

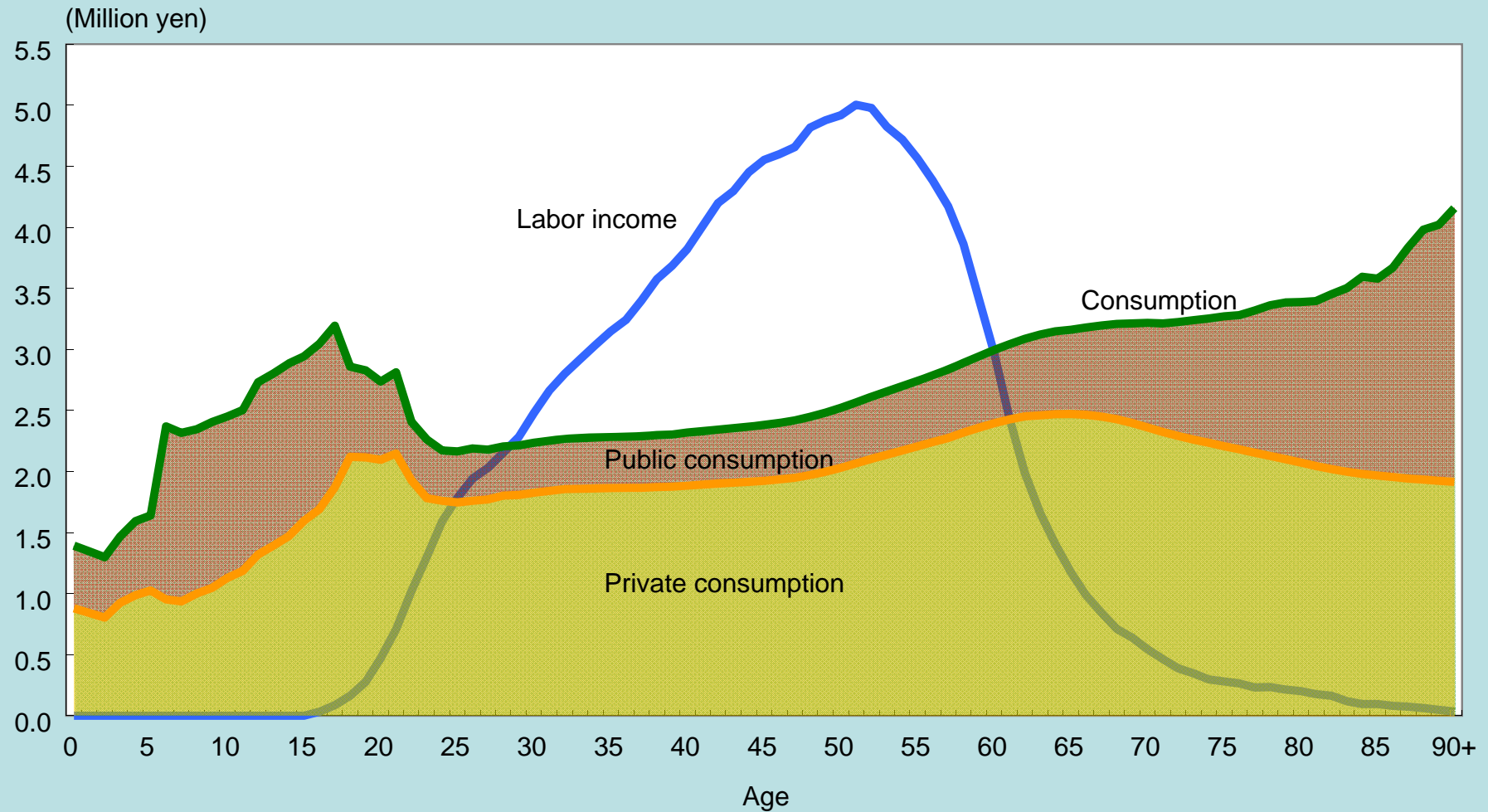
# **The Elderly as a Potential Source of Economic Growth in Aging Japan**

