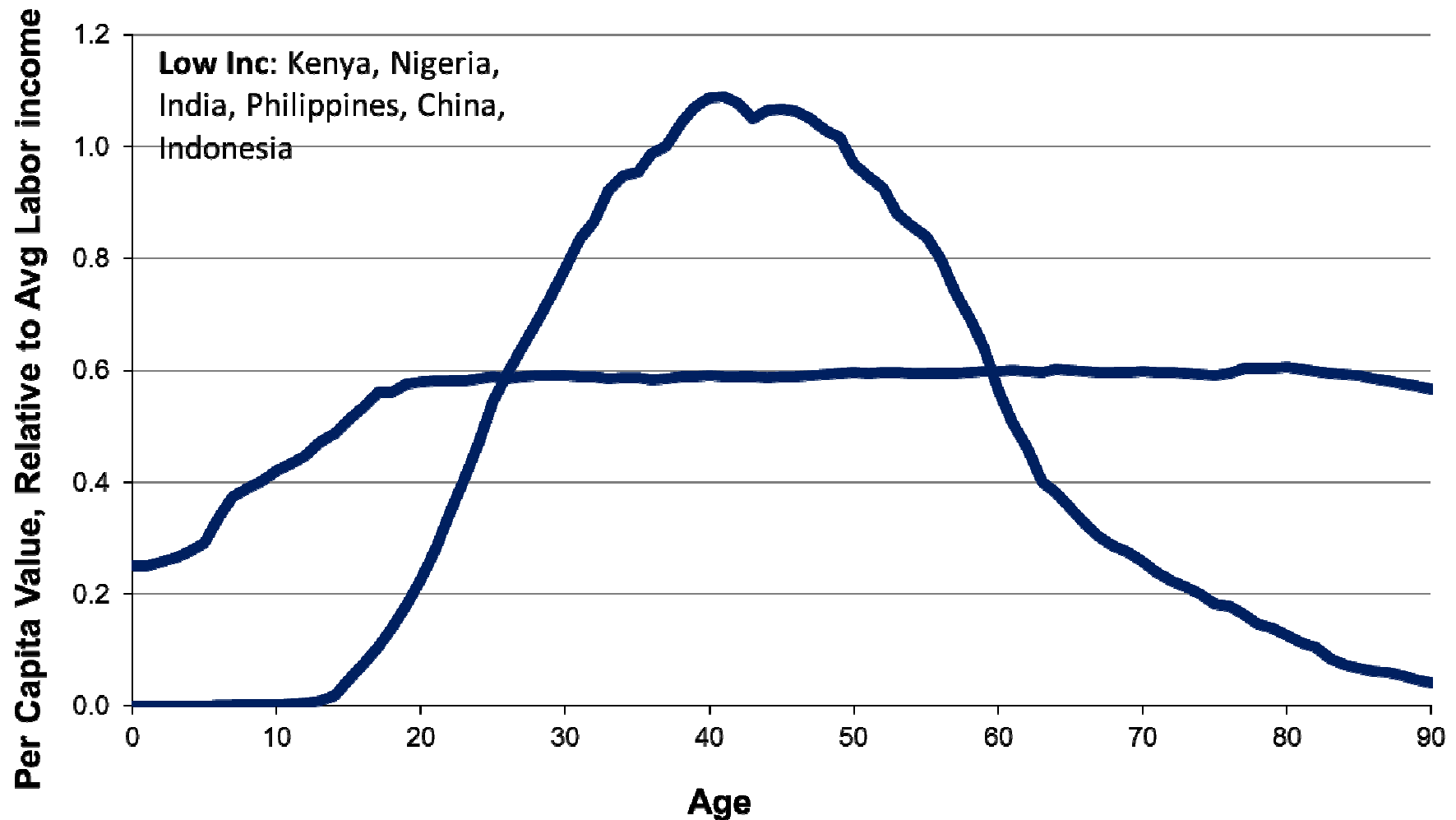
- Education
 - Use administrative data with household surveys in obvious ways
- Health
 - More difficult and error prone
 - Different data sources by country
- Other in-kind assigned on constant per capita basis
 - Military, most social infrastructure, research etc.
- Tax incidence follows rules of Generational Accounting.
 - Payroll taxes fall on employees
 - Consumption taxes are “paid” by individual consuming, even if it is an infant!

Labor Income

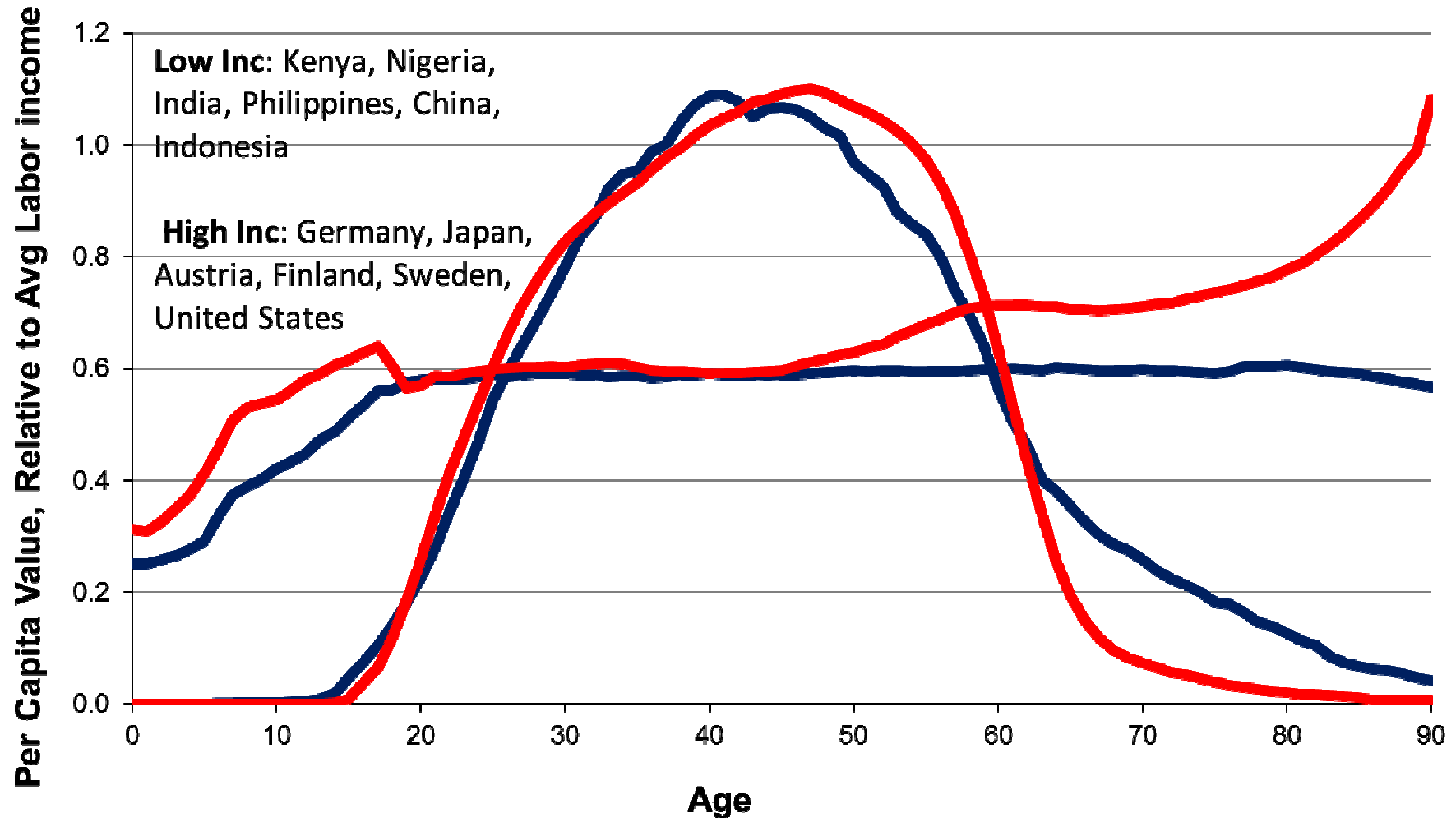
- Wages, salaries, fringe benefits before tax
- 2/3 of self employment income, unpaid family labor (1/3 to assets)
 - Within household 2/3 self-employment income is allocated to members reporting unpaid family labor in proportion to average labor income by employees of the same age
 - Home time spent producing non-market goods and services is not included, consistent with National Accounts (child care, cooking dinner, etc.)
 - We do have a version of NTA that includes time use data and home production.
- Average includes 0's.

1. Consumption and Labor Income in Rich and Poor Countries

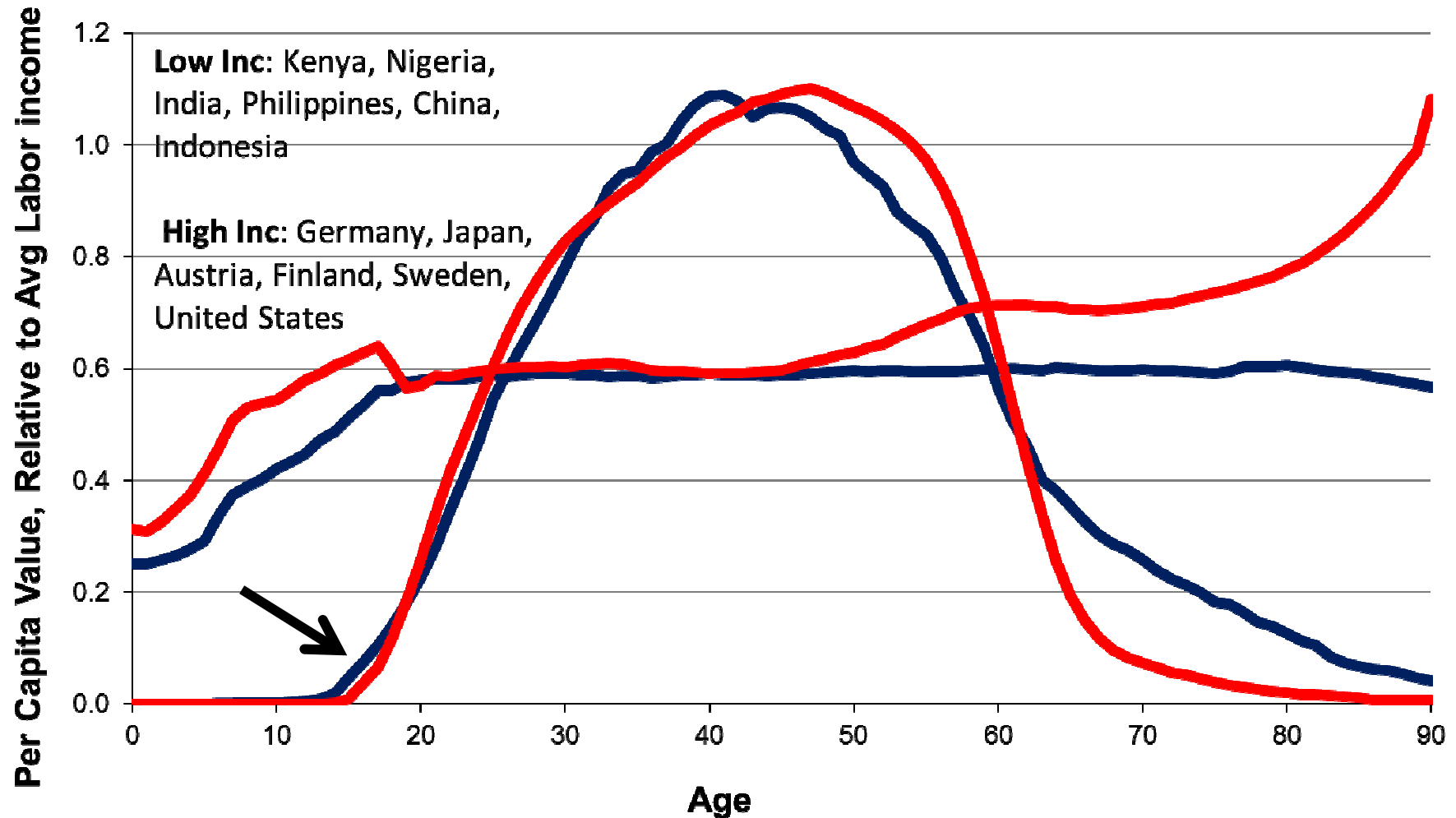
Consumption and Labor Income of Low Income Countries (average of the bottom income quartile of NTA countries)



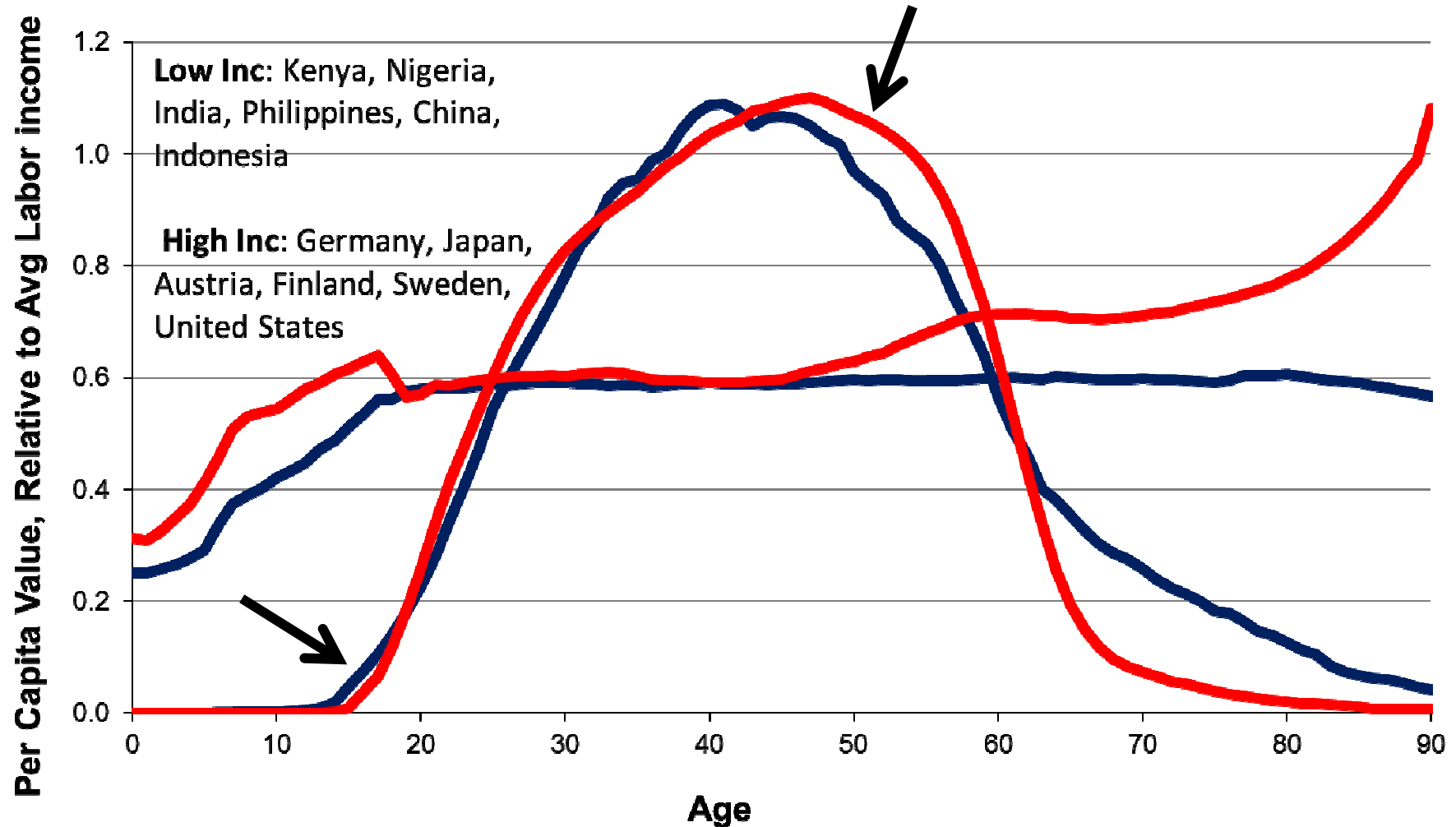
Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



