INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE, BANGALORE

NATIONAL SEMINAR ON
CONSTRUCTION OF NATIONAL TRANSFER ACCOUNTS (NTA) FOR INDIA

10 AUGUST 2007
Venue of the Seminar (www.thecapitolhotel.com)
"THE WHITE HOUSE", THE CAPITOL, NO.3, RAJBHAVAN ROAD, BANGALORE

Programme

REGISTRATION: 9 AM to 10 AM

OPENING CEREMONY: 10 AM to 10.30 AM

- Welcome: Professor N. Jayaram, Director, ISEC
- Opening remarks:
    - Dr Naohiro Ogawa, Director, Nihon University Population Research Institute, Tokyo, Japan.
- Chairperson's Remarks: Professor TCA Anant, Member-Secretary, ICSSR

Coffee/Tea: 10.30 AM to 11 AM

INTERNATIONAL PRESENTATIONS: 11 AM to 1 PM

- Chairman: Professor S. Parasuraman, Director, Tata Institute of Social Science, Mumbai
    - Presentation by Professor Andrew Mason [Senior Fellow, East-West Center, & Professor, Department of Economics, University of Hawaii at Manoa, Honolulu, USA]: *Demographic Dividends and National Transfer Accounts*
    - Professor Naohiro Ogawa*: Population Aging and Changing Intergenerational Transfers: Lessons from the Japanese Experience*
- Discussion
- Chairperson's remarks

Lunch: 1 PM to 2 PM

PRESENTATION ON NTA FOR INDIA: 2 PM TO 4 PM

- Chairperson: Professor Andrew Mason
- Presentation by Professor M.R. Narayana, ISEC, and Professor L. Ladusingh, IIPS
- Discussion
- Chairperson's remarks
- Vote of thanks: Professor M.R. Narayana
- Coffee/Tea: 4 PM to 4.30 PM

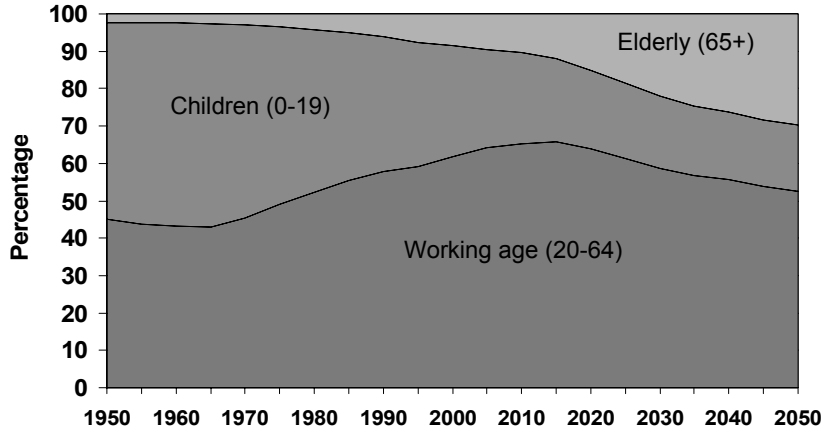
Demographic Dividends and National Transfer Accounts

Andrew Mason
University of Hawaii at Manoa
East-West Center

Demographic transition leads to two important changes in age structure

- Working age population
  - In recent decades, the share of the working age population has been increasing.
  - Transitory phenomenon: In the future, the share of the working age population will decline.
- Dependent populations
  - Share of children is declining;
  - Share of elderly is increasing.

Population Age Structure Taiwan, 1950-2050



Two Demographic Dividends

- First Dividend
  - Per capita income rises (and falls) with the share of the population in working ages.
  - Favorable effects on economic growth in many countries in Asia and elsewhere.
  - However, first dividend will soon turn negative.

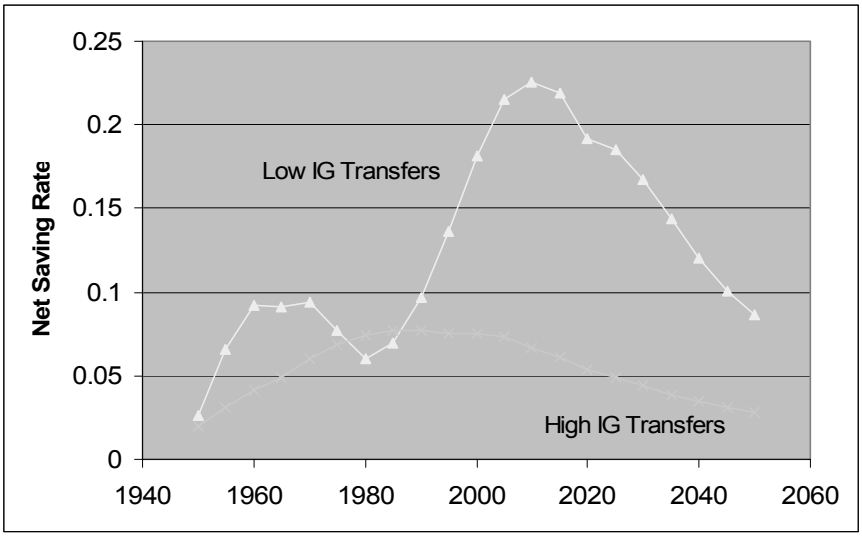
Two Demographic Dividends

- Second Dividend
  - Increase in the population at old ages will lead to greater wealth.
  - Two possible outcomes:
    - More capital and higher wages
    - Foreign investment
  - Higher standards of living in the domestic and the foreign economy.

Illustrative Simulations

- ASEAN age structure, 1950-2050. Source: UN Population Prospects 2006.
- Economic assumptions based on estimates from the National Transfer Account project.
- Details of simulation model available on the NTA website.

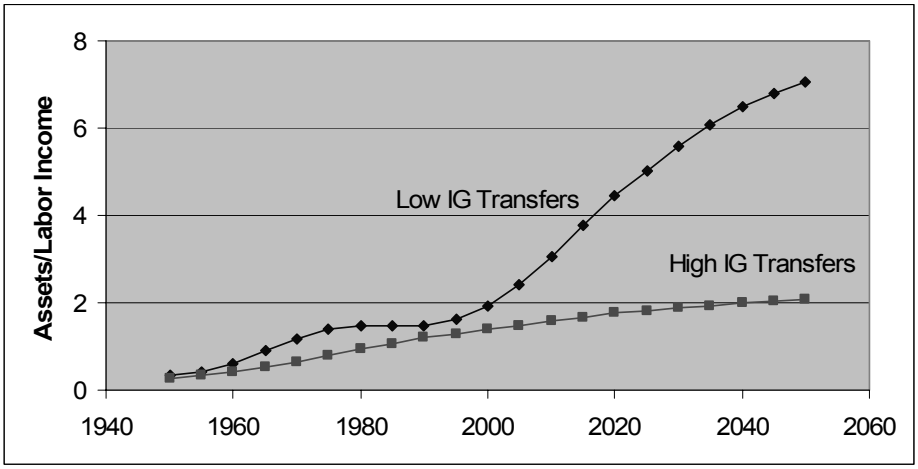
Net Saving Rate, ASEAN



National Transfer Accounts

Source: Mason, Lee, and Lee 2007.

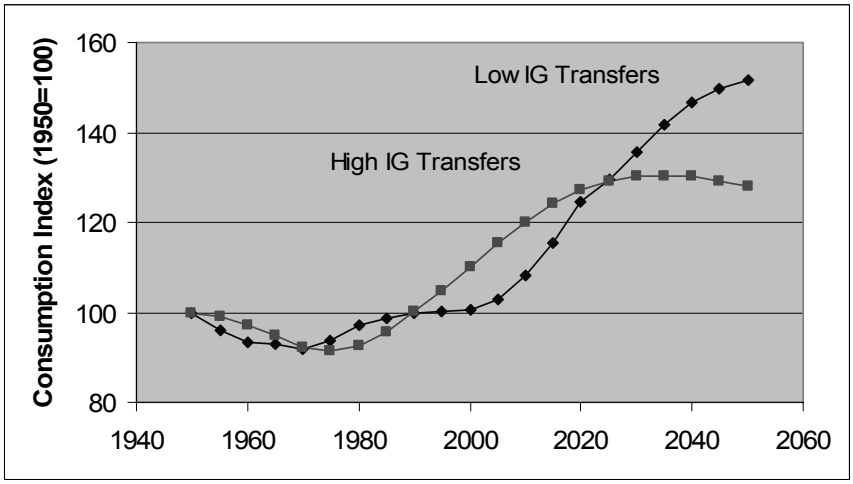
ASEAN, Assets/Labor Income



National Transfer Accounts

Source: Mason, Lee, and Lee 2007.

ASEAN, Effect of Age Structure on Consumption



Source: Mason, Lee, and Lee 2007.

Effect of age structure depends on . . .

- Economic lifecycle
  - Age profile of labor productivity
  - Age profile of consumption
- Economic support system
  - Public transfers
  - Familial transfers
  - Assets

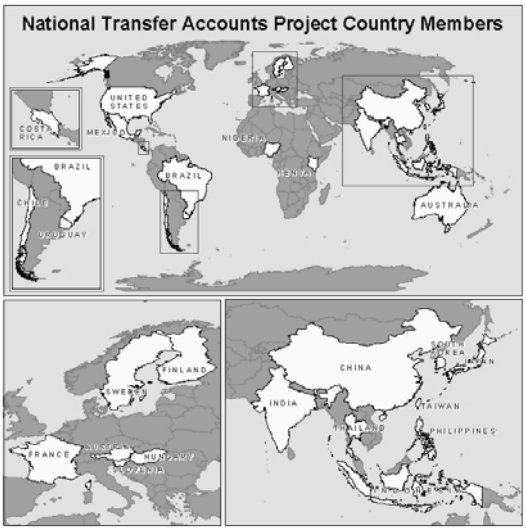
Objective of the National Transfer Account (NTA) Project

- Develop and apply a comprehensive system for measuring economic flows across age groups in a manner consistent with the System of National Accounts
- Analyze the interplay between age, policy, and macroeconomic performance
  - How do economic flows vary with age and why?
  - How will changes in age structure affect our economies?
  - What policies should be pursued in light of these findings?
    - Economic lifecycle
    - Transfers, saving, and investment
    - Age structure: fertility and immigration.

Organization of the project

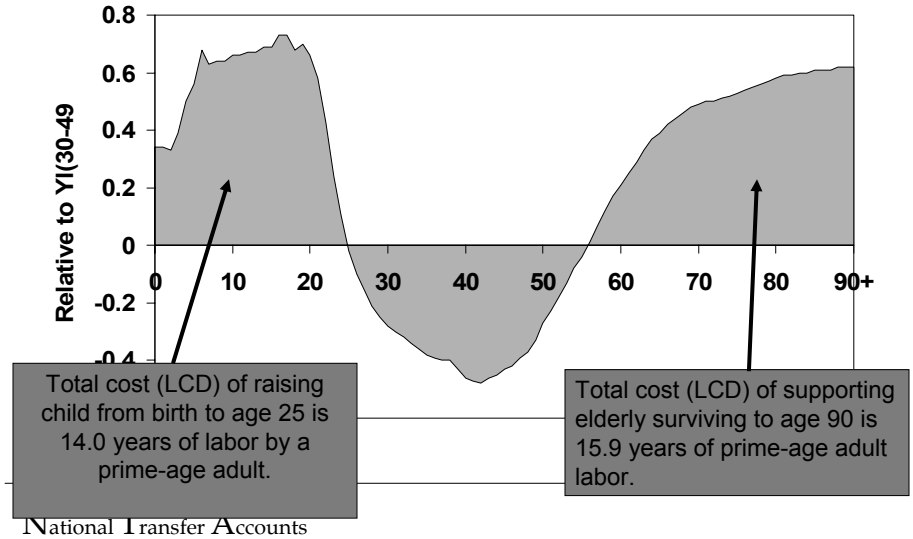
- East-West Center and CEDA, UC-Berkeley
- Nihon University Population Research Institute, Asia Regional Office
- Funding
  - NIA
  - UNFPA
  - IDRC
  - MacArthur Foundation
  - Others
- www.ntaccounts.org

Research Teams in 23 Countries



Per Capita Economic Lifecycle Taiwan, 2003

Per Capita Lifecycle Deficit (C-Yl) Taiwan, 2003



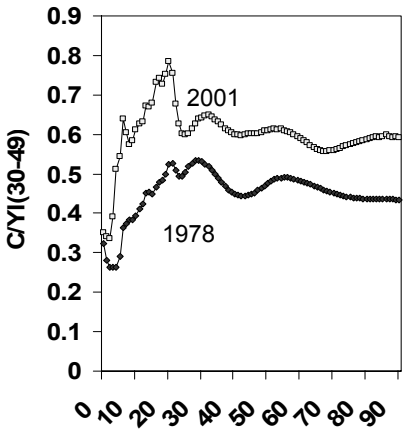
Issue 1. How does the economic lifecycle vary and why?

- Economic factors, e.g., income, economic structure, and technology.
- Cultural and institutional factors
- Demographic factors
  - Quantity-quality tradeoff
  - Age structure and political power
- Policy
  - Education
  - Retirement
  - Pensions
  - Health care

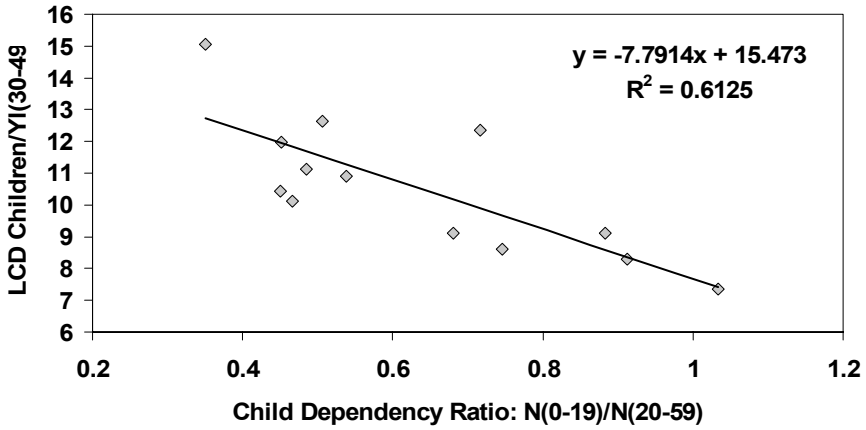
- In Taiwan, earning span is being "squeezed".
- Between 1978 and 2001 labor income at age 21 declined from 45% to 24% of an adult 30-49.
- Labor income at age 60 declined from 63% to 35% of an adult 30-49.

Age-profile of Consumption, Taiwan

- Consumption increased relative to labor income by about 1% per year at most ages.
- Much more rapid increase in consumption by children.
- Cause is growth in spending on education.

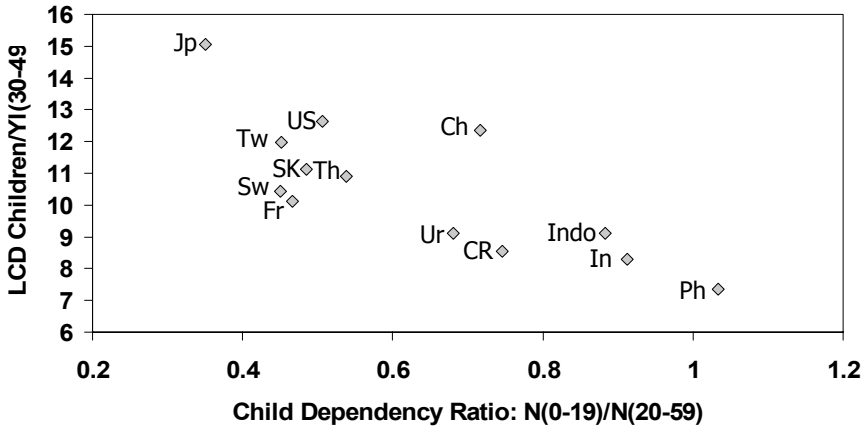


Tradeoff: Spending per Child and Number of Children, 13 Countries



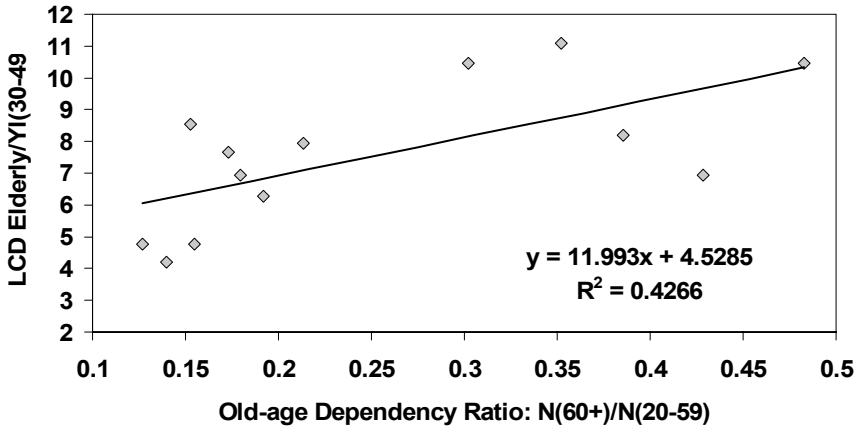
National Transfer Accounts

Tradeoff: Spending per Child and Number of Children, 13 Countries

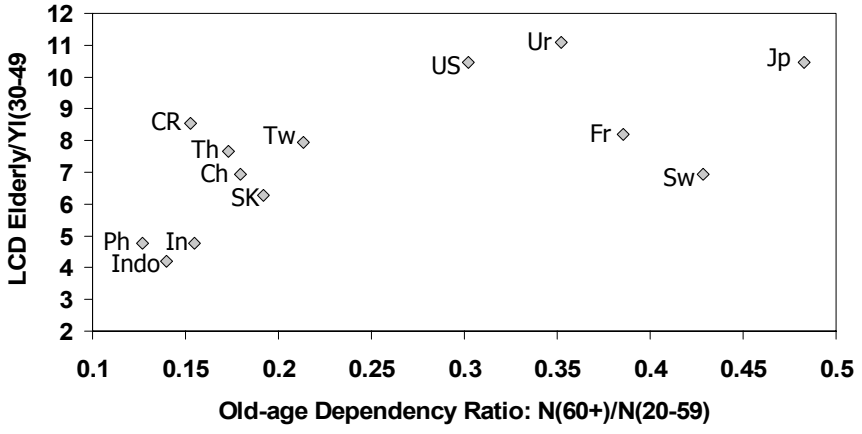


National Transfer Accounts

Tradeoff: Spending per Elderly and Number of Elderly, 13 Countries



Tradeoff: Spending per Elderly and Number of Elderly, 13 Countries

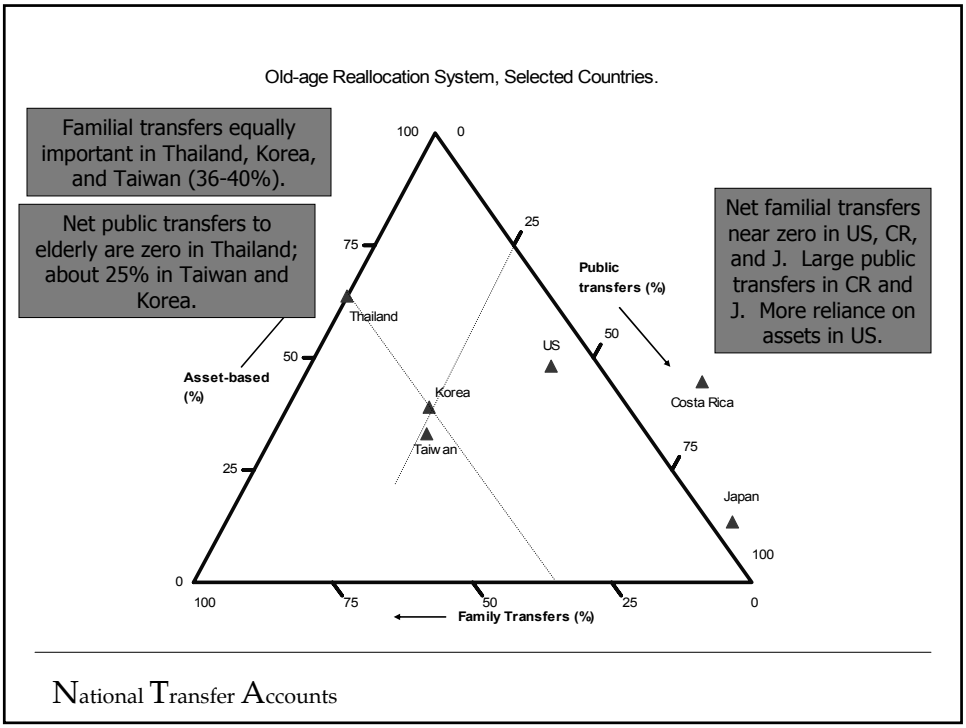


Summary

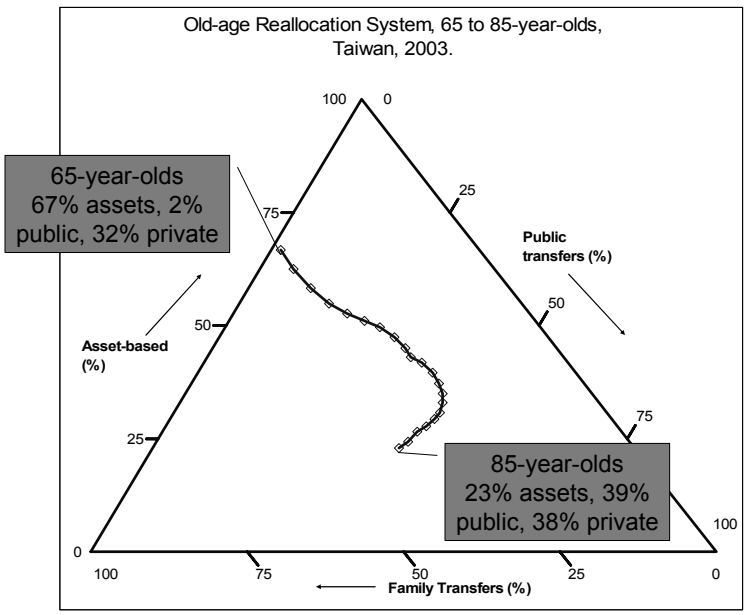
- Changes in the economic lifecycle may be reinforcing the effects of changes in the dependency ratio.
  - Earnings by children and the elderly are declining.
  - Spending per child is rising.
  - Spending per elderly is rising.
- "Costs" of children may be declining more slowly than the number of children;
- "Costs" of the elderly may be increasing more rapidly than the number of elderly.

Issue 2: How do the systems governing inter-age economic flows vary and why?

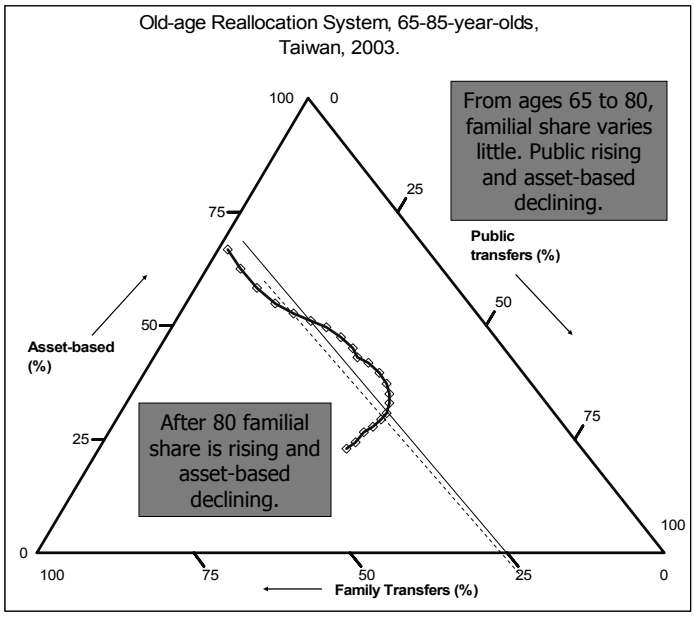
- Flows to children and the elderly are both important.
- Transfers dominate flows to children but the relative importance of the state and the family vary from country to country.
- The elderly rely on public and familial transfers and asset-based flows – income from assets and dis-saving.
- The systems for the elderly vary among countries and are changing substantially over time
  - Public policy (pension and health care reform).
  - Role of the family – decline in extended family.
  - Development of financial sector.



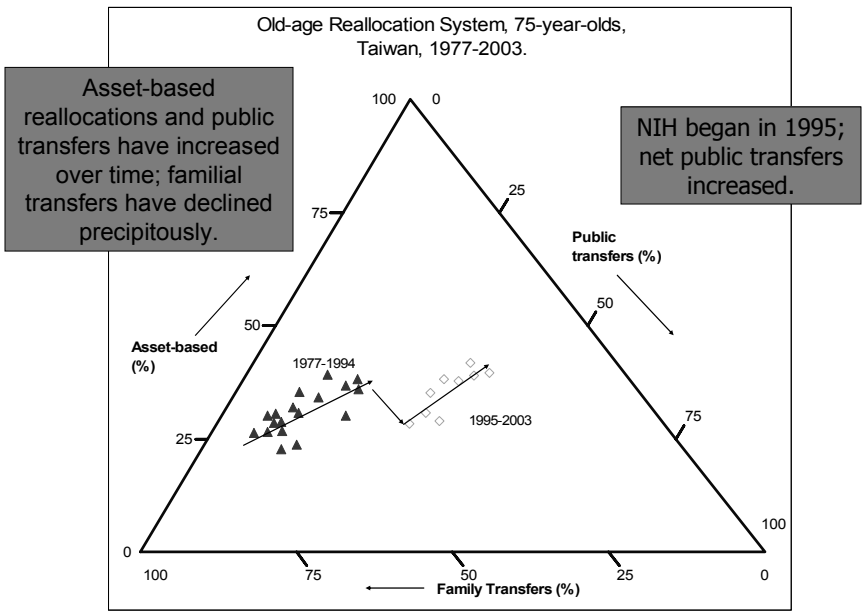
National Transfer Accounts



National Transfer Accounts



National Transfer Accounts



National Transfer Accounts

Summary

- Old-age support systems
  - Vary widely across countries
  - Vary with the age of the elderly
  - Are changing rapidly
- Familial support system
  - Declined in Taiwan
  - Similar to Korea and Thailand in importance
  - In Japan, the elderly make net transfers to their children and grandchildren.

Concluding Remarks

- Difficult to construct National Transfer Accounts.
- Estimates presented here are preliminary.
- Over time we will refine the methodology and compile an extensive set of data for many countries.
- Understanding the role of age in the economy is essential to developing appropriate policy – both economic and population policy.

Acknowledgements

- National Institute on Aging R01-AG025488.
- United Nations Population Fund – Asia's dependency transition: Intergenerational equity, poverty alleviation and public policy
- Ronald Lee, Co-Principal Investigator
- Naohiro Ogawa, Principal Investigator for UNFPA Asia Regional Project

The National Transfer Accounts project is a collaborative effort of
East-West Center, Honolulu
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Demography of Aging,
University of California - Berkeley

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Comelatto, Pablo
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Schiff, Eric
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Langer, Ellen
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National Transfer Accounts

Japan

Key Institutions: Nihon University Population Research Institute and the Statistics Bureau of Japan, Tokyo, Japan.

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Matsukura, Rikiya
Maliki
Obayashi, Senichi
Kondo, Makoto
Fukui, Takehiro
Ihara, Hajime
Suzuki, Kosuke
Akasaka, Katsuya
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Makabe, Naomi
Ogawa, Maki

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Chen, Quilin
Jiang, Yu

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Academia Sinica, Taipei, Taiwan.
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Wolff, Francois-Charles, Country Leader
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Phananiramai, Mathana, Country Leader
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Nazara, Suahasil

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Forsell, Charlotte

Uruguay

Bucheli, Marisa, Country Leader

Furtado, Magdalena

South Korea

An, Chong-Bum , Country Leader

Chun, Young-Jun

Lim, Byung-In

Kim, Cheol-Hee

Jeon, Seung-Hoon

Gim, Eul-Sik

Seok, Sang-Hun

Kim, Jae-Ho

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Fuernkranz-Prskawetz, Alexia, Country Leader
Sambt, Joze

Costa Rica
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Rosero-Bixby, Luis, Country Leader

Slovenia
Sambt, Joze, Country Leader

Hungary
Key Institution: TARKI Social Research Institute
Gal, Robert
Medgyesi, Marton

Finland
Key institutions: The Finnish Center for Pensions
And the Finnish Pension Alliance
Vanne, Reijo
Gröhn, Jukka
Vaittinen, Risto

United States
Key Institution: Center for the Economics and Demography of Aging
Lee, Ronald, Country Leader
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Boe, Carl
Comelatto, Pablo
Donehower, Gretchen
Schiff, Eric
Langer, Ellen

Kenya
Mwabu, Germano

Nigeria
Soyibo, Adedoyin

Thank you

Population Aging and Changing Intergenerational Transfers : Lessons from Japanese Experience

Naohiro Ogawa, Maliki, and Rikiya Matsukura
Nihon University
Population Research Institute
Tokyo, Japan

In 2005, Japan became No.1 in the world

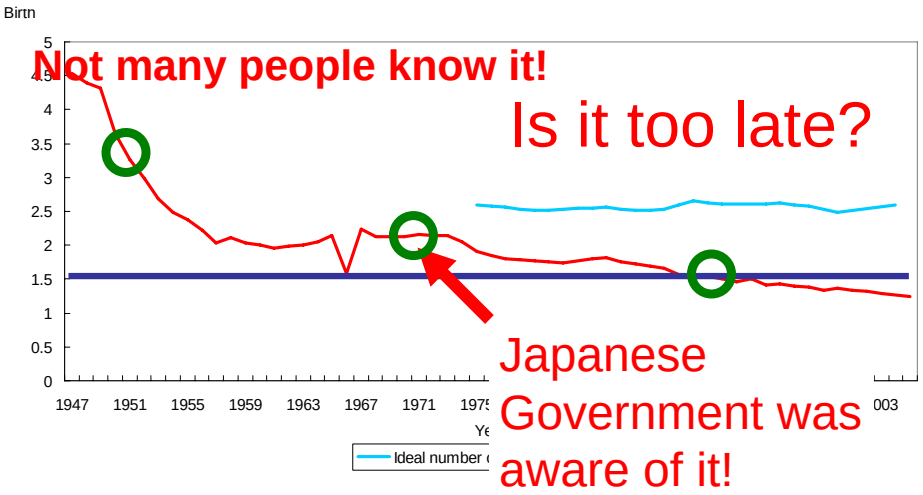
in terms of
the proportion 65 and over (20.1%)

Population shrinking for two years in a row since 2005

Fertility

The most important demographic source of population aging

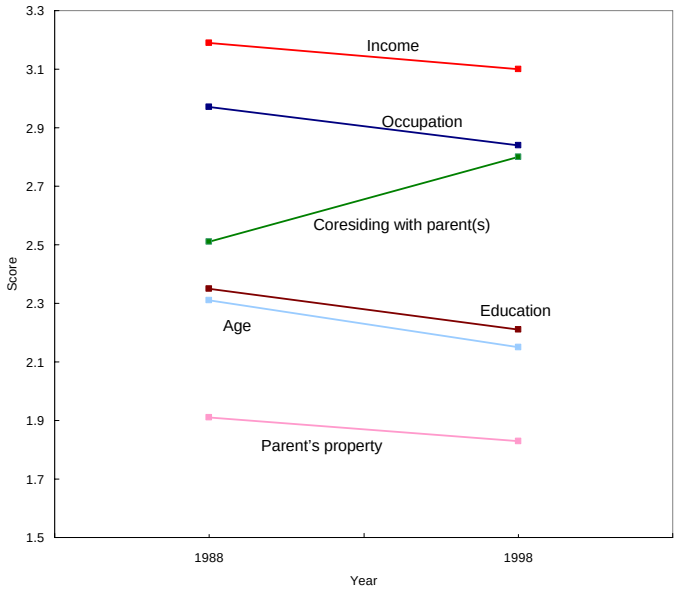
Total fertility rate (TFR) and ideal family size, Japan, 1947-2005



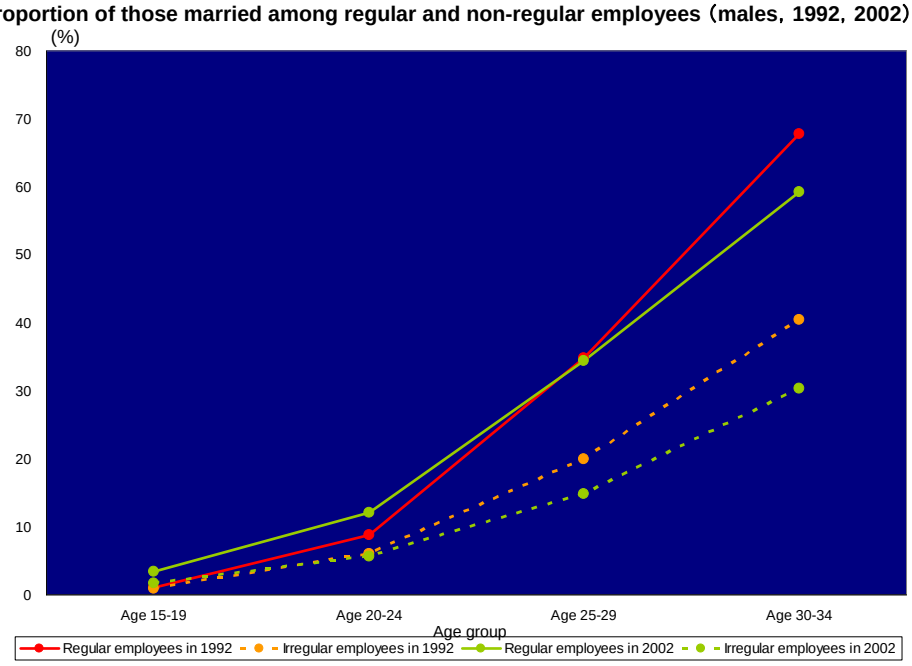
If today's marriage market remains unchanged,

30% men will remain unmarried...