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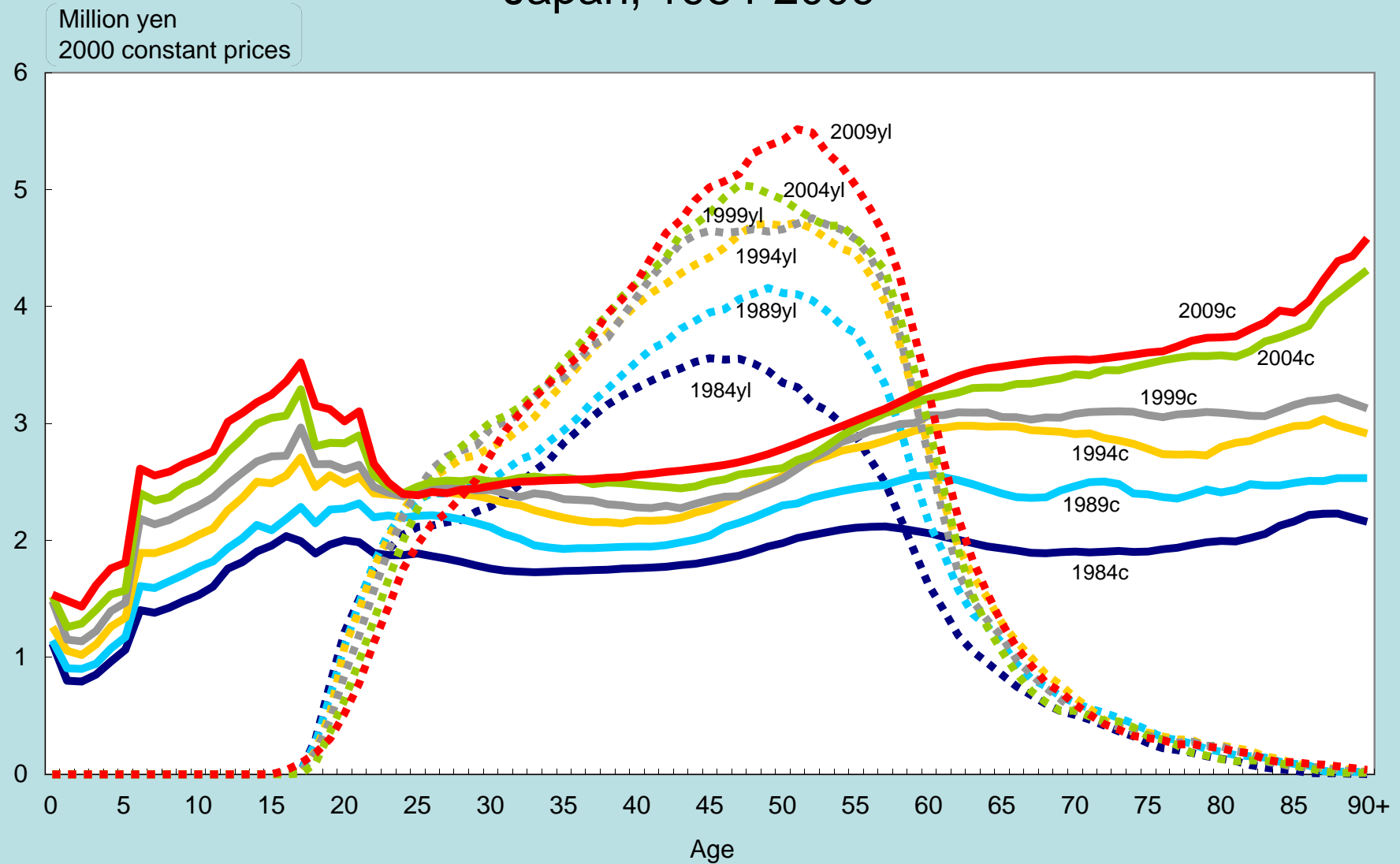
**Presented at the Expert Group Meeting: “Measuring Population Ageing:  
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# Japan's Most Important Graph

