Ch.1 The Generational Economy: Foundations and Applications

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1.1 Introduction

- The National Transfer Account (NTA) system
  - for better understanding of the generational dimension of economies
- Economic lifecycle: patterns of consumption and earnings

1.1 Introduction (cont.)

· Why important?
1. Children and the elderly are vulnerable
2. The meaning of age is changing
3. For economic progress
4. The sustainability of support systems
5. Intergenerational equity

1.2 Generational Economy
(Mason and Lee, 2011)

1. The social institutions and economic mechanism used by each age group to produce, consume, share and save resources

2. the economic flows across age groups

3. explicit/implicit contracts that govern intergenerational flows

4. The intergenerational distribution of income or consumption that results from the foregoing

1.2.1Economic life cycle: producing and consuming

- Consumption and production at each age
- The economic life cycle reflects many factors
  - labor force participation/unemployment/ wages
  - historical events/preferences/prices
- At the aggregate level, it also reflects the population age structure
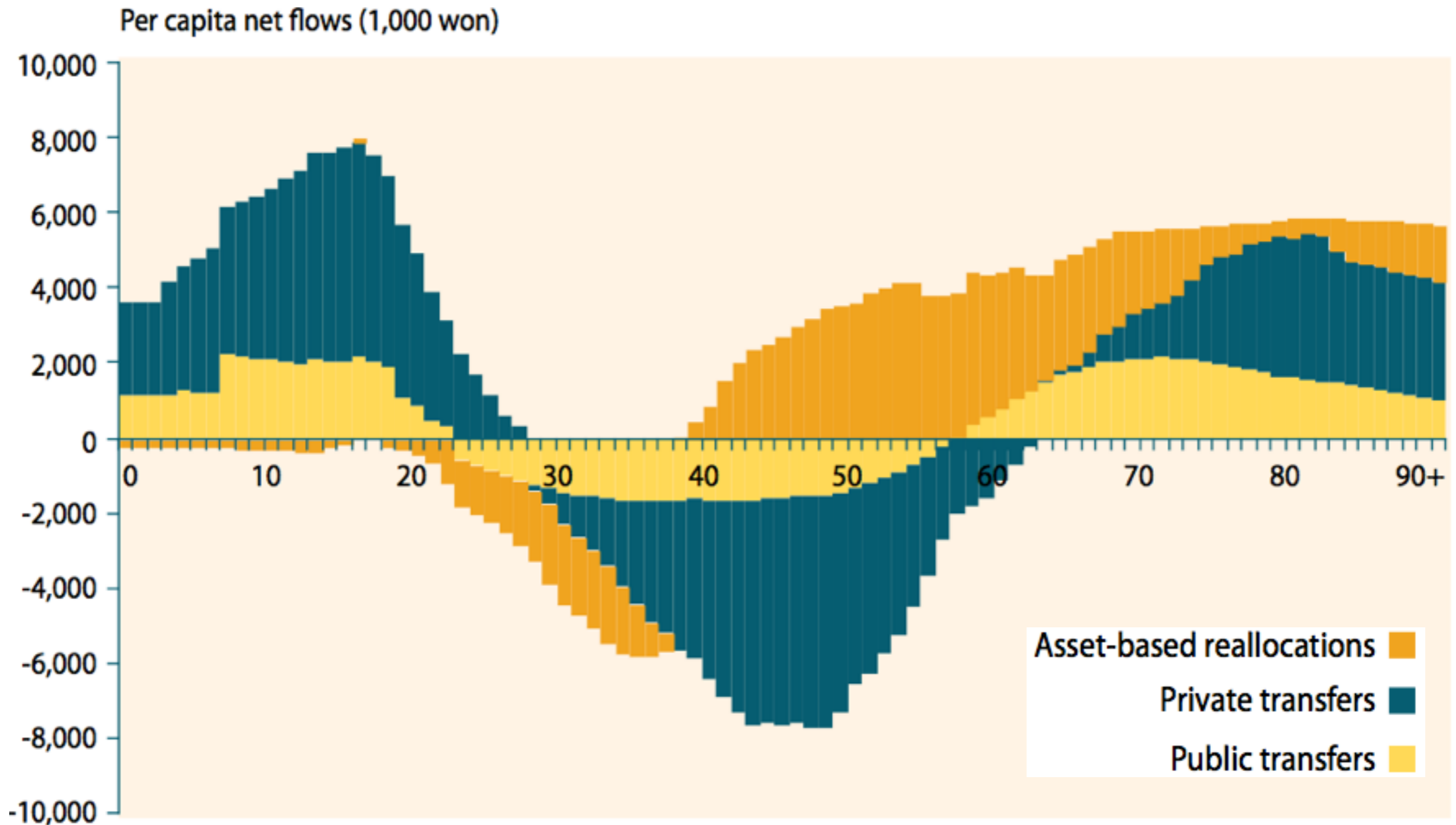
Fig 1.1: Economic Life Cycle
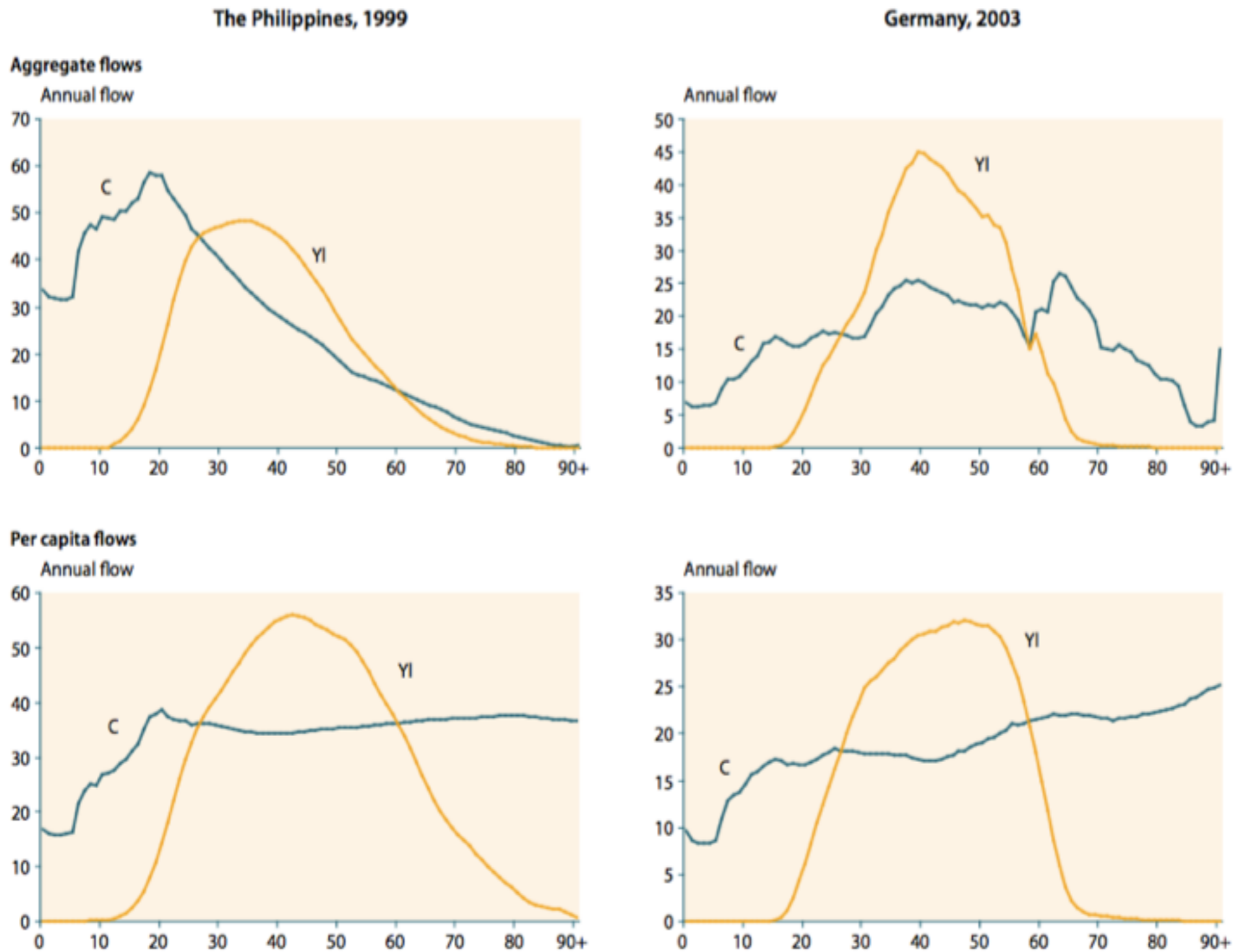
1.2.2 Age reallocation systems: sharing and saving