Change in score for mate-selection criteria among single women between 1988 and 1998

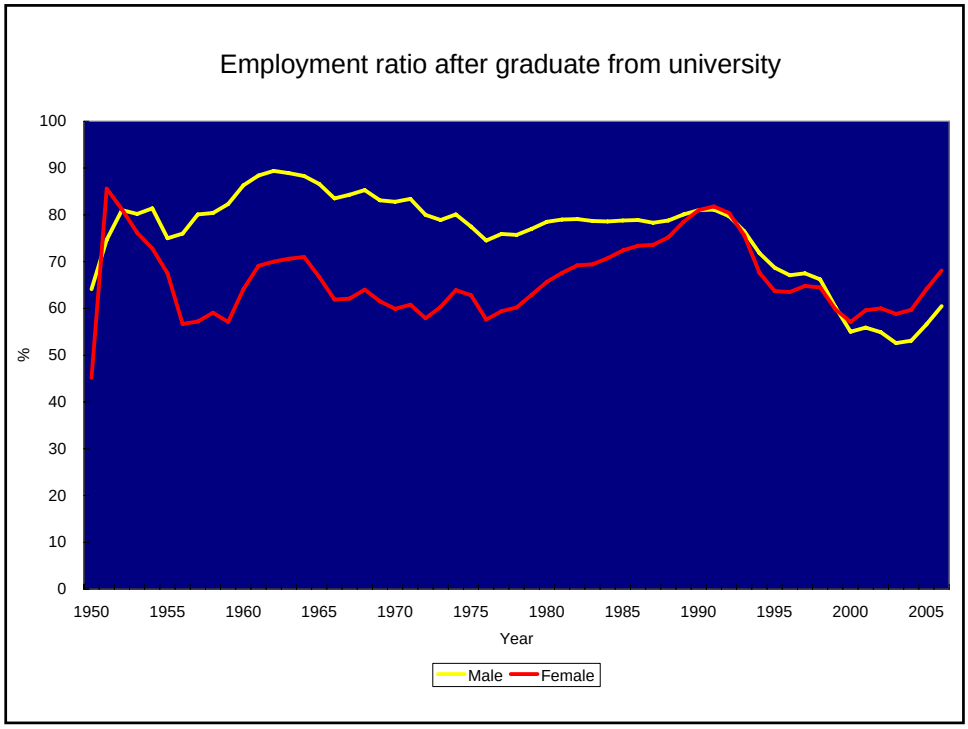


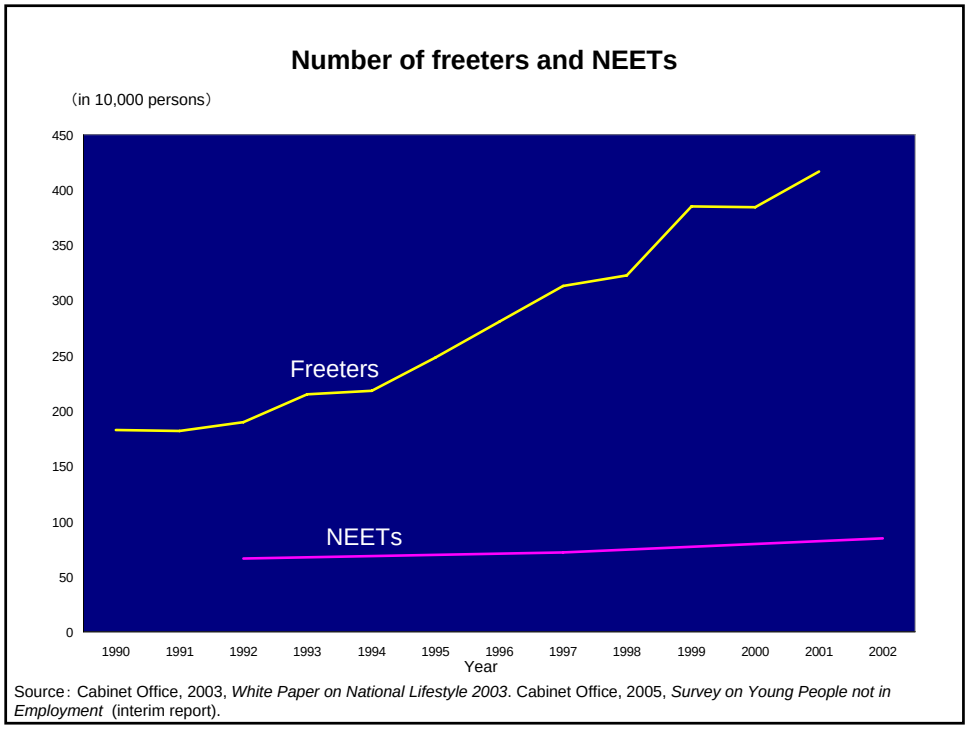
Proportion of those married among regular and non-regular employees（males, 1992, 2002）



Source: Japanese Ministry of Health, Labour and Welfare, 2006, *White Paper on Labour and Economy 2006*.

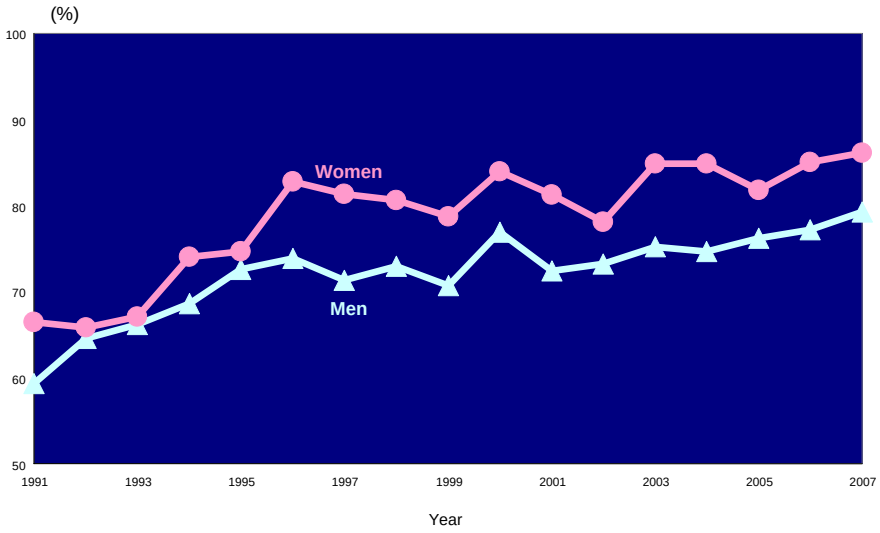
As a result of massive economic restructuring, the lack of job opportunities became one of the main social issues in the 1990s.





Source: Cabinet Office, 2003, *White Paper on National Lifestyle 2003*. Cabinet Office, 2005, *Survey on Young People not in Employment* (interim report).

Proportion of new employees (men or women) who would cancel a date and go to work instead when asked to work overtime, 1991-2007, Japan



Source: Japan Productivity Center for Socio-Economic Development and Junior Executive Council of Japan (2007) *Survey Report on the Perception and Behavior among Those Newly Employed in 2007*.

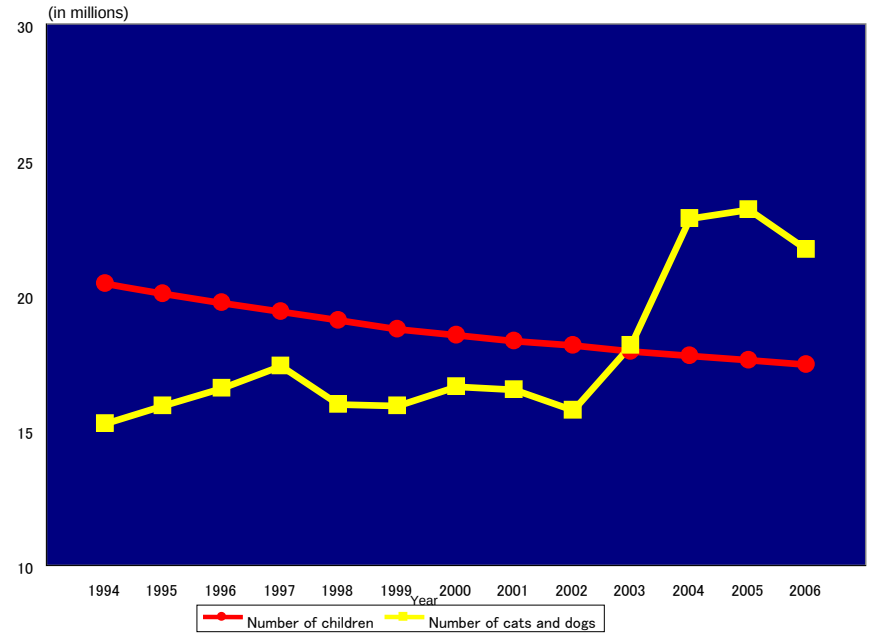
Since the early 1990s, the proportion of single women who are not dating has been stable around 45%

Are young Japanese men not sexy enough?

There are more than 3100 match-making firms in Japan!

- **Some of them have branch offices in Singapore.**

Number of pets and children, 1994-2006, Japan



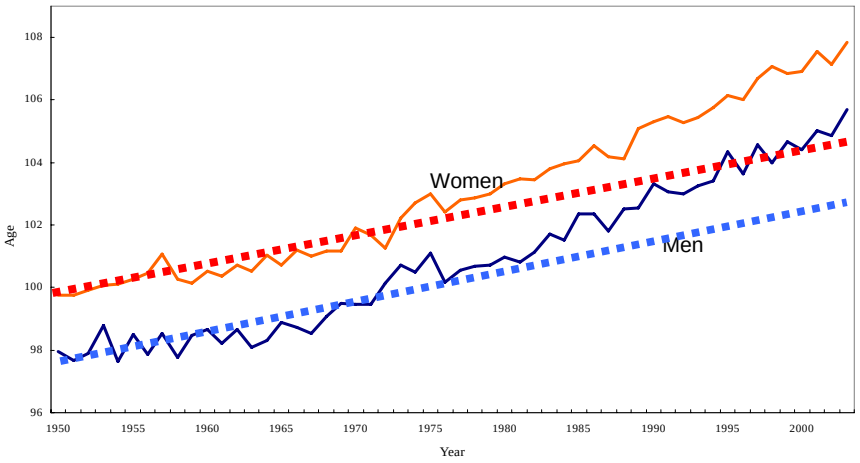
Source: Statistics Bureau of Ministry of Internal Affairs and Communications (various years) http://www.stat.go.jp/data/jinsui/2.htm#02.
Pet Food Manufacturers Association of Japan (various years) "Survey on the Percentage of Households Keeping Dogs and Cats" http://www.jppfma.org/shiryo/shiryo-set.html.

Mortality

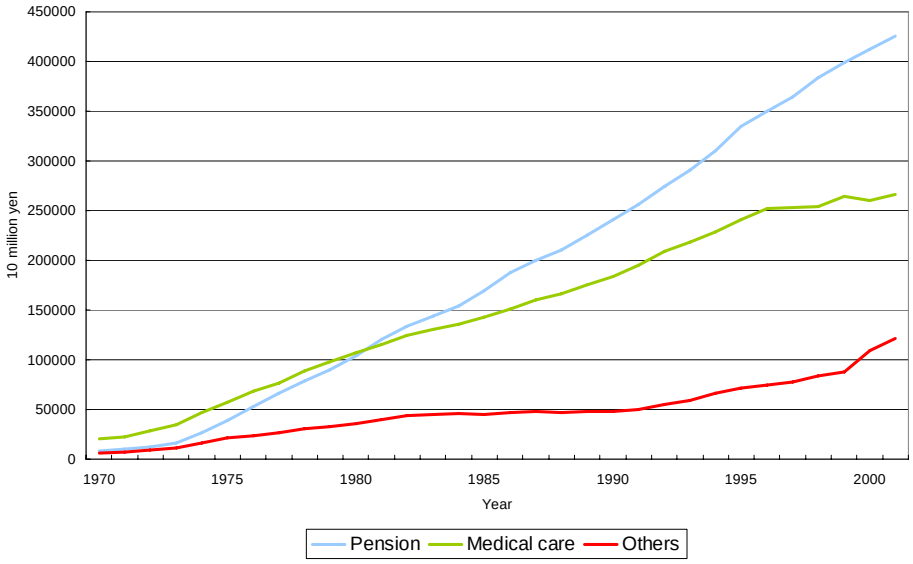
Increasingly important demographic source of population aging

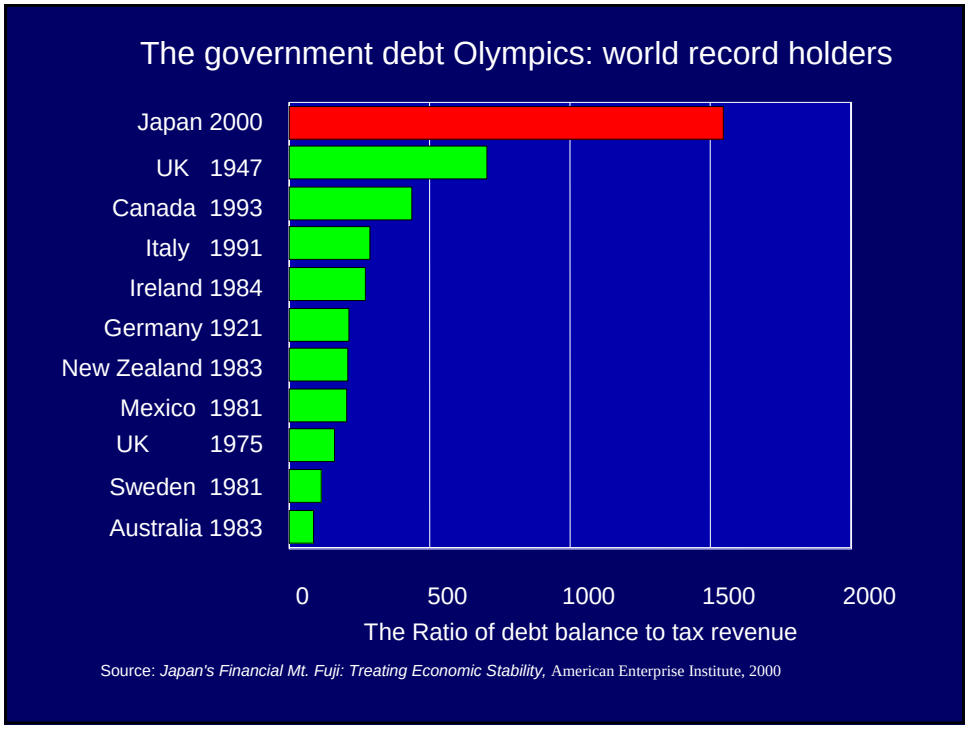
More dominant than fertility reduction since 2005!

Change in average age of death among 100 oldest persons by sex, Japan, 1950-2003



Growth of expenditure under the social security system



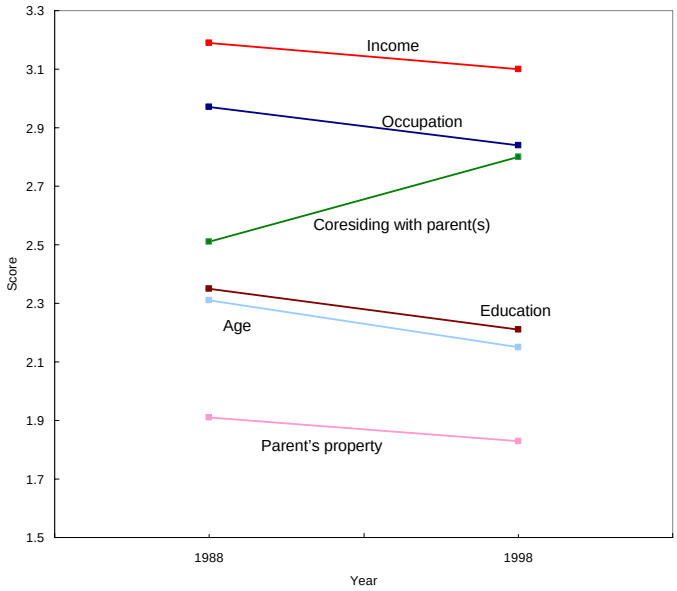


Coresidence is Japan's latent assets for taking care of the elderly.

Wishful thinking?

Deteriorating Familial Support

Change in score for mate-selection criteria among single women between 1988 and 1998



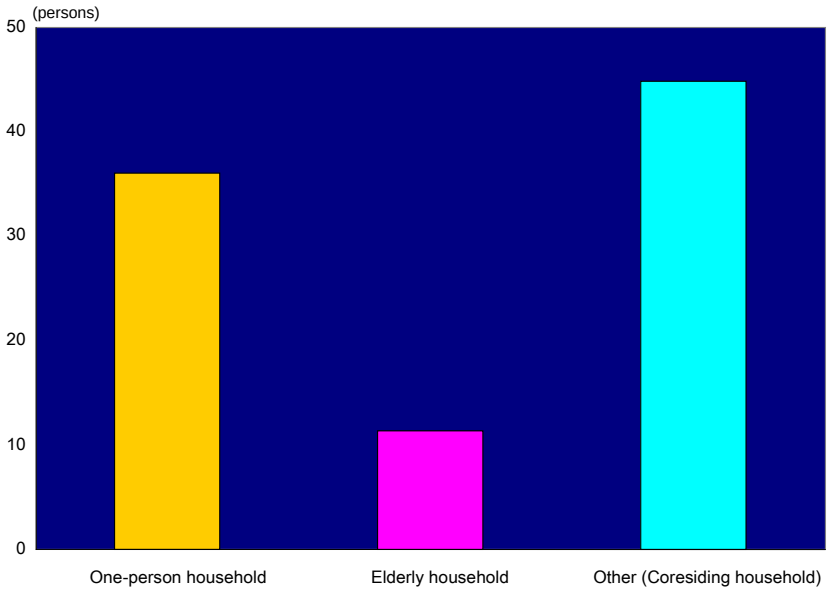
●55% of Japanese housewives living coresiding husband's parents are thinking…

●20% higher divorce risk if…

For young Japanese women,
to coreside or not to coreside,

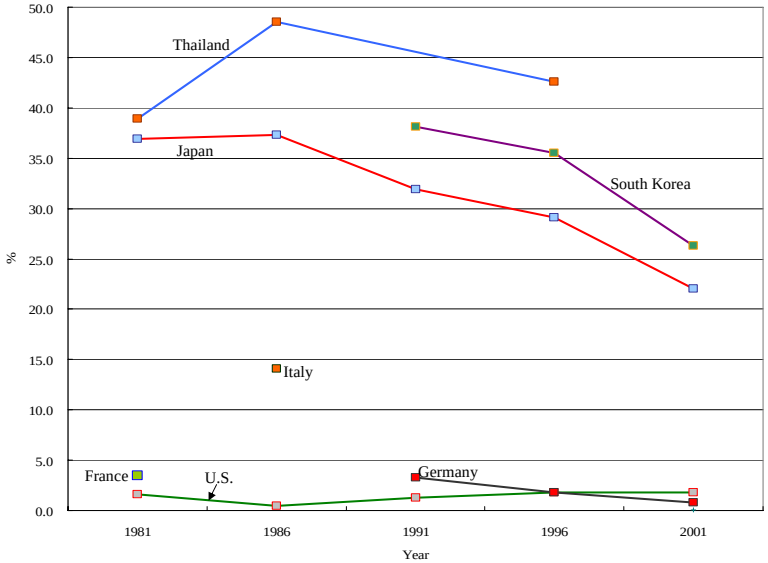
that's the question!

Suicide rates by household type (age 60 and over, per 100,000 people)



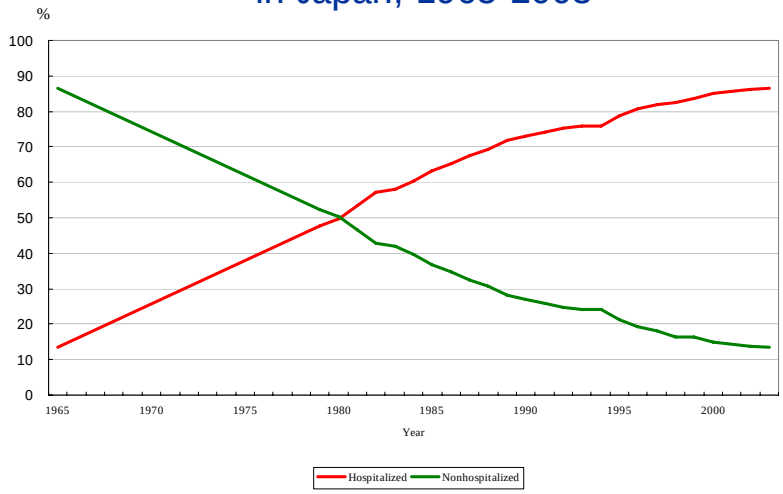
Source: Economic Planning Agency, 1994, *White Paper on the National Lifestyle*.

Figure 3. Changes in the proportion of 60+ living in three-generational households, selected countries, 1981-2001



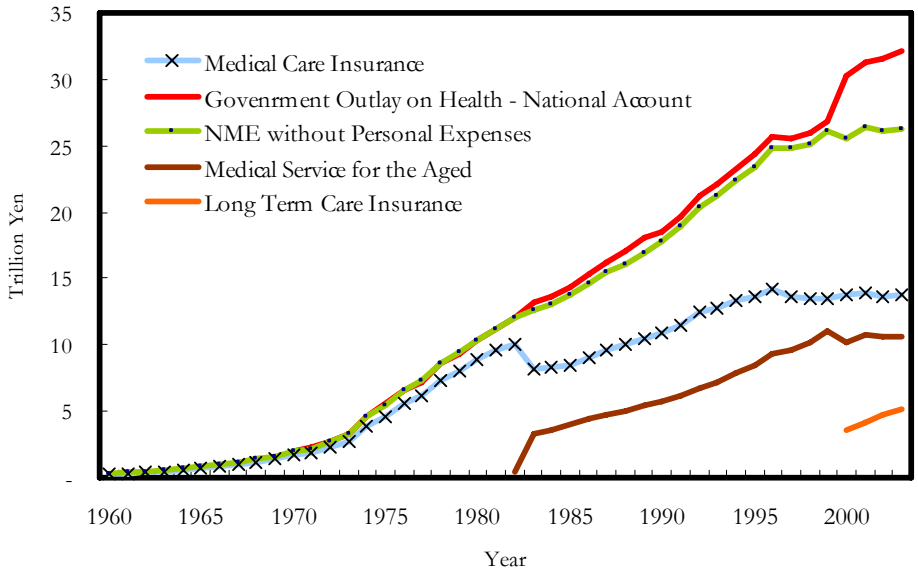
Management and Coordination Agency, *Brief Summary of the International Comparative Survey of the Elderly*, various years, Tokyo.

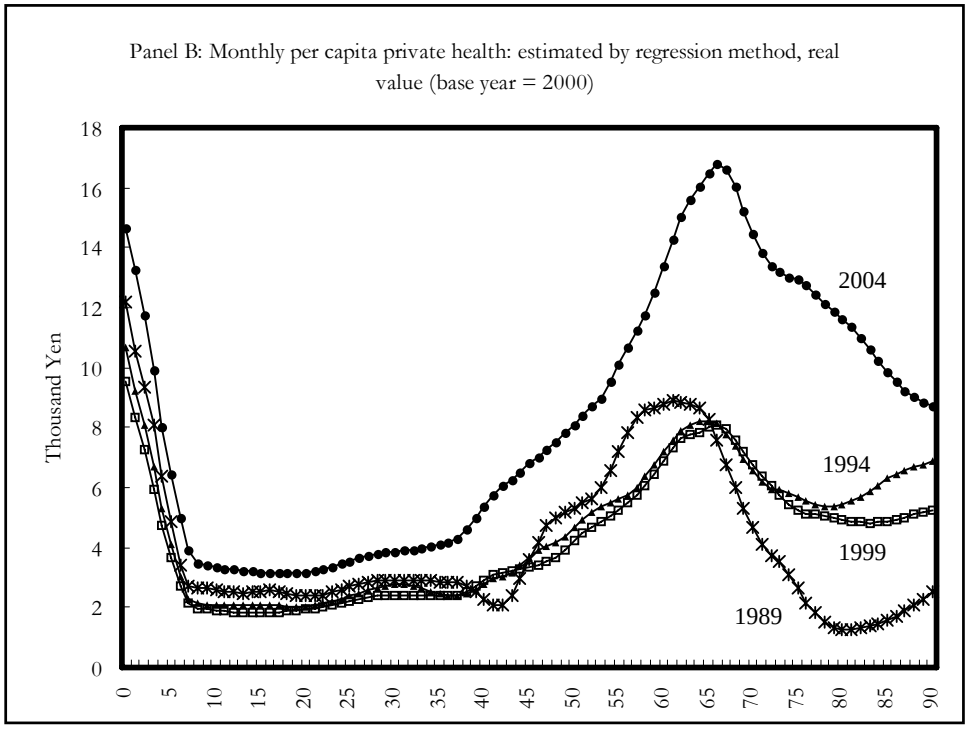
Change in the place of deaths among the elderly in Japan, 1965-2003

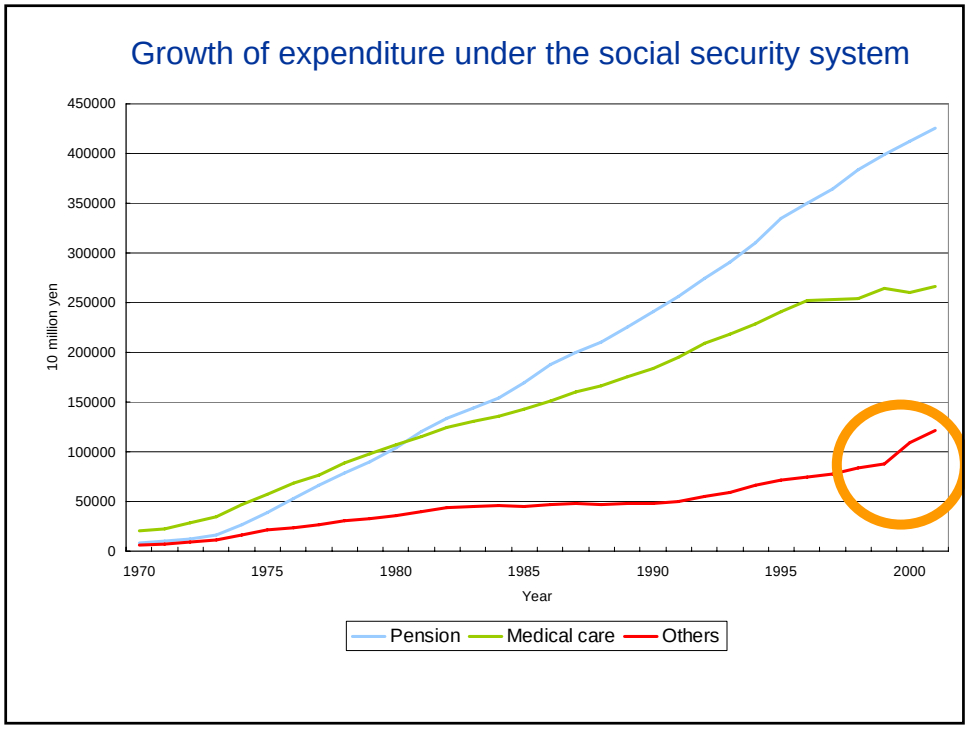


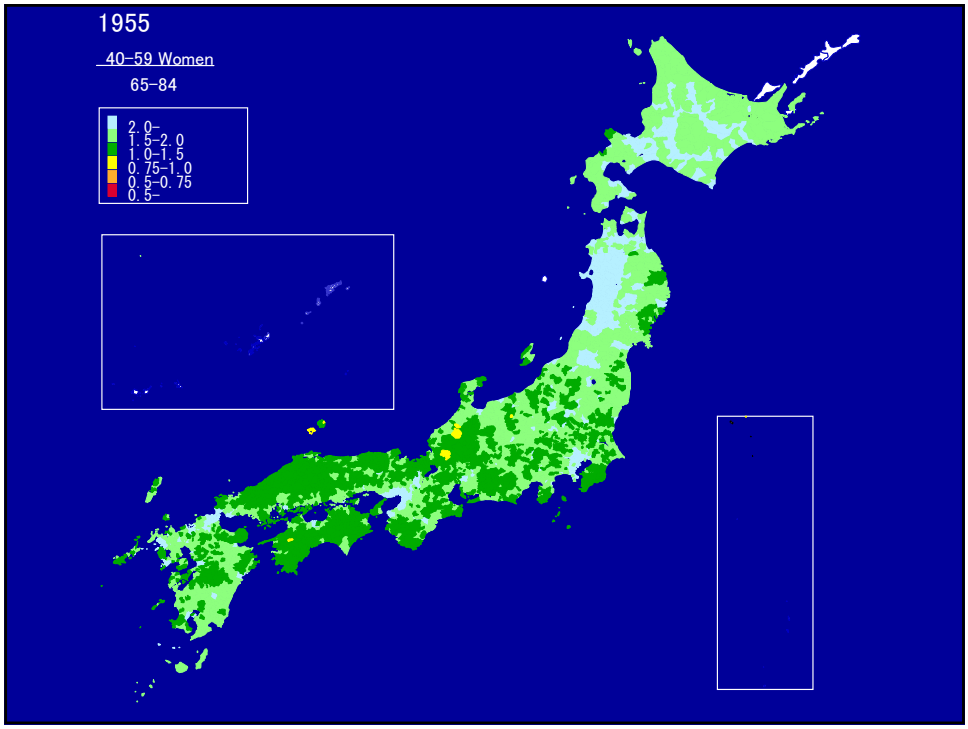
Source: Ministry of Health, Labour and Welfare, *Vital Statistics*, various years.