## Per capita lifecycle: Japan (2009)



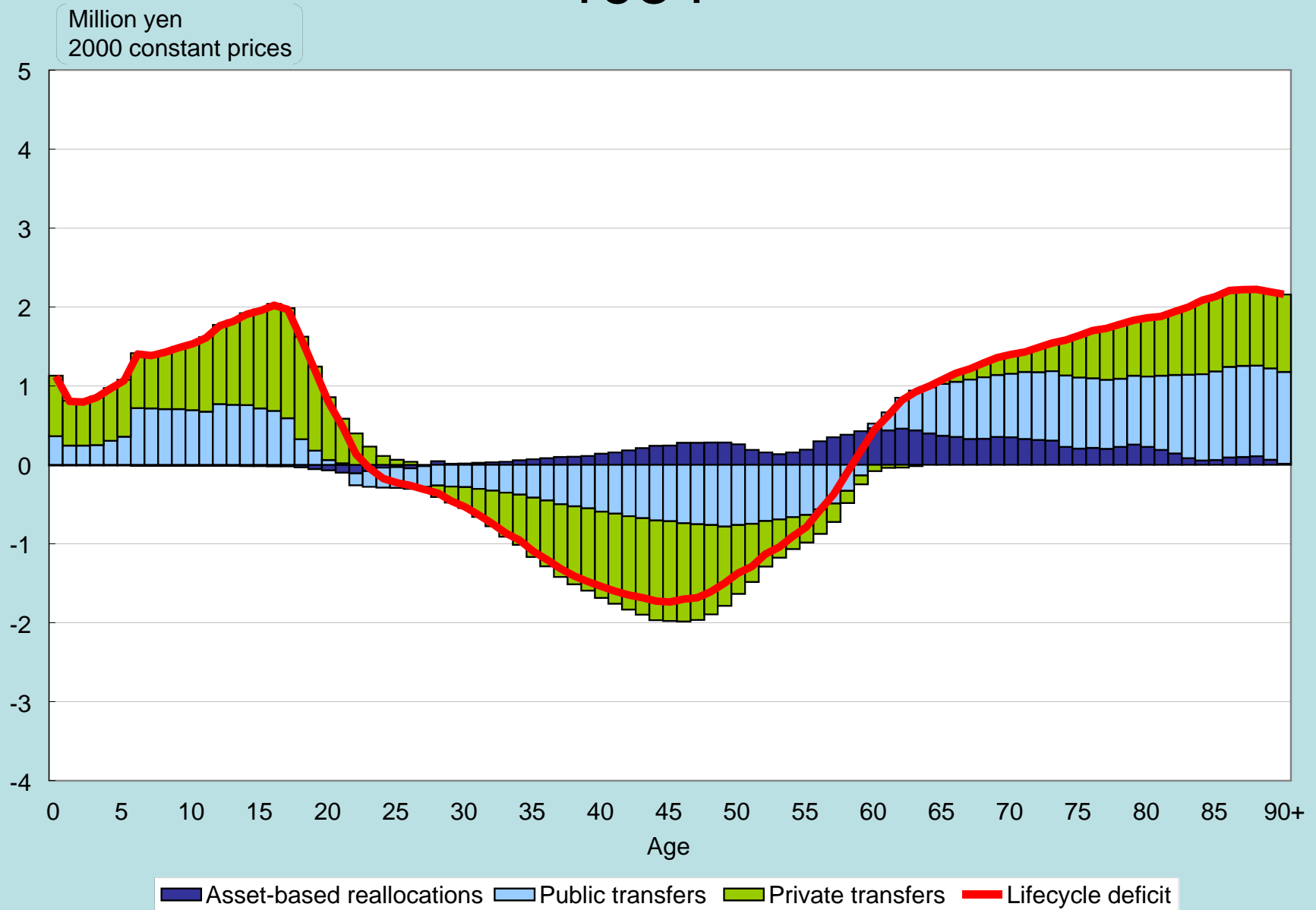
# Per capita age specific profiles of consumption and labor income Japan, 1984-2009