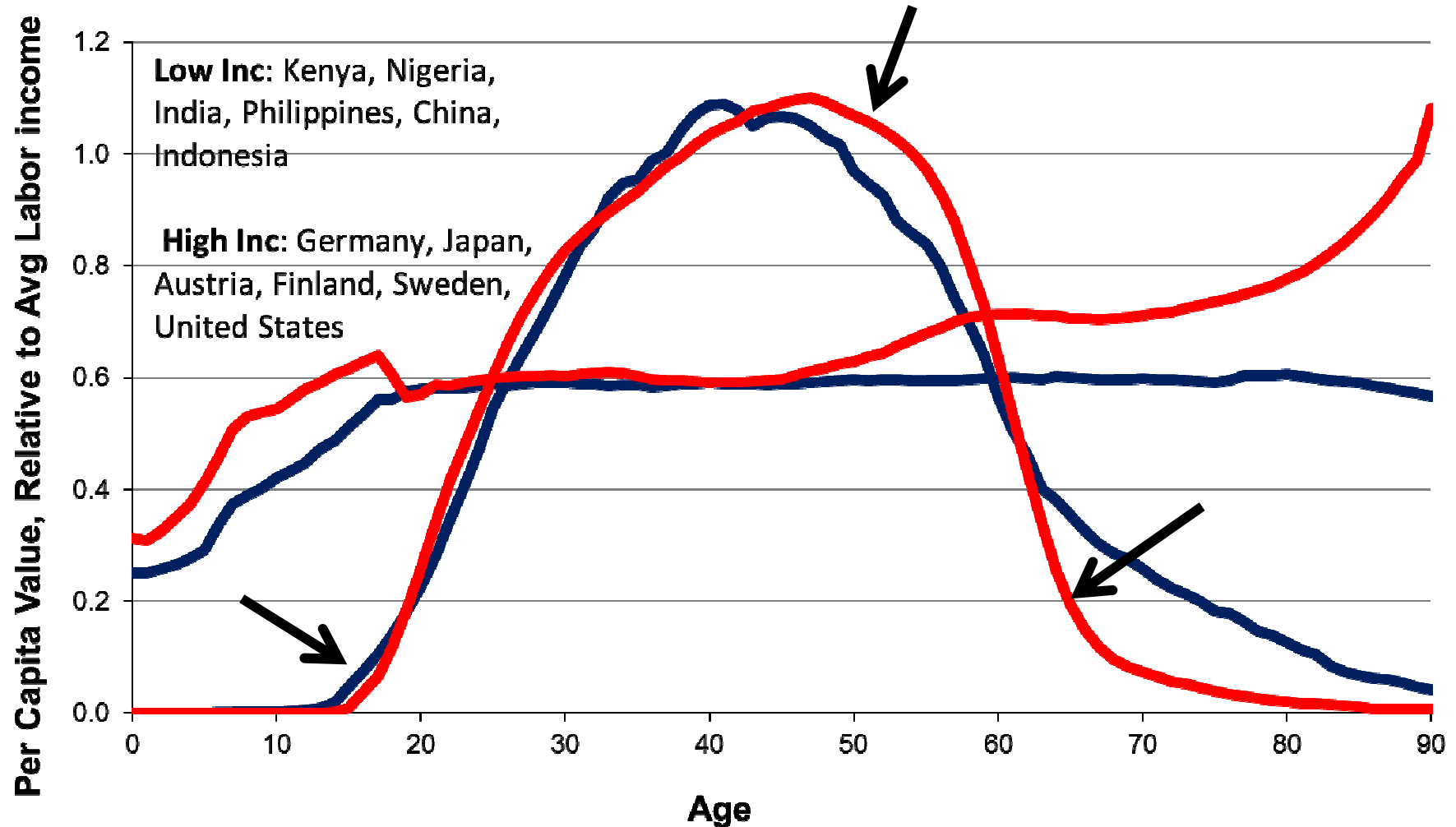
Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



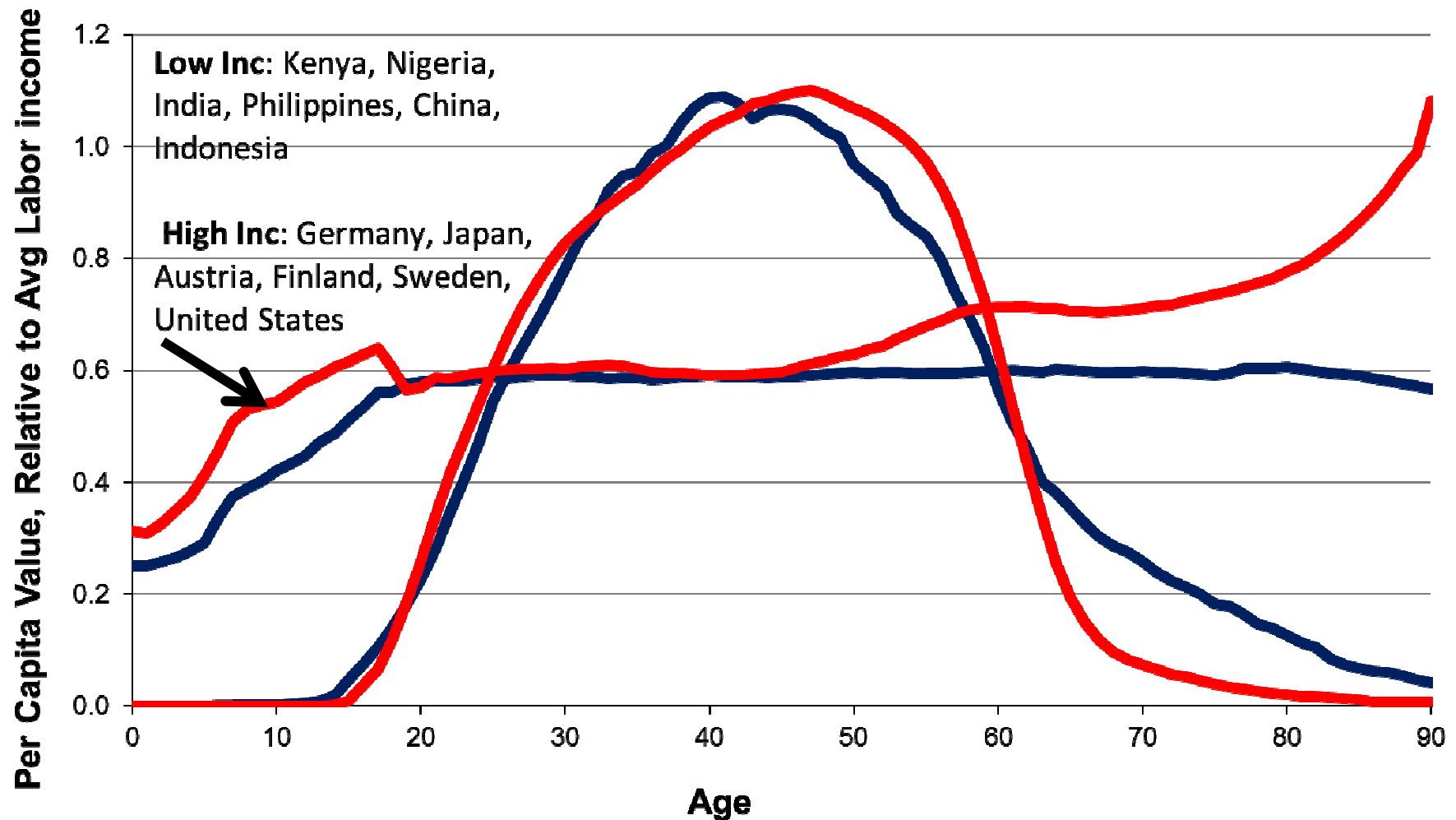
Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



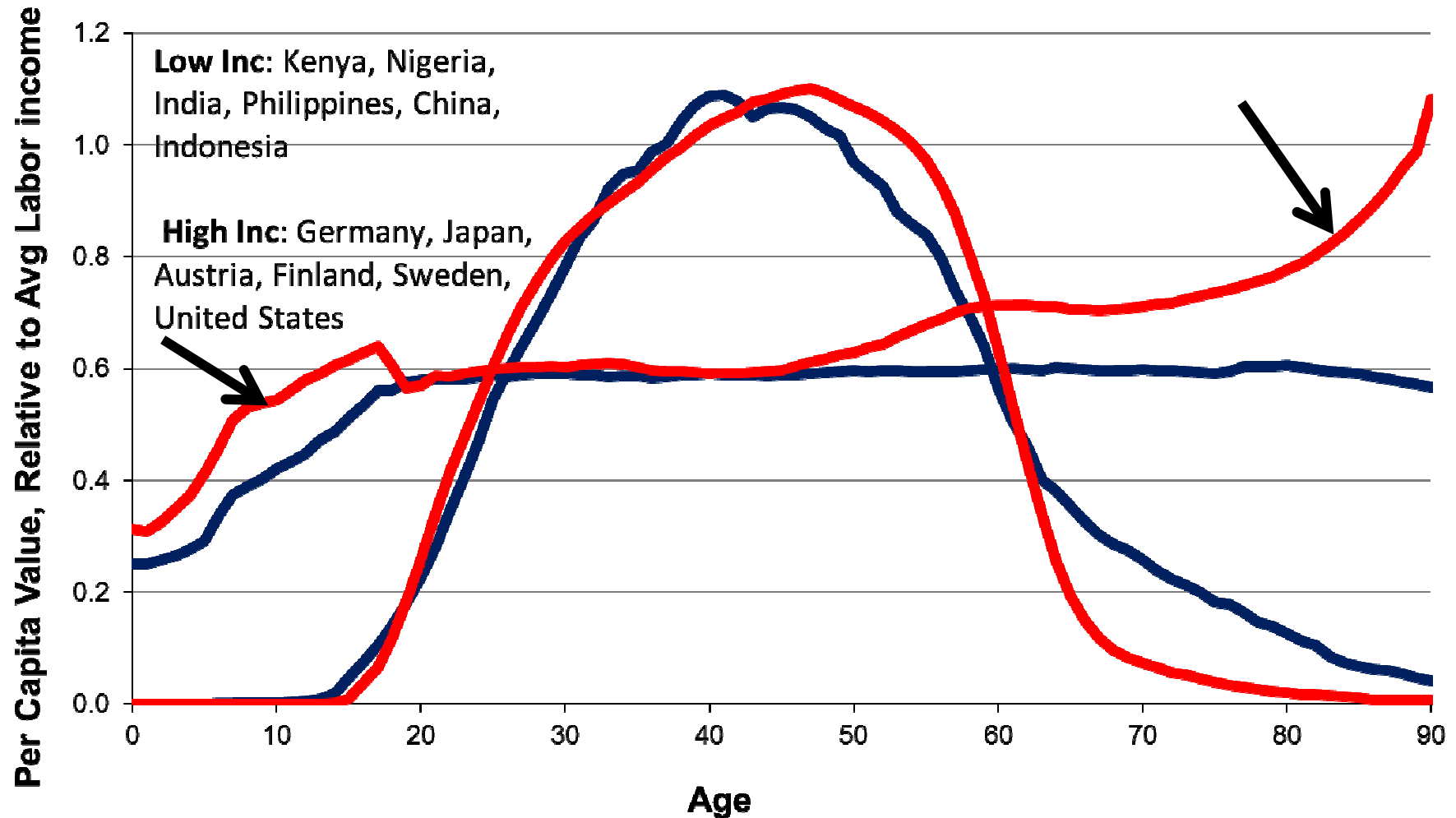
Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



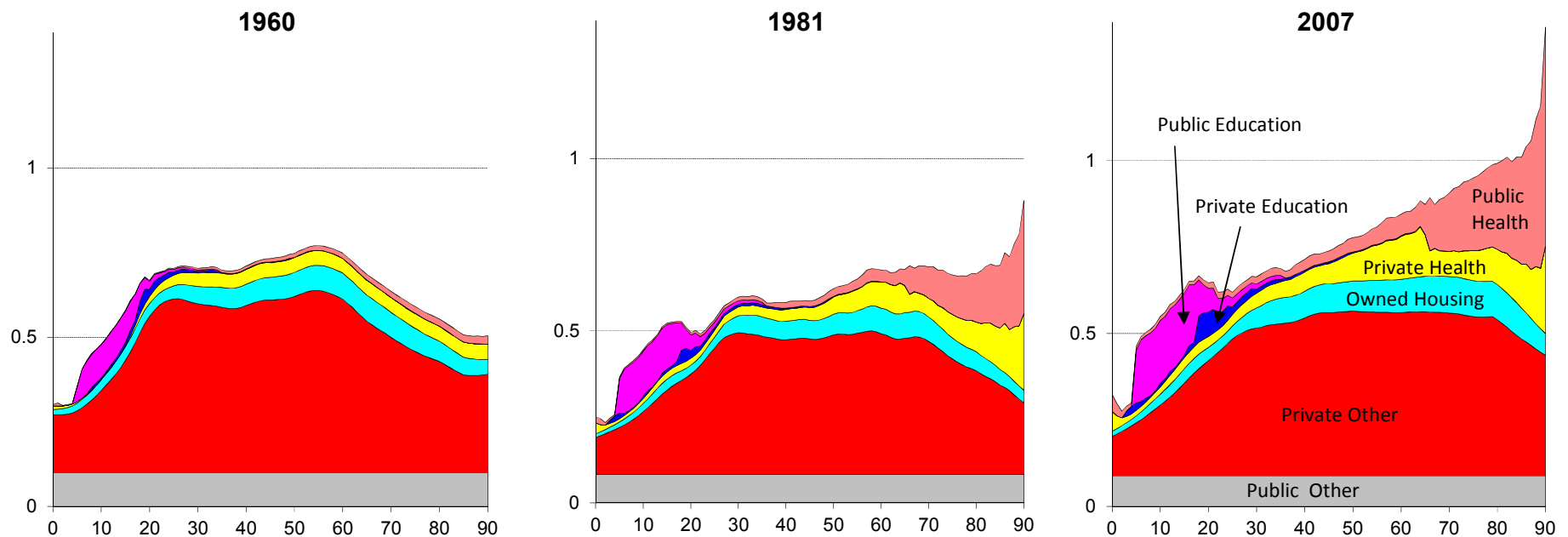
Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



Consumption and Labor Income of High Income and Low Income Countries (averages of the top and bottom income quartile of NTA countries)



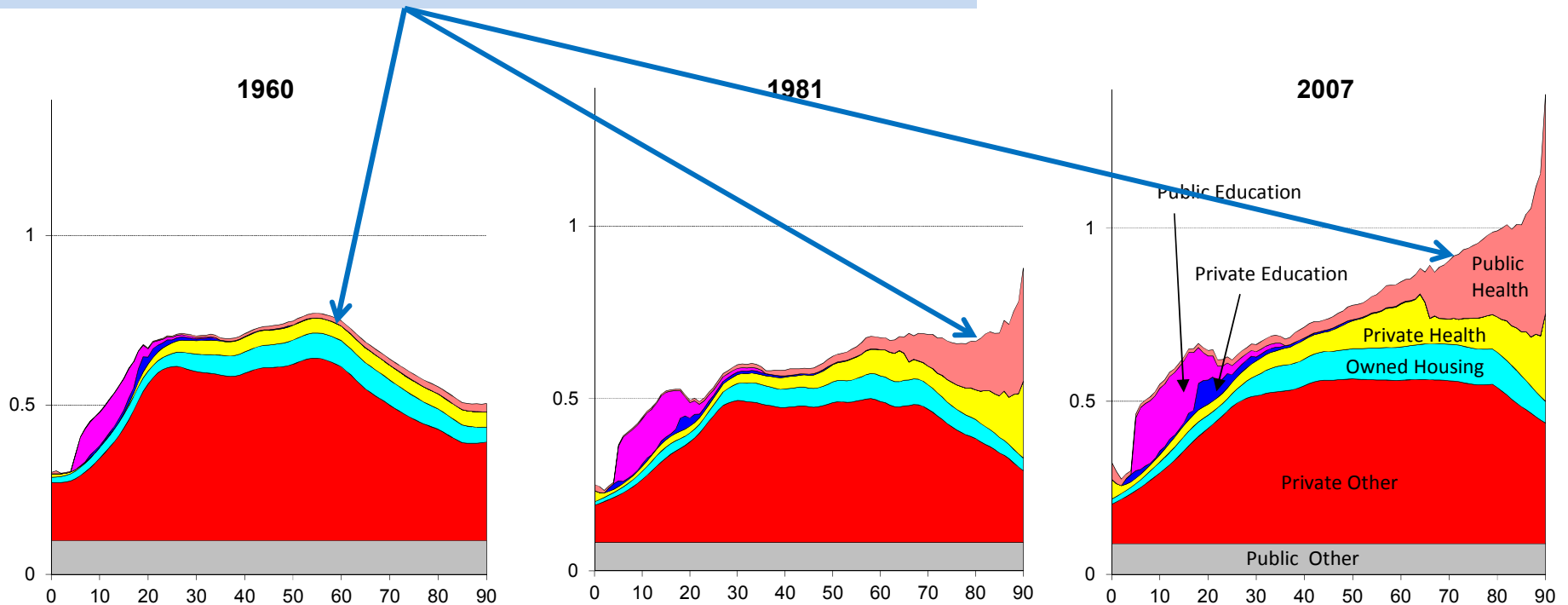
2. US consumption over past half century: 1960, 1981 and 2007 (Ratio to labor income ages 30-49).



Source: US National Transfer Accounts, Lee, Donehower and Miller, 2011

Growth of the Welfare State: US consumption over past half century: 1960, 1981 and 2007 (Ratio to labor income ages 30-49).