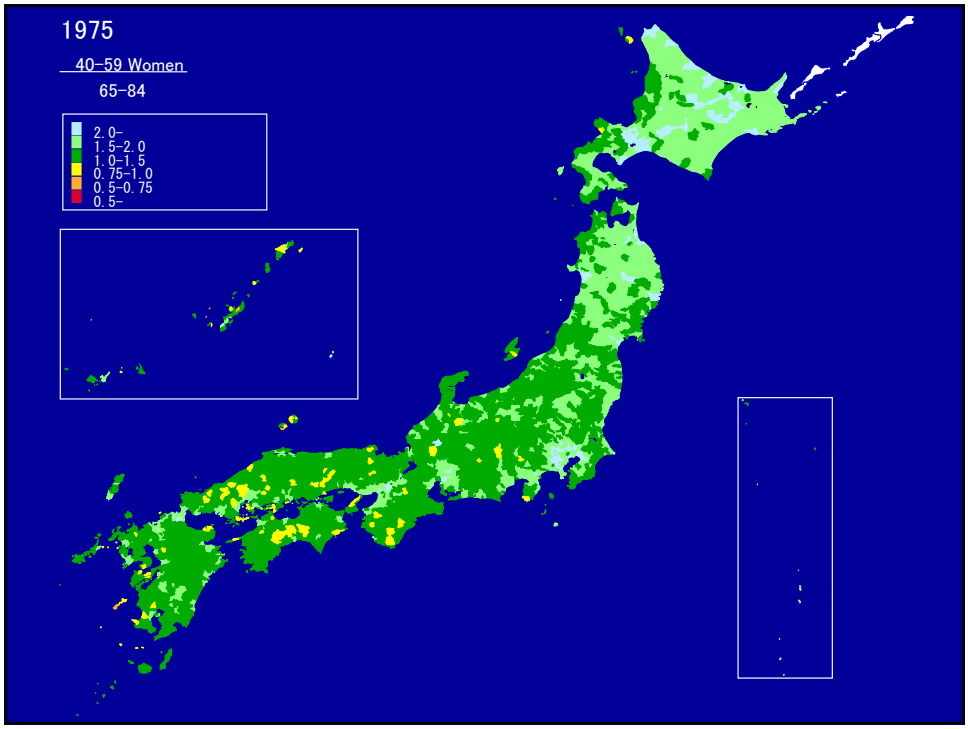
Figure 2. The growth of medical costs for selected components, nominal value, Japan, 1960-2004

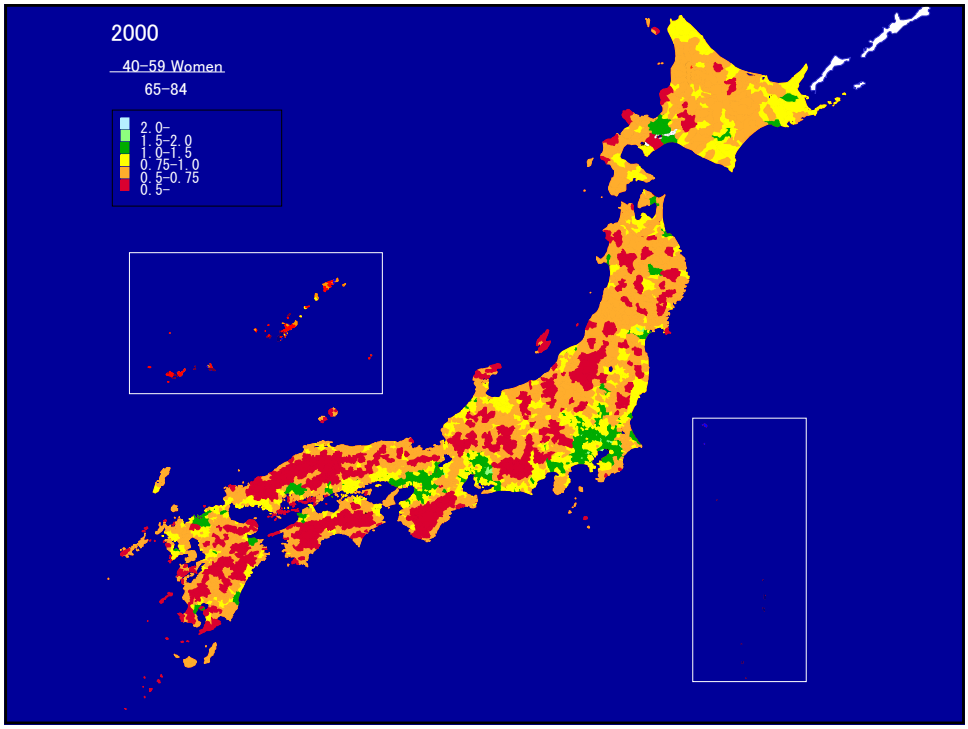


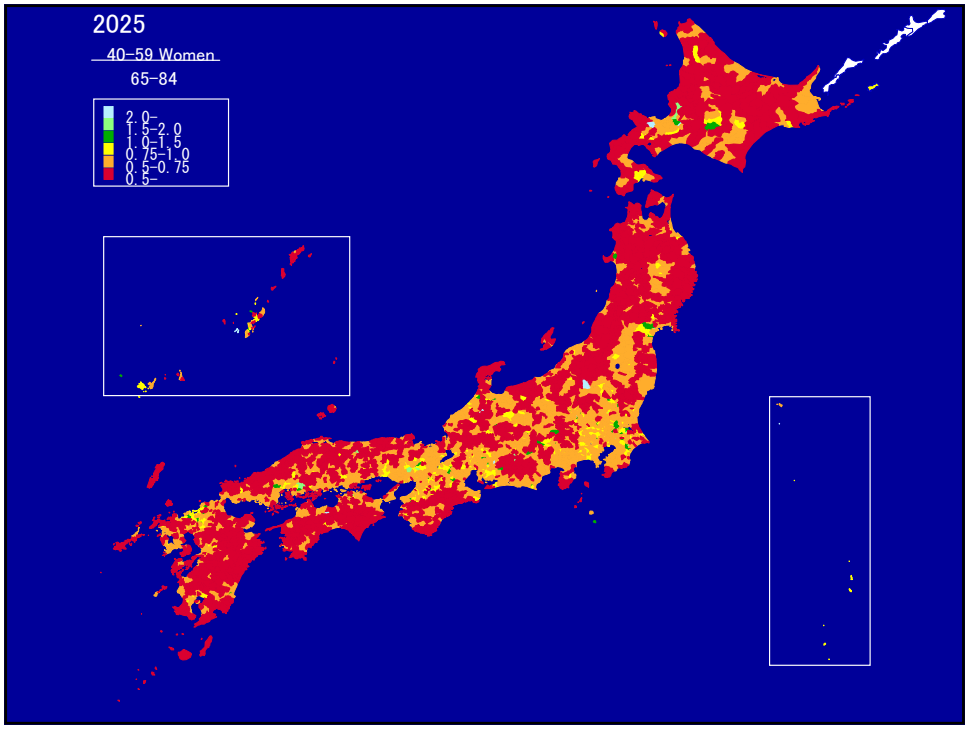

Panel B: Monthly per capita private health: estimated by regression method, real value (base year = 2000)
Thousand Yen
18
16
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
2004
1994
1999
1989


Growth of expenditure under the social security system
10 million yen
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1970
1975
1980
1985
1990
1995
2000
Year
Pension
Medical care
Others

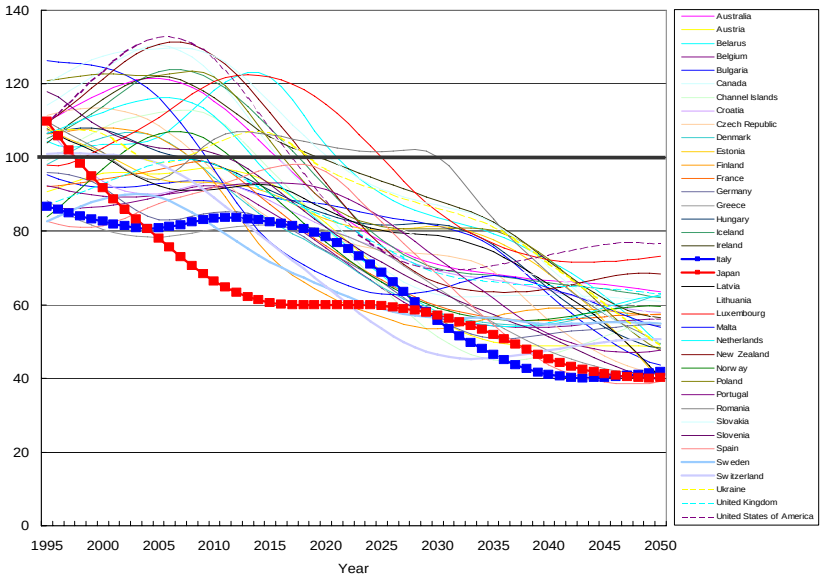

1955
40-59 Women
65-84
2.0-
1.5-2.0
1.0-1.5
0.75-1.0
0.5-0.75
0.5-


1975
40-59 Women
65-84
2.0-
1.5-2.0
1.0-1.5
0.75-1.0
0.5-0.75
0.5-


2000
40–59 Women
65–84
2.0–
1.5–2.0
1.0–1.5
0.75–1.0
0.5–0.75
0.5–


2025
40–59 Women
65–84
2.0–
1.5–2.0
1.0–1.5
0.75–1.0
0.5–0.75
0.5–

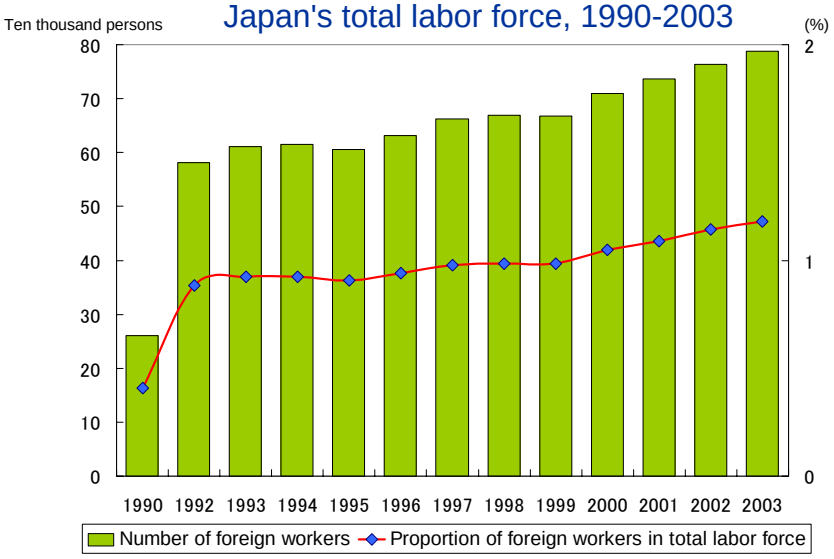
Family support ratio (Women 40-59 / 65-84), 1995-2050



Immigration

Any signal of policy changes?

Number of foreign workers and their proportion in Japan's total labor force, 1990-2003



Source: *Annual Report on the Labour Force Survey*, Statistics Bureau, various years.
White Paper on International Economy and Trade, Ministry of Economy, Trade and Industry, 2005.

Newest Developments

EPA:

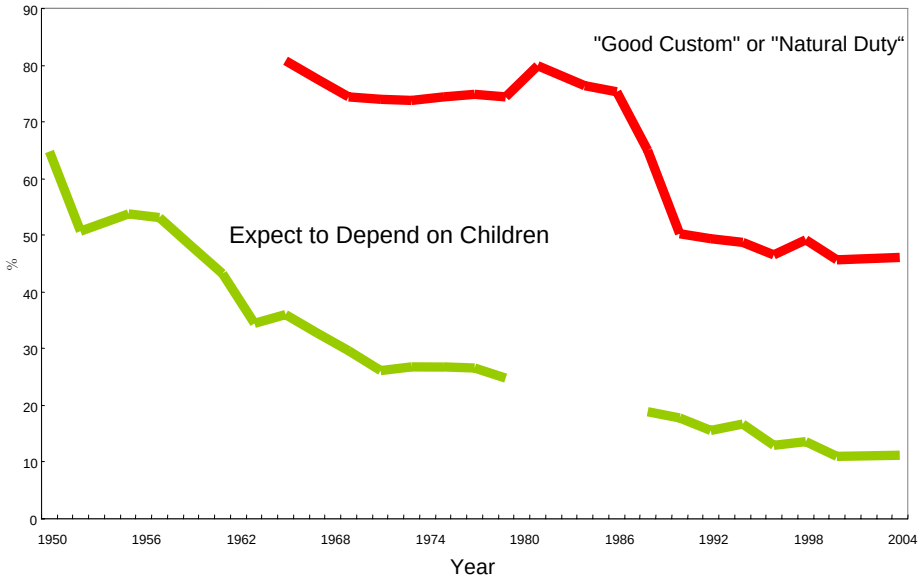
As a first step, starting from 2008, up to 1,000 Filipino nurses and caregivers (400 nurses and 600 caregivers) will be accepted over the course of 2 years

In addition, new developments with Malaysia, Thailand, and Indonesia are under way.

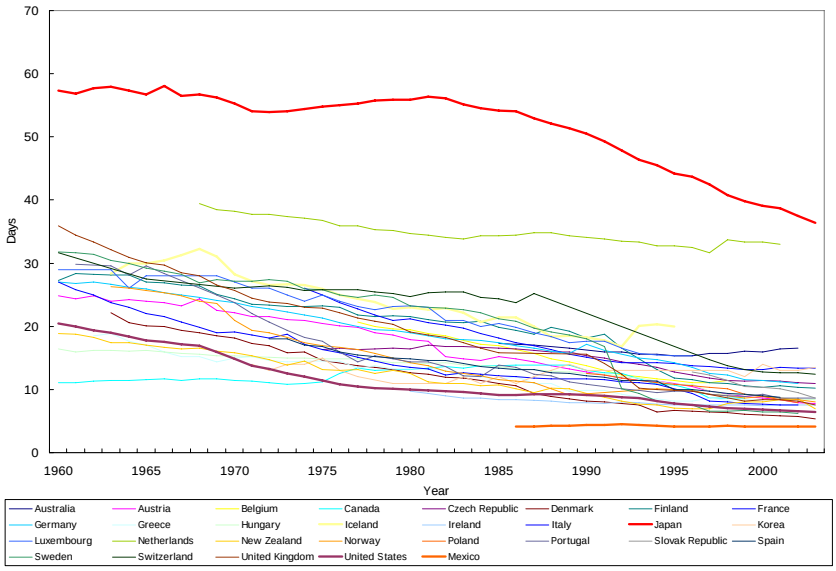
Sudden

Value Shift

Trends in Norms and Expectations about Care for the Elderly: Japan, 1950-2004



Trends in average days of hospitalization in OECD countries, 1960-2003



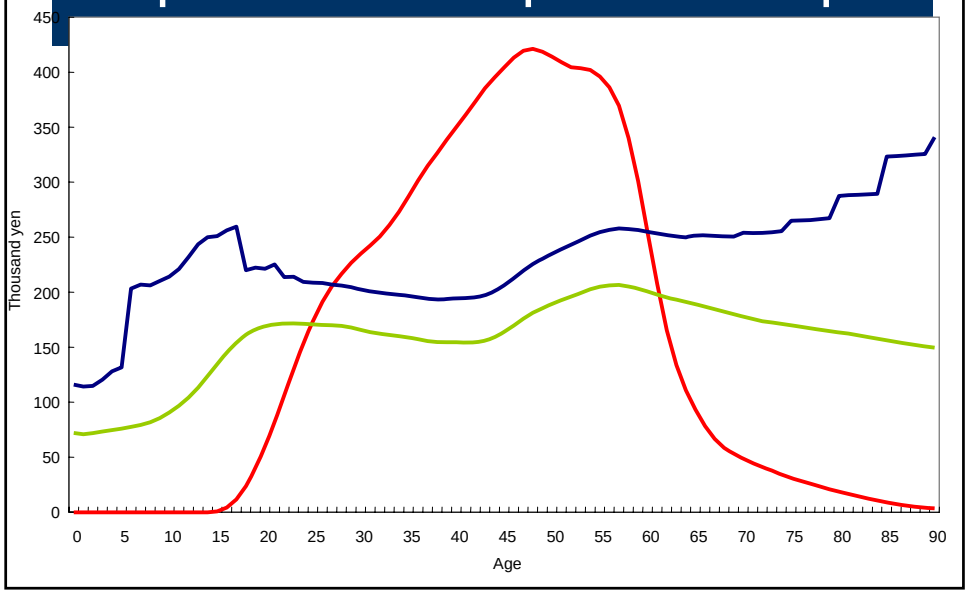
Source: OECD, *OECD Health Data 2005*, 2005.

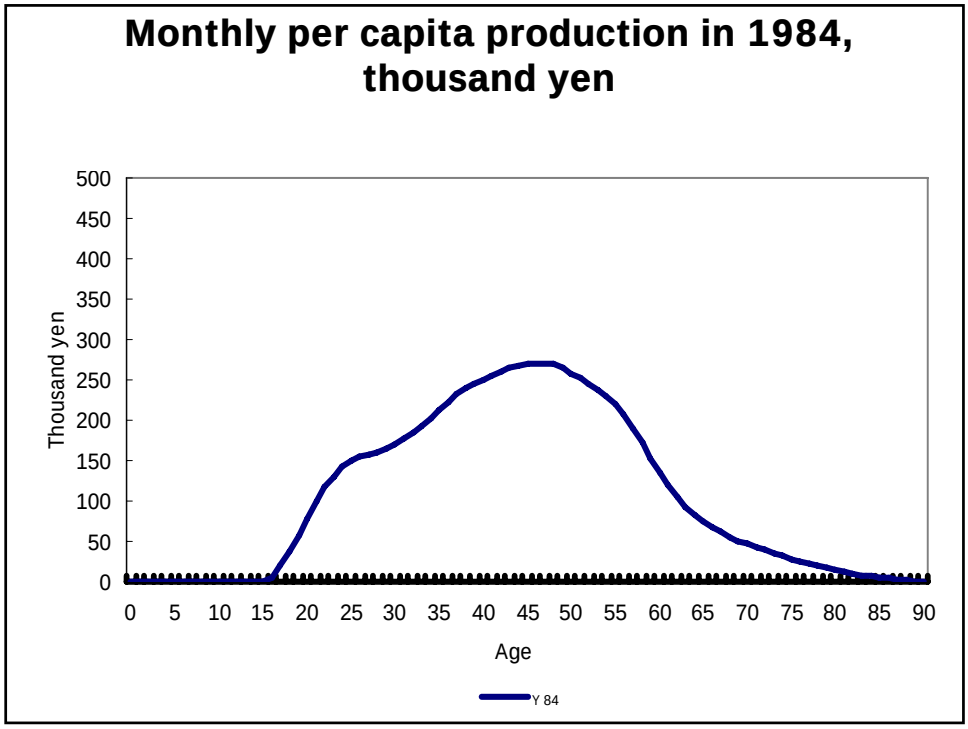
Let us look at the impact of population aging in postwar Japan

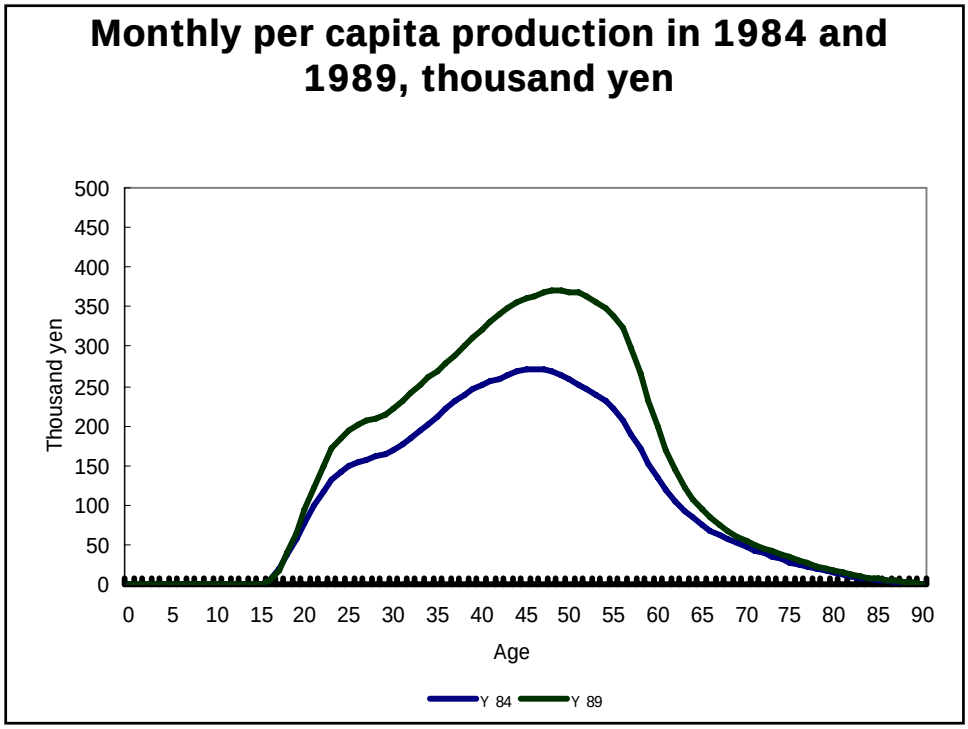
Here comes...

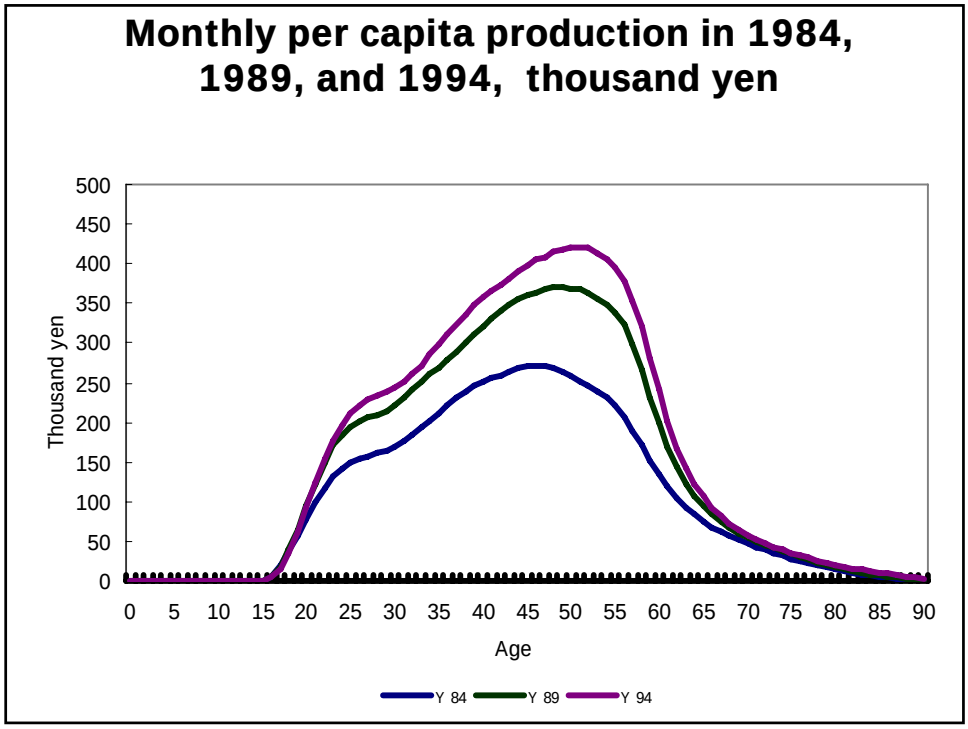
the most important graph in Japan!

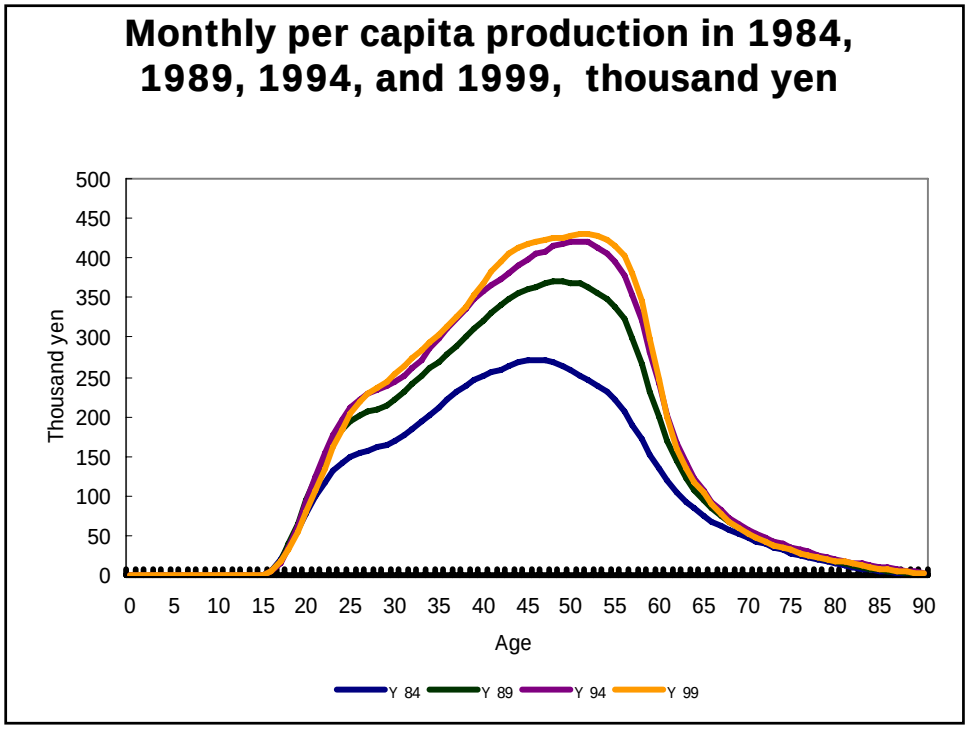
Japan's Most Important Graph 2024



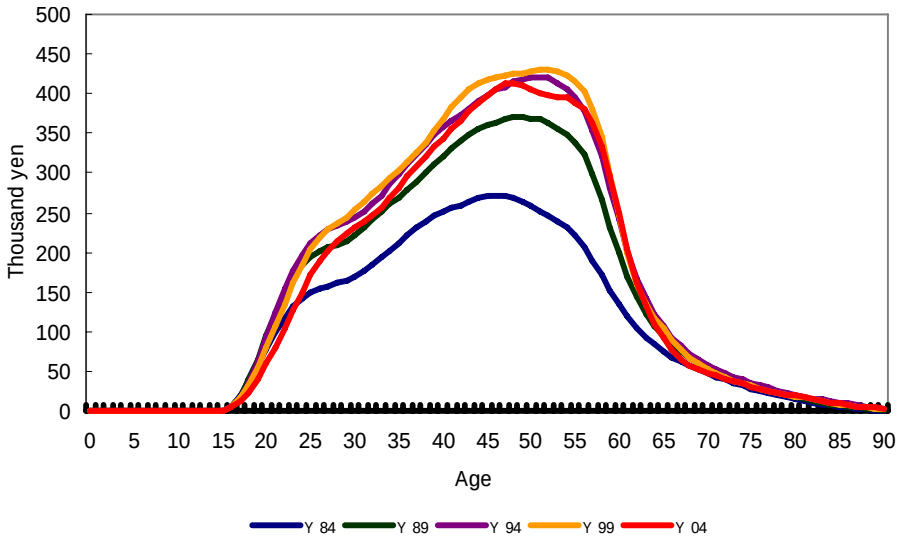

Monthly per capita production in 1984, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
Y 84


Monthly per capita production in 1984 and 1989, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
Y 84
Y 89

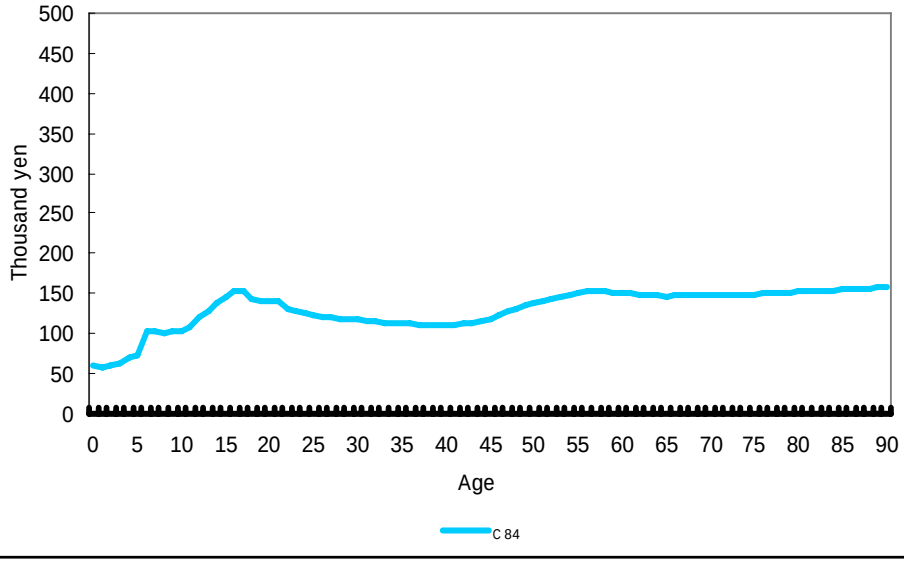

Monthly per capita production in 1984, 1989, and 1994, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
Y 84
Y 89
Y 94

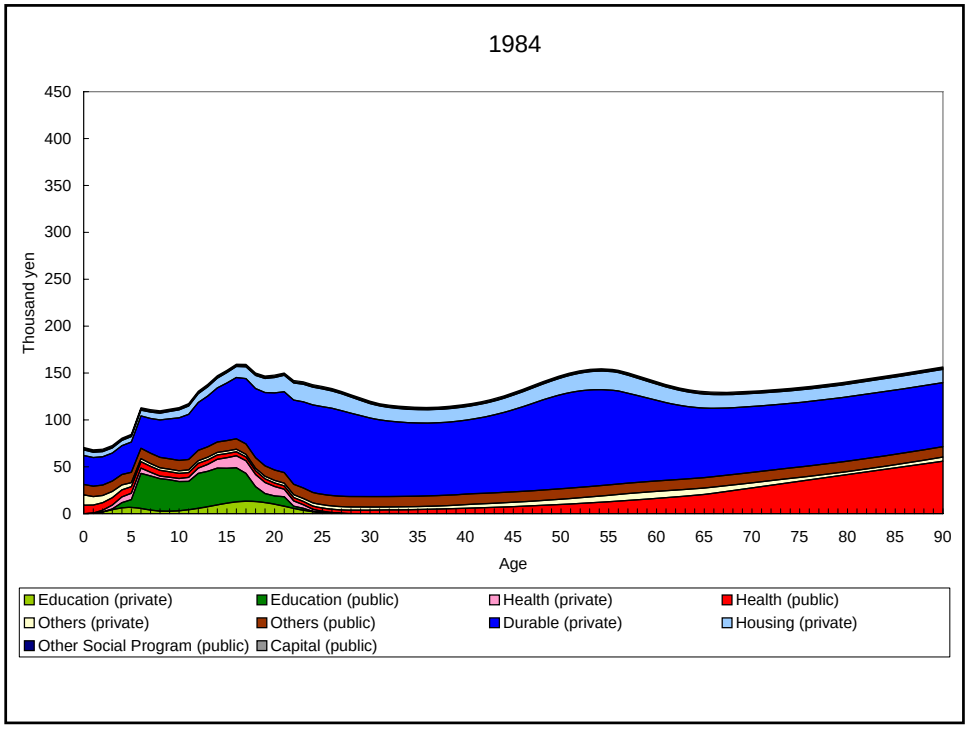

Monthly per capita production in 1984, 1989, 1994, and 1999, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
Y 84
Y 89
Y 94
Y 99

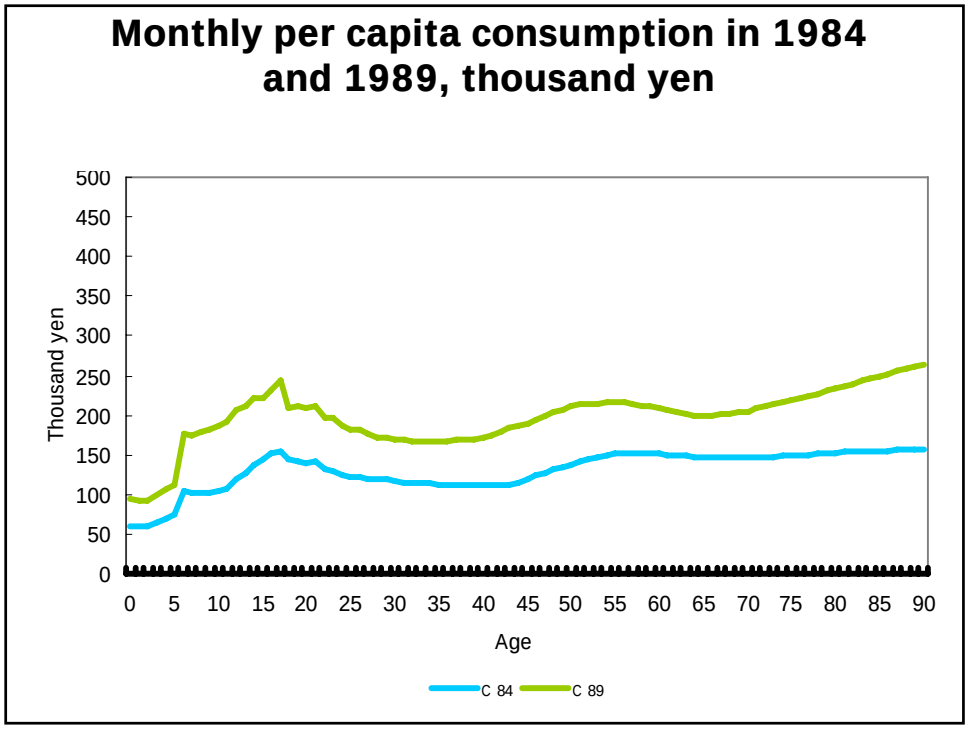
Monthly per capita production in 1984, 1989, 1994, 1999, and 2004 thousand yen