- Flows of economic resources from surplus to deficit
- Public/Private
- Transfers/Asset-based reallocations

Table 1.1 A classification and examples of national transfer account age reallocations

	Asset-based reallocations			Transfers
	Capital income	**Property income**	**Transfers**	
Public	Negligible	Public debt	Public education	
		Student loan programmes	Public health care	
		Sovereign wealth funds	Unfunded pension plans	
Private	Housing	Consumer debt	Familial support of children and parents	
	Consumer durables	Land	Charitable contributions	
	Structures, production facilities, vehicles, other machinery	Subsoil minerals	Remittances	

Fig 1.2. Age reallocations, per capita values, Korea, 2000

Per capita net flows (1,000 won)

Asset-based reallocations

Private transfers

Public transfers

1.3 Generational theory

- NTA are governed by accounting principles
  - purely descriptive
- Theories enrich interpreting the empirical patterns found in NTA

1.3.1 Economic life cycle: consumption and production profiles

- A consequence of biology
  - Productivity: the inverted U-shaped pattern
  - Consumption: The young require fewer resources, but more human capital investment
- 3 Important forces influencing labor income profiles
  1. The demand for education
  2. The emergence of retirement
  3. Changing work patterns for women
- Life cycle planning process in choosing optimal consumption

1.3.2 Transfers

- Children <- Adults
  - examples: in-family transfers, education
  - models: utility from having children, expecting services from children
- Adults -> Elderly
  - examples: in-family transfers, social security
  - models: altruism, exchange
- Topics regarding to public transfers
  - Cover insufficient private transfers (e.g. education)
  - Generational equity
  - Sustainability