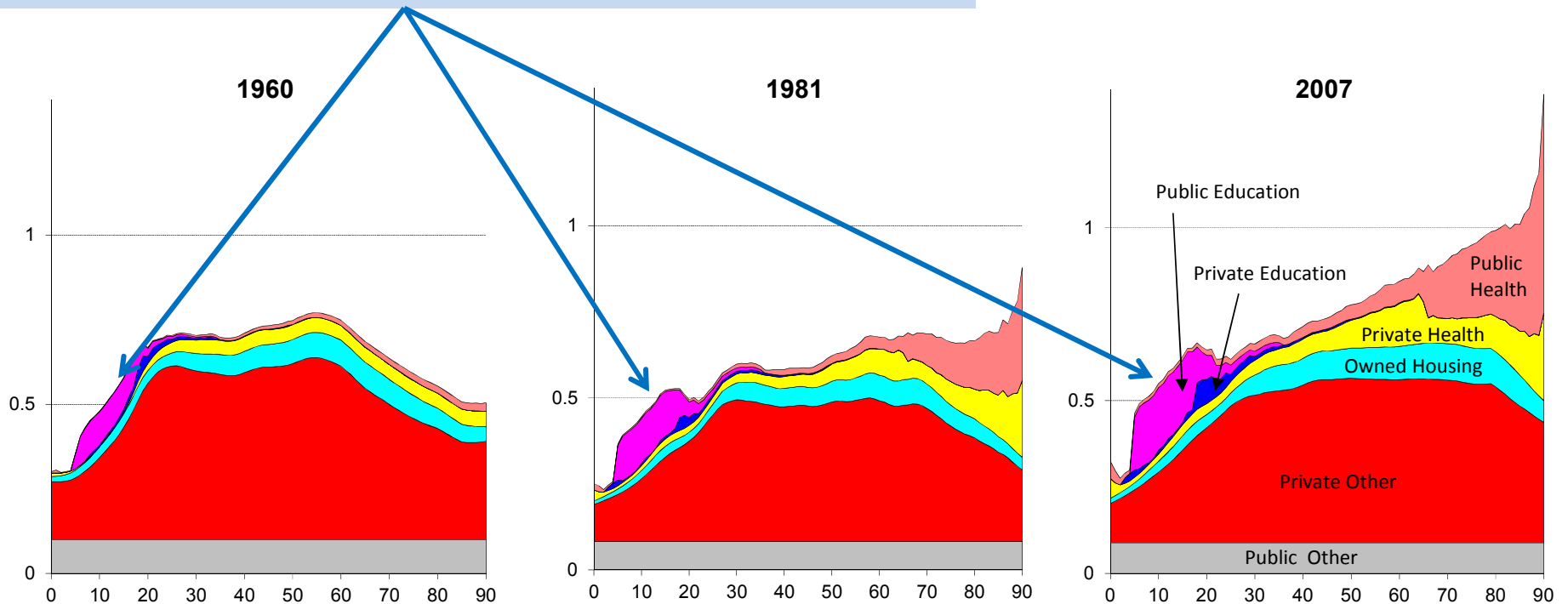
Public spending on health care has risen greatly



Source: US National Transfer Accounts, Lee, Donehower and Miller, 2011

Growth of the Welfare State: US consumption over past half century: 1960, 1981 and 2007 (Ratio to labor income ages 30-49).

Public spending on education has risen also

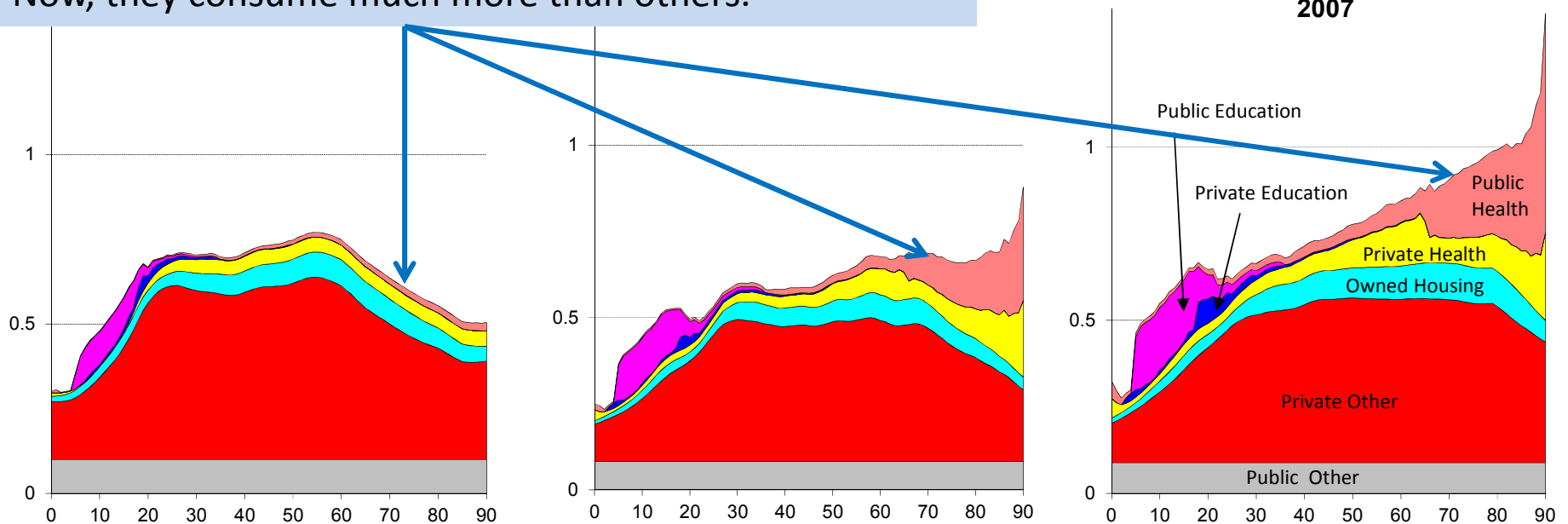


Source: US National Transfer Accounts, Lee, Donehower and Miller, 2011

Growth of the Welfare State: US consumption over past half century: 1960, 1981 and 2007 (Ratio to labor income ages 30-49).

Before, the elderly consumed much less than other adults.

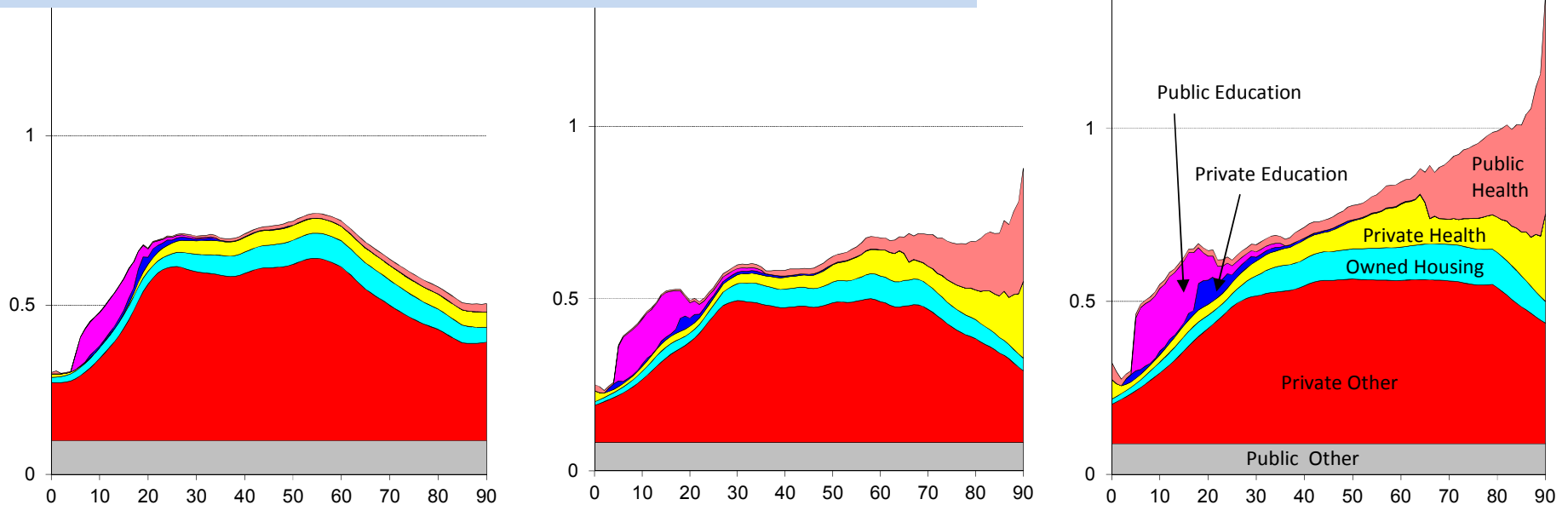
Now, they consume much more than others.



Source: US National Transfer Accounts, Lee, Donehower and Miller, 2011

Growth of the Welfare State: US consumption over past half century: 1960, 1981 and 2007 (Ratio to labor income ages 30-49).

This makes population aging more costly
Many other rich industrial nations are similar, probably including Japan.



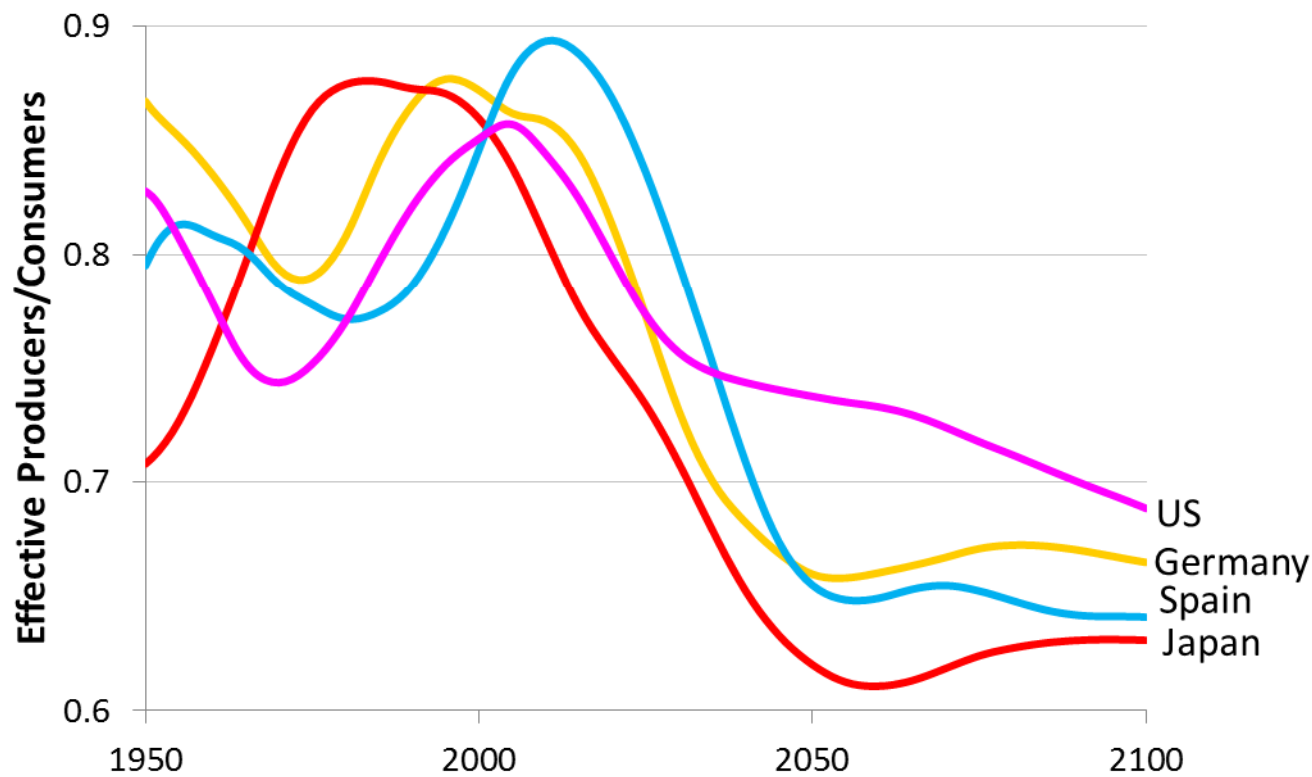
Source: US National Transfer Accounts, Lee, Donehower and Miller, 2011

3. The greatest worry about population aging is falling support ratios

- The support ratio is the population-weighted sum of labor income divided by the population weighted sum of consumption
 - Holding constant the age profiles I just showed
 - Calculate for changing population age distributions
- If productivity growth, saving rates and foreign borrowing are constant, then:
 - consumption per capita will be proportional to this support ratio.
 - Rate of growth of support ratio is rate of change of consumption

Support ratios based on the average rich country profiles and UN 2010 revision

B. More Developed Countries

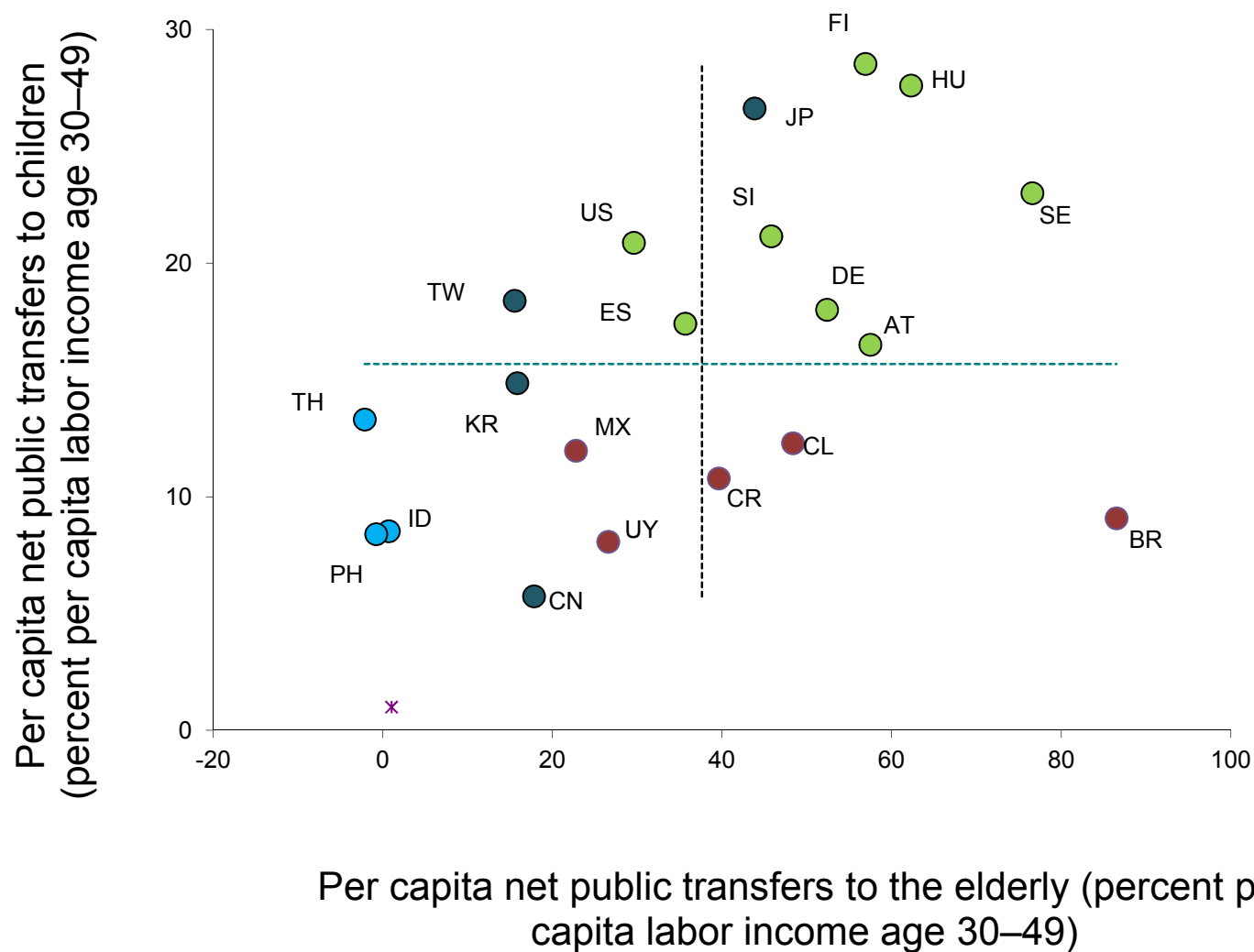


	Rate of change of support ratio			
	Germany	Japan	Spain	US
2010 to 2050	-0.66	-0.66	-0.78	-0.34