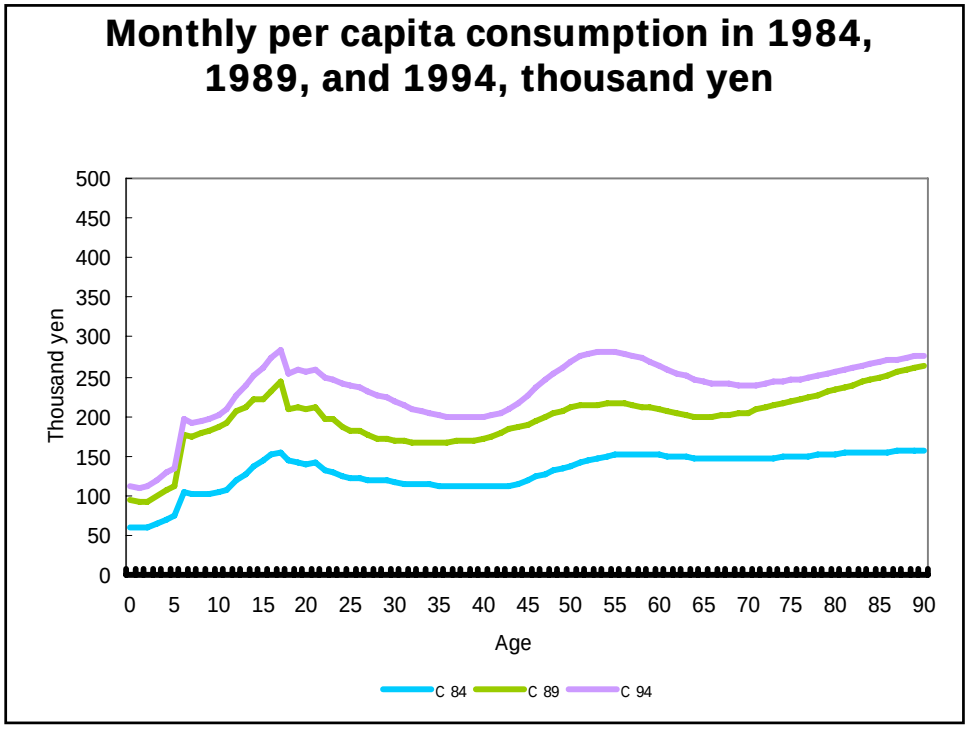


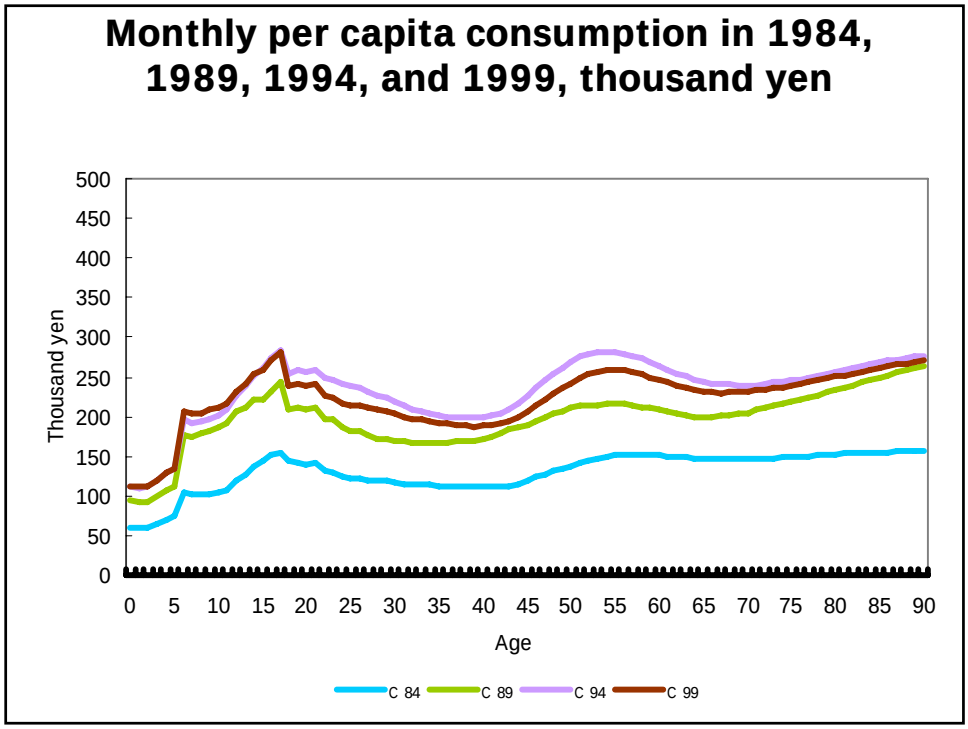
Monthly per capita consumption in 1984, thousand yen



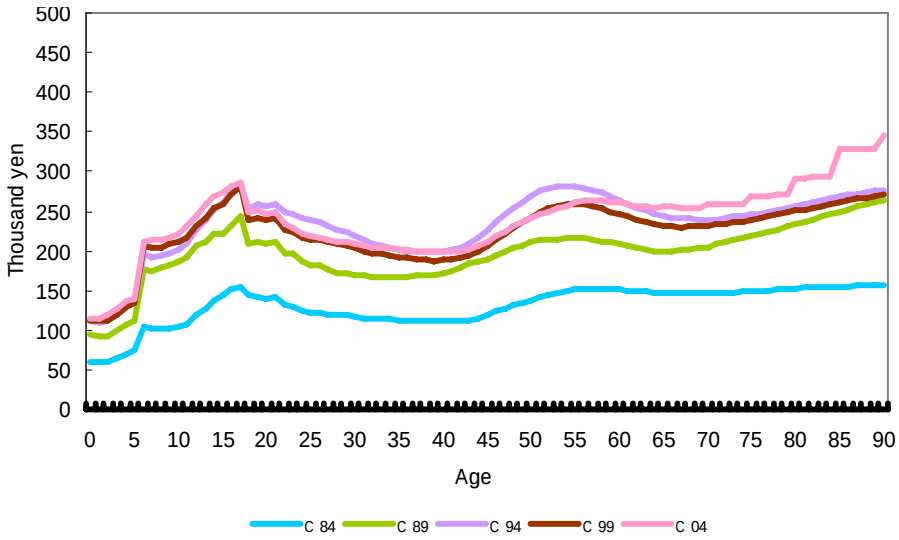

1984
Thousand yen
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
Education (private)
Education (public)
Health (private)
Health (public)
Others (private)
Others (public)
Durable (private)
Housing (private)
Other Social Program (public)
Capital (public)

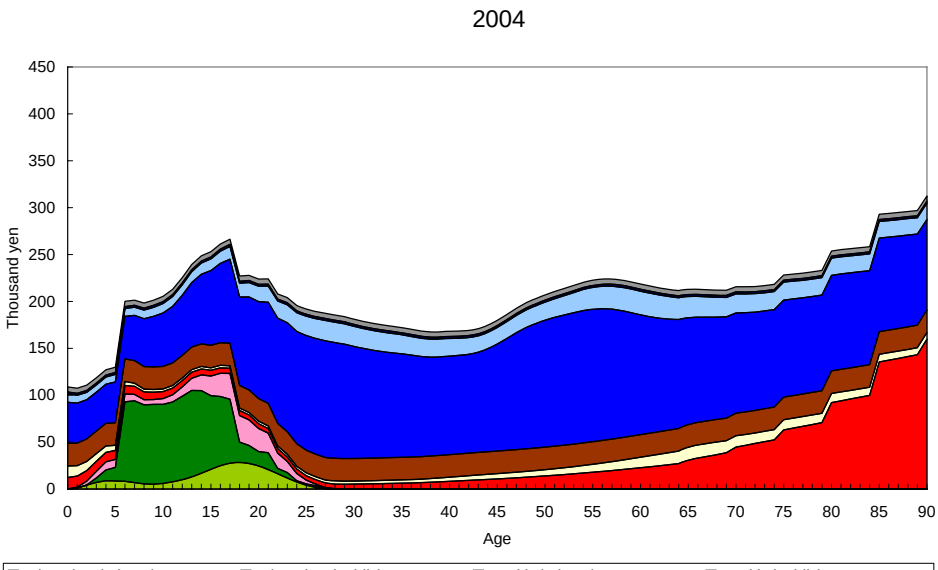

Monthly per capita consumption in 1984 and 1989, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
C 84
C 89

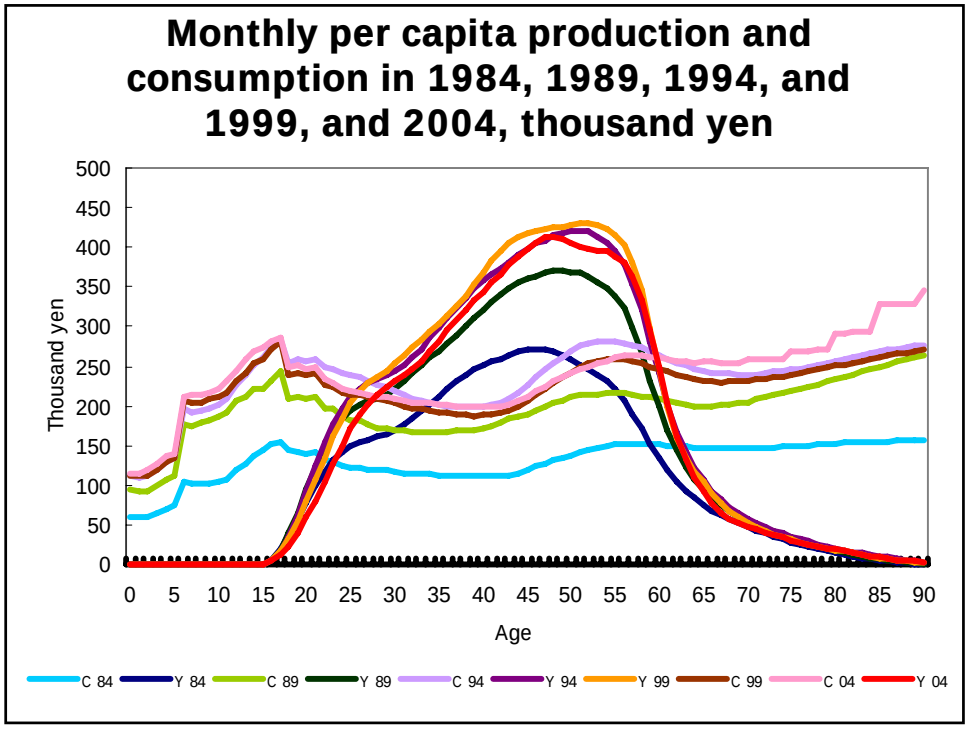

Monthly per capita consumption in 1984, 1989, and 1994, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
C 84
C 89
C 94


Monthly per capita consumption in 1984, 1989, 1994, and 1999, thousand yen
Thousand yen
500
450
400
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Age
C 84
C 89
C 94
C 99

Monthly per capita consumption in 1984, 1989, 1994, 1999, and 2004, thousand yen







Crossing ages

Country	Crossing ages for consumption and labor income Y(x) > C(x)	
	Younger Age	Older Age
Japan (1989)	25	59
Japan (1994)	26	59
Japan (1999)	27	59
Japan (2004)	28	59
US (2000)	26	56
Taiwan (1998)	24	56
Indonesia (1996)	28	58
Thailand (1996)	26	59
Costa Rica (2004)	24	56

Japan's most important graph reflects a host of vital economic and social factors

Changing earnings profile

Hours worked

Women's labor force participation

Sectoral allocation of the labor force

Child care and old age leave

Change in retirement age

Change in the remuneration system

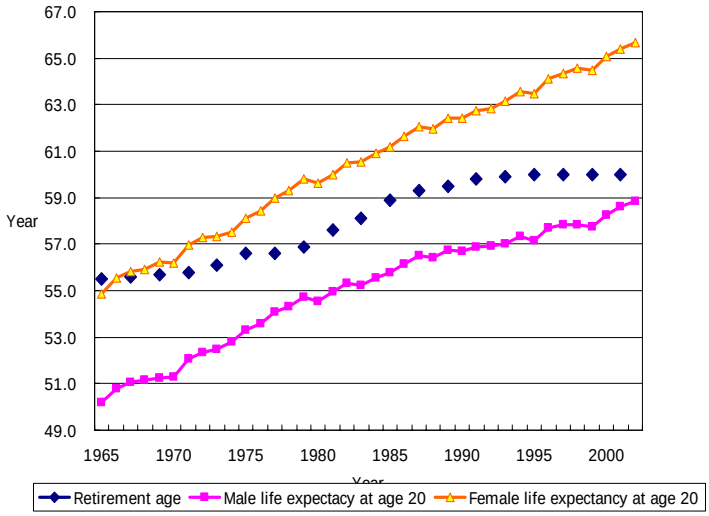
Pension benefits

Enrollment rates in tertiary education

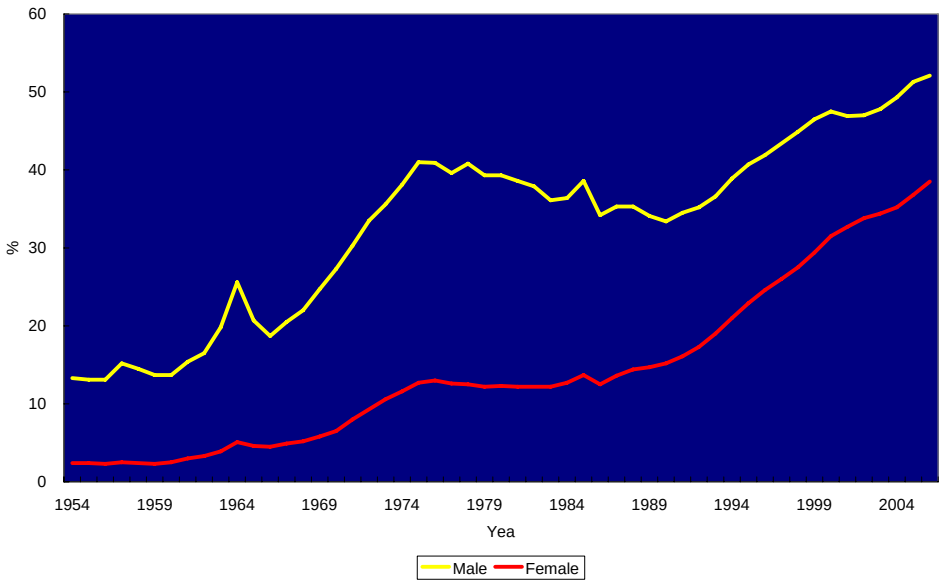
Parasite singles

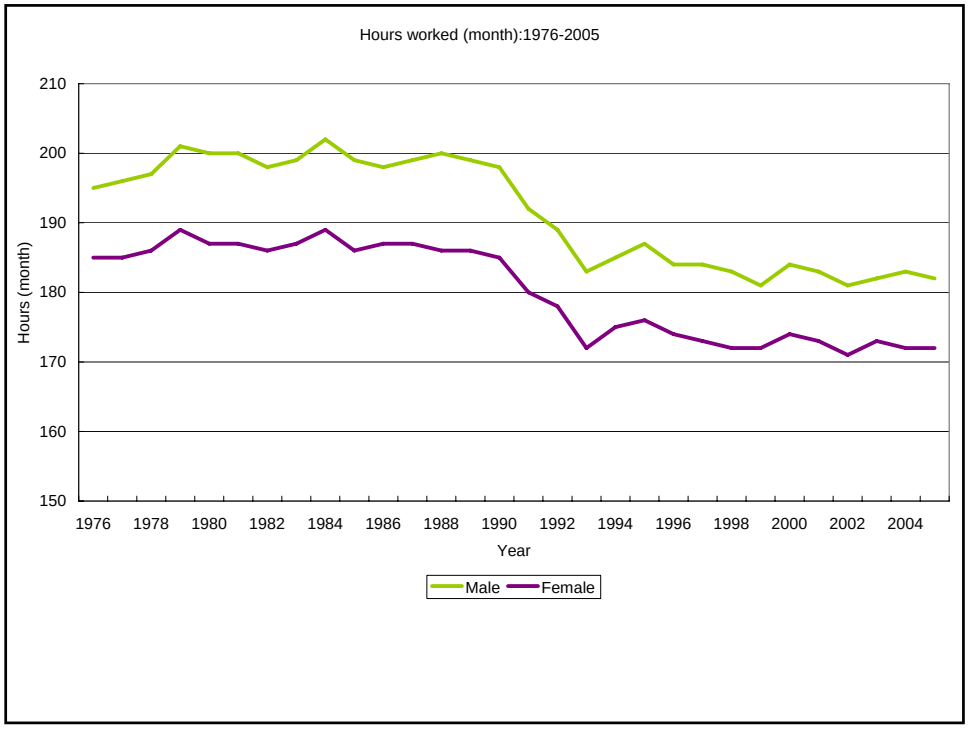
Freeters and Neets

Change in retirement age at large-scale businesses and life expectancies at age 20 for men and women: Japan, 1965-2002



University enrollment rate

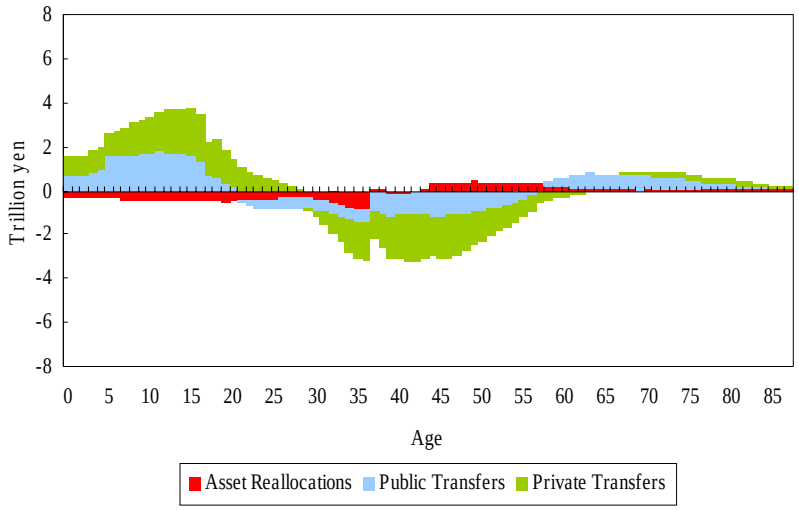




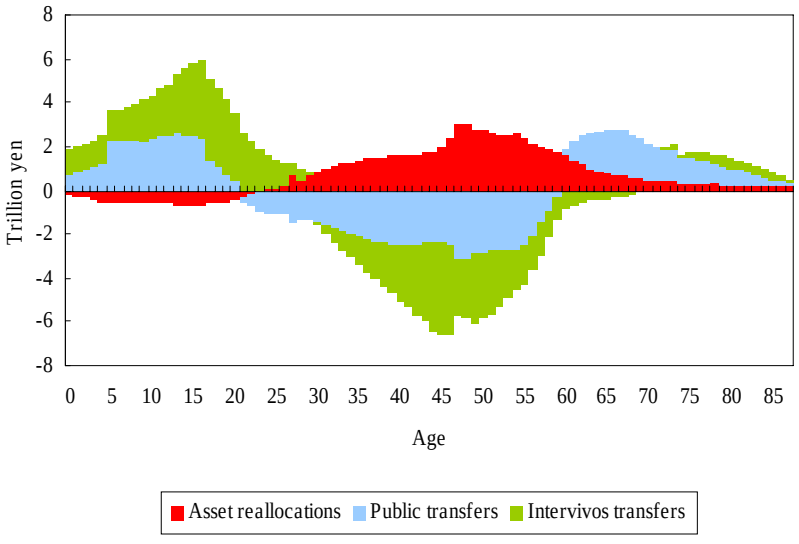
Now let us pay attention to look at the changing pattern of lifecycle deficits

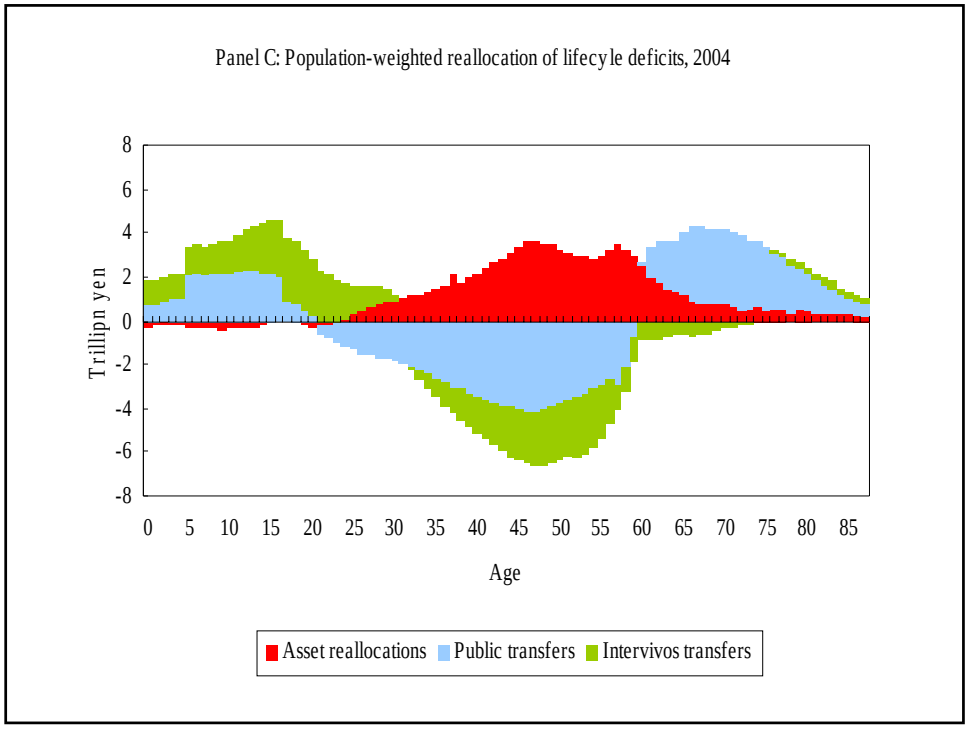
Figure 12. Changing pattern of reallocation of the lifecycle deficits for Japan, 1984 to 2004

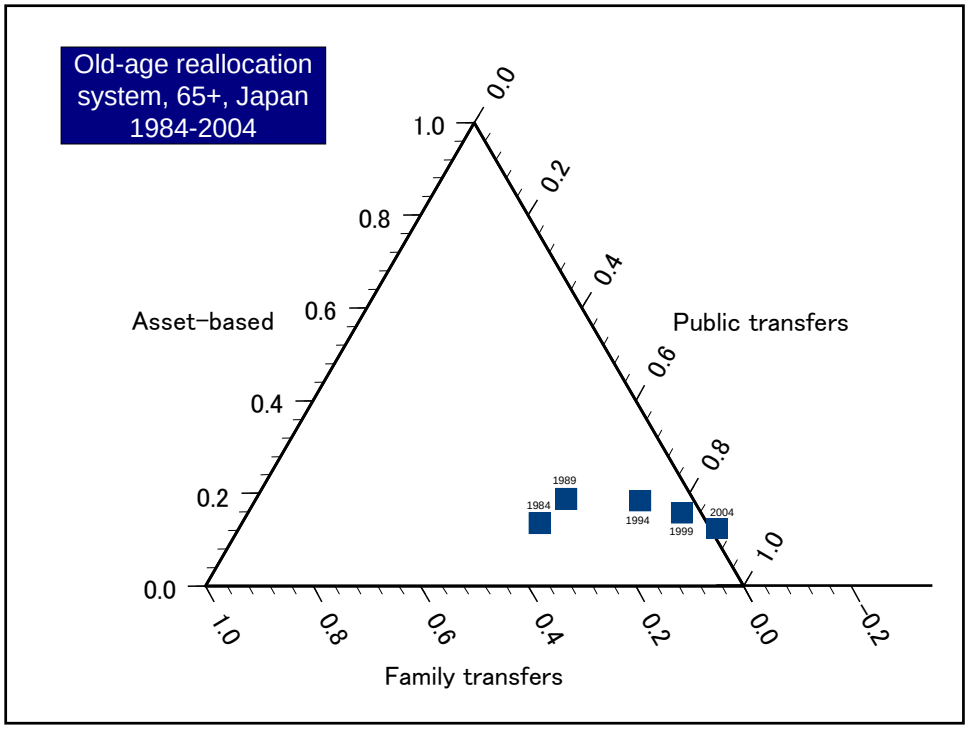
Panel A: Population-weighted reallocation of lifecyle deficits, 1984

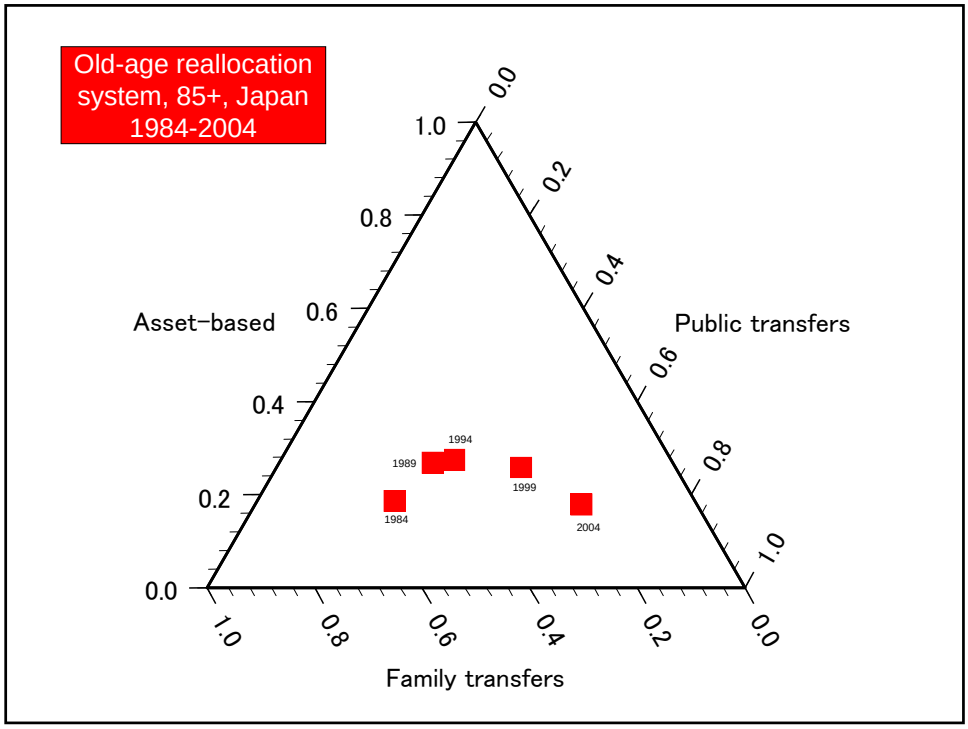


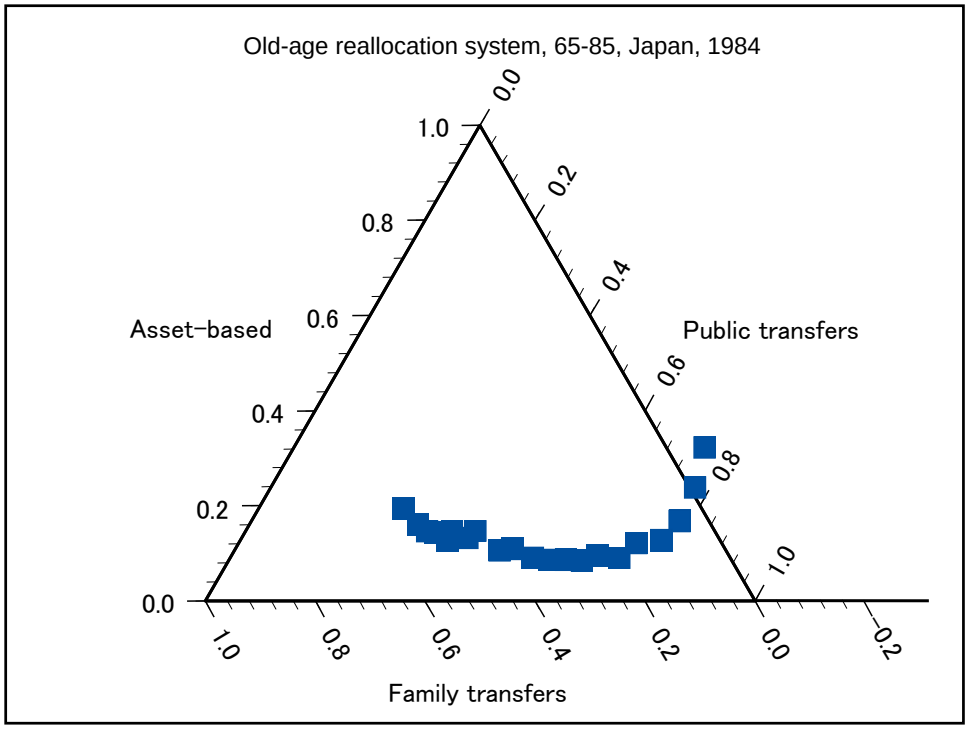
Panel B: Population-weighted reallocation of lifecyle deficits, 1994