1.3.3 Assets, saving and the life cycle

- Save in working years and consume after retirement
  - personal savings, public/private pension
- Borrow when young and repay later
  - student loan, housing loan
- A concern: public policy undermines private saving?
  - Adults -> Elderly transfer & Savings for bequests

1.4.1. Demographic dividends: using NTA to understand development

- Demographic dividends for development
  - The labor force share ↑
  - Human capital formation ↑

$$\frac{C}{N} = \frac{(1-s)Y}{L}\frac{L}{N} \qquad (1.1)$$

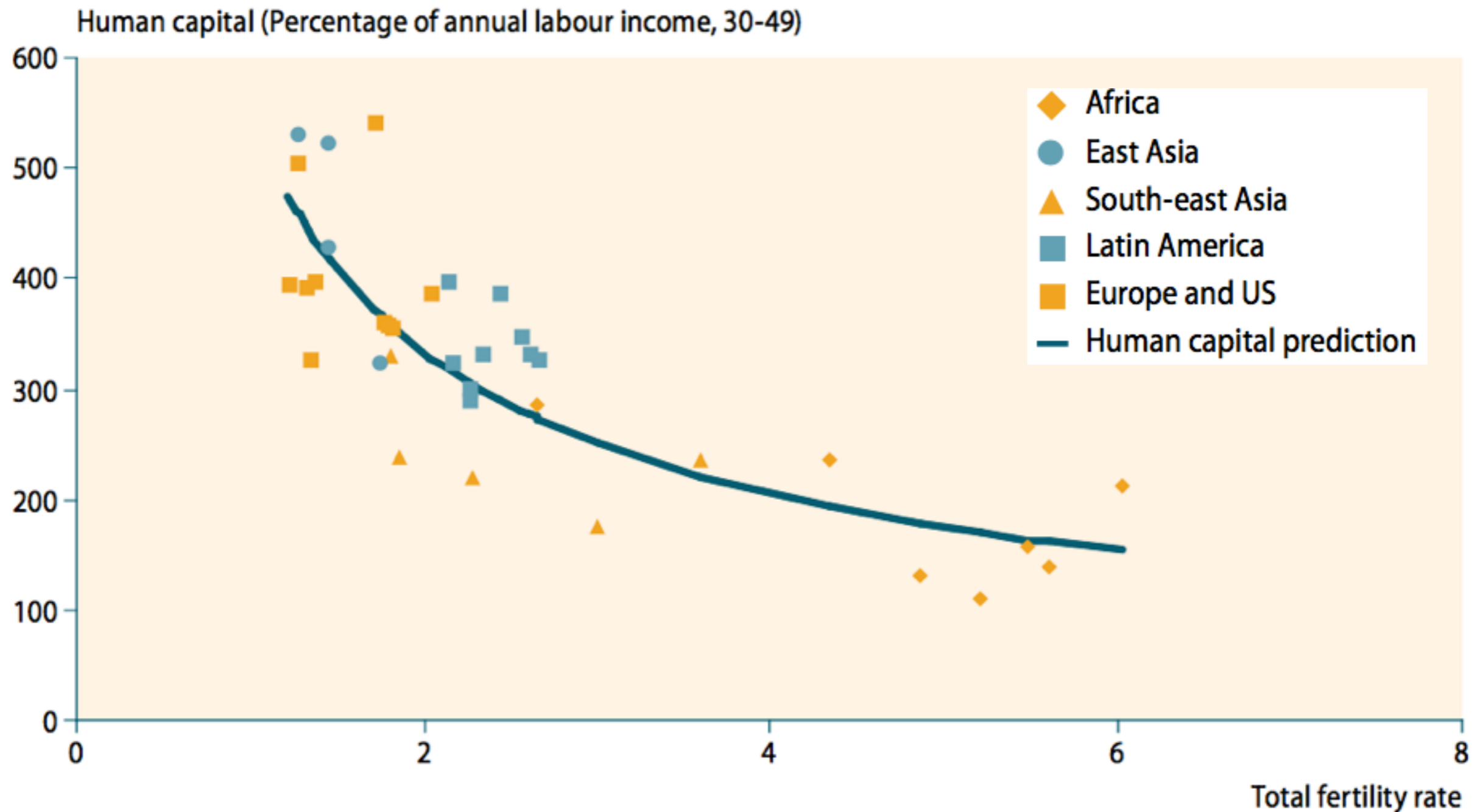$$gr\left[\frac{C}{N}\right] = gr\left[\frac{(1-s)Y}{L}\right] + gr\left[\frac{L}{N}\right] \qquad (1.2)$$

1.4.2 The support ratio

- # of workers / # of consumers
  - Cutler, Poterba, et al. (1990)
  - (detailed discussion is in Ch.5)

1.4.3 Human capital

- Population aging reflects declining fertility
  - The quantity-quality tradeoff
- The level of development influences human capital spending

Fig. 1.4 Human capital and the total fertility rate in selected countries

Human capital (Percentage of annual labour income, 30-49)

Legend:
- ◆ Africa
- ● East Asia
- ▲ South-east Asia
- ■ Latin America
- ■ Europe and US
- — Human capital prediction

Total fertility rate

1.4.4 Saving and capital

- Life cycle pension wealth:
  - the present value of C - Y over the remainder of a lifetime
- Per capita life cycle at age depends on:
  - Expected earnings
  - Consumption at each age
  - the discount rate
  - expected survival probability