ion, July 25, 2012

4. Public Transfers to Children and the Elderly in Comparative Context

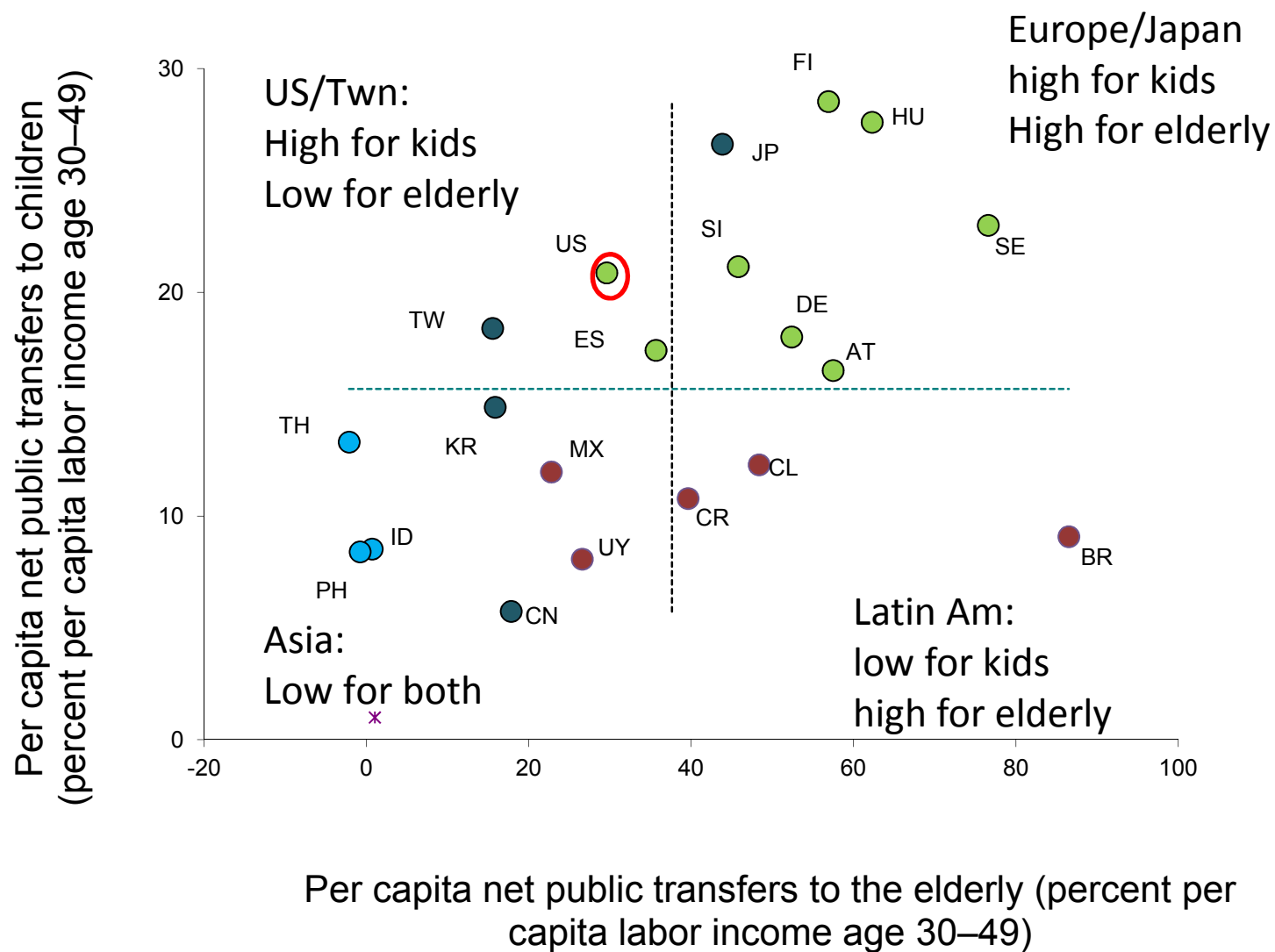
Per capita net public transfers to children and the elderly: 20 economies around 2000 (lines are medians).



Source: Tim Miller, Ch. 7, Lee and Mason, 2011

Ron Lee and Andy Mason, July 25, 2012

Per capita net public transfers to children and the elderly: 20 economies around 2000.



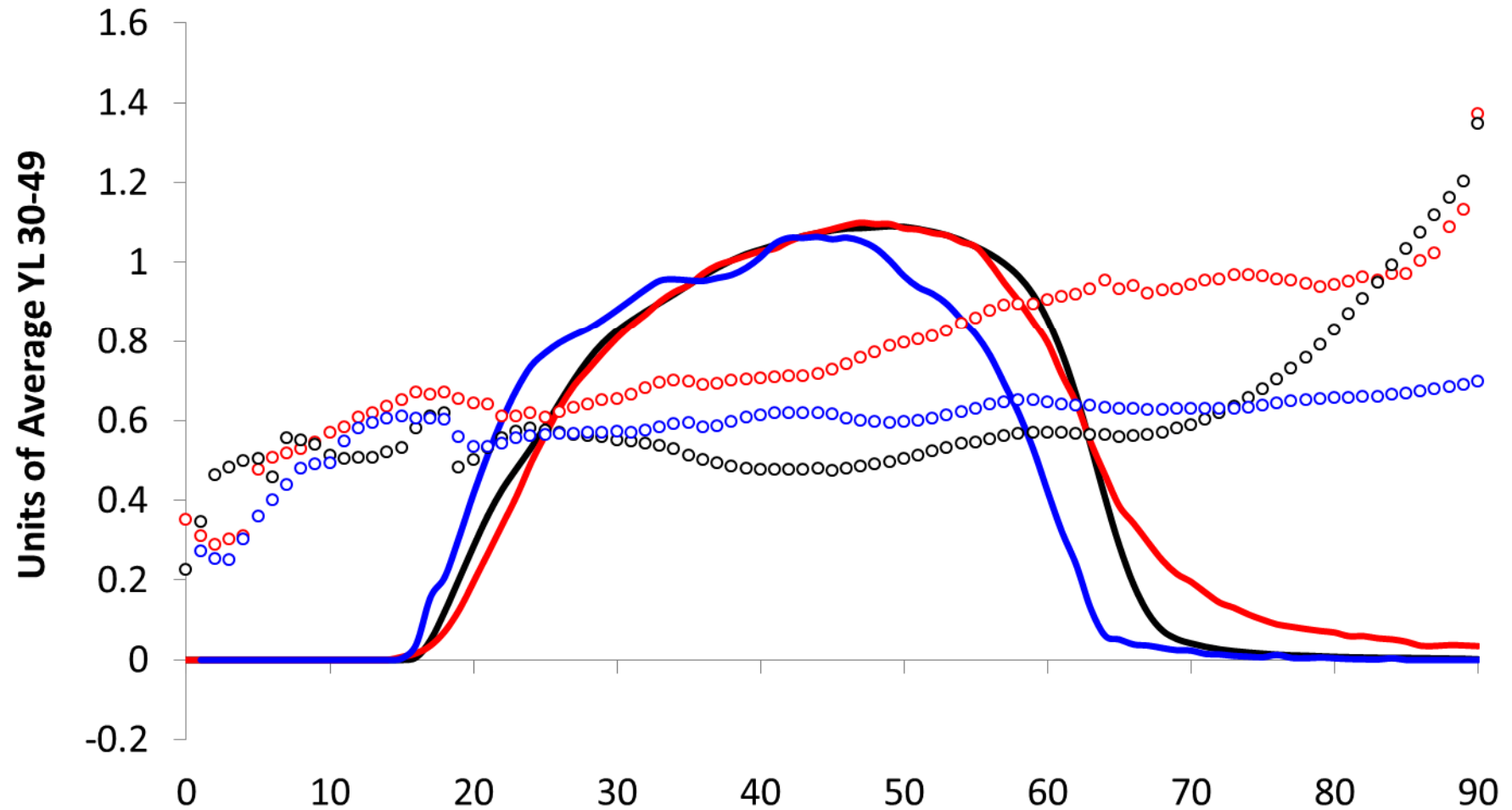
Source: Tim Miller, Ch. 7, Lee and Mason, 2011

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5. A closer look at the US, with Austria and Sweden for comparison

Labor Income and Consumption

(Red - US 2003; Black - Sweden 2003; Blue - Austria 2000)

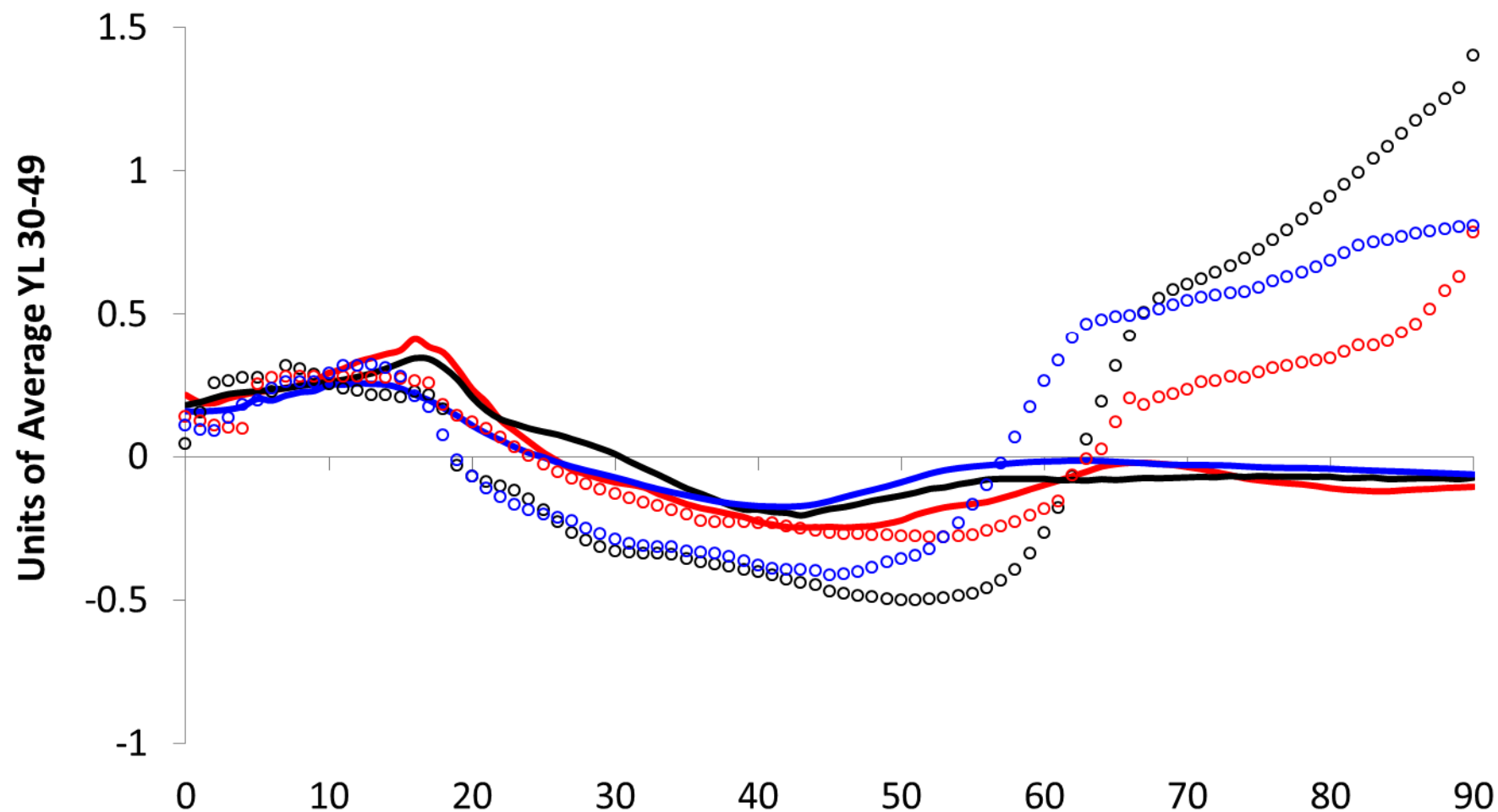


How transfers are estimated

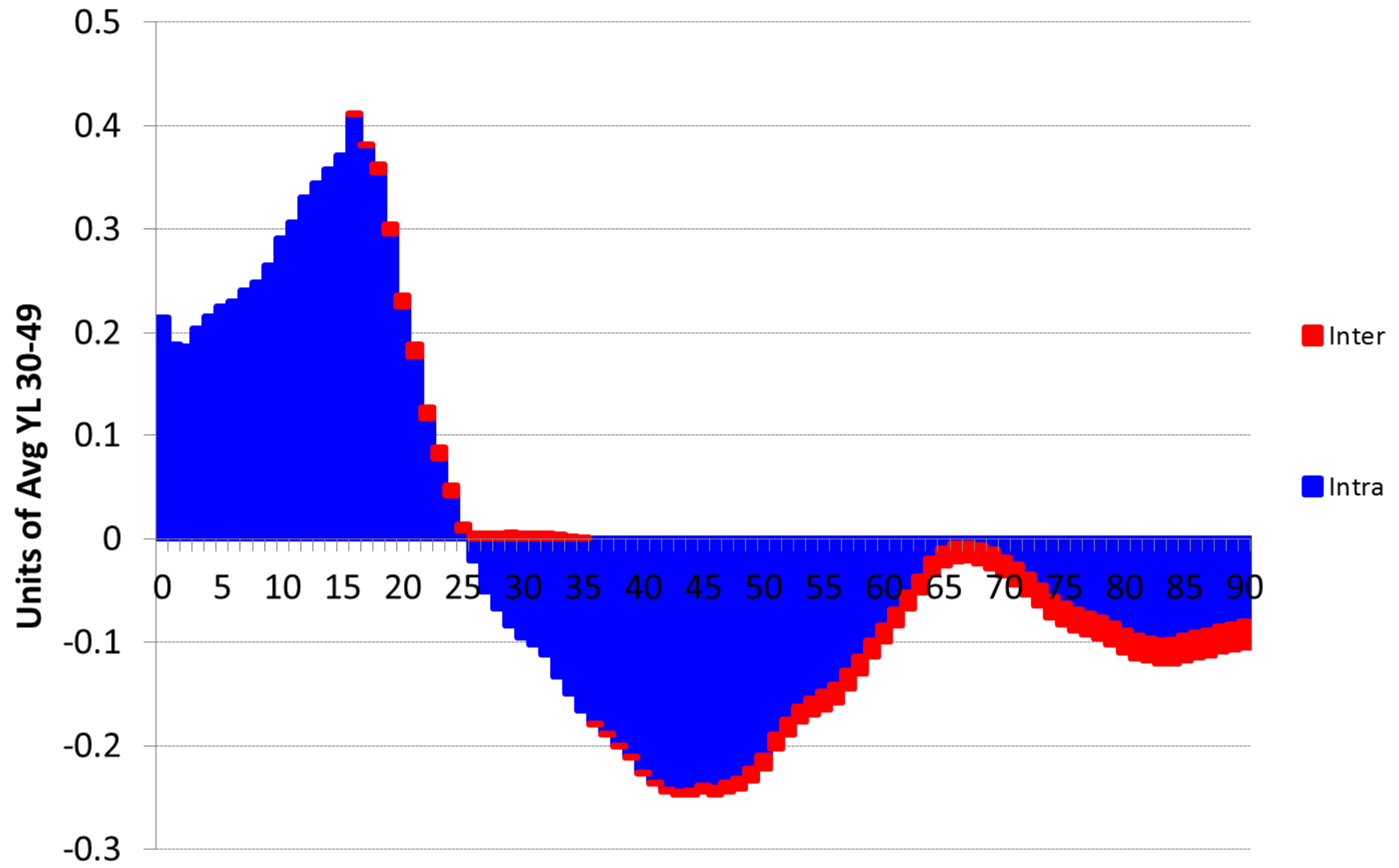
- Net **intra**household transfers at each age in each household are the difference between income received (labor income, asset income and public transfers) and consumption.
- Net **inter**household transfers are estimated from direct survey questions.
- **Currently bequests at death are not currently included – work in process!**

Transfers

(Red - US; Black - Sweden; Blue - Austria)
Circles are public transfers, lines are private transfers