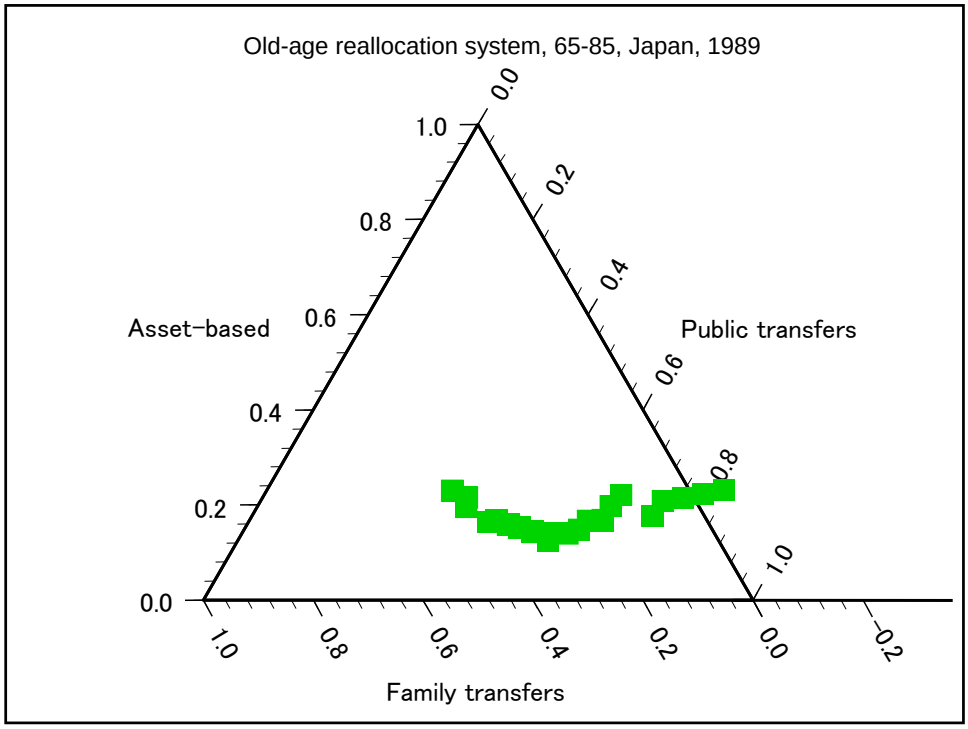


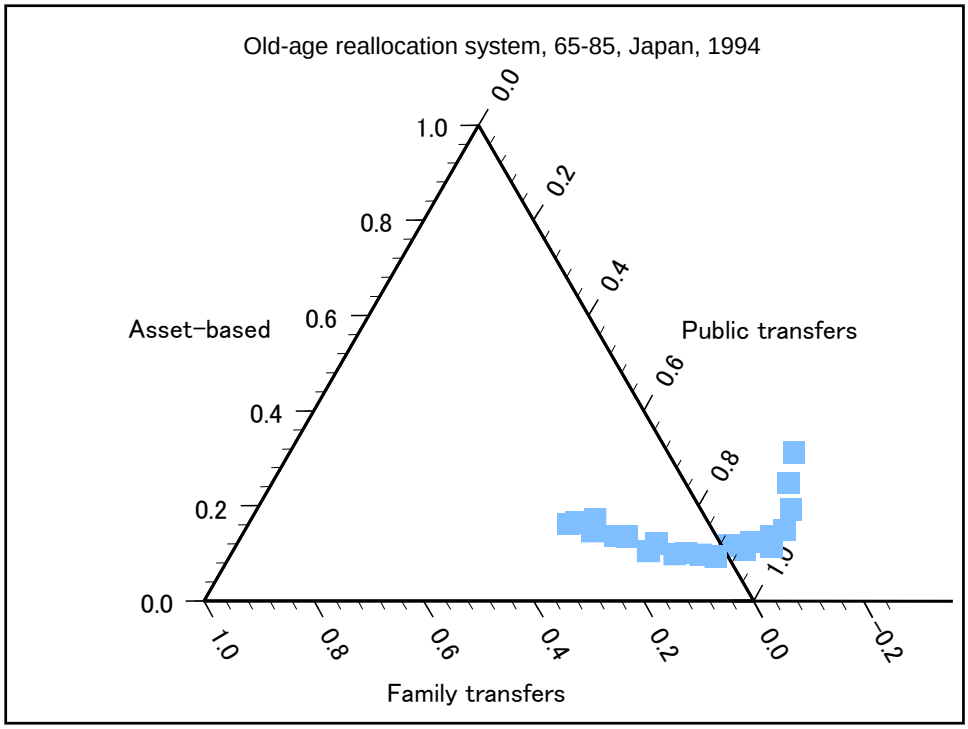

Panel C: Population-weighted reallocation of lifecyle deficits, 2004
Trillipn yen
8
6
4
2
0
-2
-4
-6
-8
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Age
Asset reallocations
Public transfers
Intervivos transfers

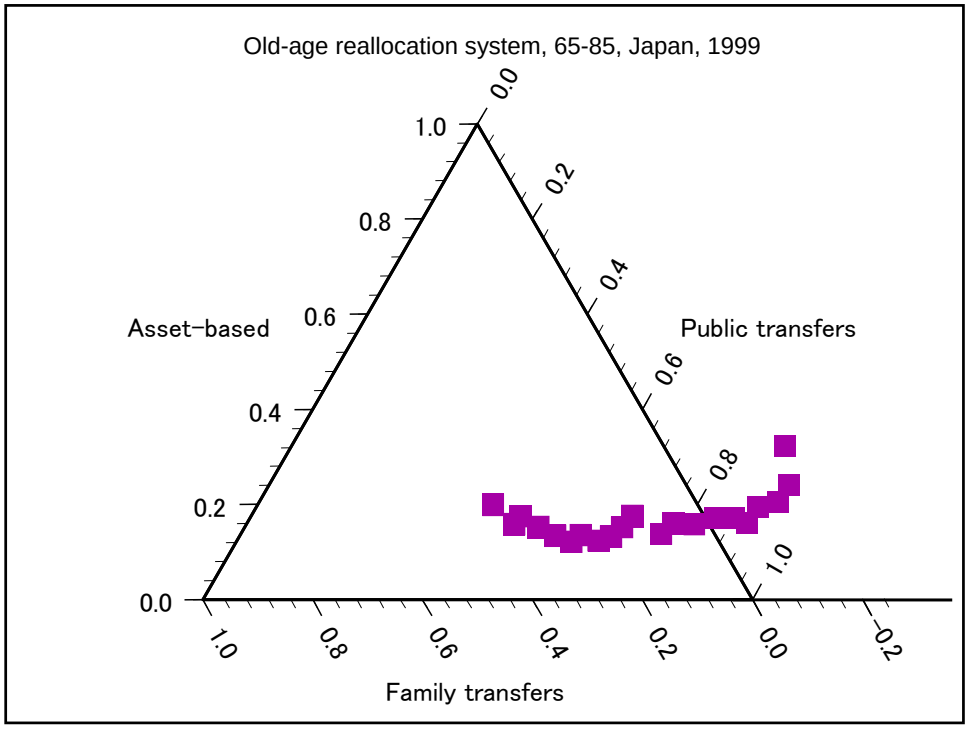

Old-age reallocation system, 65+, Japan 1984-2004
Asset−based
Public transfers
Family transfers
0.0
0.2
0.4
0.6
0.8
1.0
1984
1989
1994
1999
2004

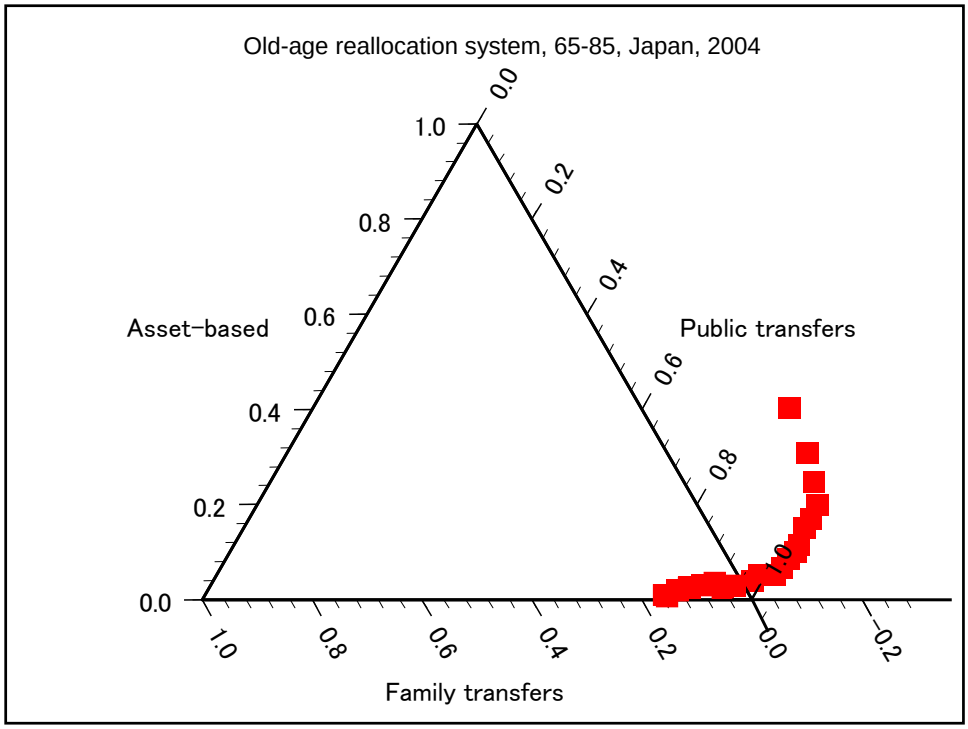

Old-age reallocation system, 85+, Japan 1984-2004
Asset−based
Public transfers
Family transfers
1984
1989
1994
1999
2004


Old-age reallocation system, 65-85, Japan, 1984
Asset−based
Public transfers
Family transfers


Old-age reallocation system, 65-85, Japan, 1989
Asset−based
Public transfers
Family transfers
0.0
0.2
0.4
0.6
0.8
1.0
−0.2


Old-age reallocation system, 65-85, Japan, 1994
Asset−based
Public transfers
Family transfers
0.0
0.2
0.4
0.6
0.8
1.0
−0.2


Old-age reallocation system, 65-85, Japan, 1999
Asset−based
Public transfers
Family transfers
0.0
0.2
0.4
0.6
0.8
1.0
−0.2


Old-age reallocation system, 65-85, Japan, 2004
Asset−based
Public transfers
Family transfers
0.0
0.2
0.4
0.6
0.8
1.0
−0.2

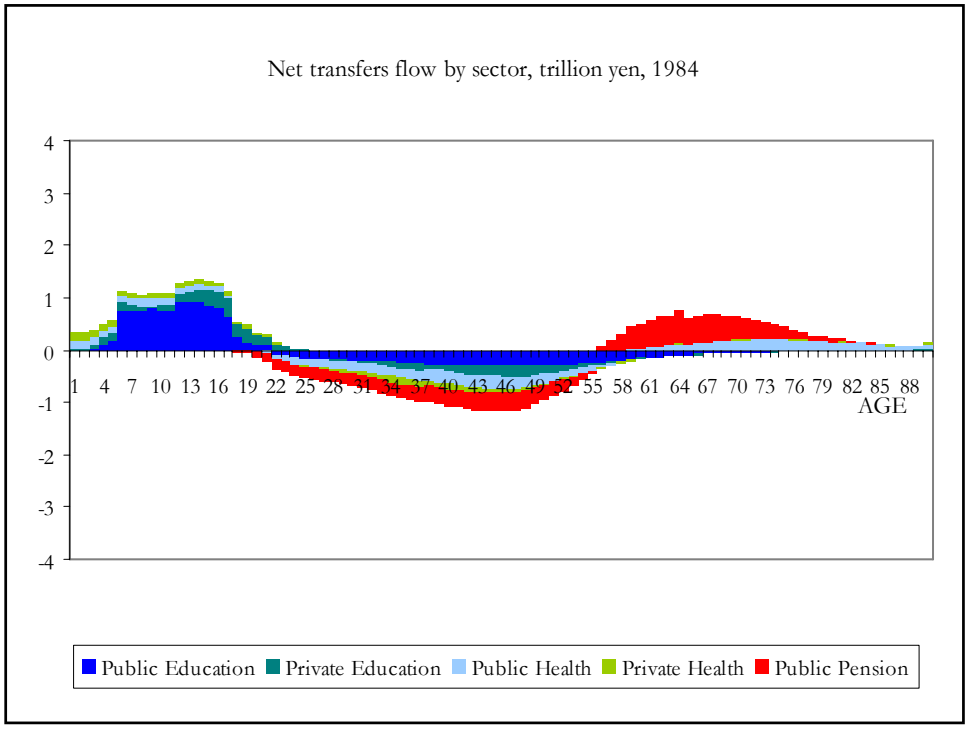
The Japanese elderly are:

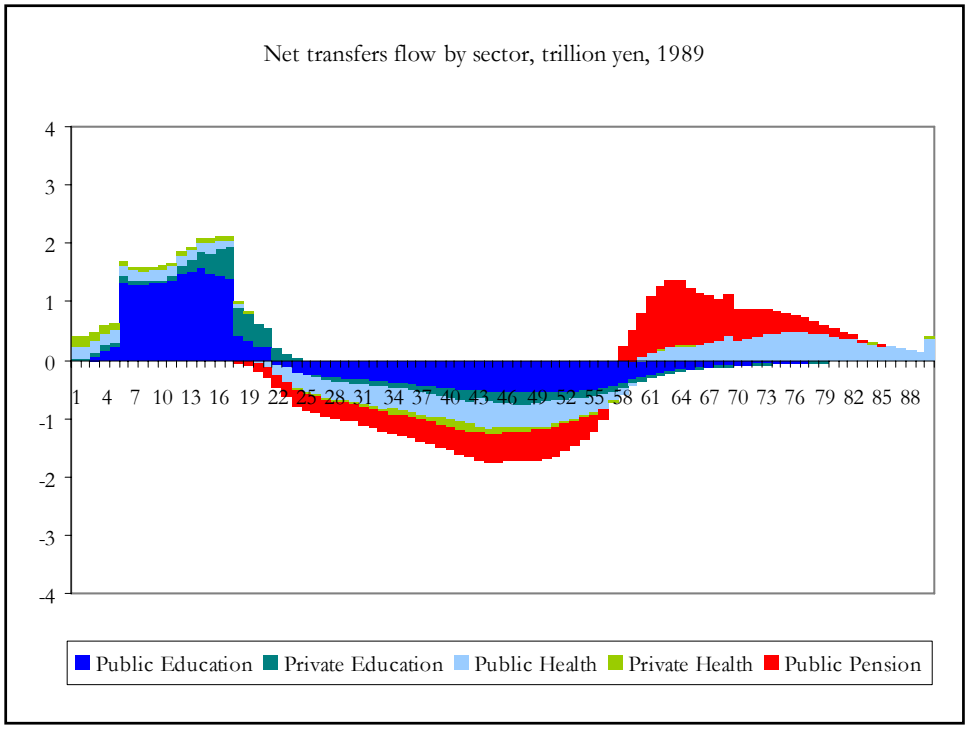
largely public goods?

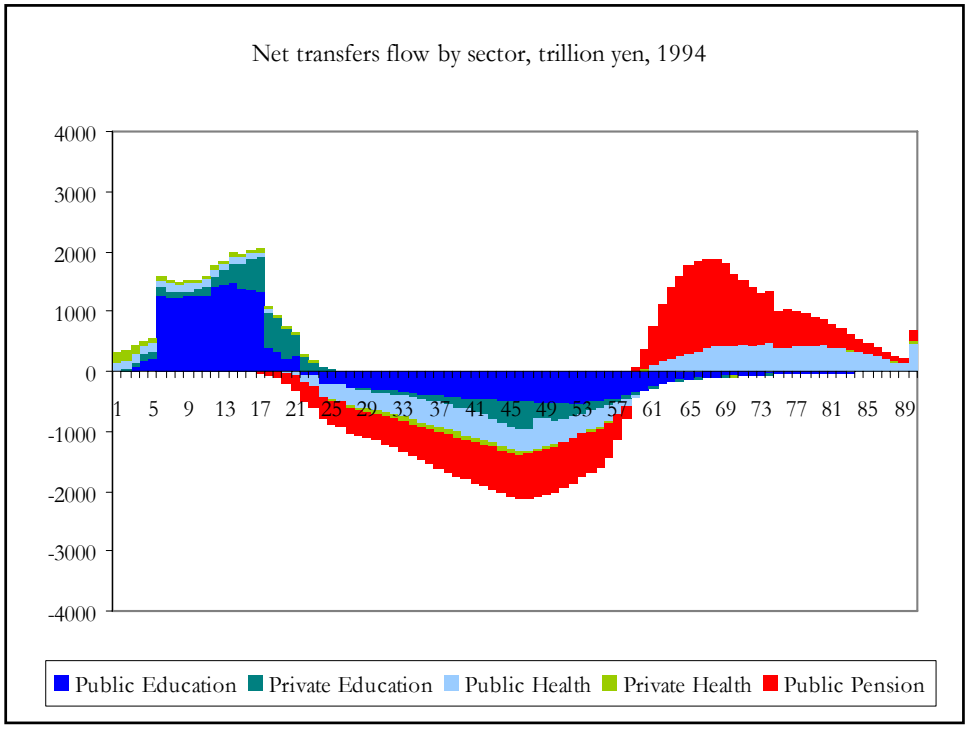
Japanese children are:

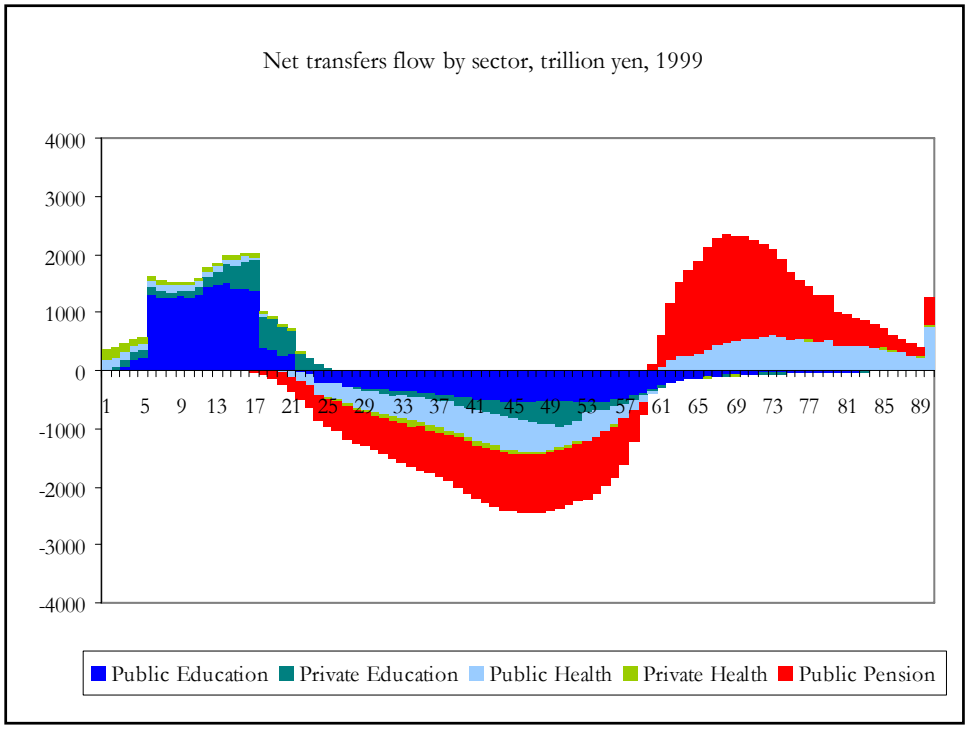
predominantly private goods?

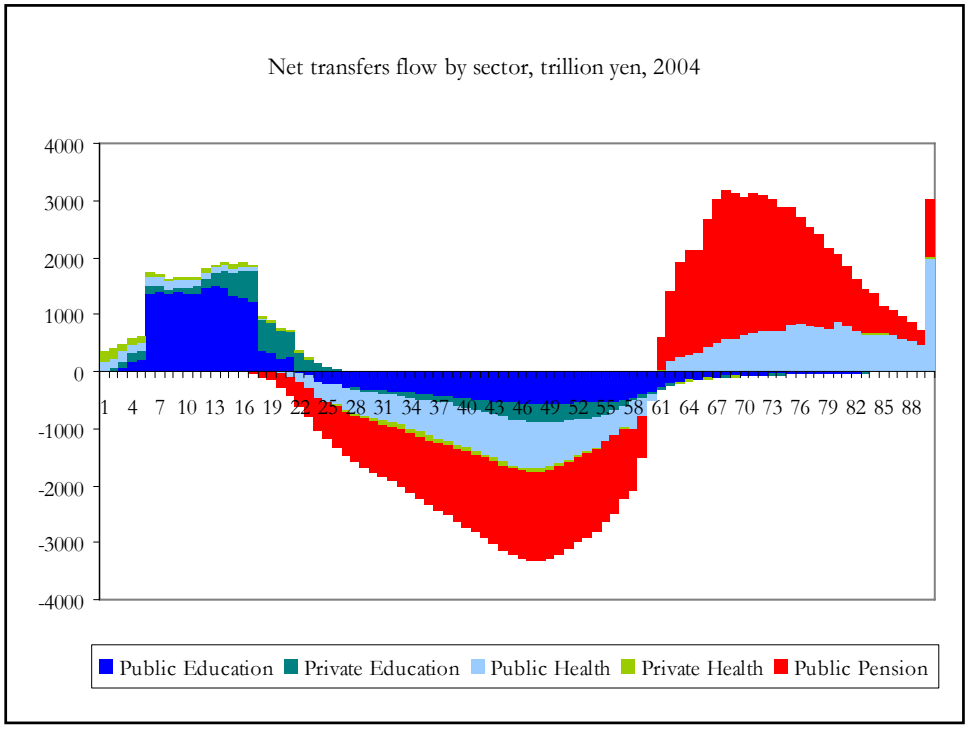
Now let us look at the net transfer flow by sector

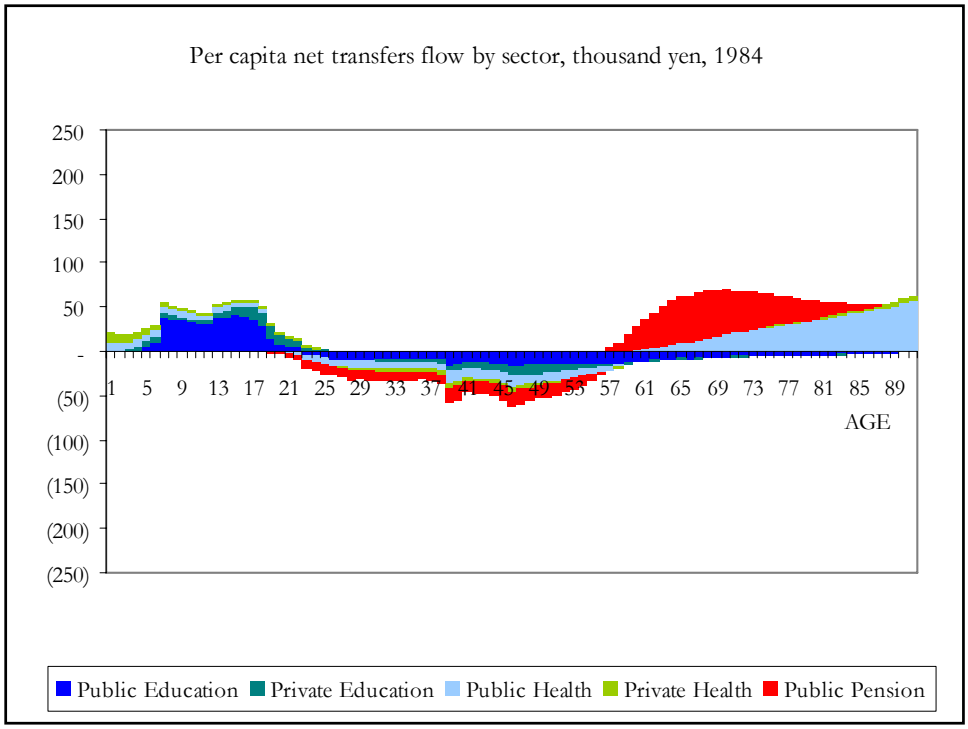

Net transfers flow by sector, trillion yen, 1984
4
3
2
1
0
-1
-2
-3
-4
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88
AGE
Public Education
Private Education
Public Health
Private Health
Public Pension

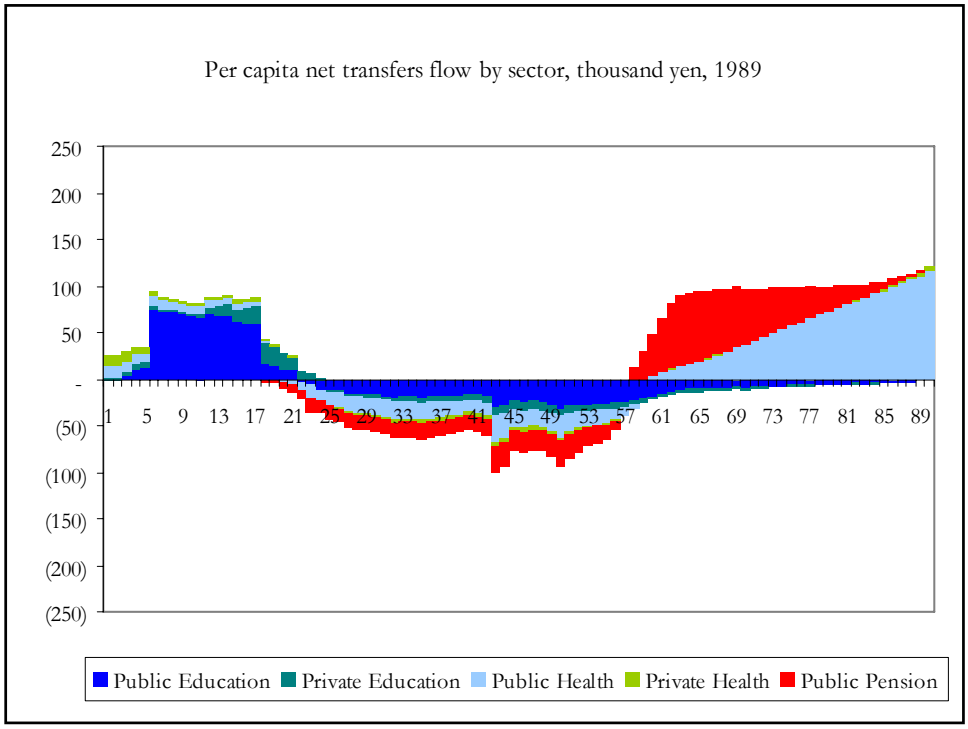

Net transfers flow by sector, trillion yen, 1989
4
3
2
1
0
-1
-2
-3
-4
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88
Public Education
Private Education
Public Health
Private Health
Public Pension

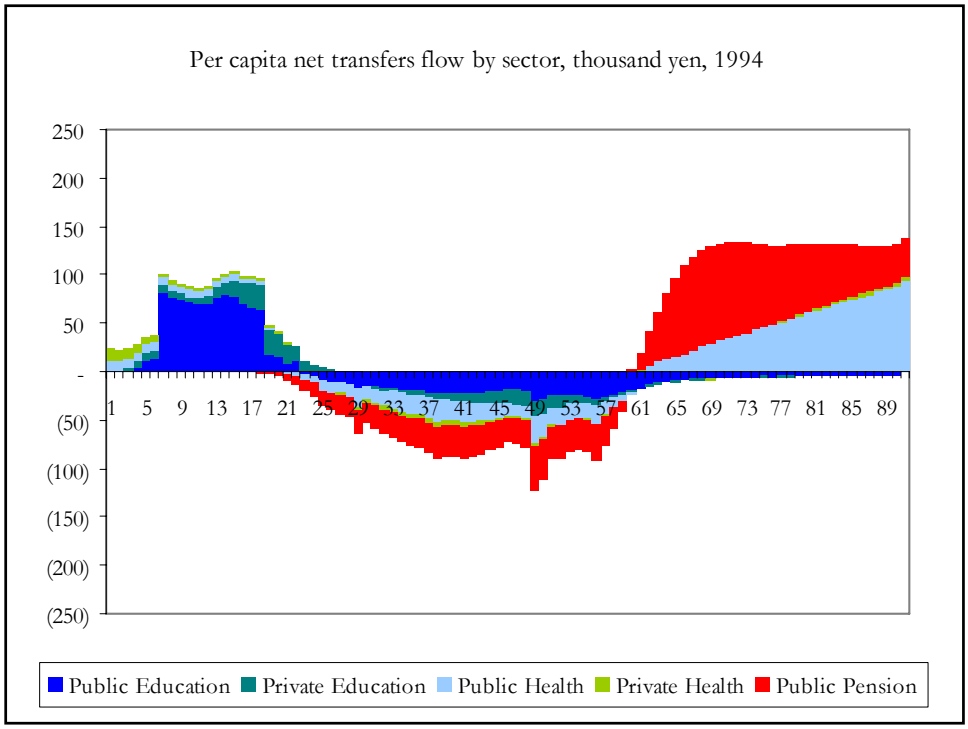

Net transfers flow by sector, trillion yen, 1994
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension

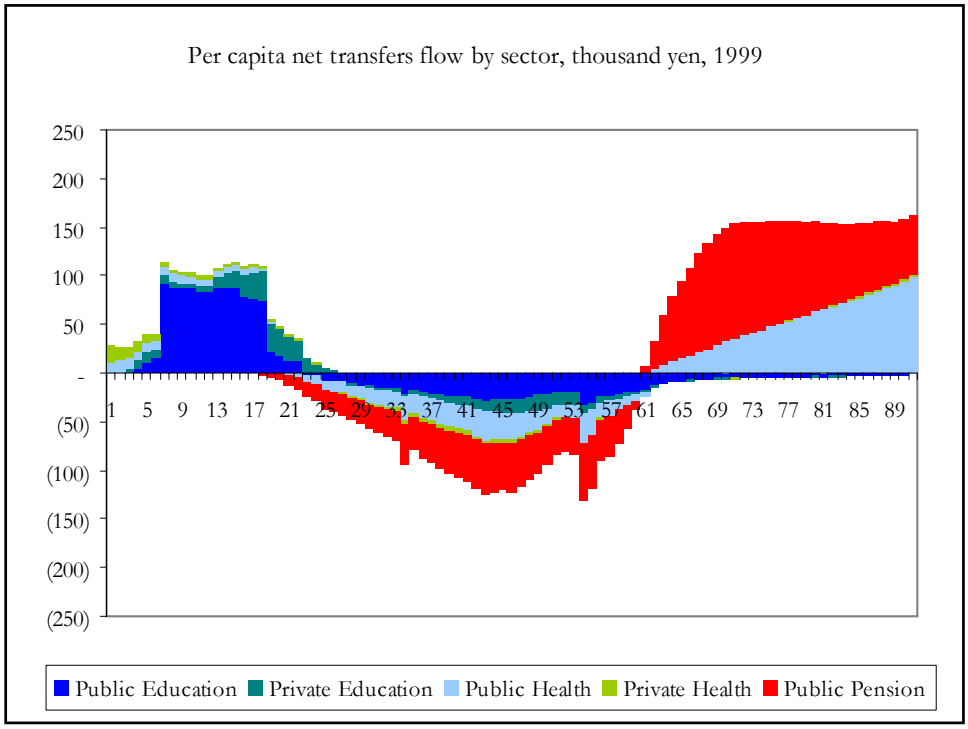

Net transfers flow by sector, trillion yen, 1999
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension

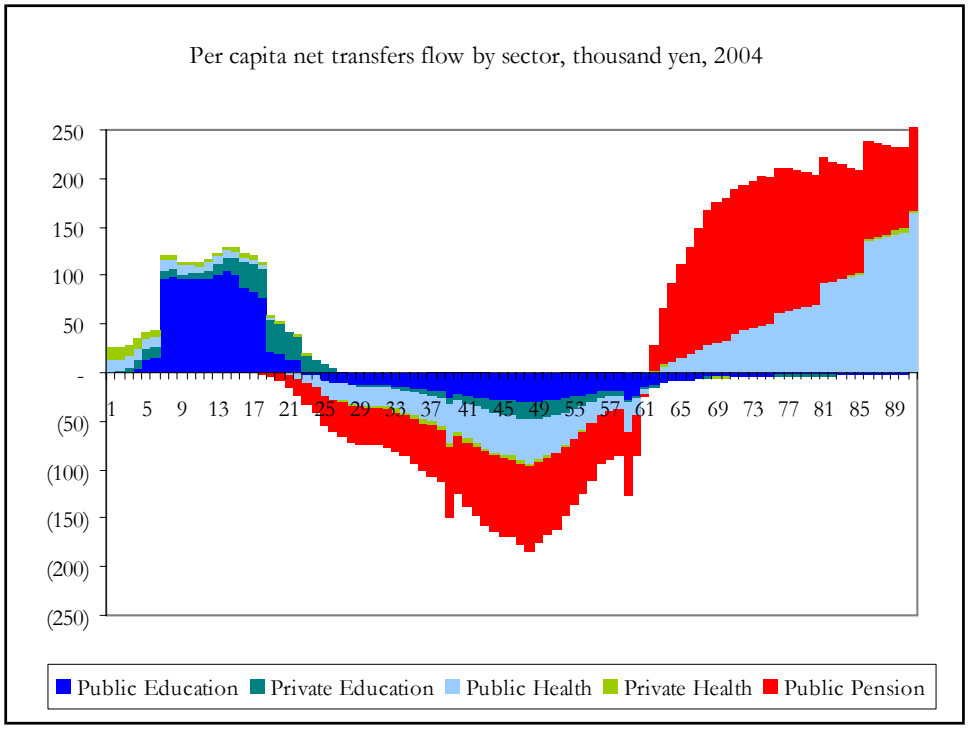

Net transfers flow by sector, trillion yen, 2004
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88
Public Education
Private Education
Public Health
Private Health
Public Pension