Fig. 1.5. File cycle pension wealth by age, Japan, three survival schedules
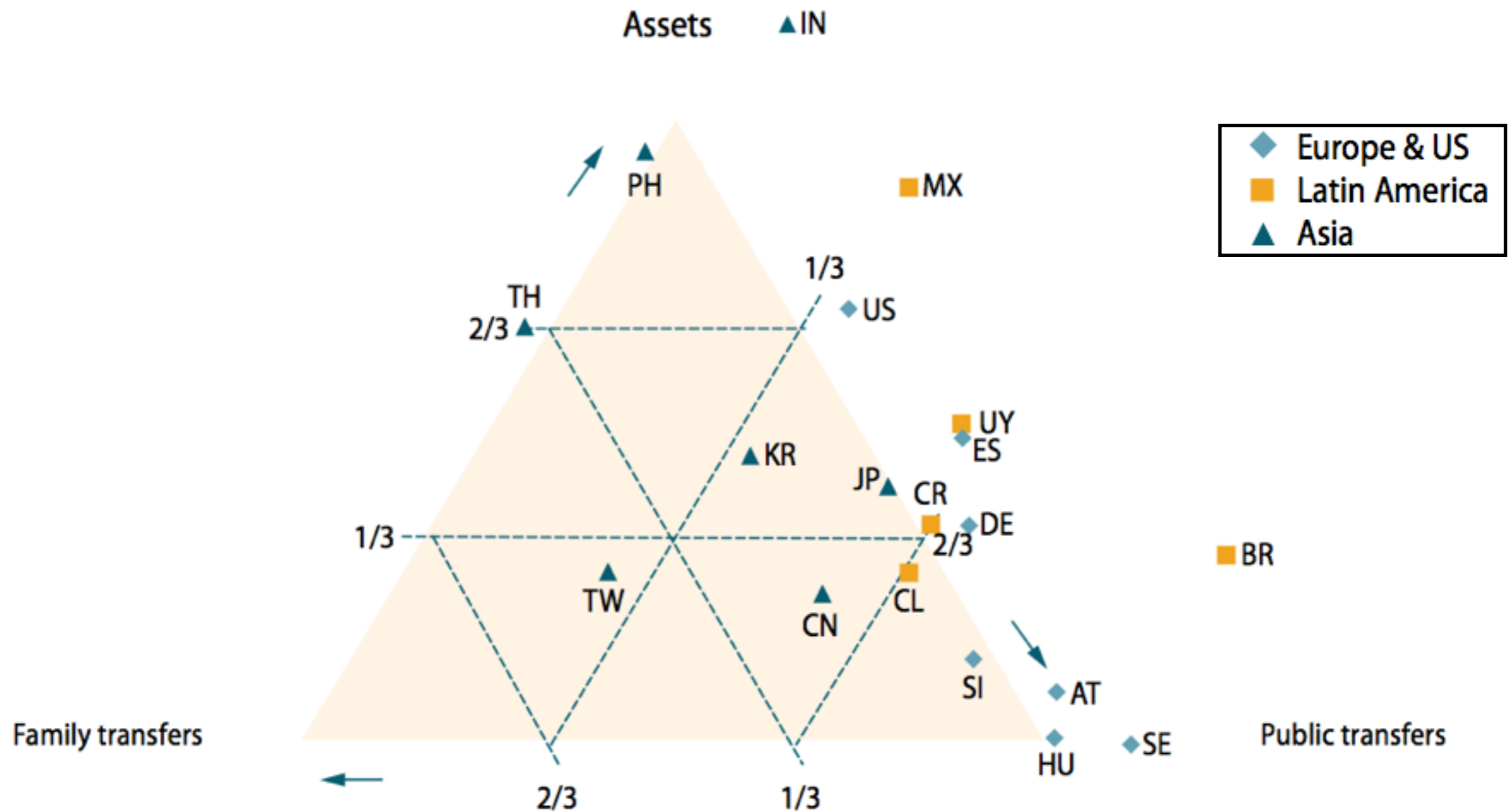

Life cycle wealth/YI (30-49)