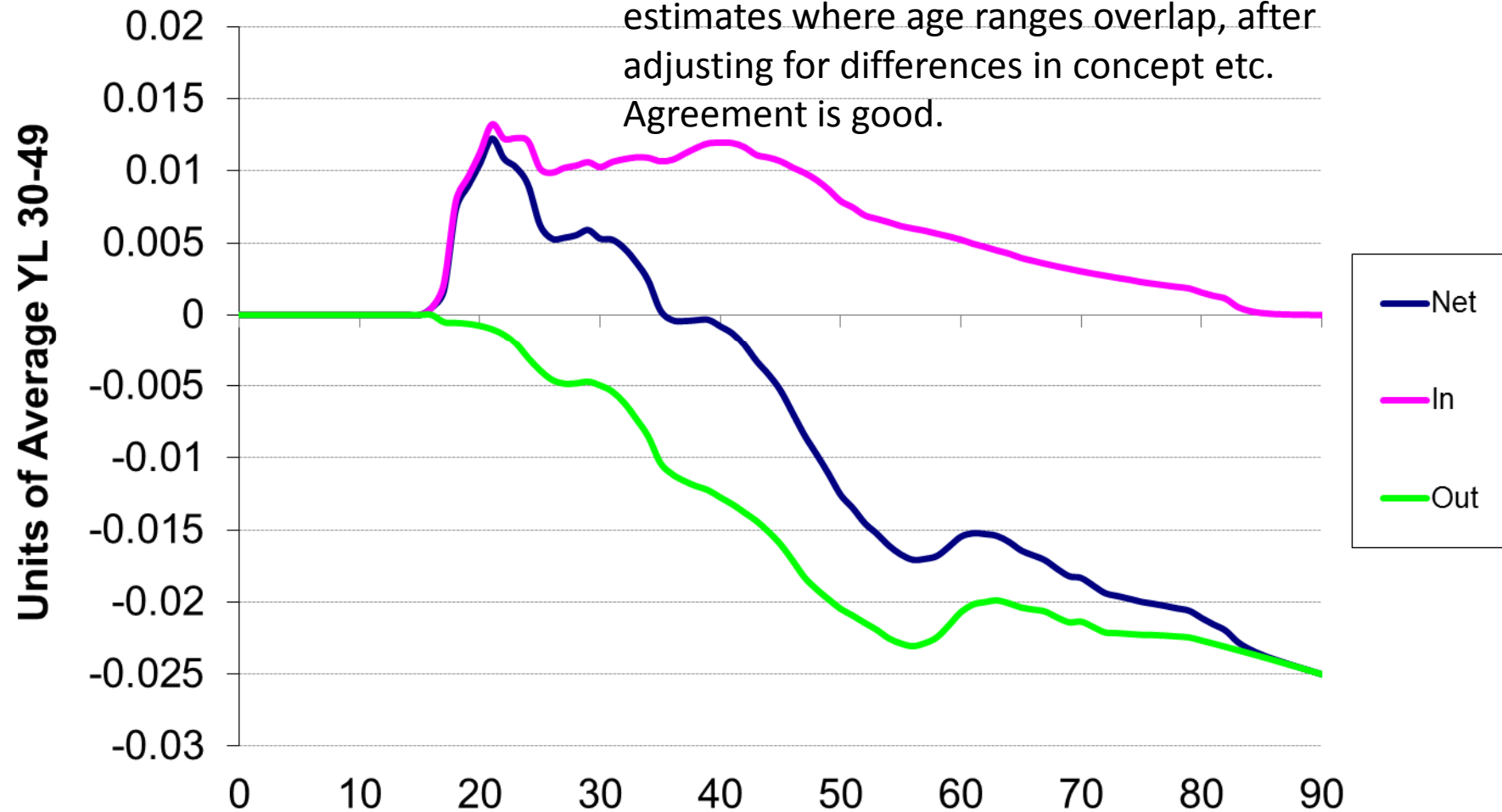


Net Private Transfers

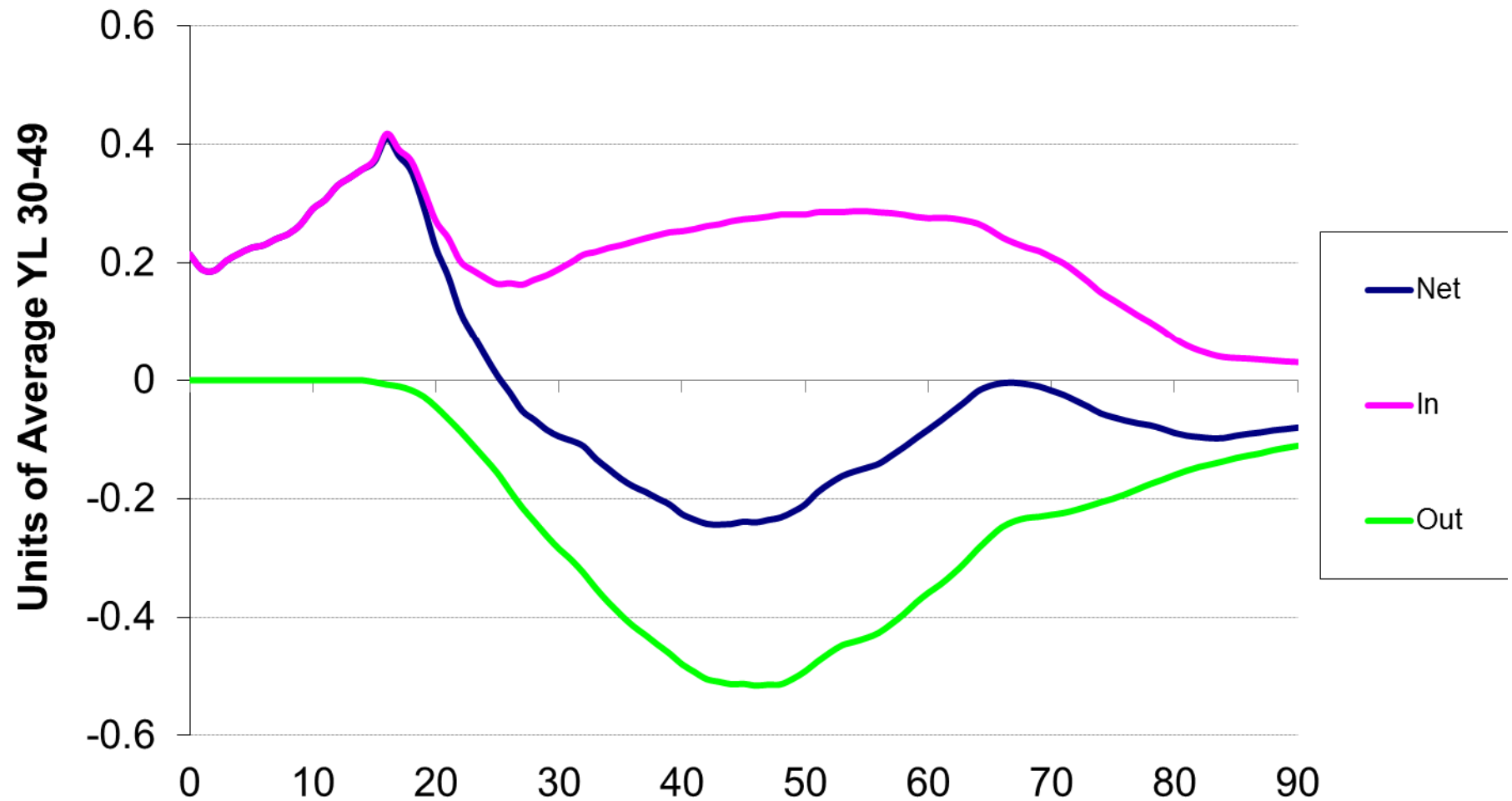


Private Interhousehold Transfers

We checked these estimates against HRS estimates where age ranges overlap, after adjusting for differences in concept etc. Agreement is good.

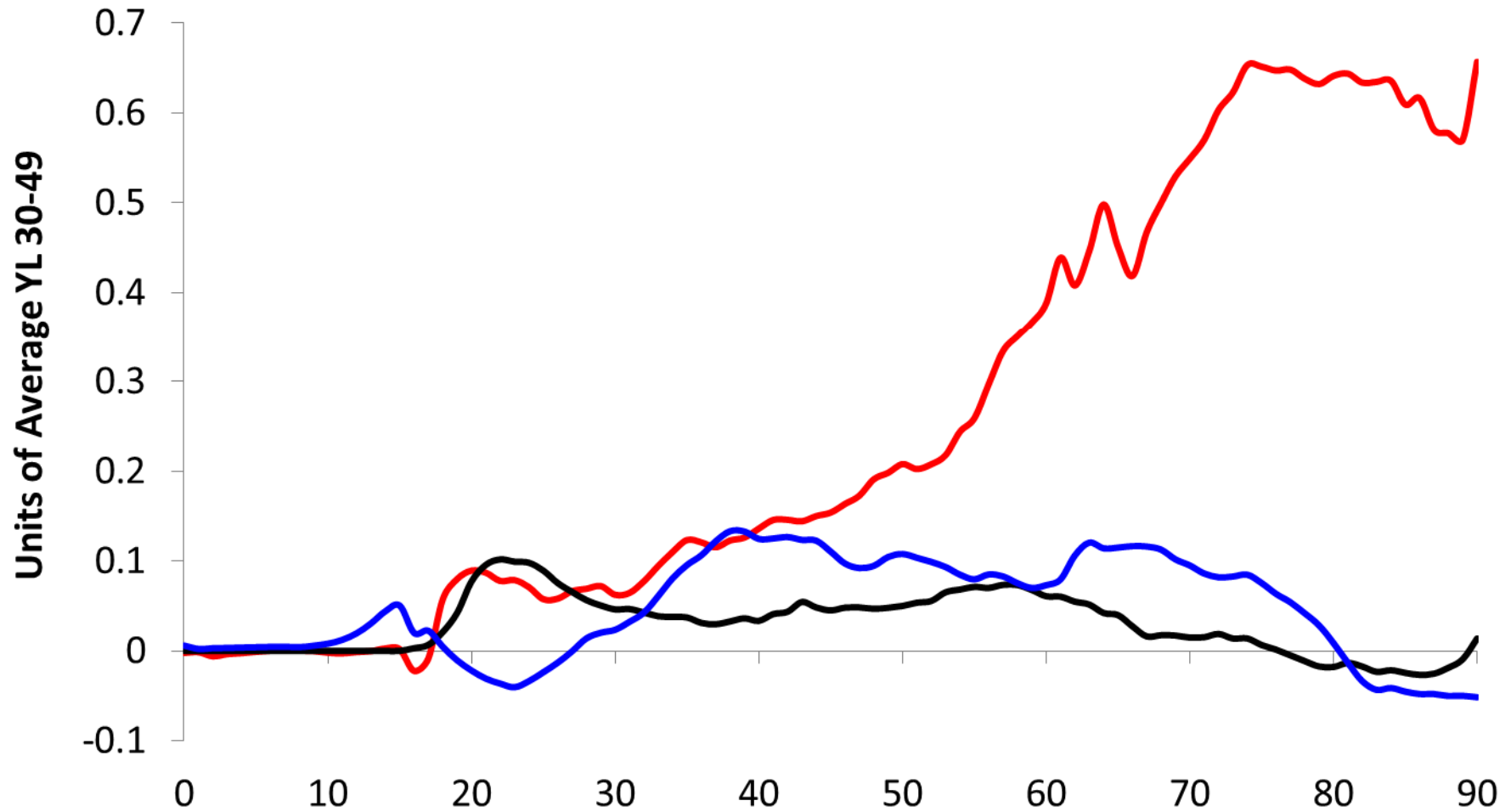


Private Intrahousehold Transfers



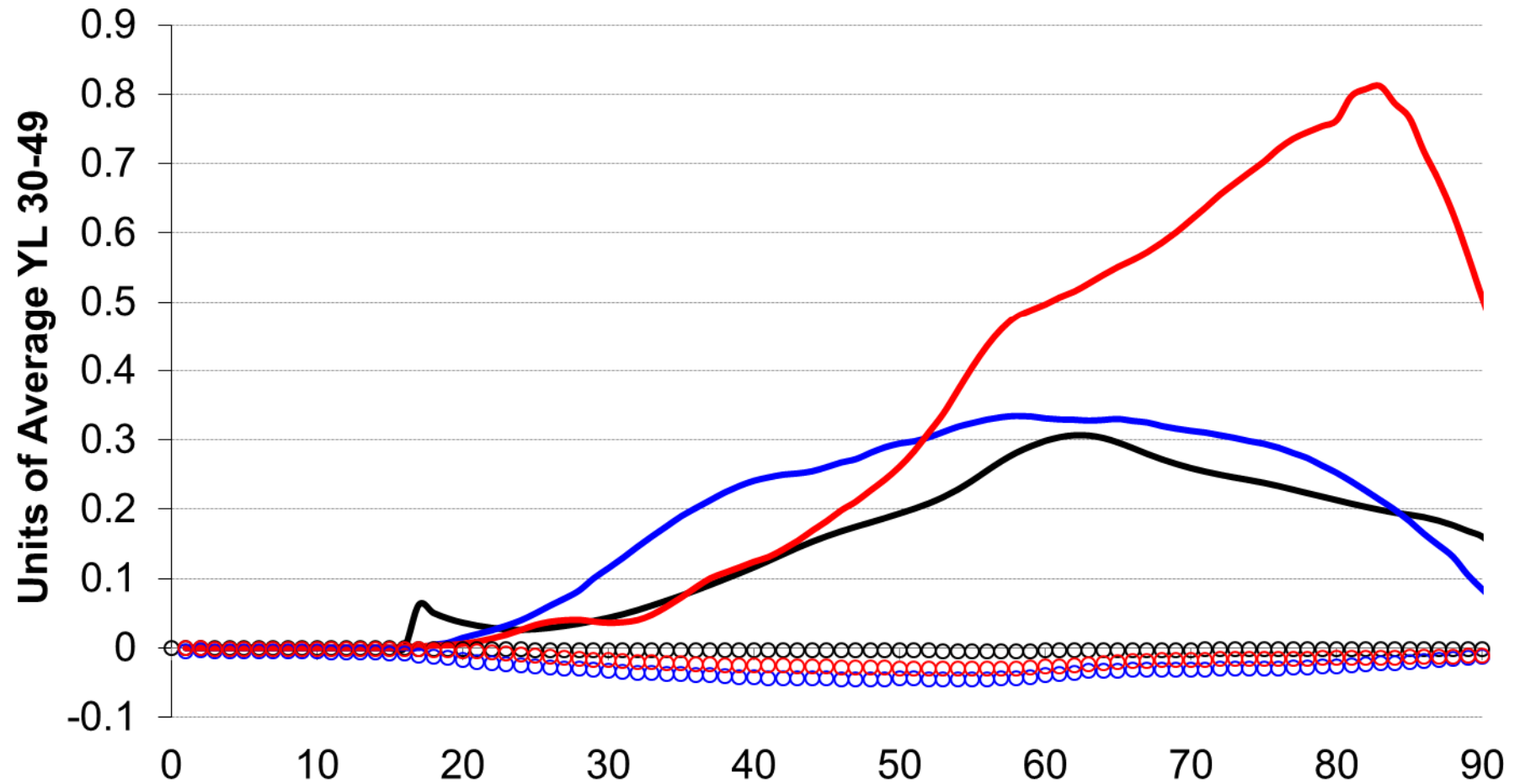
Asset-Based Reallocations

(Red - US; Black - Sweden; Blue - Austria)



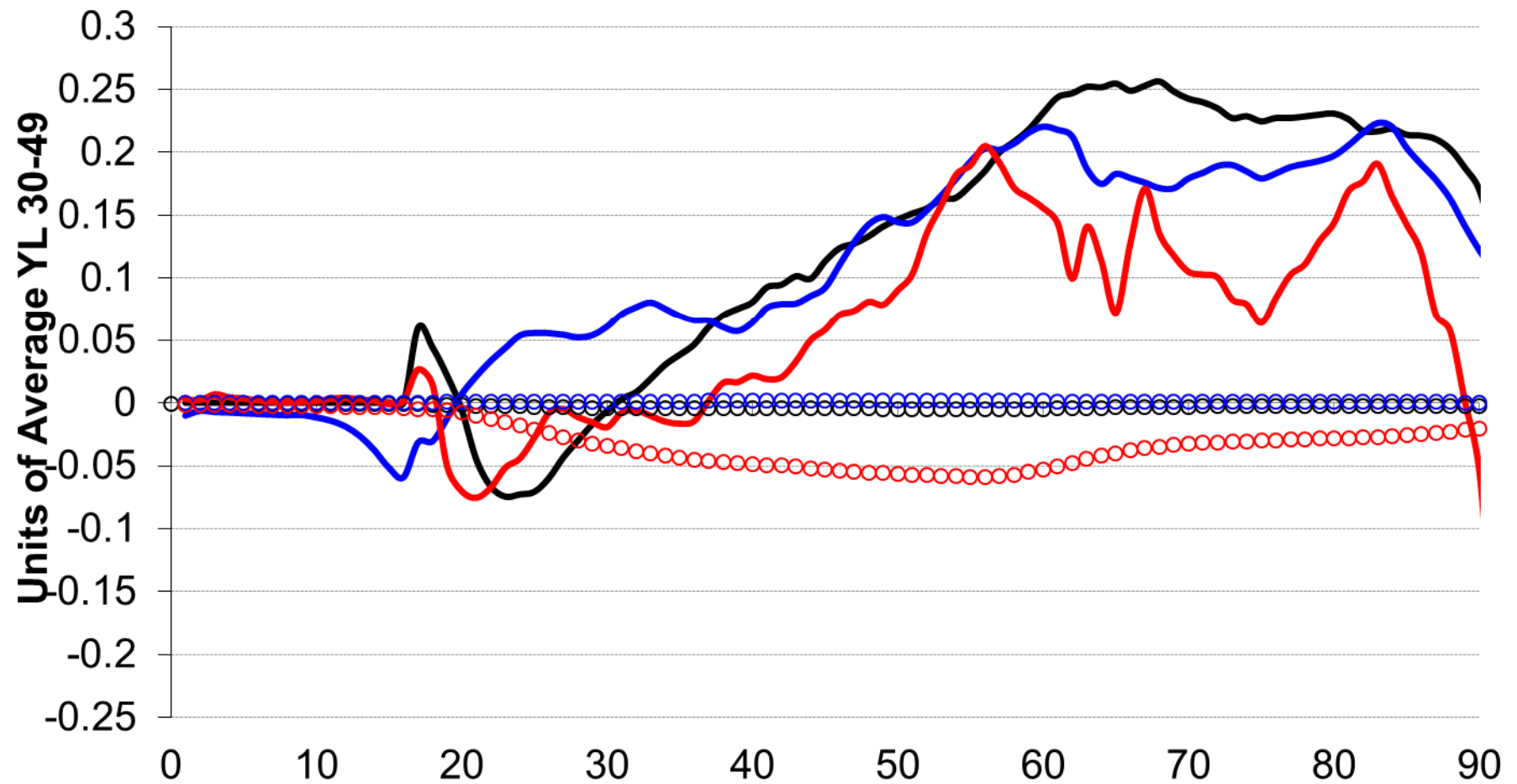
Comparative Asset Income

(Lines Private, Circles Public; Red - US, Black - SE Blue - AT)