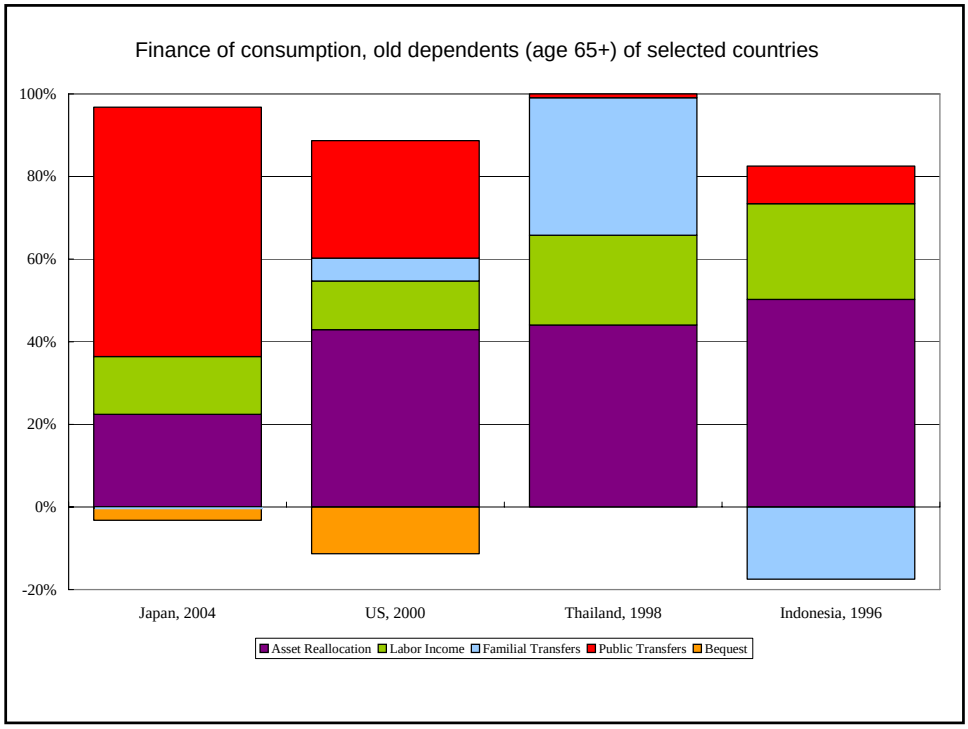

Per capita net transfers flow by sector, thousand yen, 1984
250
200
150
100
50
-
(50)
(100)
(150)
(200)
(250)
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
AGE
Public Education
Private Education
Public Health
Private Health
Public Pension


Per capita net transfers flow by sector, thousand yen, 1989
250
200
150
100
50
-
(50)
(100)
(150)
(200)
(250)
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension


Per capita net transfers flow by sector, thousand yen, 1994
250
200
150
100
50
-
(50)
(100)
(150)
(200)
(250)
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension


Per capita net transfers flow by sector, thousand yen, 1999
250
200
150
100
50
-
(50)
(100)
(150)
(200)
(250)
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension


Per capita net transfers flow by sector, thousand yen, 2004
250
200
150
100
50
-
(50)
(100)
(150)
(200)
(250)
1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89
Public Education
Private Education
Public Health
Private Health
Public Pension



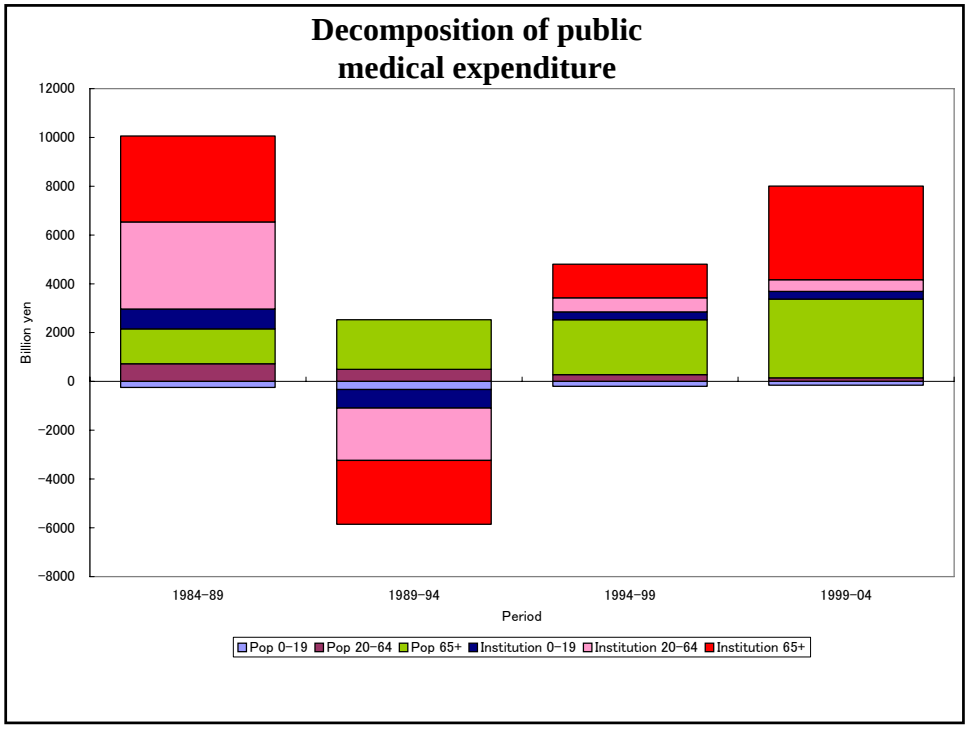
Policy Implications using NTA results

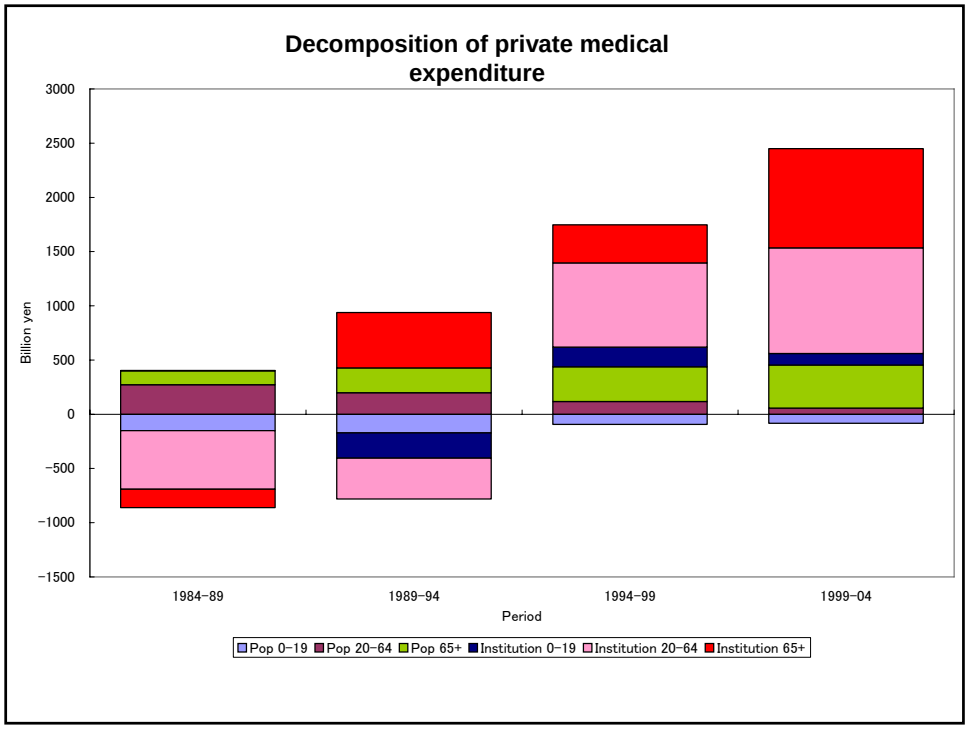
Pronatalist favorite assertion:

- Only 3.6% of social security benefits is children-specific; while
- 70.4% of social security benefits is for the elderly (60+)

Ratio of Transfers Received by Elderly/Children Based upon NTA

		1984	1989	1994	1999	2004
Public transfers on health, education, and pension	Aggregates	0.66	0.96	1.55	2.07	2.92
	Per capita	1.42	1.62	1.95	2.01	2.27
Total transfers, both *intervivos* and public on health, education, and pension	Aggregates	0.48	0.7	1.16	1.55	2.23
	Per capita	1.04	1.18	1.46	1.51	1.73


Decomposition of public medical expenditure
12000
10000
8000
6000
4000
2000
0
−2000
−4000
−6000
−8000
Billion yen
1984−89
1989−94
1994−99
1999−04
Period
Pop 0−19
Pop 20−64
Pop 65+
Institution 0−19
Institution 20−64
Institution 65+

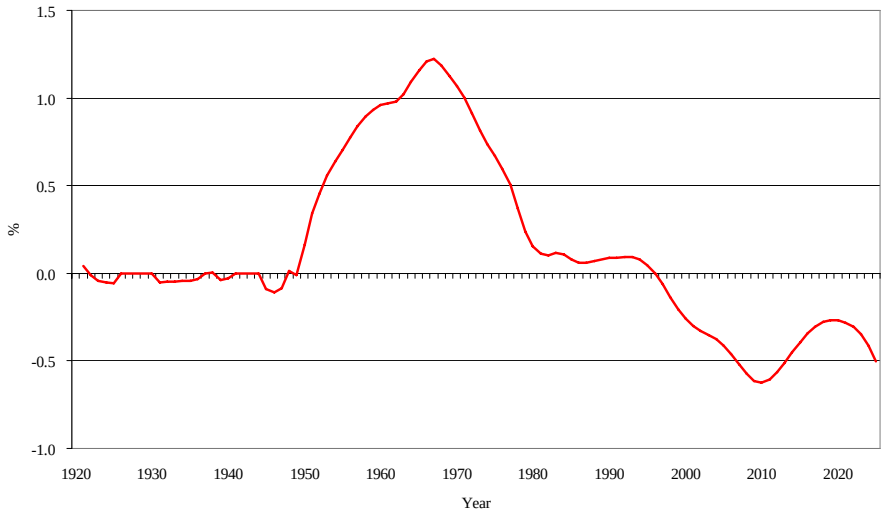

Decomposition of private medical expenditure
3000
2500
2000
1500
1000
500
0
−500
−1000
−1500
Billion yen
1984−89
1989−94
1994−99
1999−04
Period
Pop 0−19
Pop 20−64
Pop 65+
Institution 0−19
Institution 20−64
Institution 65+

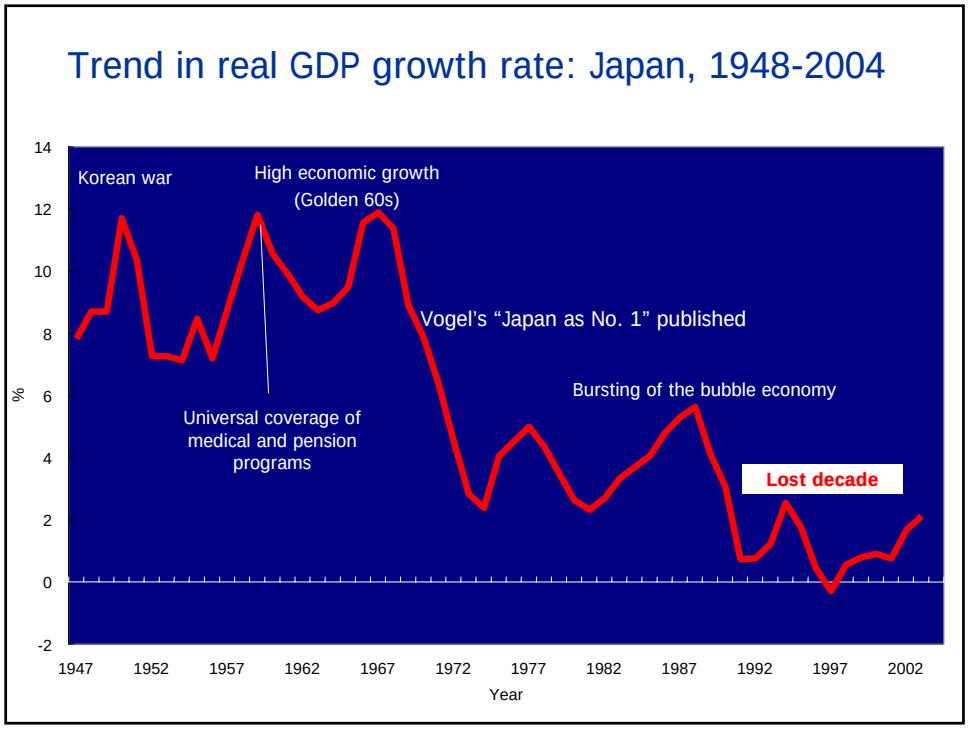
Possible solutions to population aging problems in Japan

Policy options available to Japan:

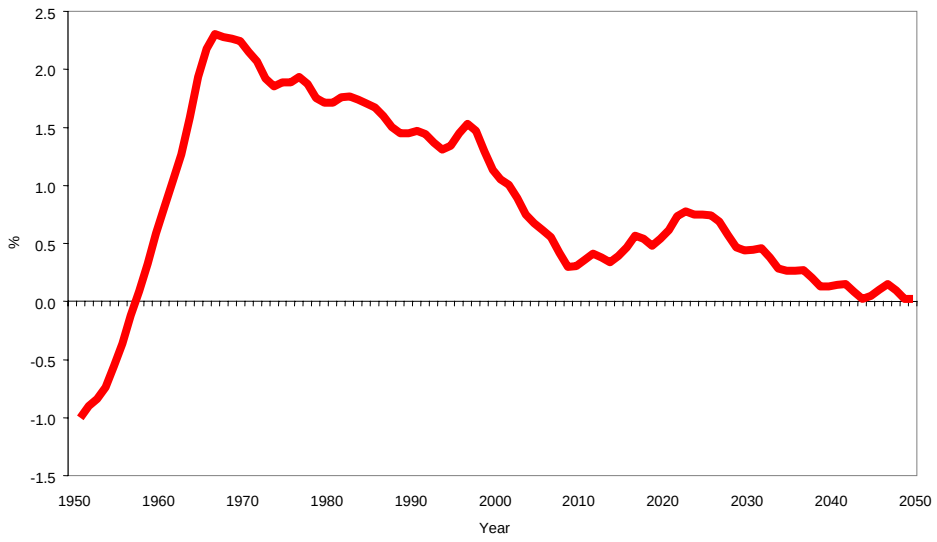
(1) raising fertility and facilitating higher labor force participation of women,
(2) better utilization of aged workers and extension of the retirement age,
(3) labor-saving technology and more efficient use of young workers,
(4) international migration,
(5) direct foreign investment,
(6) social security reform and limits to family support, and
(7) effective utilization of the demographic dividends

Figure 8. Trend in first dividend in Japan, 1920-2025

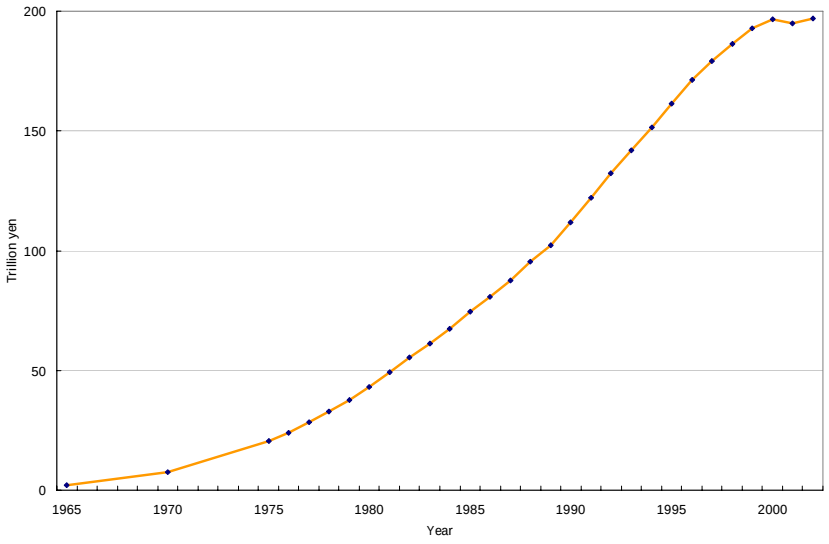




Trend in second dividend in Japan, 1950-2050

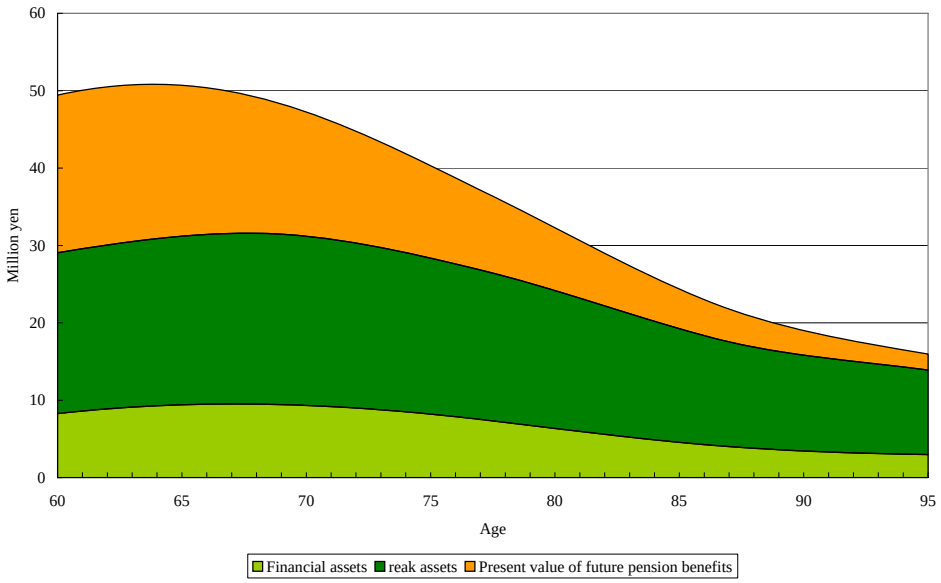


Growth of reserved funds for all public pension schemes combined, 1965-2002



Source: Ministry of Health, Labour and Welfare, *Financial Report on the Public Pension System: Fiscal Year 2003*, 2004.

Figure 13. Age profile of assets and pension wealth in Japan, 1999



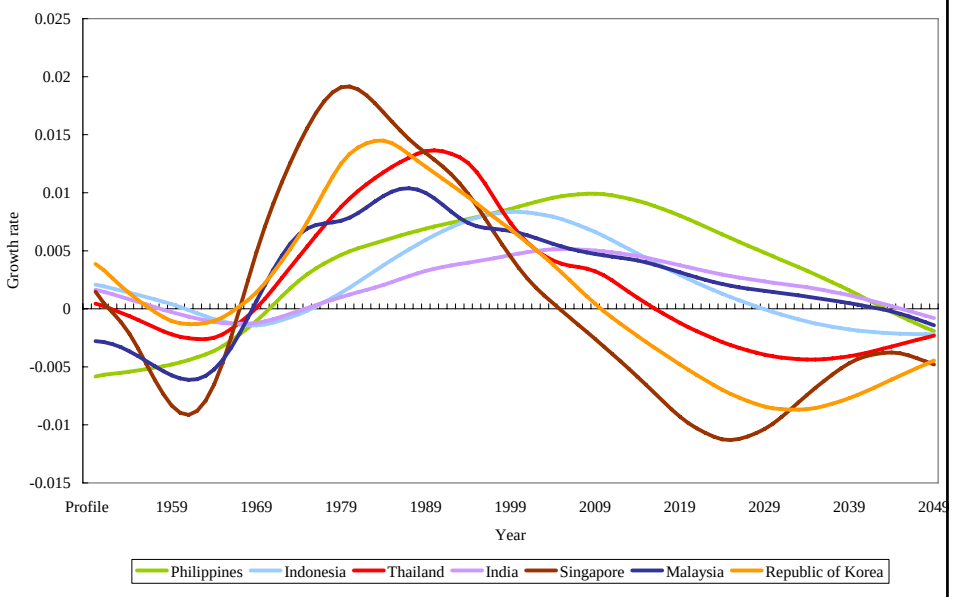
Accumulated wealth for those aged 60-90

1250 trillion yen

US $12.5 trillion

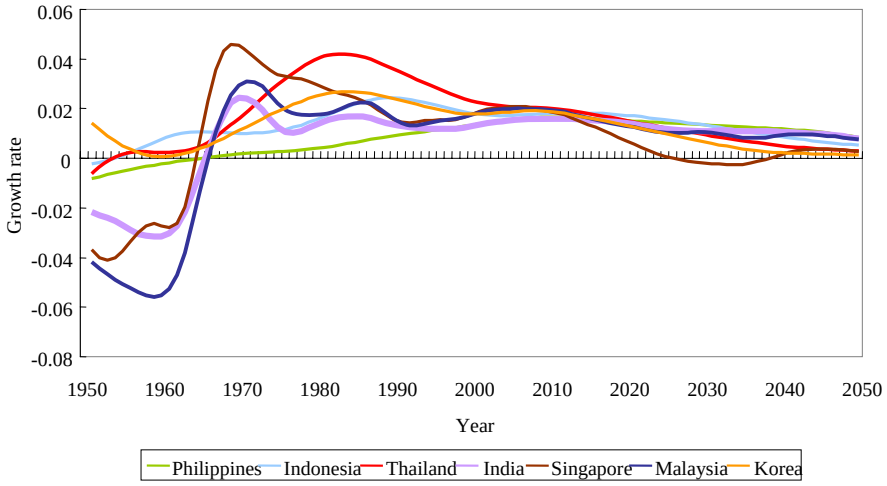
Accumulated wealth can be invested abroad

Figure 11. First demographic dividend in selected Asian countries, 1950-2050



Note: Computed by authors.

Figure 12. Second demographic dividend in selected Asian countries, 1950– 2050



Note: Computed by authors.

Caution

OECD's warning!

71 % of Japanese adults have no knowledge about investment in equities and bonds

Caution

OECD's warning!

57 % of Japanese adults have no knowledge of financial products in general

Financial education is urgently needed

Future Japanese elderly persons

will be

wealthier, healthier

and

cleverer!

They may become Japan's valuable assets!

More dependable than multigenerational coresidence?

Japan NTA team's next steps

Estimation on time transfer (volunteering time)

Data: *Survey on time use and leisure activities*

Available Variables: Age, Education, Marital status, Activity of caring, Place where own child lives, Normal economic activity, Employment Status, Size of firm, Occupation, Normal working hours per week, Normal commuting time (one-way), etc.

Thank you

(Special Thanks to UNFPA!)

National Seminar on **Construction of National Transfers Accounts for India**

M.R. Narayana
Institute for Social and Economic Change, Bangalore
&
L. Ladusingh
International Institute of Population Sciences, Mumbai

Bangalore
10 August 2006

Objectives of India's NTA study

1. Construct estimates of public and private National Transfer Accounts (NTA) for India as can be supported by available data
2. Fully document sources of data and estimation procedures
3. Upload document sources of data and estimation procedures
4. Use NTA estimates to conduct research on intergenerational equity, public policy, family support system, or other related issues
5. Collaborate with other project members in the development and refinement of methodologies

What does NTA mean?

A measure of reallocations or shift of resources from one age group to another, or inter-generational transfers at the national level of aggregation

Reallocations occur because consumption and production differ at different ages of individuals (e.g. production exceeds consumption in working age groups, and consumption exceeds production in childhood and old age dependent age groups

NTA documents the means by which those with lifecycle deficits (e.g. young and old) draw on the lifecycle surplus (e.g. generated during working ages)

NTA Institutions

Individual is the fundamental analytic unit in NTA –all transactions are treated as flowing to and from individuals and are classified on the basis of age of individuals

Public and private (e.g. families) institutions mediate the individual transactions

Thus, all estimations in the NTA, such as, lifecycle deficit, asset reallocations, and transfers are distinguished by public and private sectors

Construction of NTA Flow Account

Flow account measures all flows during the prescribed accounting period. E.g. lifecycle deficits and age allocations

Thus, estimation of lifecycle deficit and age allocations are essential for construction of NTA Flow Account

In what follows, we present the NTA methodology for estimation of lifecycle deficit; and apply the methodology for India to estimate the lifecycle deficit for the year 1999-00

Lifecycle deficit (LCD)

A measure of total demand for age reallocations

Difference between the value of goods and services consumed by members of an age group [C(a)], and the value of goods and services produced by members of an age group [Y(a)]:

LCD = {C(a) – Y(a)}

Deficit if LCD>0; Surplus if LCD<0

Age groups with deficit support their surplus consumption by generating age reallocation inflows; those with surplus generate age reallocation outflows

Methodology for estimation of LCD

Estimation of LCD involves three steps

1. Estimation of aggregate control variables (aggregate income and consumption)
2. Estimation of age allocation of aggregate control variables
3. Determine the lifecycle deficit/surplus by age groups and overall age groups, as a basis for estimation of of age allocations (= asset reallocations + transfers)

Estimation of aggregate controls

Aggregate controls are drawn from National Income and Product Accounts (NIPA) – National Accounts Statistics in India- thus, NTA is consistent with the NIPA

NTA requires rearrangement/reformat of NIPA variables, because the individual is the basic analytic entity in the NTA – thus, all aggregate controls have to be rearranged by individual entity

Estimation of aggregate labour income

Aggregate labour income = compensation of employees + (2/3) of mixed income + net compensation of employees from the rest of world

Source of data for India

India's National Income Statistics

Thus, the definition and measurement of components of aggregate labour income in NTA is the same as being used for estimation of these components in India's national income

Estimation of aggregate control for consumption

Aggregate consumption = Public consumption + Private consumption (net of indirect taxes)

Both public and private consumption are disaggregated by:

(a) Education consumption

(b) Health consumption

(c) Other consumption

Source of data for India

India’s National Accounts Statistics

Measurement of aggregate control for consumption

Public consumption = Government Final Consumption Expenditure (GFCE)

Private consumption = Private Final Consumption Expenditure (PFCE)

Private Education consumption = Education expenditure under PFCE

Public education consumption = Education expenditure under GFCE

Private health consumption = expenditure on medical care and health services under PFCE

Public health consumption =expenditure on health under GFCE

Private consumption other = expenditure on non-education and non-medical care and health services under PFCE

Public consumption other = expenditure on non-education and non-health under GFCE

Estimated Aggregate Controls for India, 1999-00

(Rs. in crore at current prices)

Variable	Public	Private	Total
AGGREGATE LABOUR INCOME	NA	NA	1082291
Compensation of employees	NA	NA	582357
(2/3) of mixed income •	NA	NA	499345
Net compensation of employees from ROW	NA	NA	589
AGGREGATE CONSUMPTION*	251108	1046080	1297188
Education	41189	22209	63398
Health	15924	69400	85324
Others	193935	1046080	1297188
* Less indirect taxes (=Rs.221578 crore)			

Data sources and rules for age allocation of aggregate controls

Age allocation for aggregate control for labour income is estimated by self-employment and wage employment.

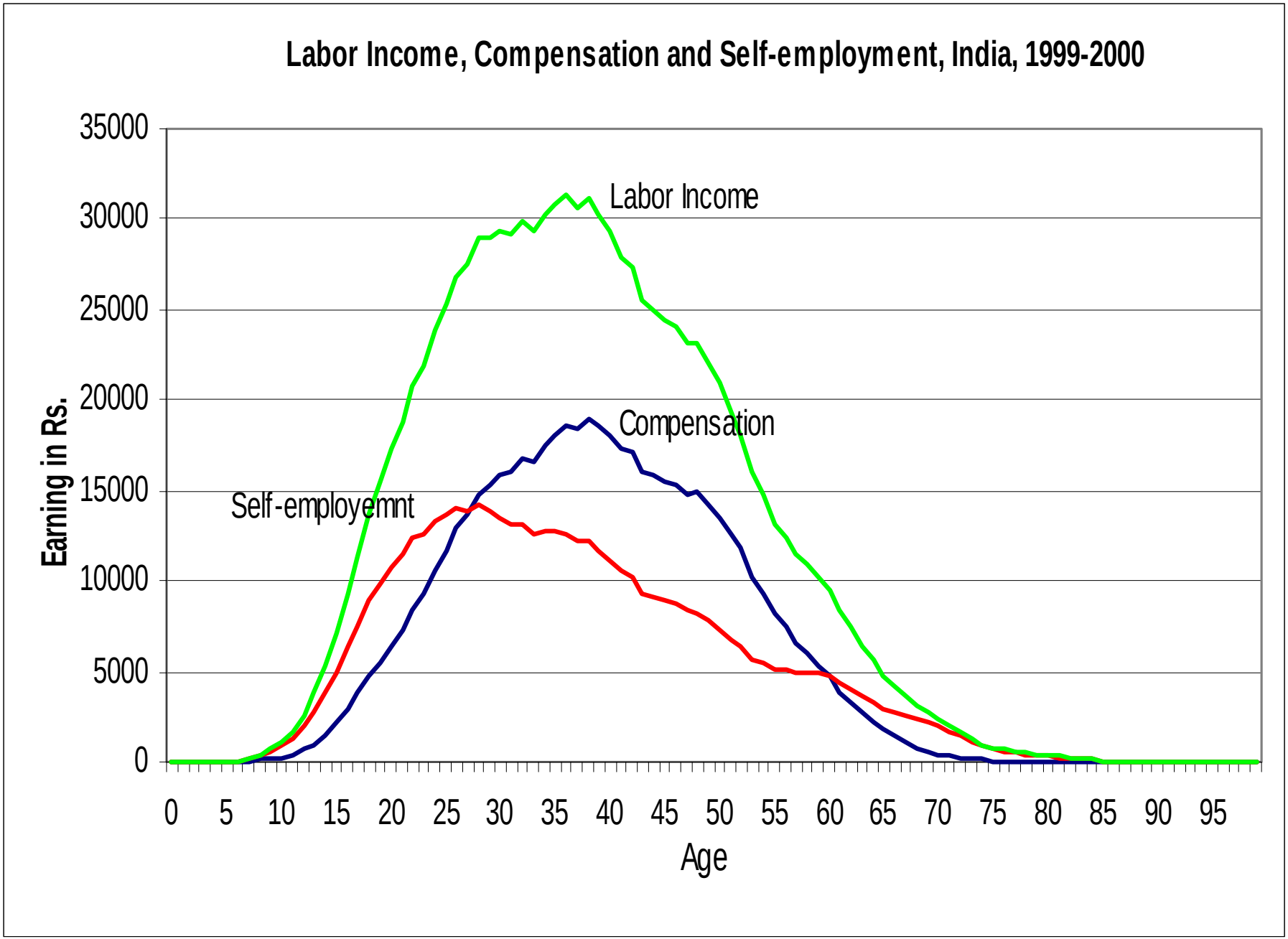
Age allocation of different components of aggregate consumption are estimated by using the sector-specific databases and household consumer expenditure and employment surveys by the National Sample Survey Organisation.

All databases are official and available in the public domain

Allocation rule for aggregate labour income

Allocated according to the age profiles of self-employed and wage and salary employed persons in the National Sample Survey of Employment and Unemployment Survey of India, 1999-00.

Survey data comprised non-reported values for self and non-self employed household persons. These non-reported values were replaced by the average value of employed persons' income by controlling for age and residence.


Labor Income, Compensation and Self-employment, India, 1999-2000
Earning in Rs.
35000
30000
25000
20000
15000
10000
5000
0
Labor Income
Compensation
Self-employemnt
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
Age

Allocation rule for private consumption Private education and health consumption

Private education consumption

Allocated by applying the regression technique, and by using private (out-of-pocket) education expenditure data from the National Sample Survey (55th Round) of Consumer Expenditure in India, 1999-00.

Private health consumption

Allocated by applying the regression technique, and by using private health expenditure data from the National Sample Survey (55th Round) of Consumer Expenditure in India, 1999-00.