Legend:
- e0=56.9
- e0=76.2
- e0=87.3
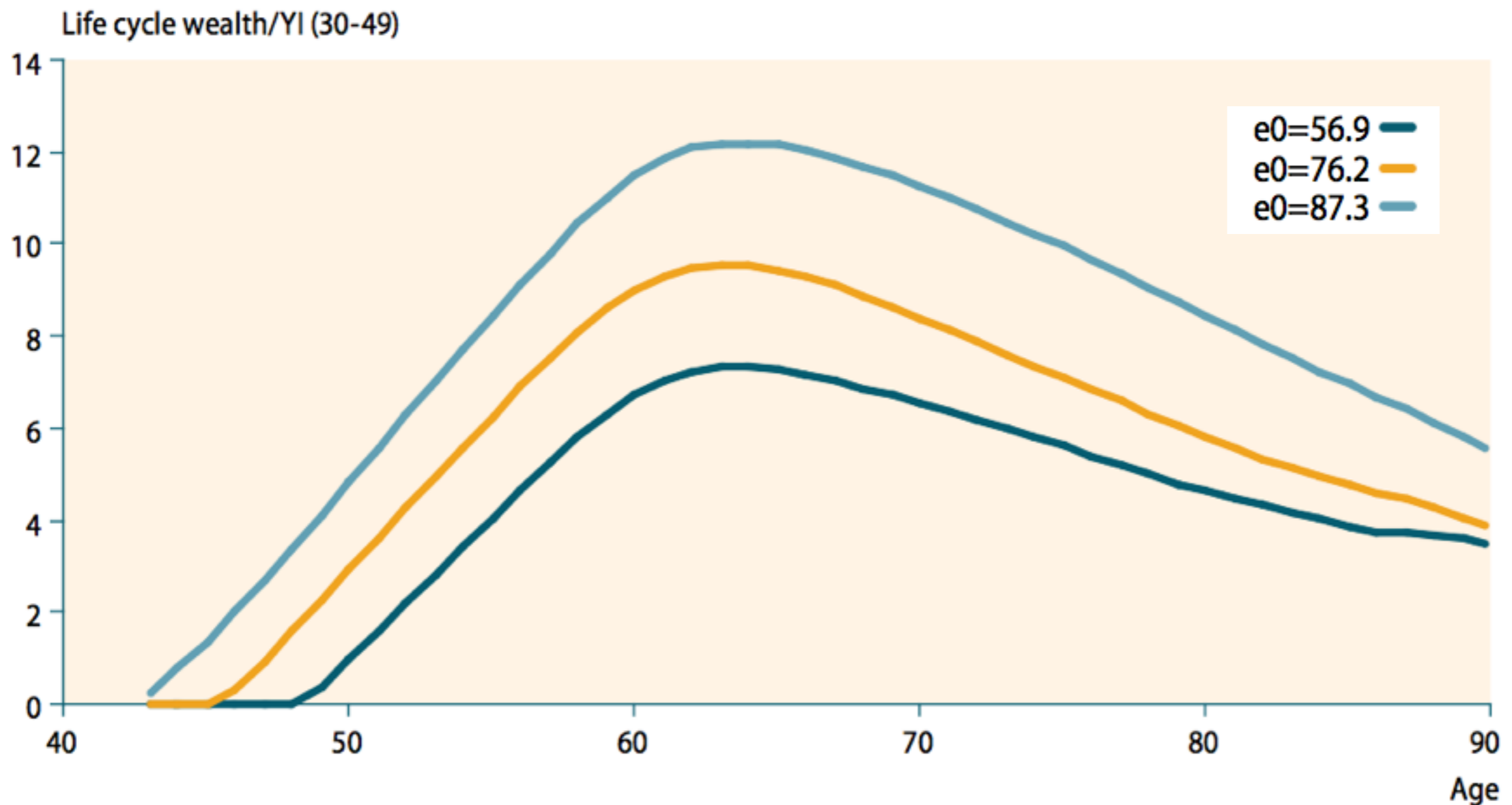
Fig. 1.6. Family transfers, public transfers and asset-based reallocations as a share of the life cycle deficit, persons 65 and older

1.4.5. Fiscal issues

- The NTA analysis of fiscal issues rely on analysis of the structure of taxes and benefits (detail in Ch.6)

Fig. 1.7 Per capita public transfer inflows and outflows by age and use

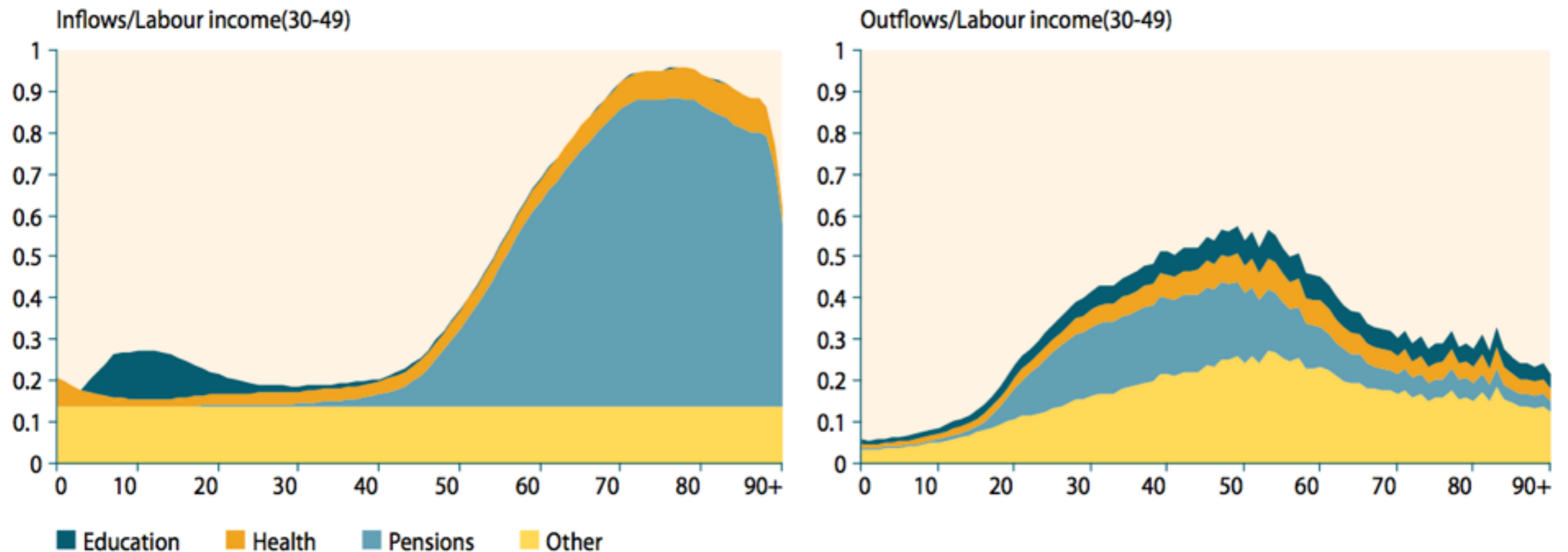(Brazil, 2002, all values normalized on per capita labor income of those 30-49)