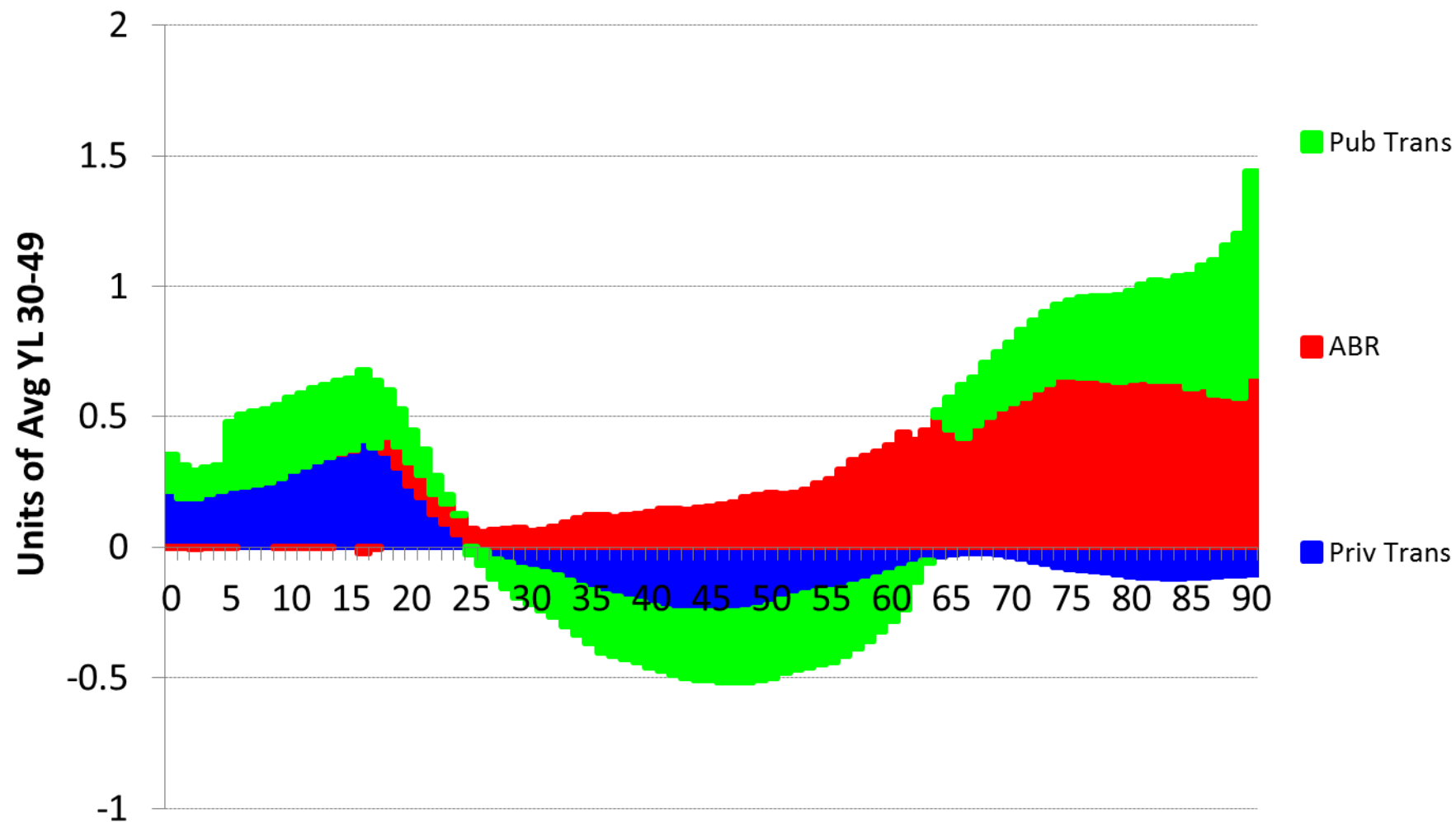


Comparative Saving

(Lines Private, Circles Public; Red - US Black - SE, Blue - AT)

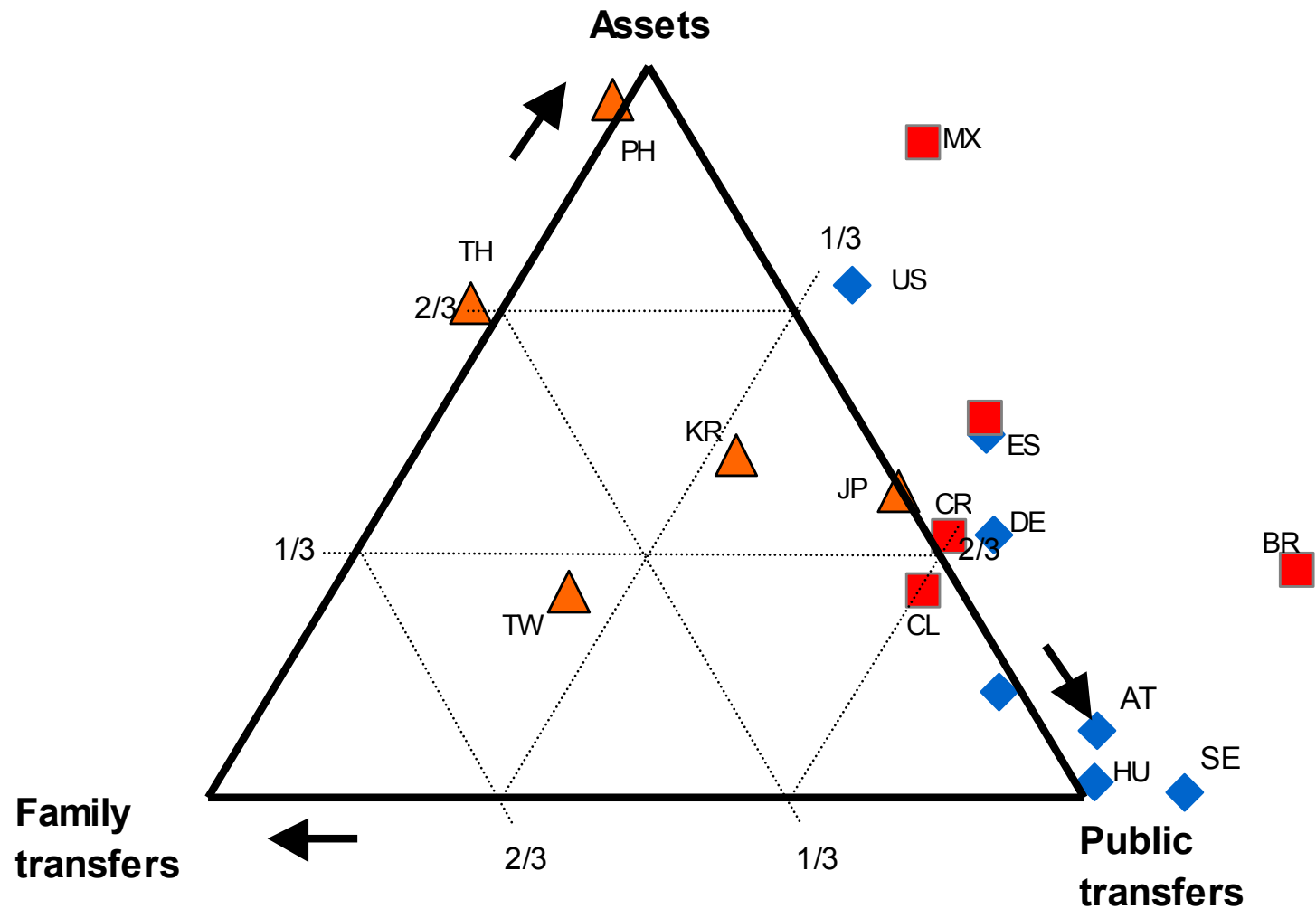


Financing the Lifecycle Deficit Components at Each Age

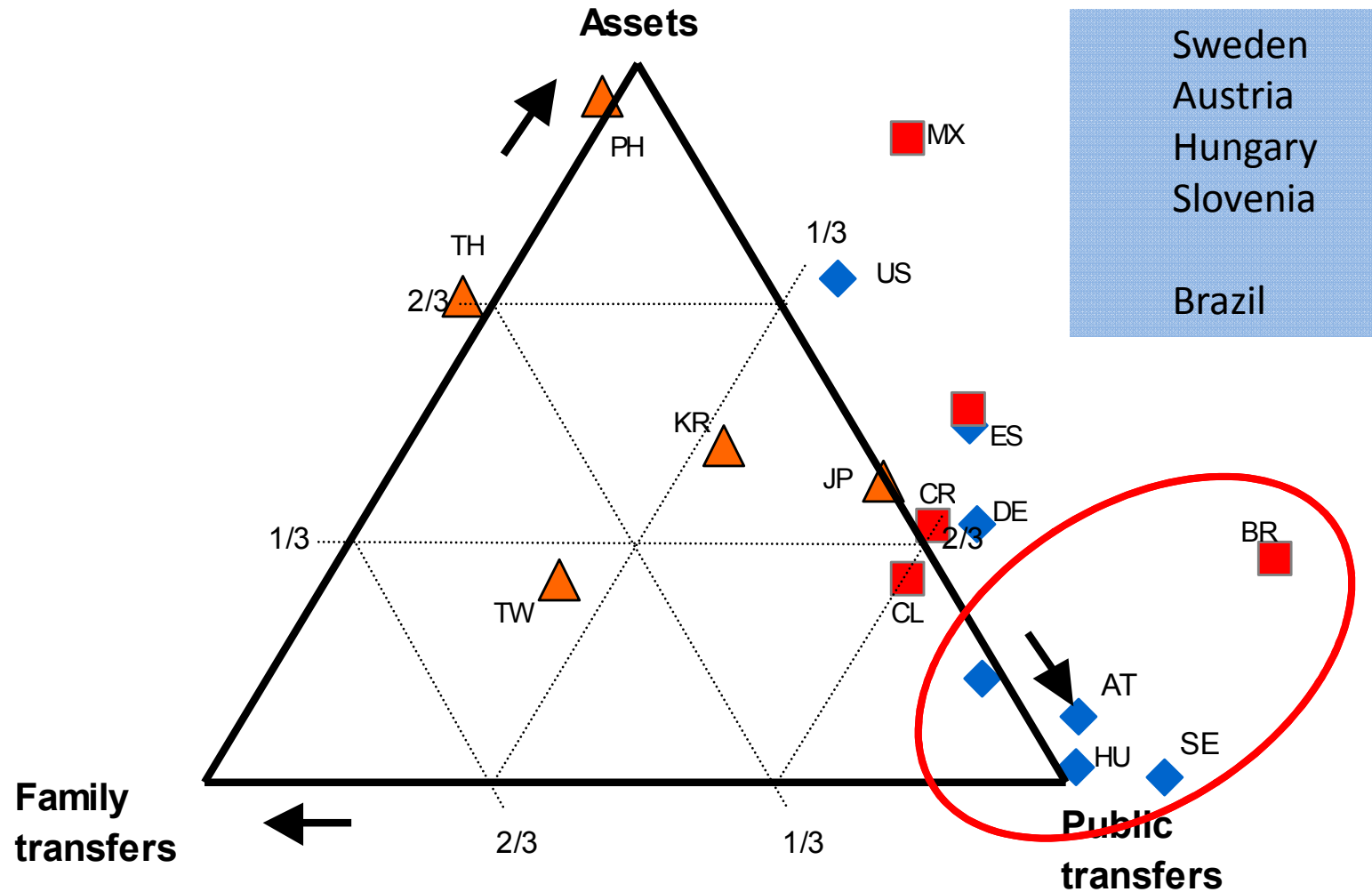


6. How old age consumption *net of labor income* is financed

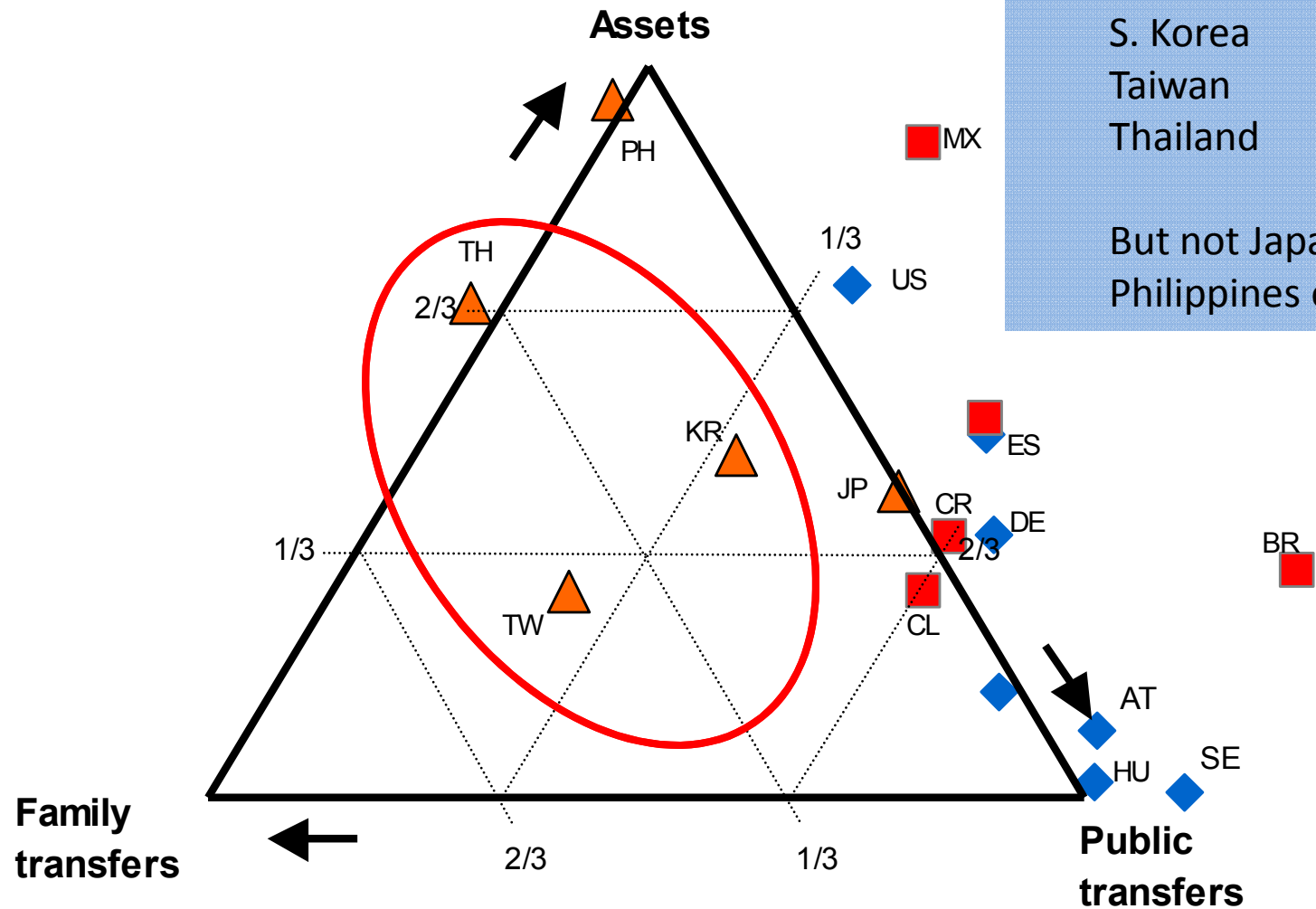
Shares of consumption not covered by labor income: **Family Transfers**, **Public Transfers** and **Asset income** (part not saved) sum to 1.0