HEALTH – Regression Method

$$H_j^e = Health\,\text{exp}\,enditure\,of\ household\ j$$

$$= \sum_i \beta_i^h N_{ji} \quad , N_{ji} = No.of\ individuals\,of\ age\,i\ in\ jth\,household$$

$$\hat{H}_j^e = \left(H_j^e \hat{\beta}_i^h\right) \Big/ \left(\sum_i \hat{\beta}_i^h N_{ji}\right)$$

$$= estimated\ health\,\text{exp}\,enditure\,of\ member\,of\ age\,i\,in\,the\ jth\,household$$

$$EDUCATION - \text{Re}\,gression\,Method$$

$$H_j^e = Education\,\text{exp}\,enditure\,of\ household\ j$$

$$= \sum_i \beta_i^e N_{ji} \quad , for\ D_{ji}^e = 1$$

$$\hat{E}_{ji}^e = D_{ji}^e * \left(E_j^e \hat{\beta}_i^e\right) \Big/ \left(\sum_i \hat{\beta}_i^e N_{ji}\right)$$

$$Other\,Consumption - Again\,by\,equivalence\,scale$$

Allocation rule for private consumption other

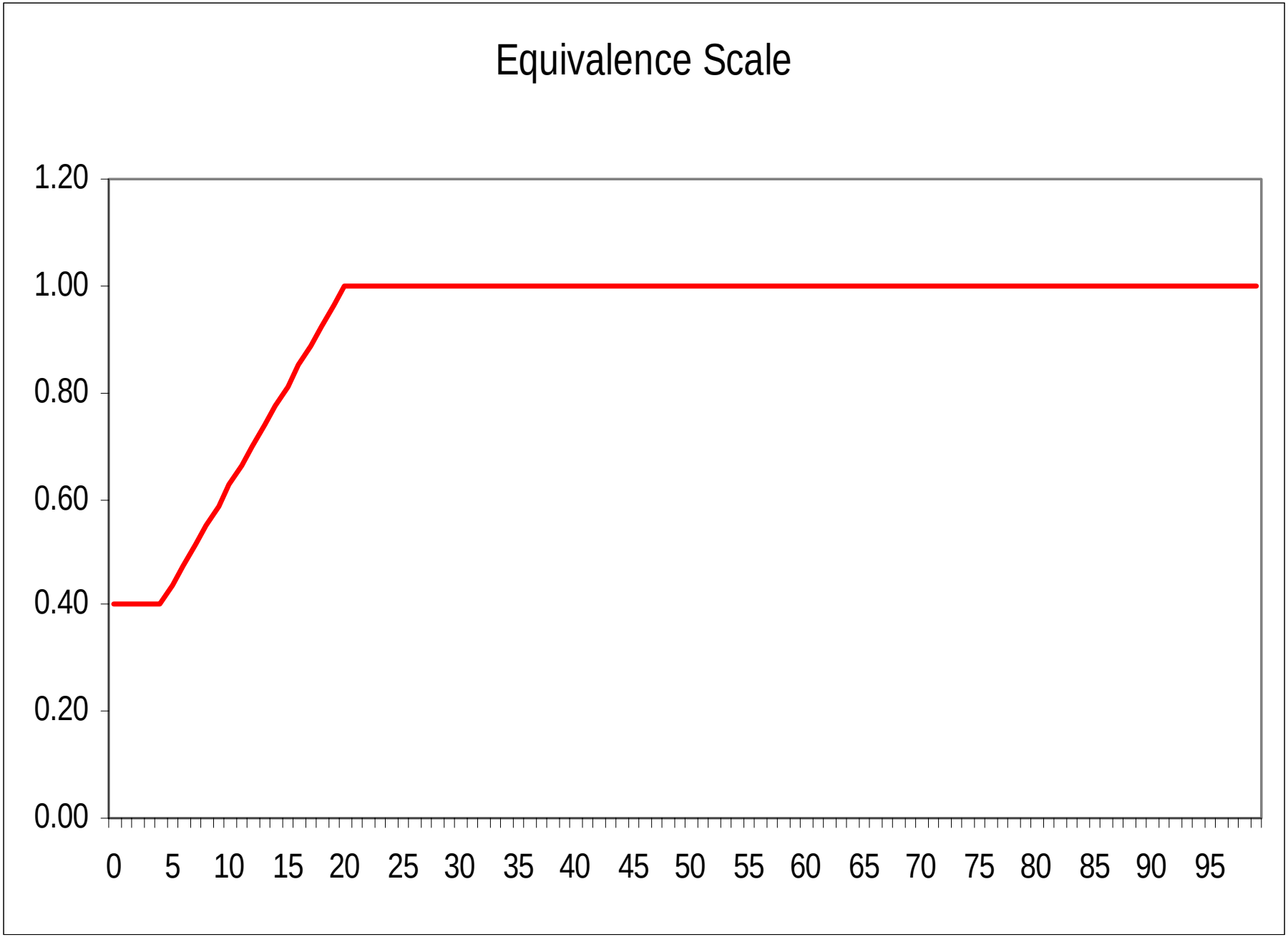
Allocated by the technique of Equivalence Scale

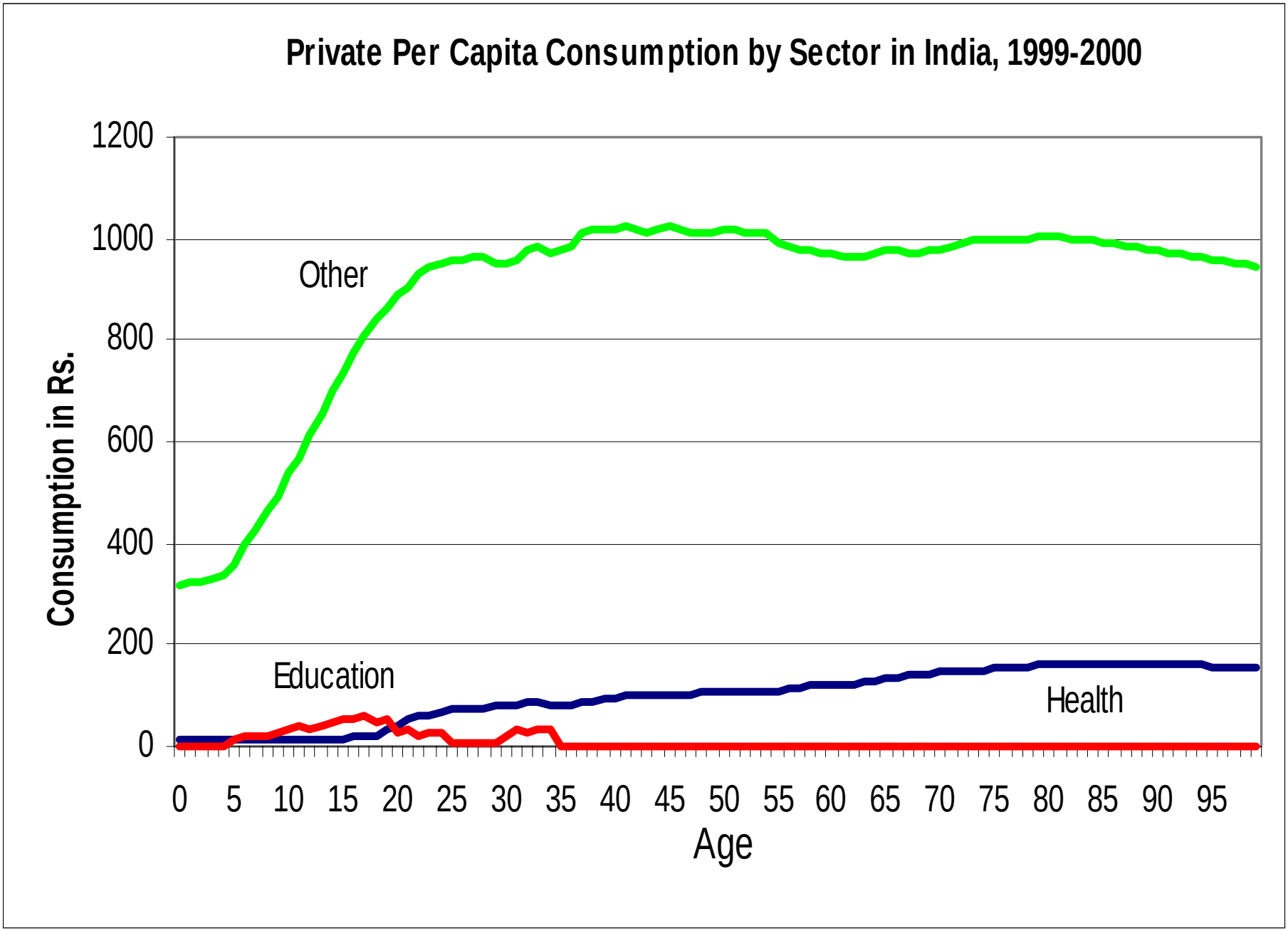
FOOD – Equivalence Scale Formula (A priori)

$$\alpha(a) = 0.4 \qquad , a <= 4$$

$$= 1 - 0.6 * \left(\frac{20 - a}{16} \right) , 4 < a < 20$$

$$= 1 \qquad , a >= 20$$


Equivalence Scale
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95


Private Per Capita Consumption by Sector in India, 1999-2000
Consumption in Rs.
1200
1000
800
600
400
200
0
Other
Education
Health
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Age

Allocation rule for education consumption
Public education consumption

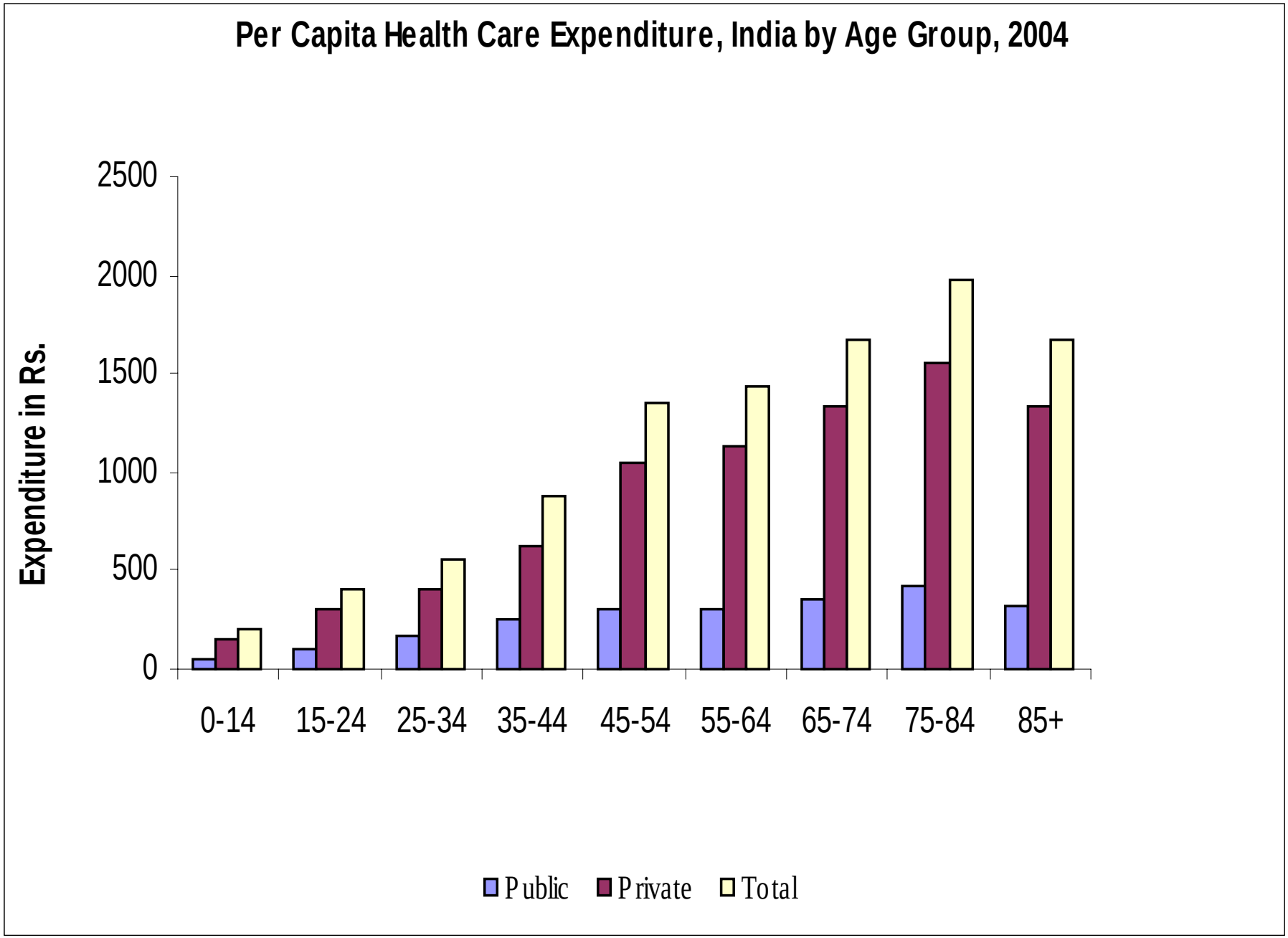
- Share of enrolment in public education institutions (Government and local body schools or colleges) is proportional to the attendance rate of students in public education institutions within each level of education.
- Structure of attendance rate in 1999-00 remained the same as in 1995-96.
- Share of aggregate public education consumption is proportional to share of revenue expenditure on education and training by education and non-education departments within each level of education.
- Per capita public education consumption is uniform within primary, secondary, and higher education.
- Equal per capita consumption for training and adult education for the population in the age group 25-59 years. Population by single year in Census of India 2001 is used for estimation of per capita consumption of training and adult education.

Allocation rule for health consumption
Public health consumption

- Age specific utilization rates of public health facilities
- Age specific per head cost of public health facilities utilization

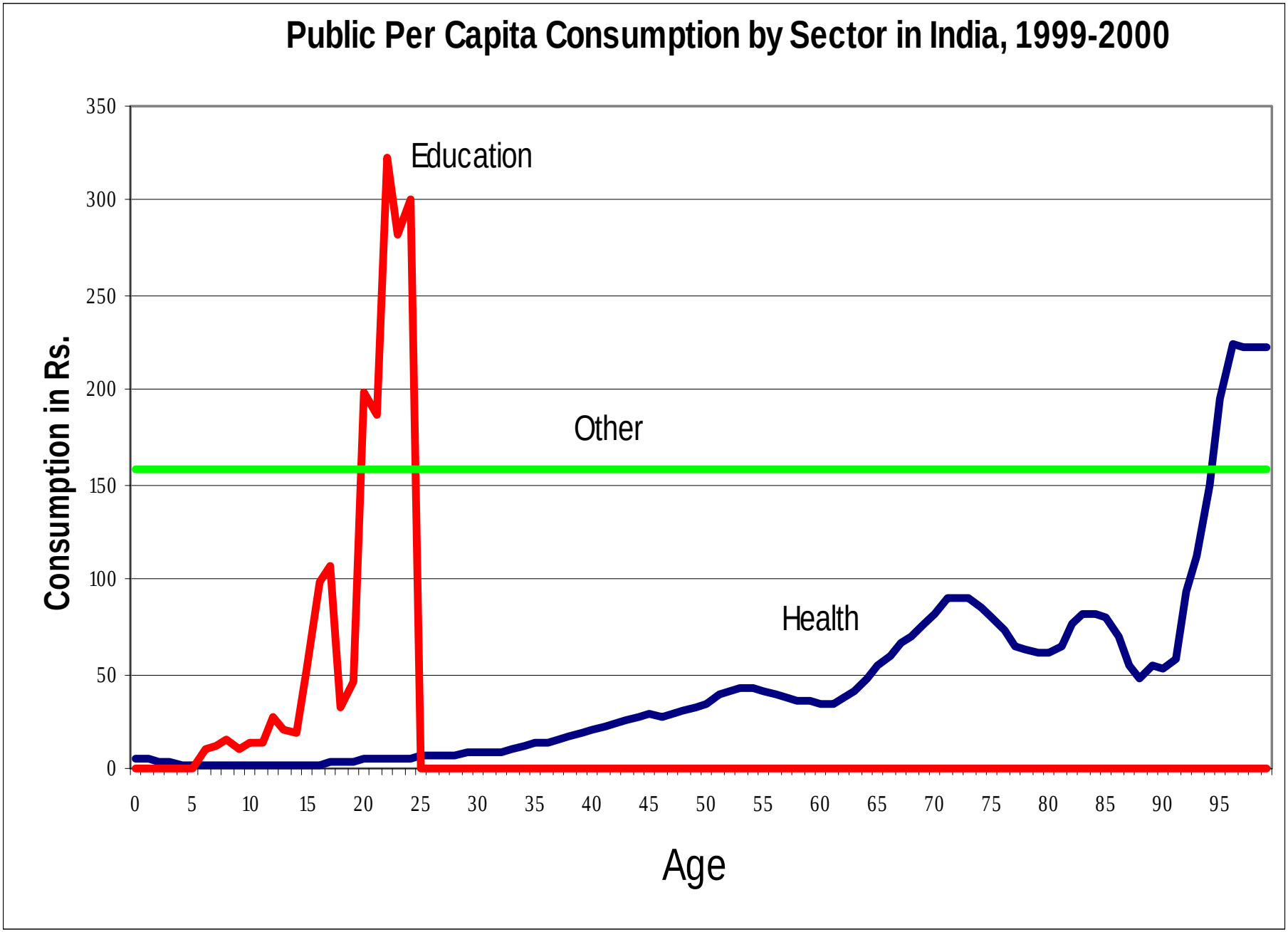
  are extracted from the NSSO,2004 healthcare and morbidity survey

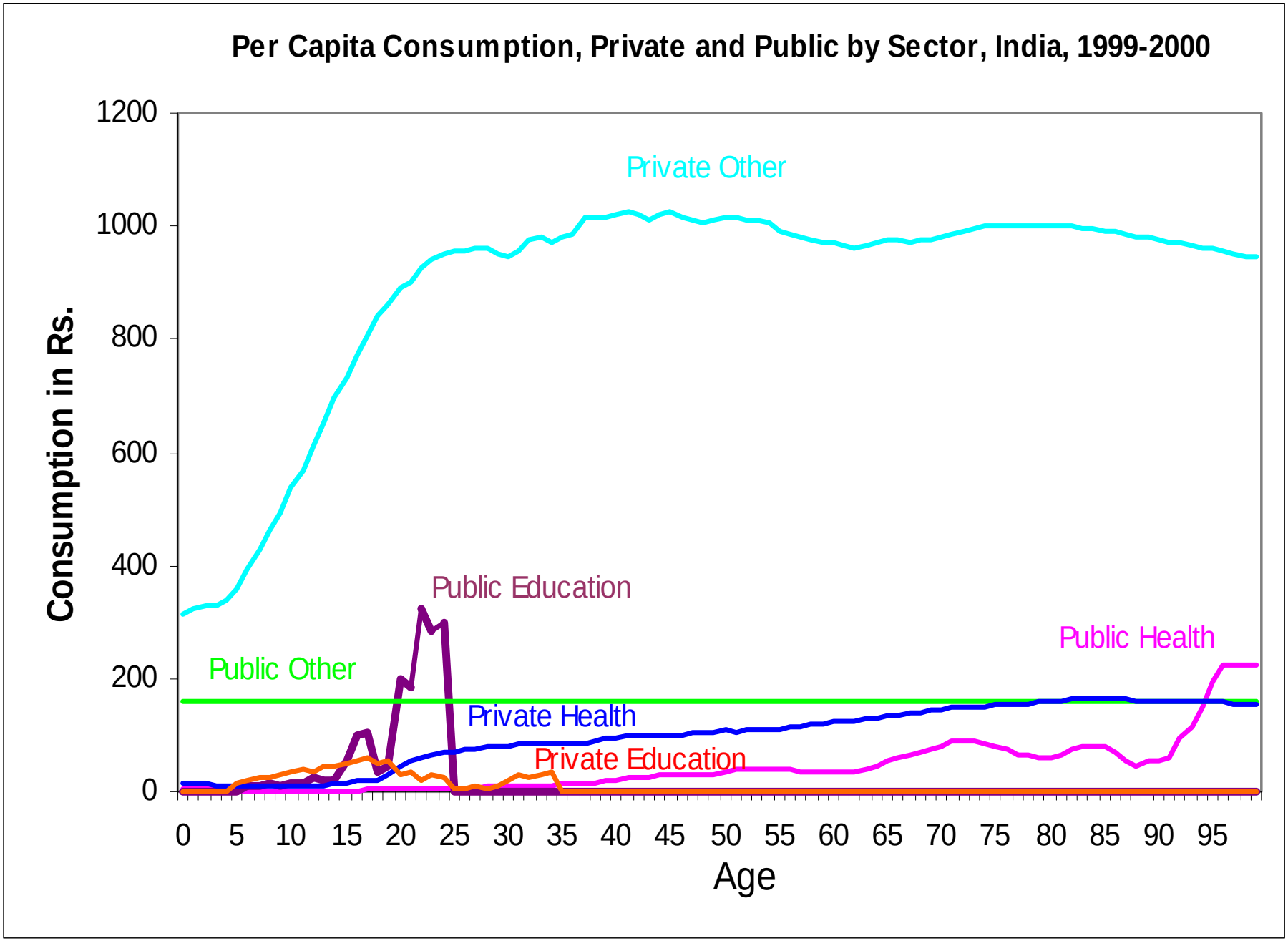
  These age specific rates are applied to 2001 census age distribution and adjusted by NIPA

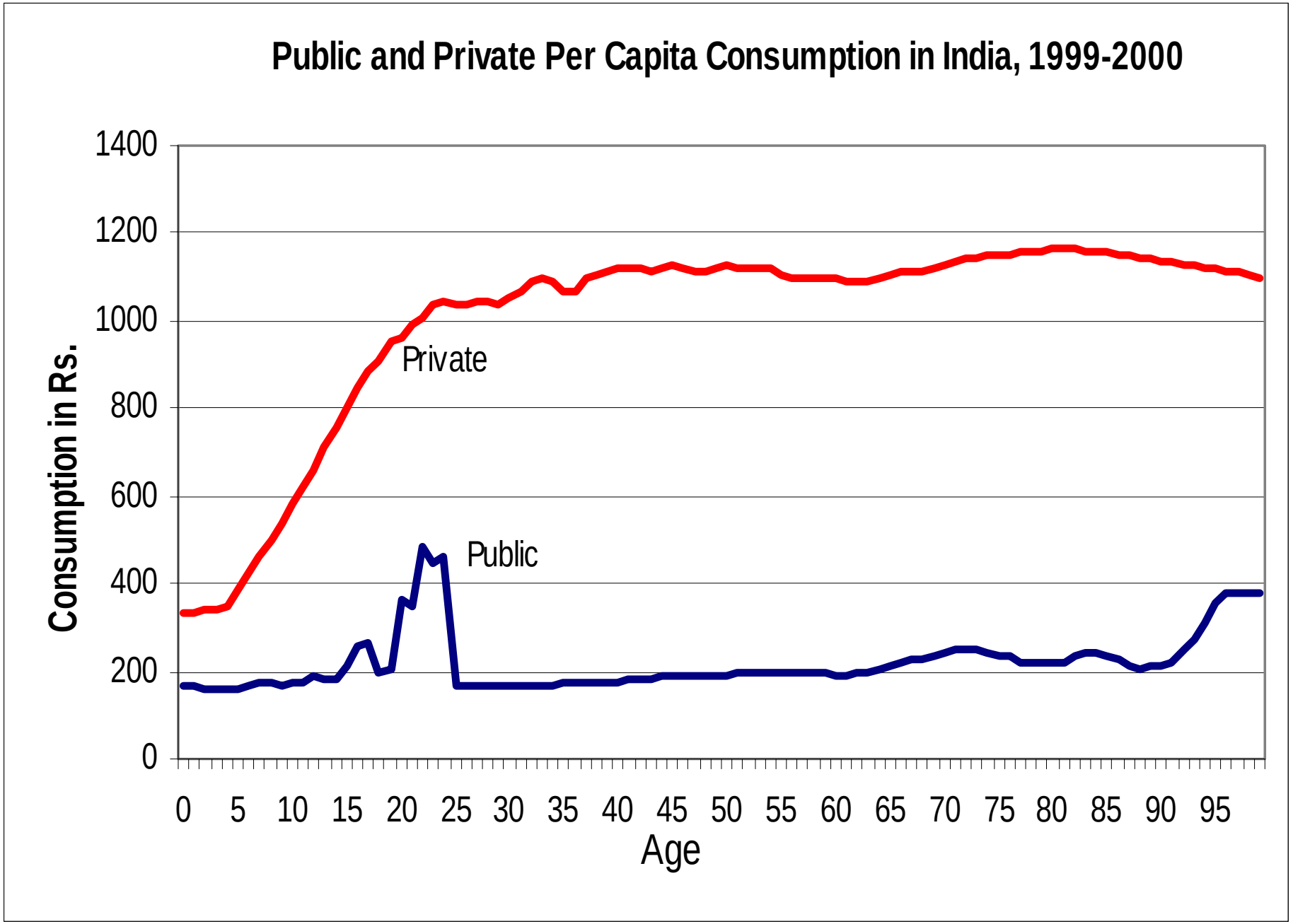

Per Capita Health Care Expenditure, India by Age Group, 2004
Expenditure in Rs.
2500
2000
1500
1000
500
0
0-14
15-24
25-34
35-44
45-54
55-64
65-74
75-84
85+
Public
Private
Total

Allocation rule for public consumption other

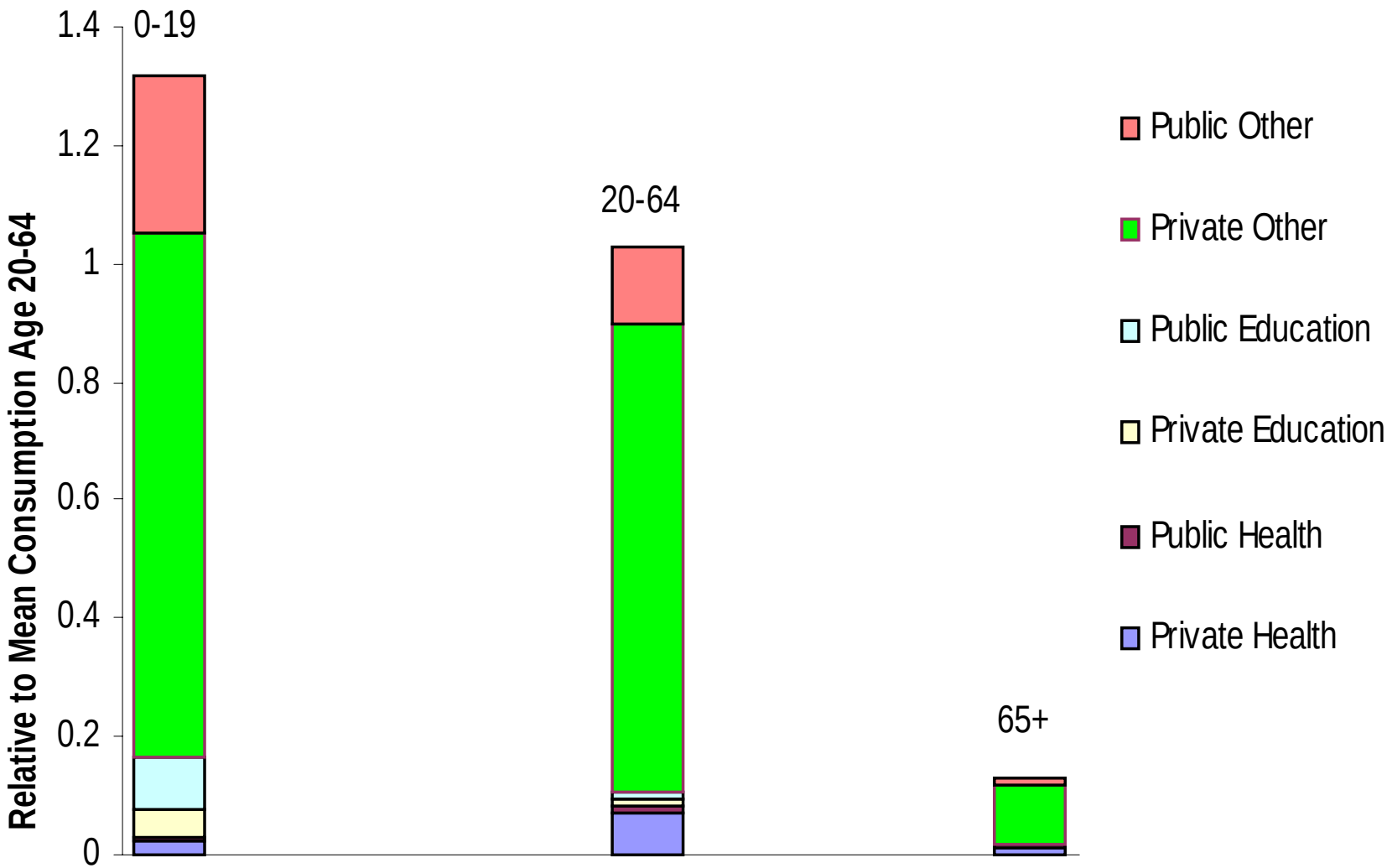
Allocated on per capita basis for the entire population

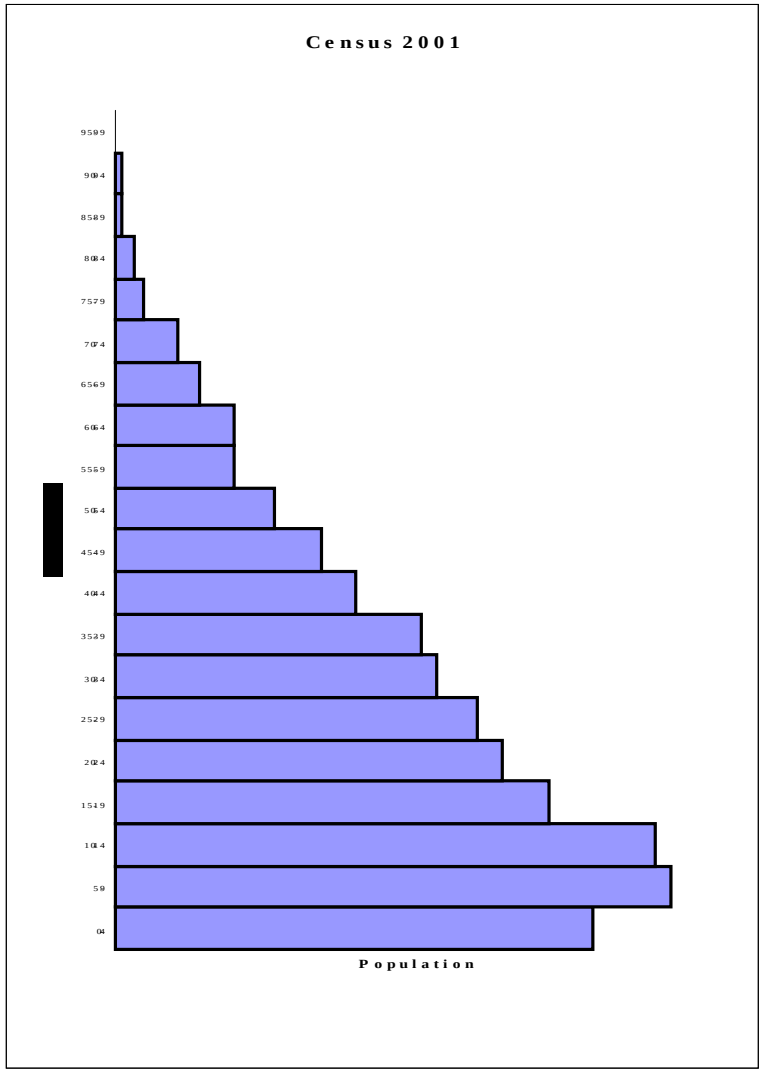

Public Per Capita Consumption by Sector in India, 1999-2000
Consumption in Rs.
350
300
250
200
150
100
50
0
Education
Other
Health
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
Age

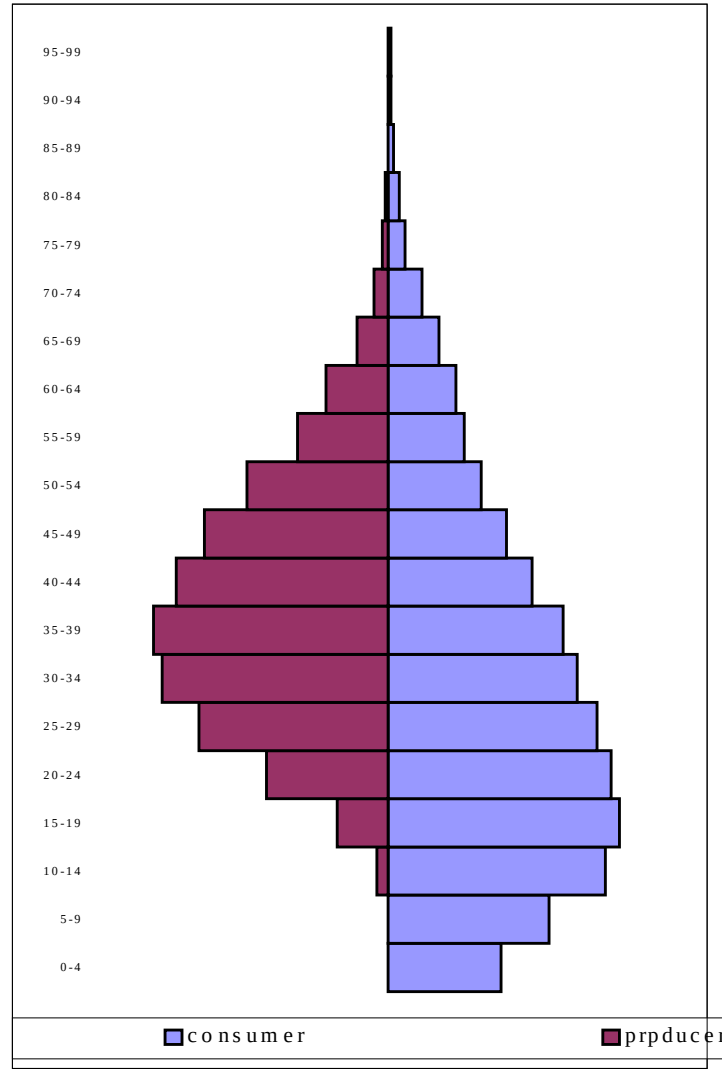

Per Capita Consumption, Private and Public by Sector, India, 1999-2000
Consumption in Rs.
1200
1000
800
600
400
200
0
Private Other
Public Education
Public Health
Public Other
Private Health
Private Education
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Age