Fig 1.8. Per capita public transfer wealth, annual flows and mean ages of inflow and outflows, Brazil, 2002
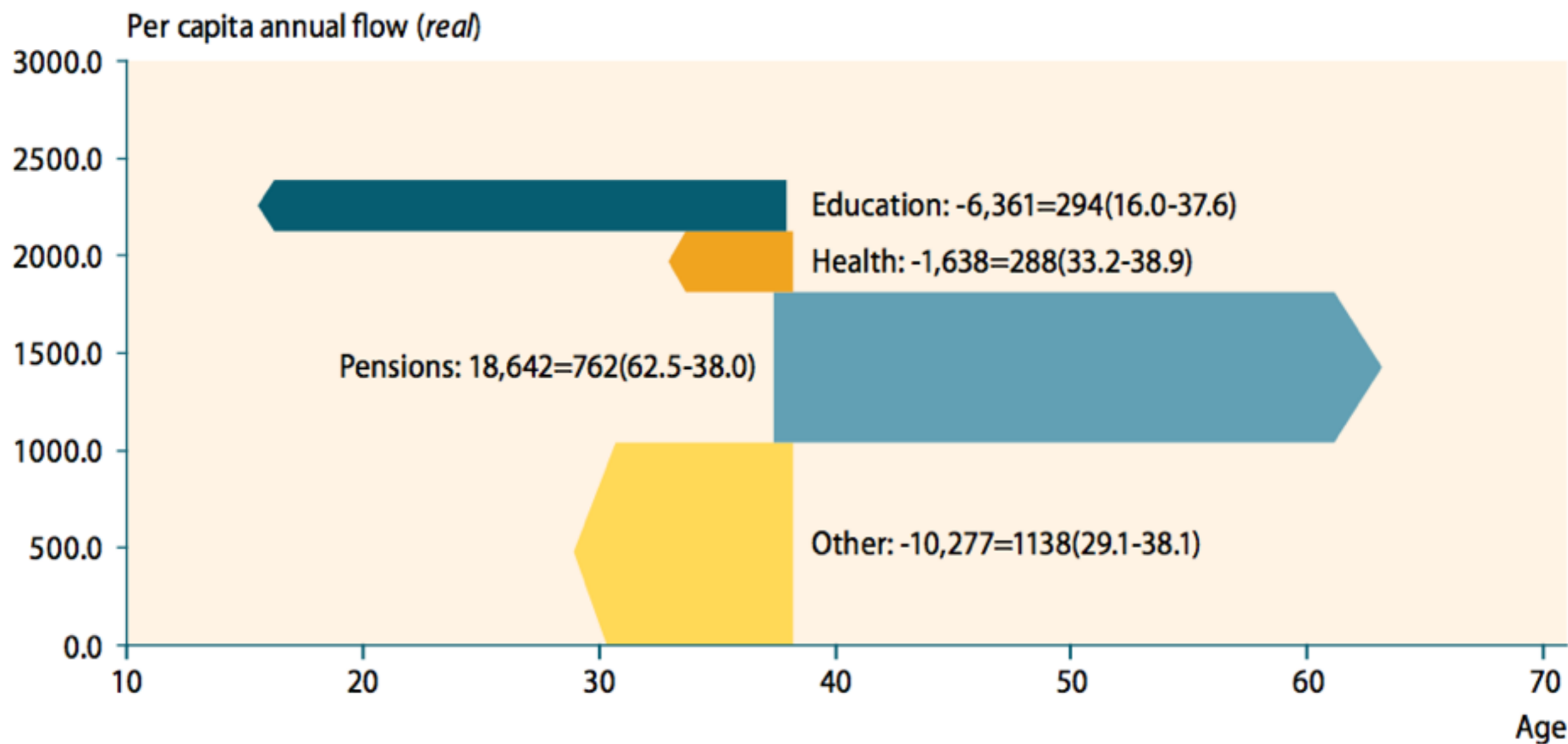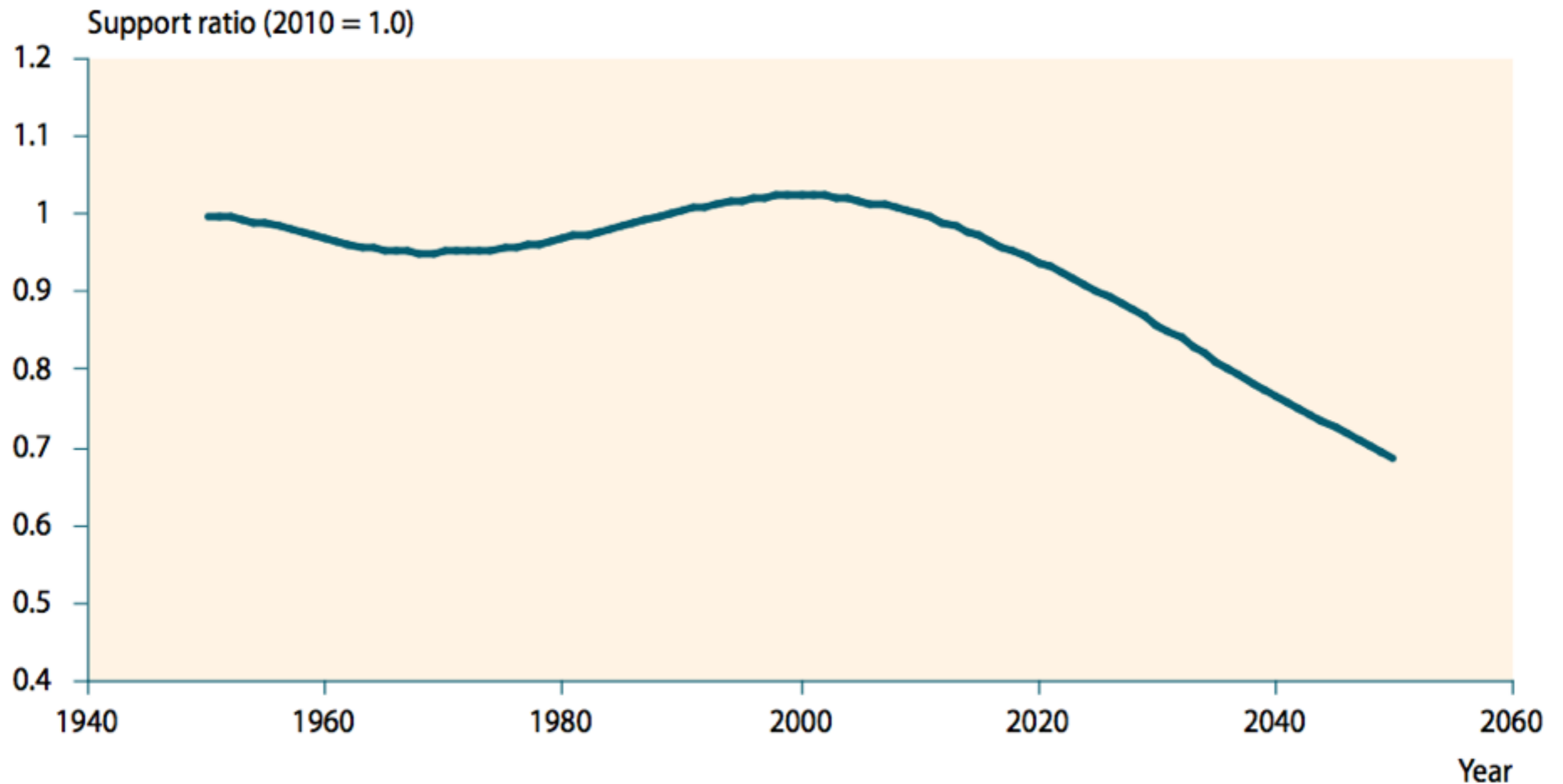
Fig. 1.9. Fiscal support ratio, Brazil, 1950-2050