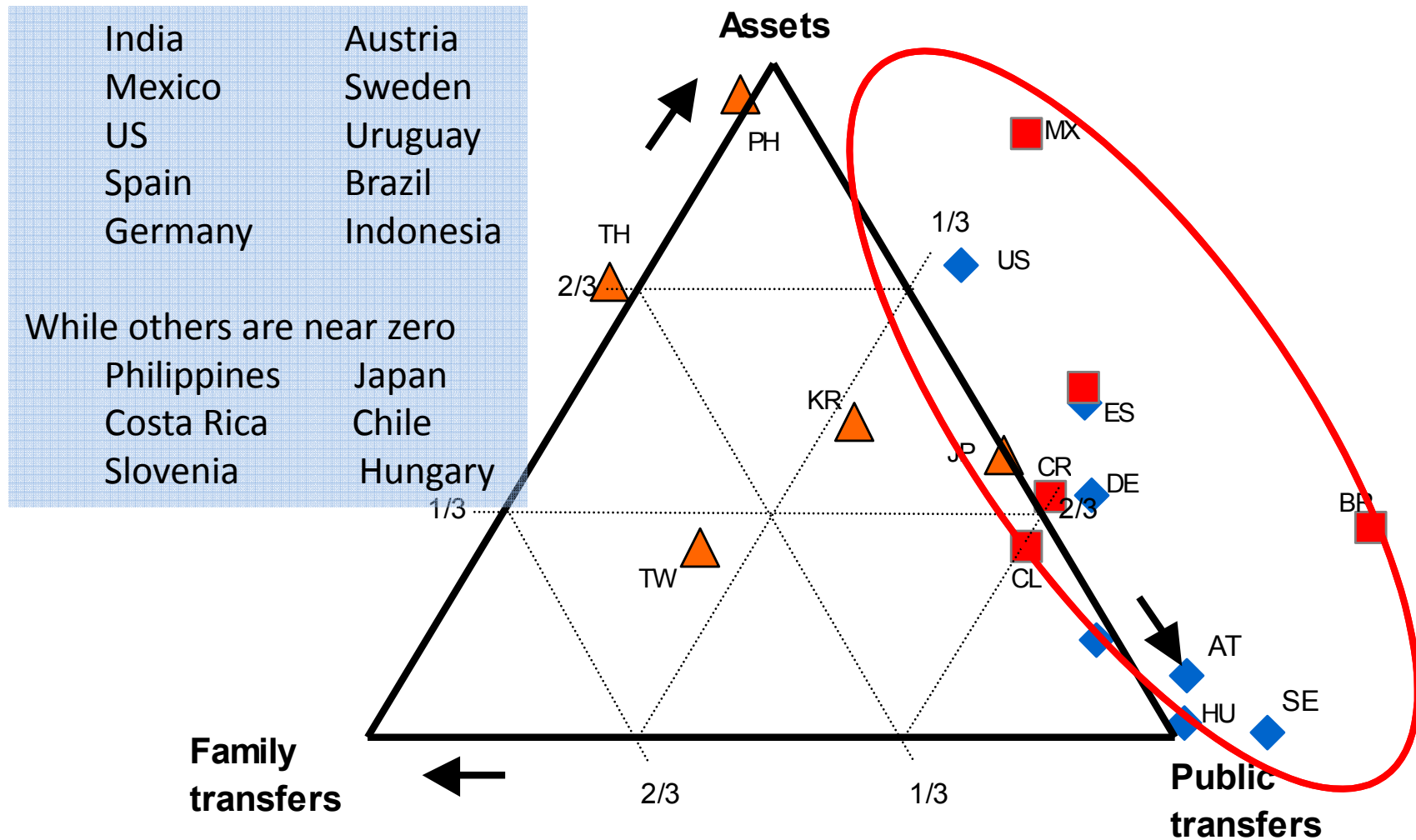
Elders In some countries rely 100% on public sector transfers.



Elders In some Asian countries rely in part on family transfers.

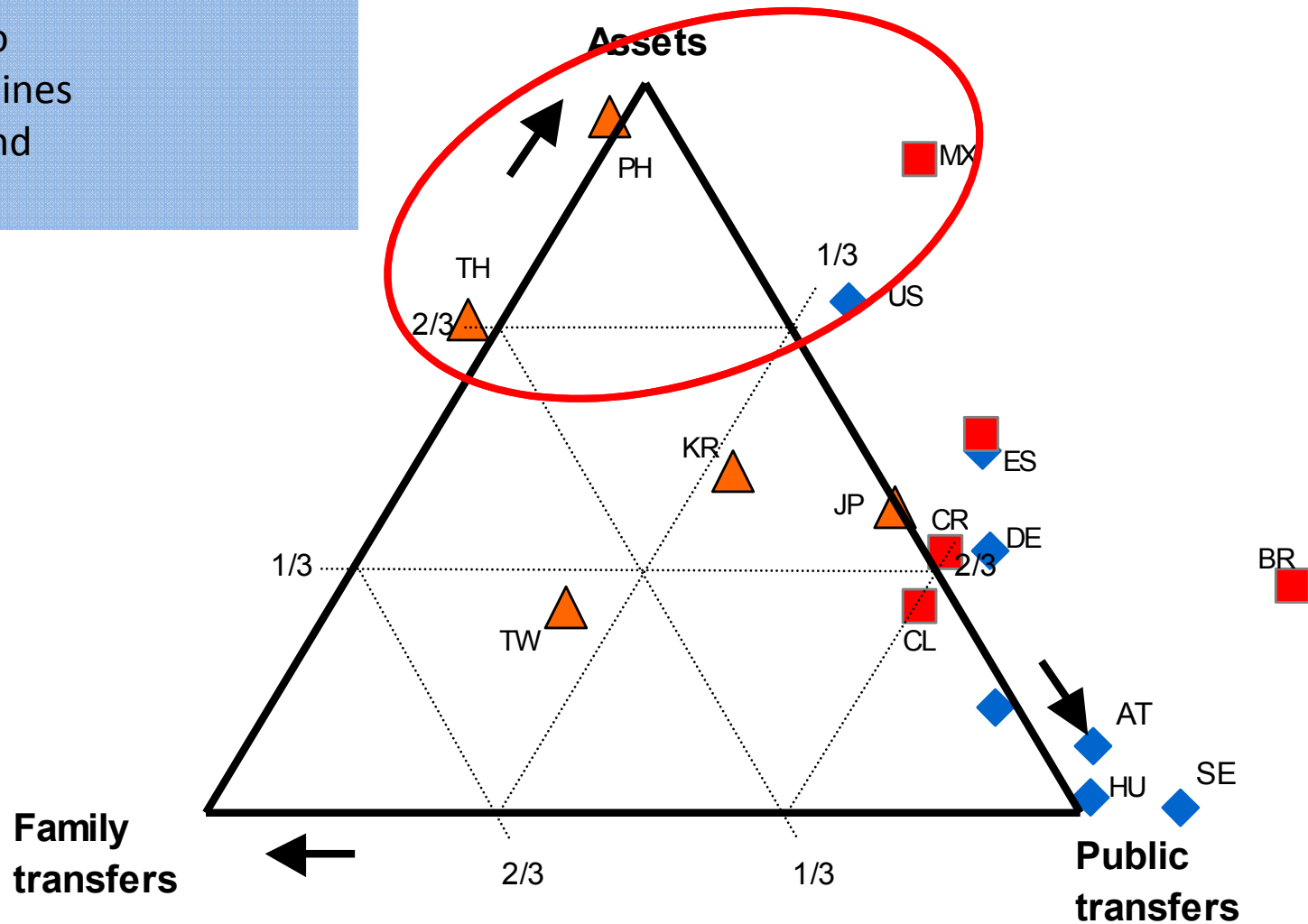


But in more countries, elders actually make net transfers to their children



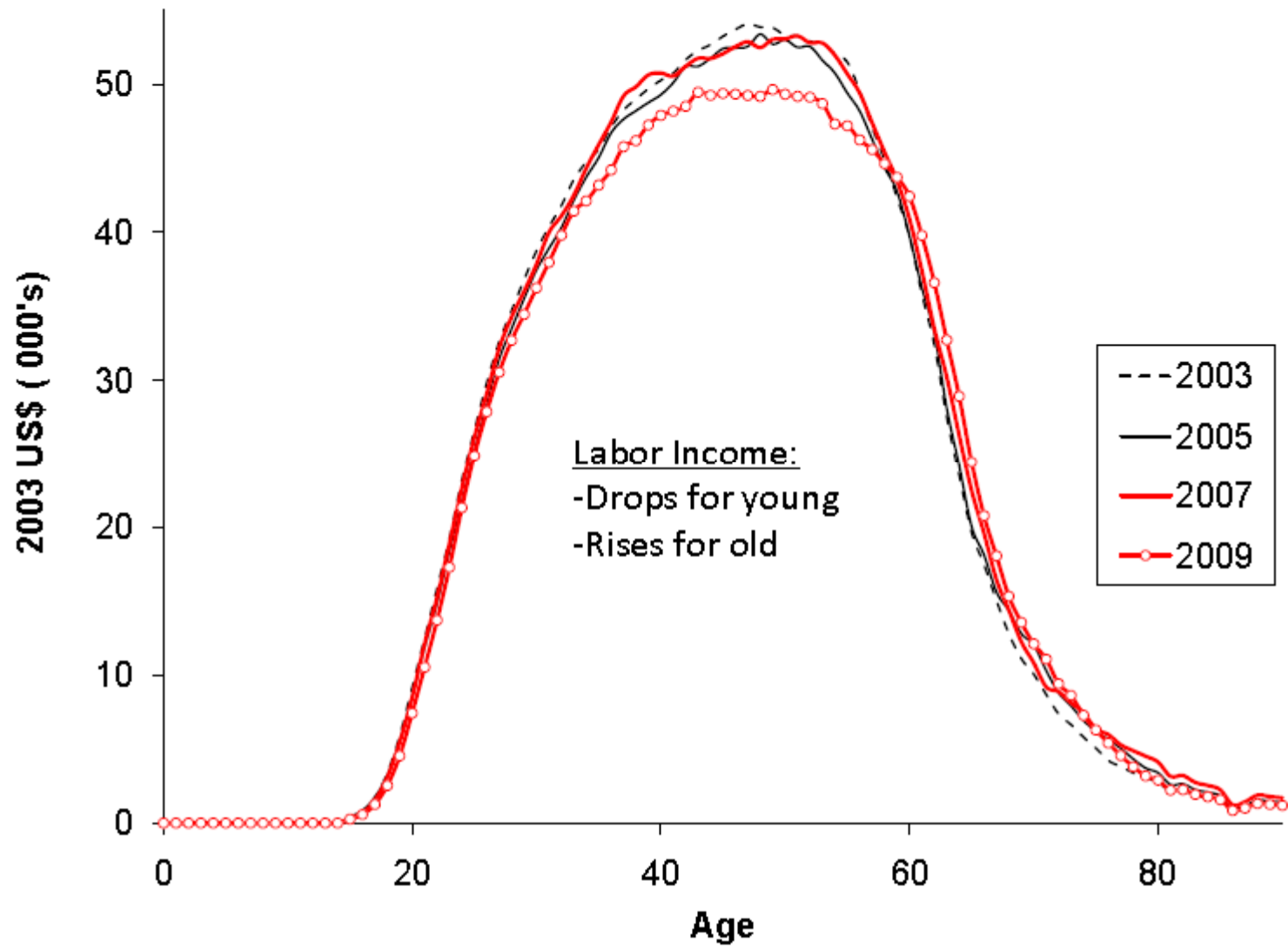
In some countries, elders rely mainly on asset income.