Public and Private Per Capita Consumption in India, 1999-2000
Consumption in Rs.
1400
1200
1000
800
600
400
200
0
Private
Public
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Age

Relative Consumption by Age and Sector, India, 1999-2000




Census 2001
Population


95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
consumer
prpducer

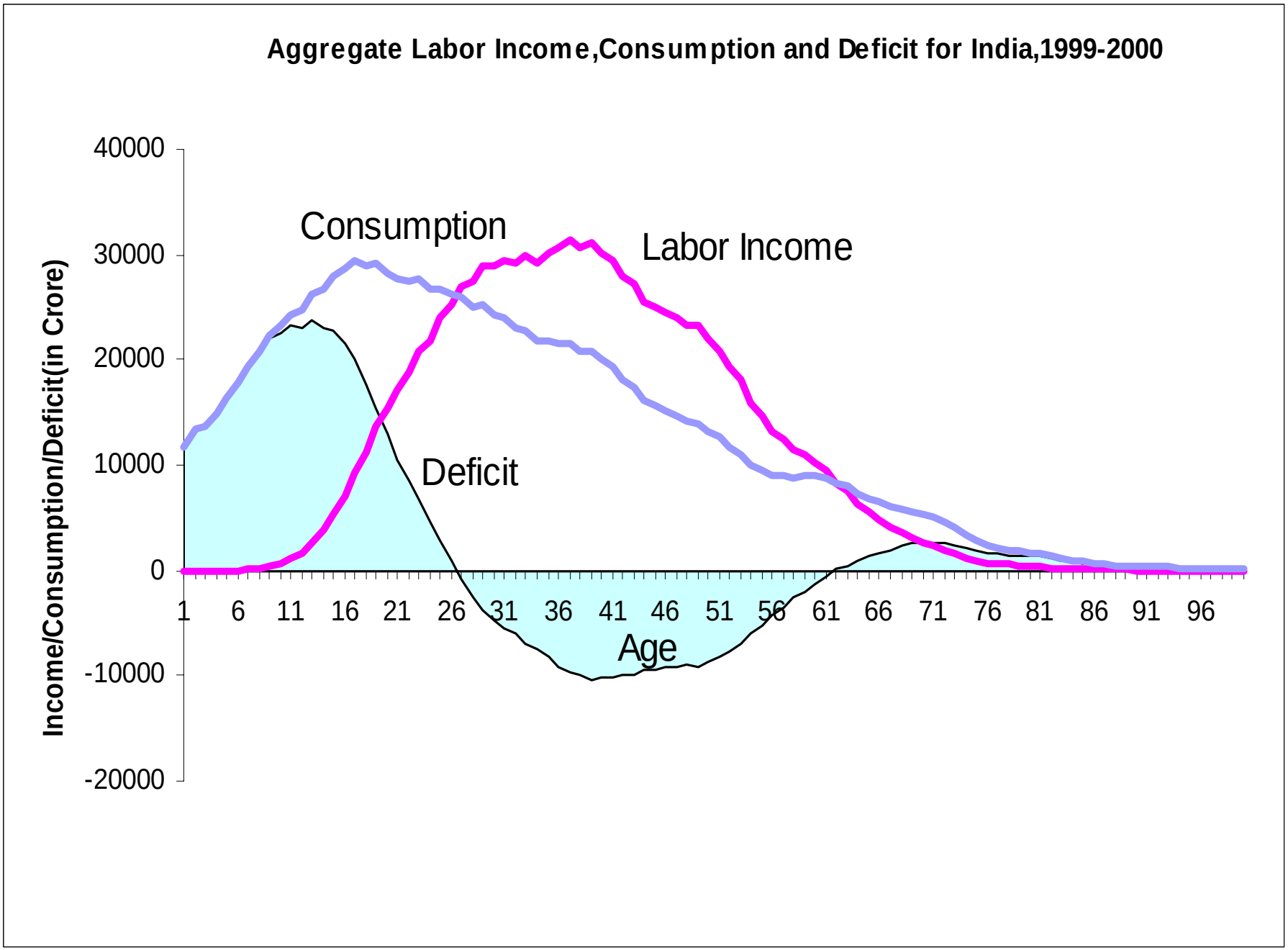
Estimated Life Cycle Deficit, 1999-00
(Rs. In crore at current prices)

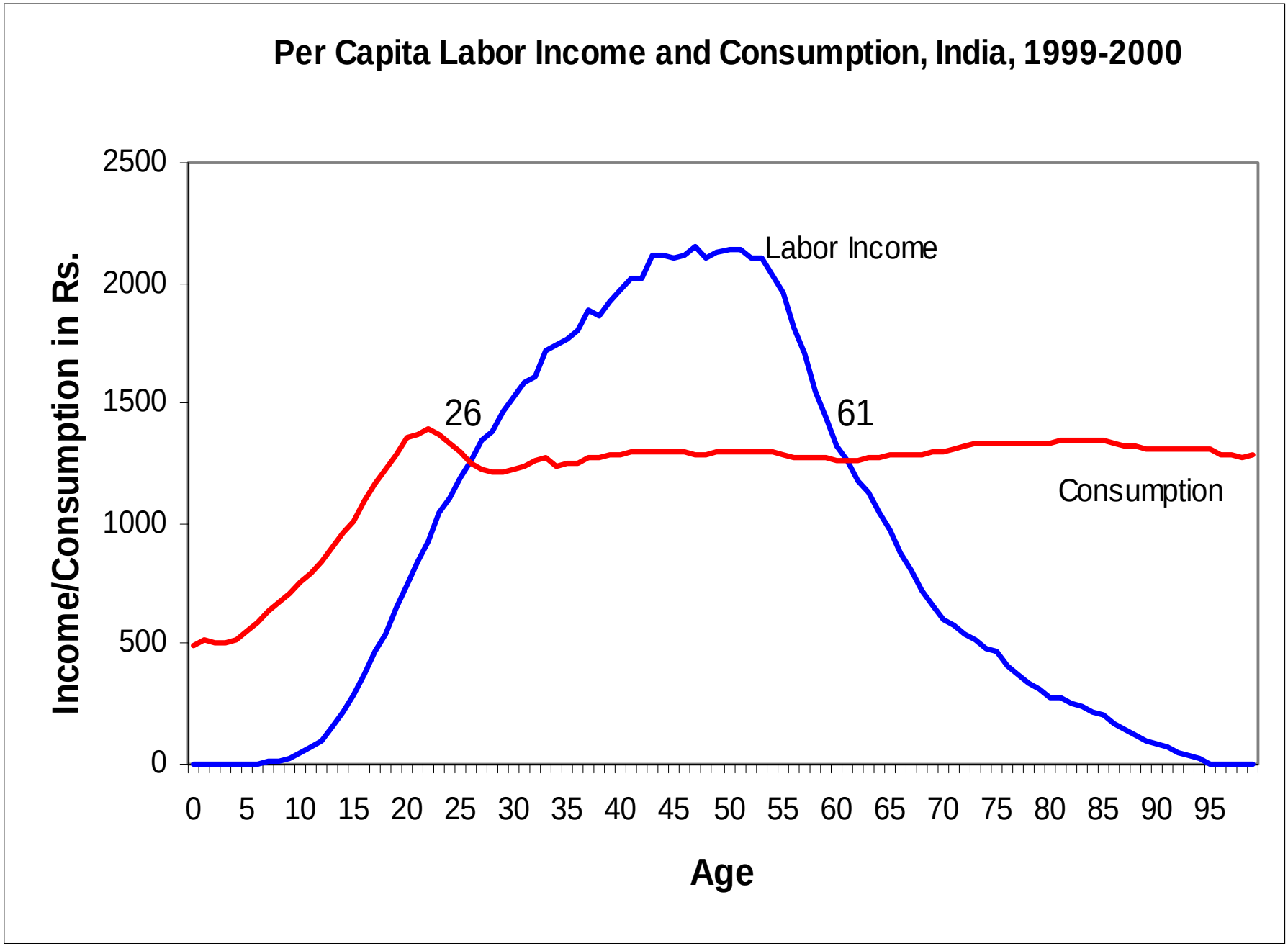
		Age	Groups			
	Total	**0-19**	**20-29**	**30-49**	**50-64**	**65+**
Lifecycle deficit	214898	353225	41818	-178431	-43725	42013
Consumption	1297188	425850	282183	375460	140945	72750
Private consumption	1046080	323868	218495	323611	119773	60333
Other	954471	299914	200212	294591	107237	52518
Health	69400	8147	13826	27076	12536	7815
Education	22209	15808	4457	1944	0	0
Public consumption	251108	101981	63688	51850	21172	12417
Other	193995	88238	33708	46541	17047	8462
Health	15924	1208	1326	5309	4125	3956
Education	41189	12536	28653	0	0	0
Labor Income	1082290	72625	240365	553892	184671	30737

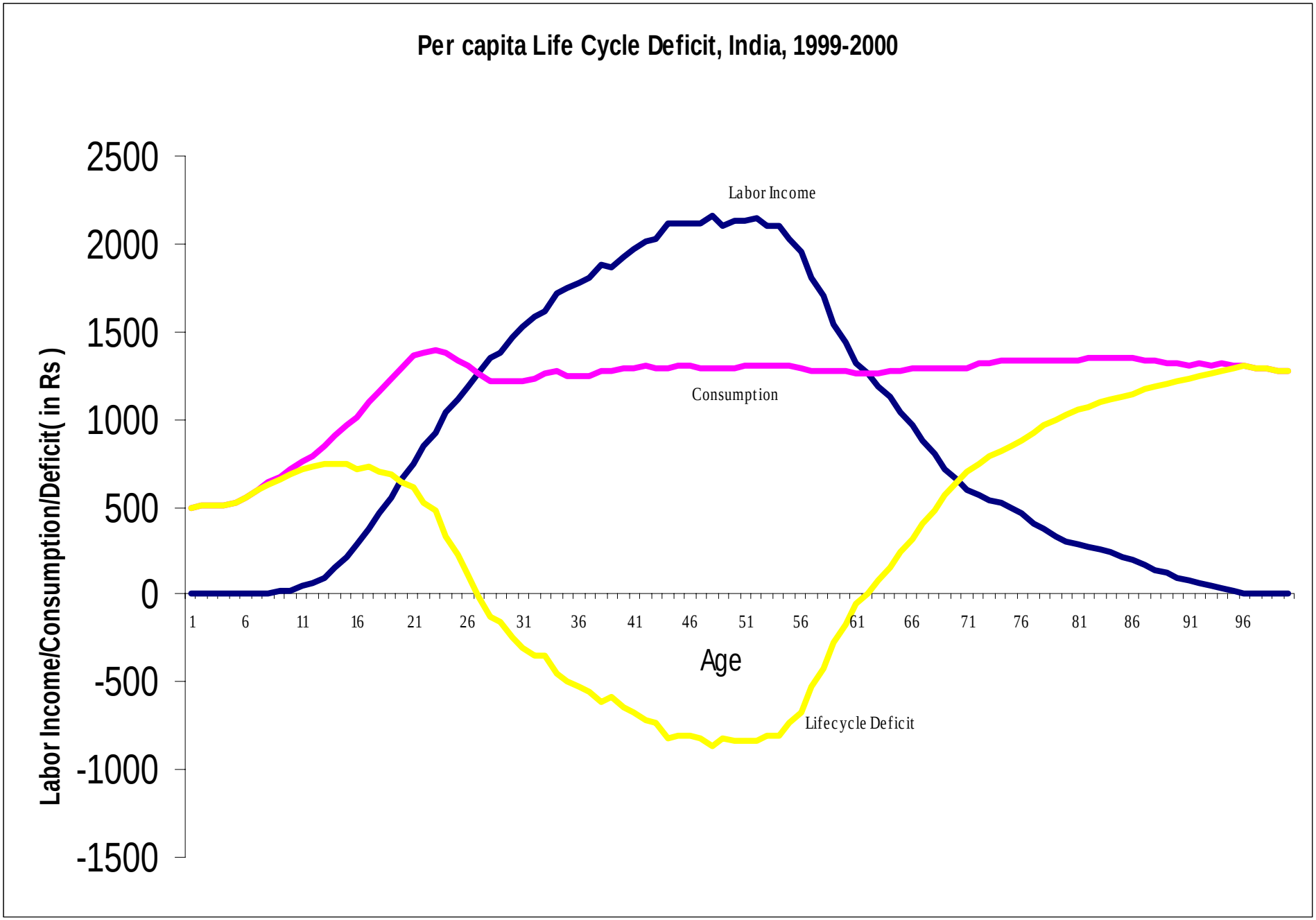
Summary of main results of LCD estimations

First, the LCD is evident for all age groups except for working population in the age group of 30-49 years and 50-64 years.

Second, the highest LCD is evident for young age dependents (age group 0-19 years) rather than for old age dependents (age group 65+ years). In fact, the LCD in age group 0-19 years is about 8 times higher than for the old age group (65+ years).


Aggregate Labor Income,Consumption and Deficit for India,1999-2000
Income/Consumption/Deficit(in Crore)
40000
30000
20000
10000
0
-10000
-20000
Consumption
Labor Income
Deficit
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
Age


Per Capita Labor Income and Consumption, India, 1999-2000
Income/Consumption in Rs.
2500
2000
1500
1000
500
0
Labor Income
Consumption
26
61
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
Age


Per capita Life Cycle Deficit, India, 1999-2000
Labor Income/Consumption/Deficit(in Rs)
2500
2000
1500
1000
500
0
-500
-1000
-1500
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
Age
Labor Income
Consumption
Lifecycle Deficit

Age reallocations in India's NTA, 1999-00

1. **Public sector reallocations**

- Public sector asset reallocation
- Public transfers

- **Private sector reallocation**

❖ Private sector asset reallocation

❖ Private transfers – Intra and Inter-household transfers

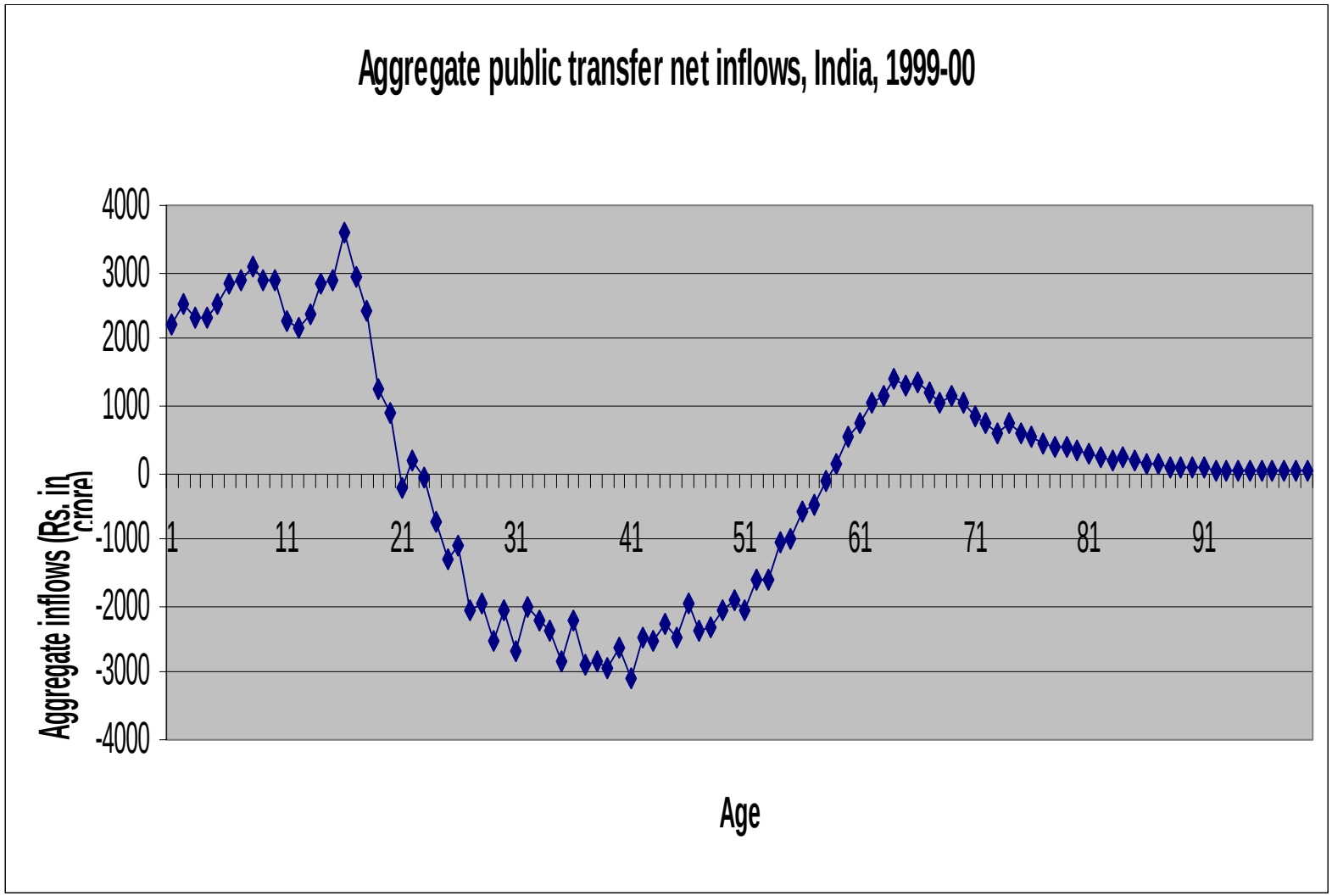
❖ Bequests

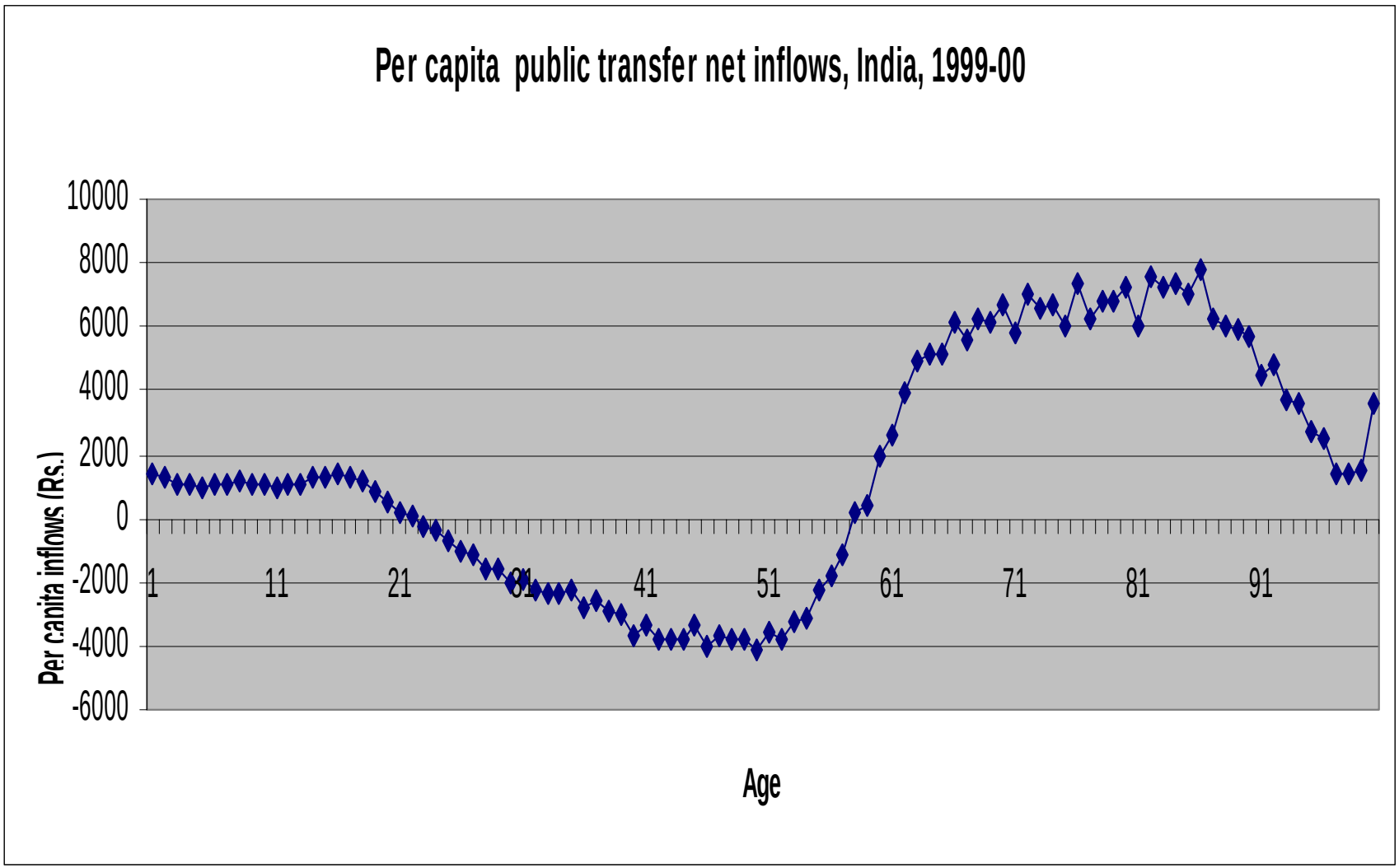
Public sector age reallocation

1. Public asset reallocation: Public asset income – public savings
2. Public transfers: Public transfer inflows - outflows

Public age reallocations, 1999-00 (Rs. In crore at current prices)

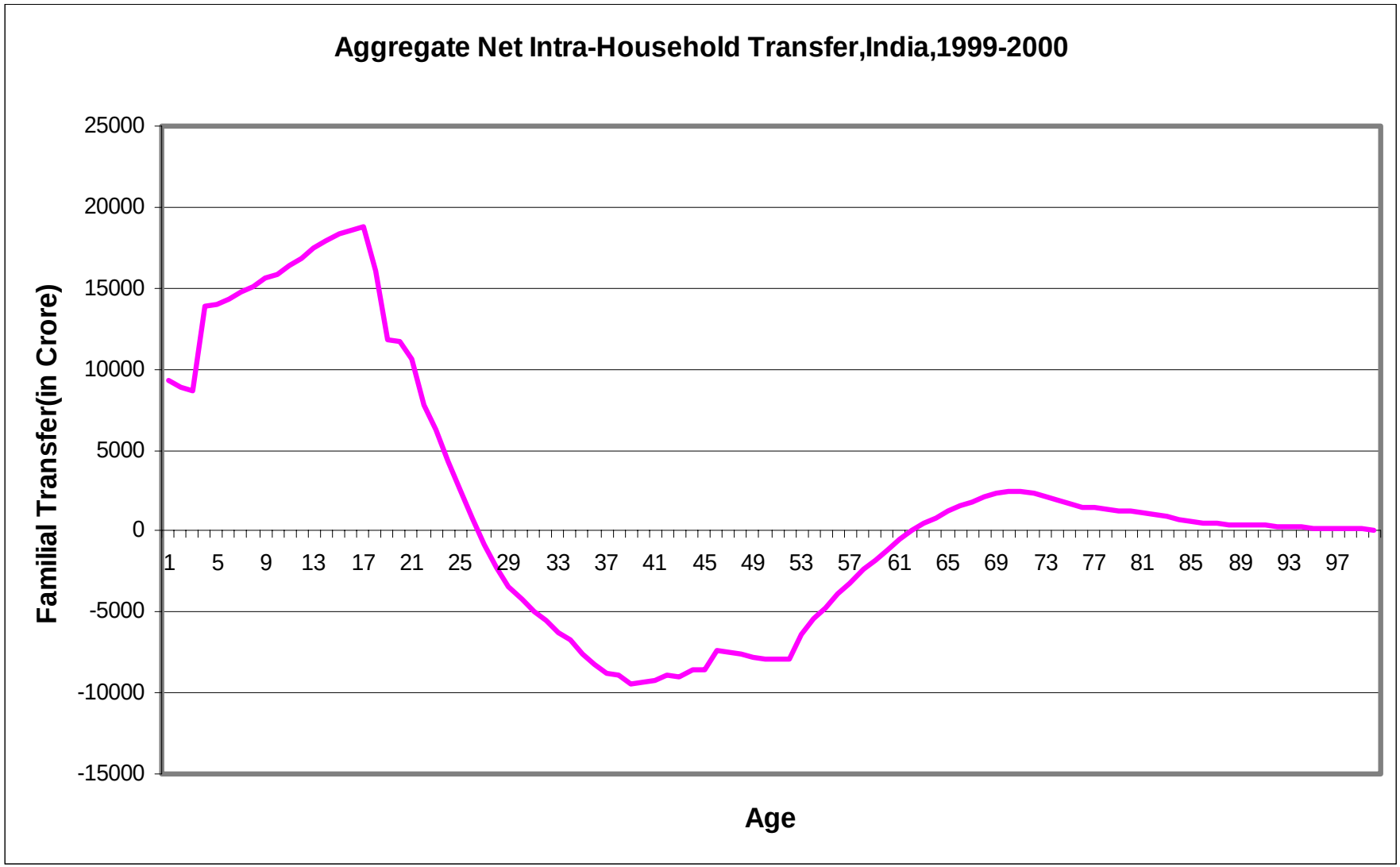
	Age distribution					
	Total	**0-19**	**20-29**	**30-49**	**50-64**	**65+**
Public asset based reallocations	-213337	-11339	-69322	-134449	-13816	15589
Income on Assets	-27065	-192325	-95366	77880	112785	69961
Less: Saving (including net public bequests)	186272	-180987	-26044	212329	126602	54373
Public transfers (inflows - outflows)	0	28915	8547	-51013	-2306	15857
Inflows	303989	102035	64733	57055	42572	37594
In-kind transfers	251109	101982	63688	51850	21172	12417
Cash transfers	52880	53	1046	5205	21399	25177
Outflows	303989	73121	56186	108068	44878	21737
Direct and indirect taxes	231340	55646	42758	82241	34153	16542
Other revenues	72649	17475	13428	25827	10725	5195

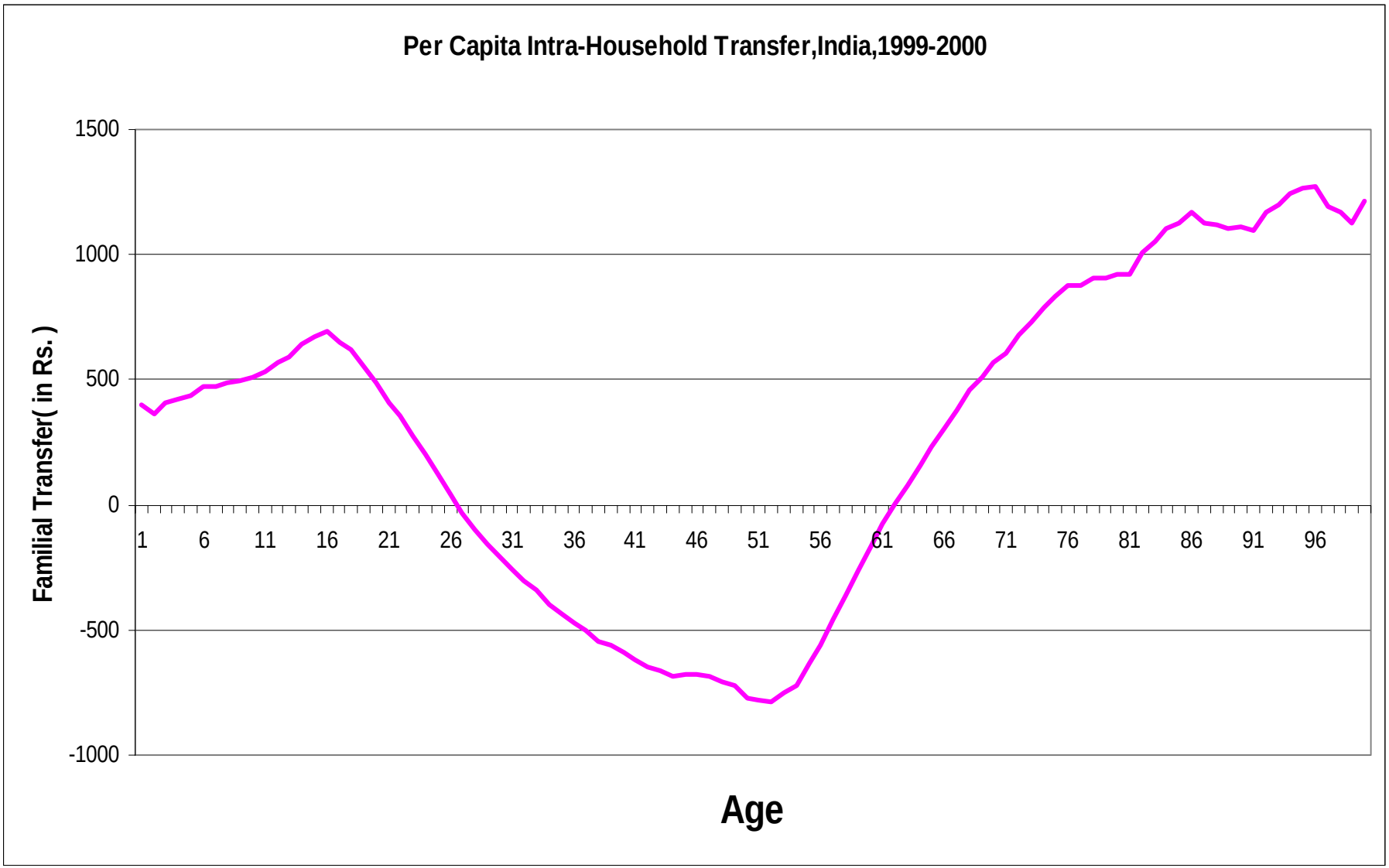

Aggregate public transfer net inflows, India, 1999-00
Aggregate inflows (Rs. in crore)
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
1
11
21
31
41
51
61
71
81
91
Age


Per capita public transfer net inflows, India, 1999-00
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
Per capita inflows (Rs.)
1
11
21
31
41
51
61
71
81
91
Age

Private transfers, 1999-00
(Rs. In crore at current prices)

	Age distribution					
	Total	**0-19**	**20-29**	**30-49**	**50-64**	**65+**
Private Transfers	203883	294291	23665	-143600	-29539	59065
Intra-household transfers	150751	294103	21463	-158079	-42597	35860
Inter-household transfers	53132	187.992	2201.7	14479.6	13058	23204


Aggregate Net Intra-Household Transfer,India,1999-2000
Familial Transfer(in Crore)
25000
20000
15000
10000
5000
0
-5000
-10000
-15000
1
5
9
13
17
21
25
29
33
37
41
45
49
53
57
61
65
69
73
77
81
85
89
93
97
Age


Per Capita Intra-Household Transfer,India,1999-2000
Familial Transfer(in Rs.)
1500
1000
500
0
-500
-1000
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
Age

Major conclusion
Source of finance of consumption or LCD

Sources of finance of consumption	Percent of total consumption		
	0-19	20-29	65+
Labour income	17.05	85.18	3.56
Public asset reallocations	-2.66	-24.57	21.43
Public transfers	6.79	3.03	21.80
Private transfers	69.11	8.39	81.19
Private asset reallocations	9.71	36.36	18.81

THANK YOU