Support ratio (2010 = 1.0)

1.4.6 Wealth, golden rule growth and maximizing consumption

- Defining Wealth: Assets (A) and Transfer (T)
  - The value of A is easy to observe
  - The value of T is difficult to determine
- Two approaches
  - To rely on a macroeconomic model
  - To assume stable populations

Fig. 1.10. Life cycle wealth, golden rule growth, based on consumption, labor income profiles and age specific survival rates for Germany and a population growth rate of -0.5% per annum
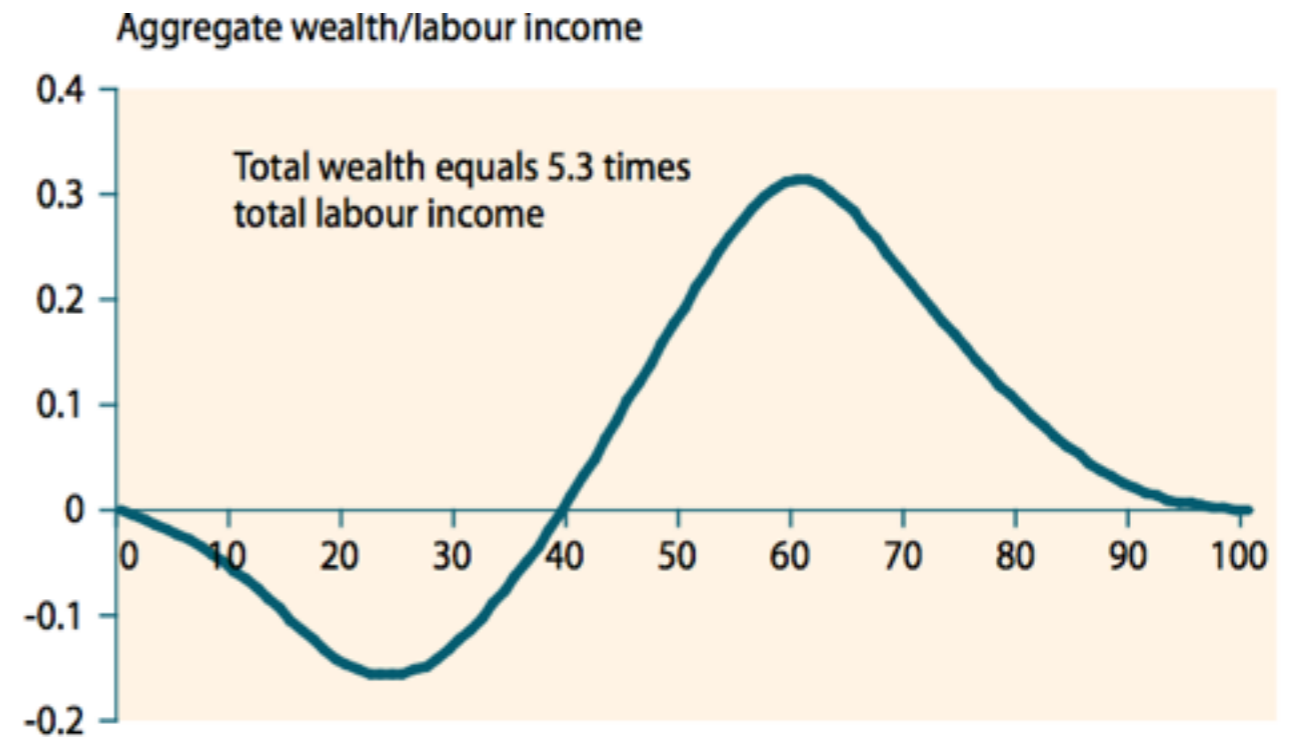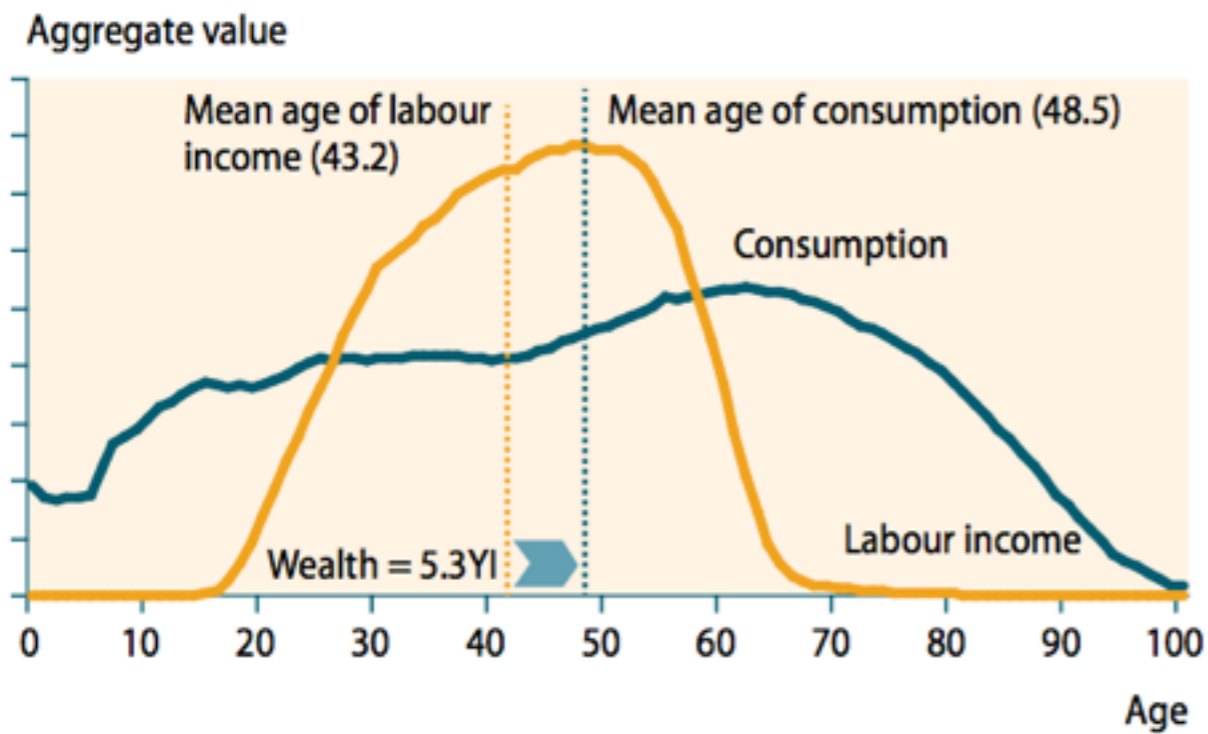
1.4.6 Wealth, golden rule growth and maximizing consumption

- Willis (1988) has shown the following holds on the golden rule growth:

$$W = Y^l(A_c - A_{y^l}) \tag{1.3}$$

W:Life cycle wealth

Y^l:The annual flow of resources

A_c:The mean age of consumption

A_{y^l}:The mean age of labor income