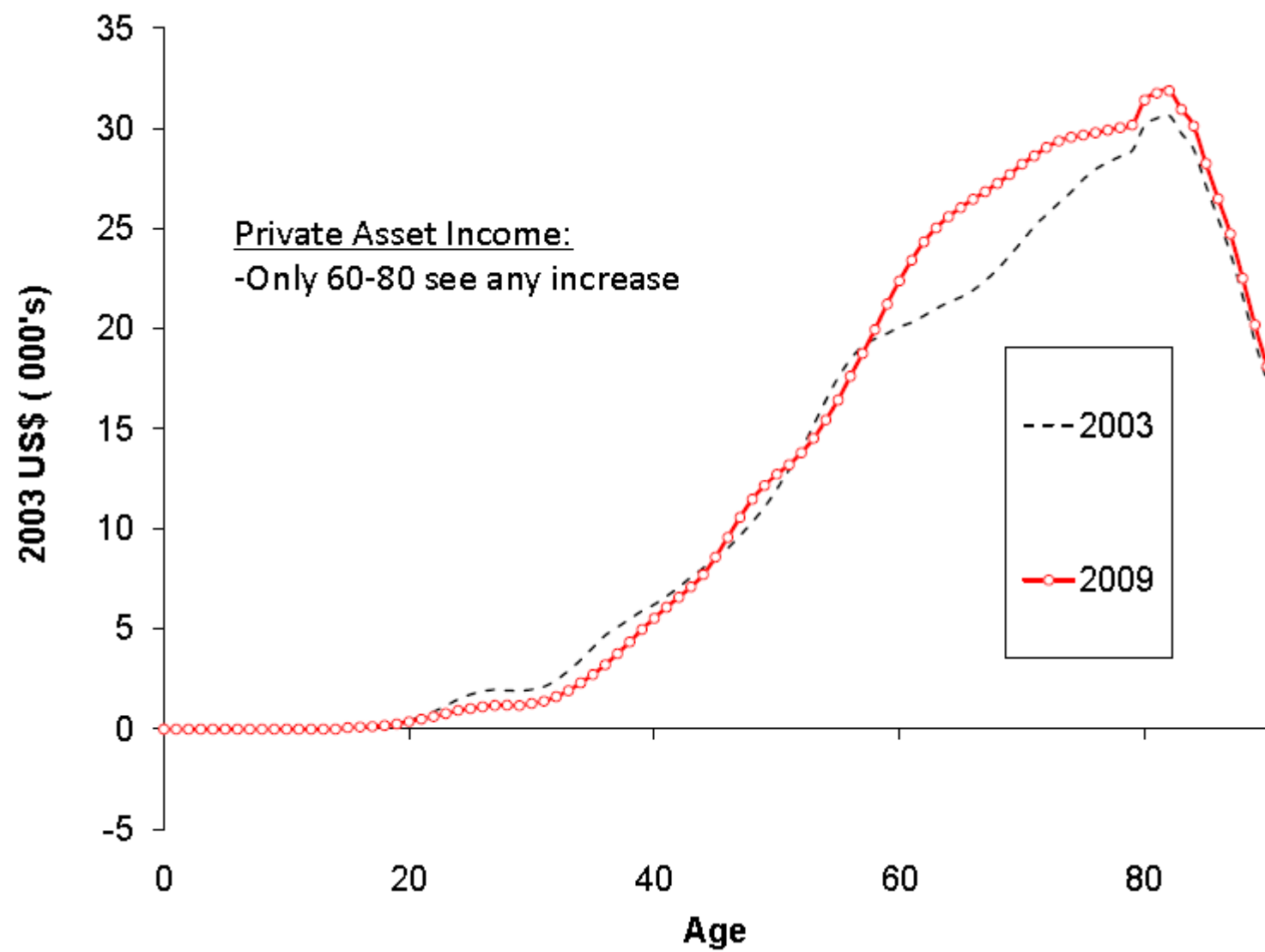
India
Mexico
Philippines
Thailand
US

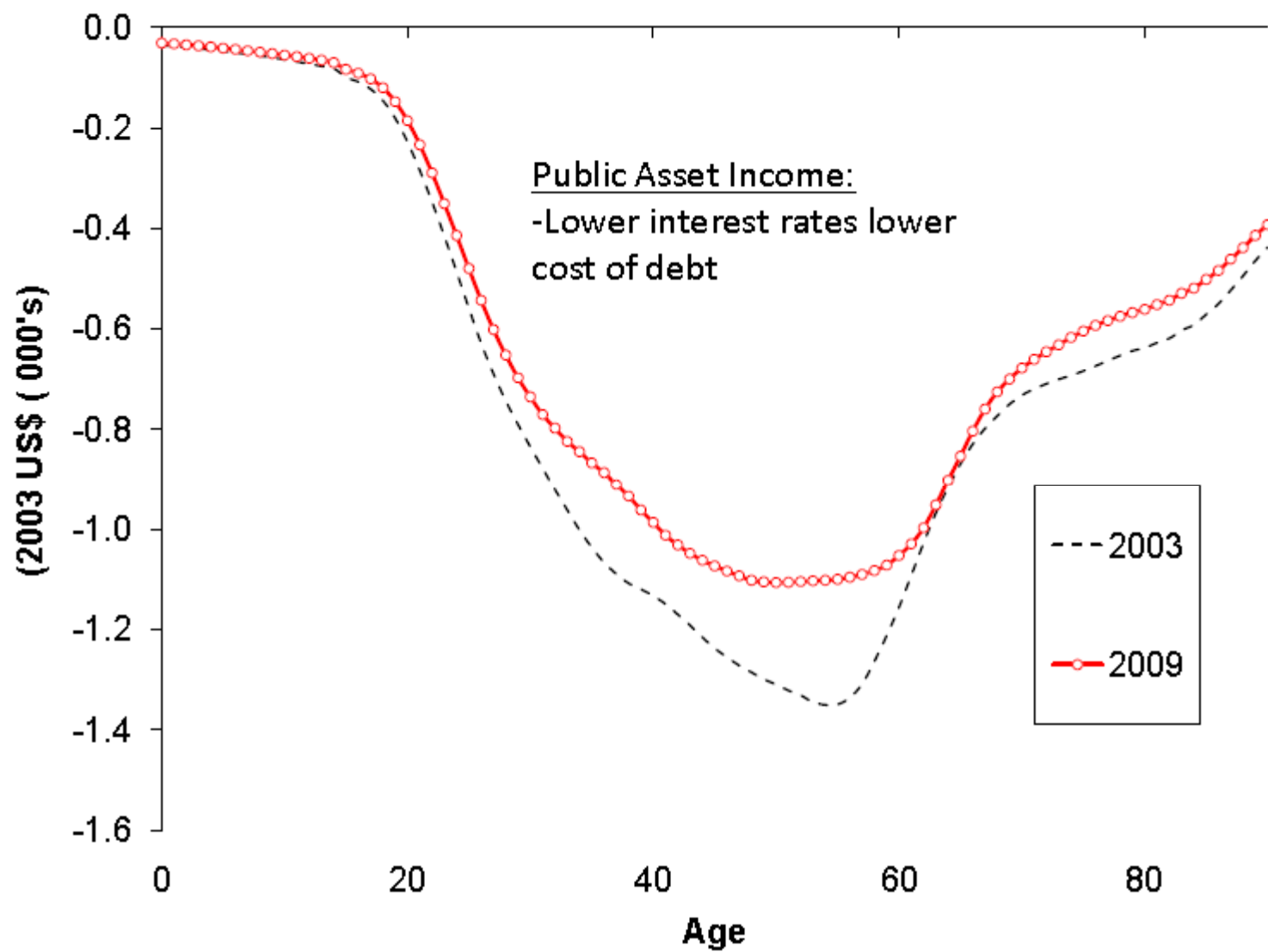


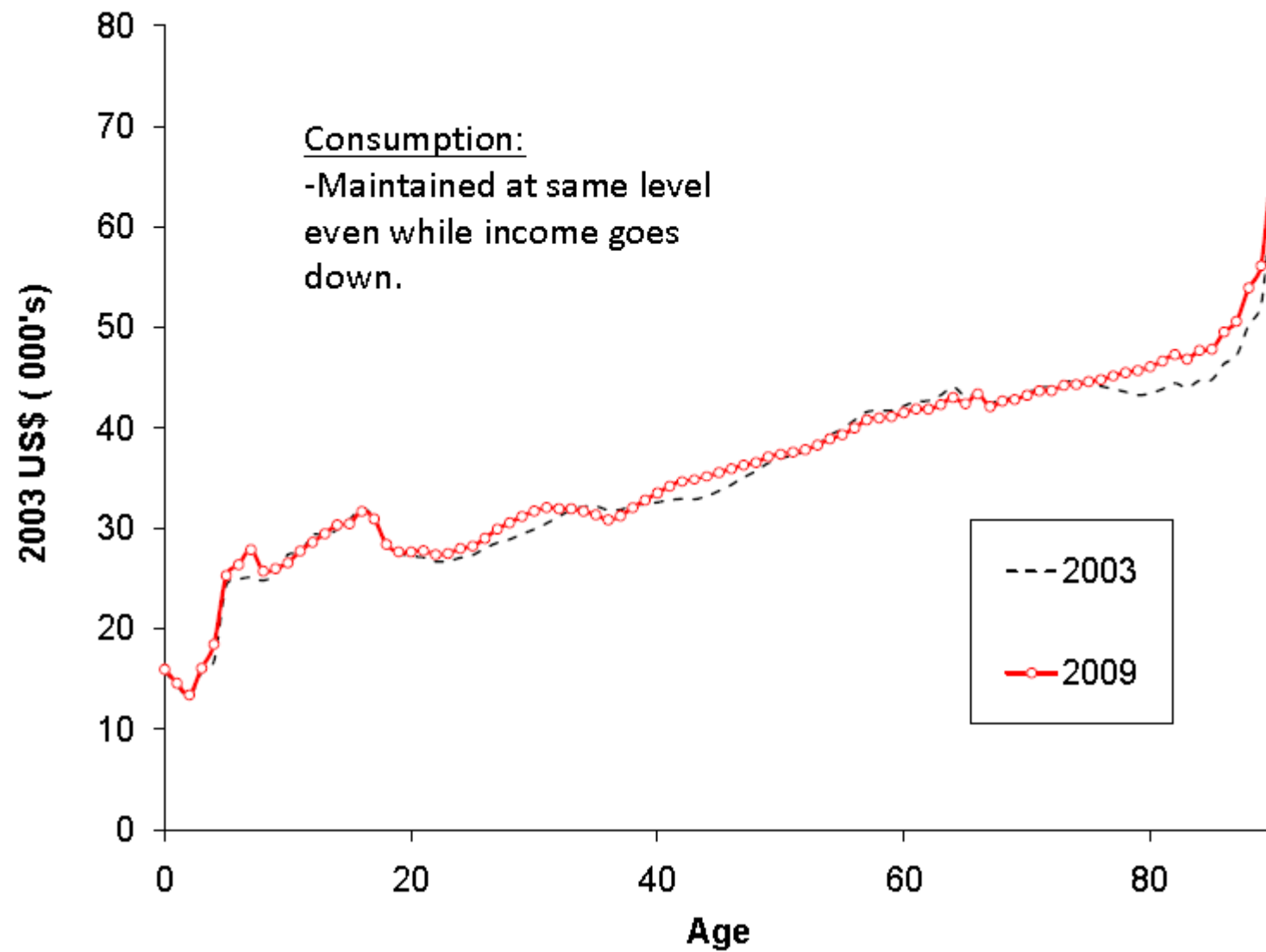
7. The economic crisis: Comparison of 2003 to 2009

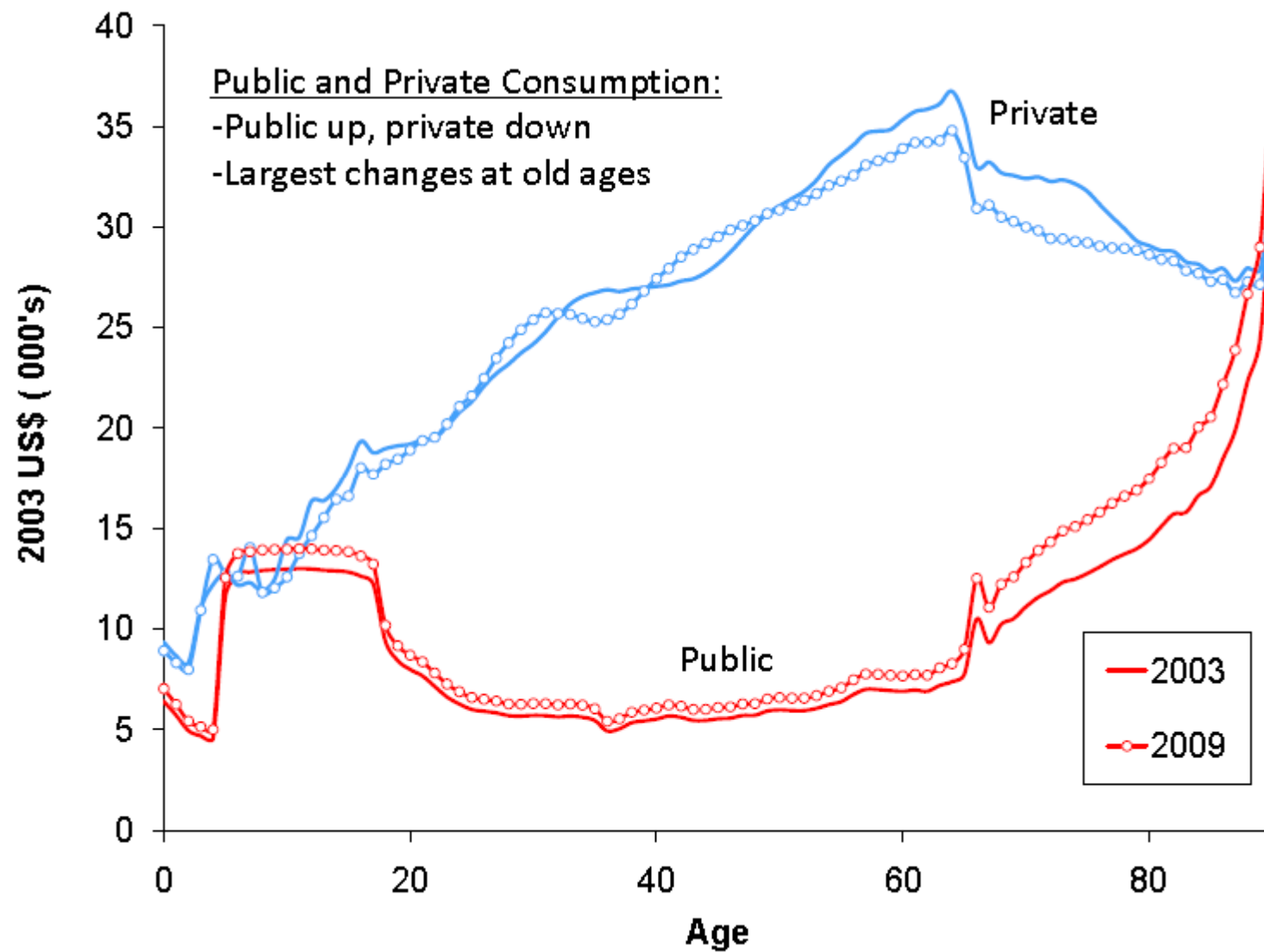
- Slides by Gretchen Donehower (Berkeley-NTA)

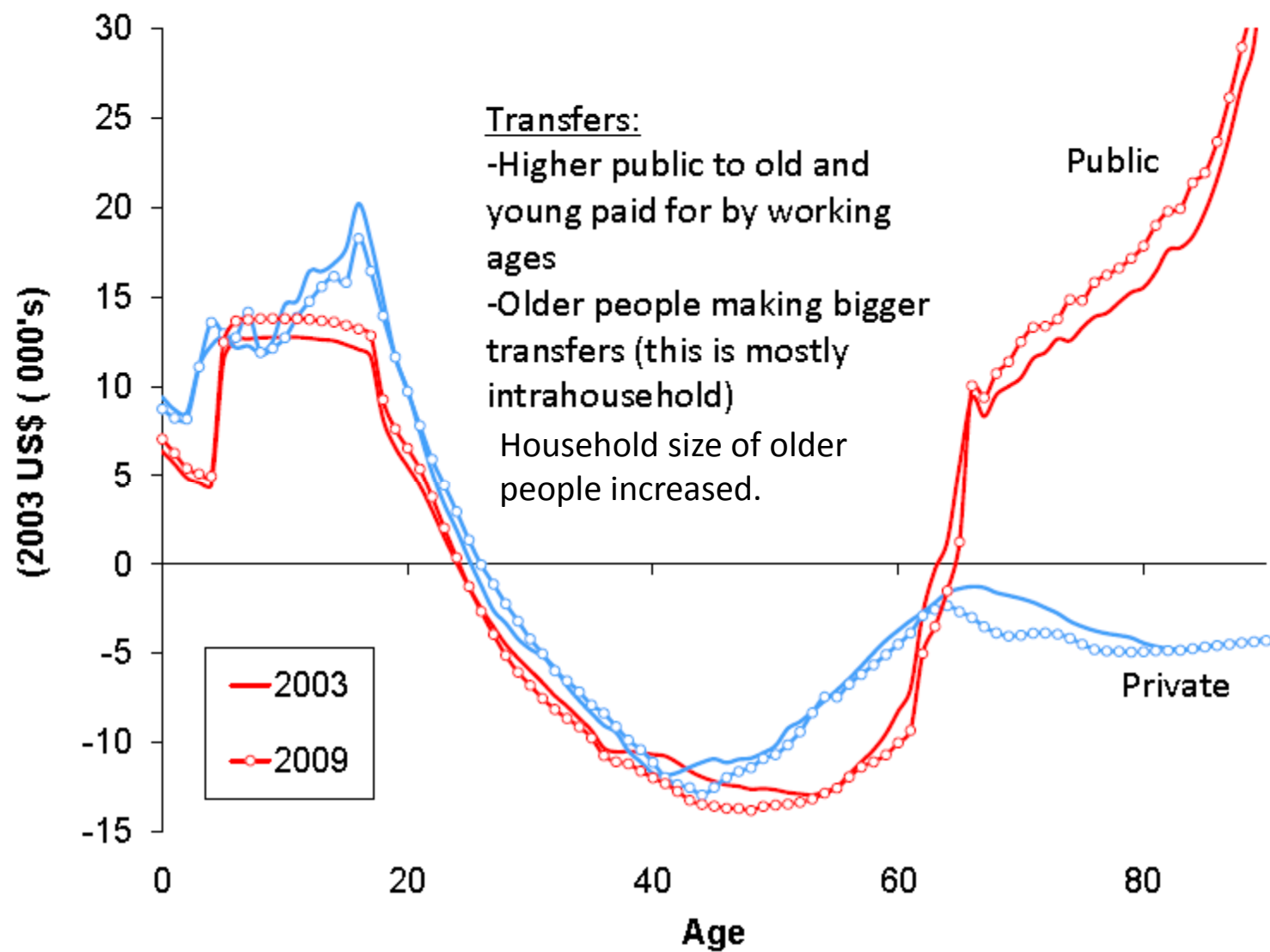


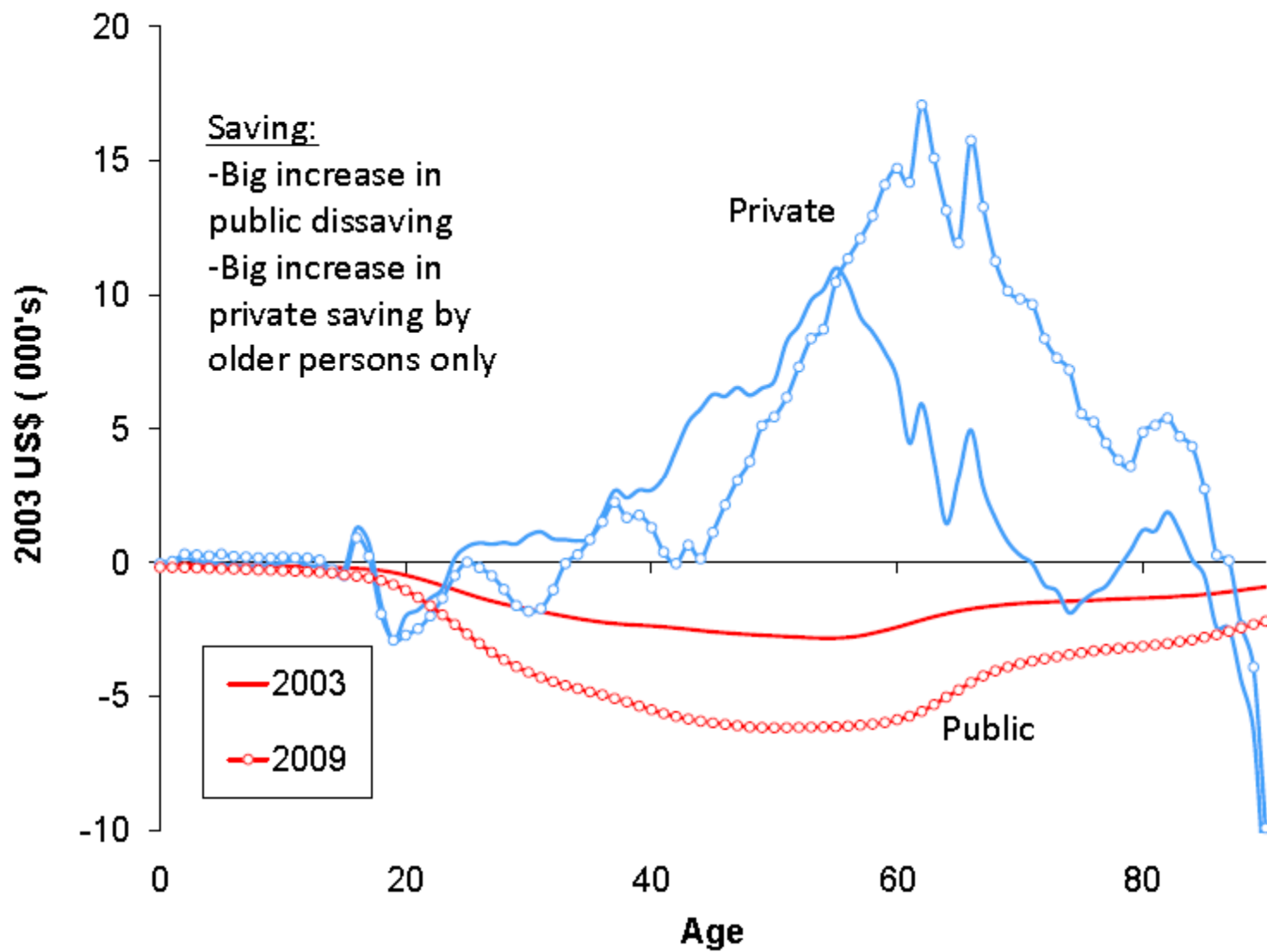












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