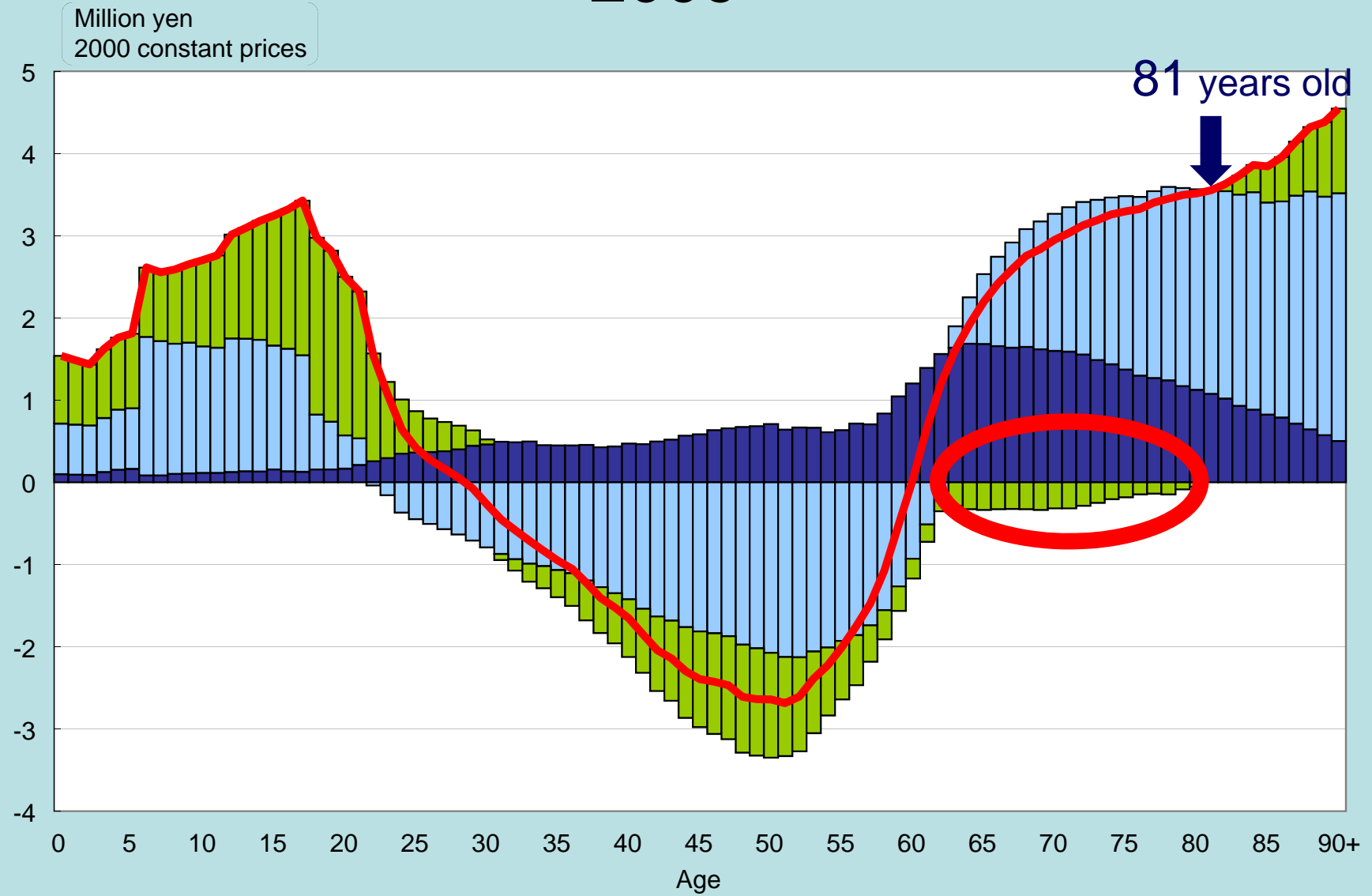
Note: "c" denotes consumption, and "yl" denotes labor income.

**Changing per capita  
lifecycle deficit in Japan  
1984-2009**

# 1984



# 2009



■ Asset-based reallocations ■ Public transfers ■ Private transfers — Lifecycle deficit

## **Message (1)**

**In Japan, the elderly are playing the role of the society's safety net...**

# Changing cutoff ages for net public transfers and net familial transfers:

**60 → 63 years old**

**vs.**

**64 → 81 years old**



## **Message (2)**

**The elderly as a source  
of untapped work  
capacity in Japan**

# “Untapped Work Capacity”

- we have attempted to quantify the untapped work capacity in Japan in terms of health status.
- we do not include a number of factors affecting the decision of labor supply (e.g., wages) but focus on the health disability to examine to what extent the labor supply of the elderly is limited

# Data

- **JSTAR** (Japanese Study on Aging and Retirement).
- Comparable to HRS/ELSA/SHARE.

# “Untapped Work Capacity”

- We employ a linear probability model to regress **a binary variable of employment**, which is equal to 1 if the individual is in the labor force (both working and looking for a job) and 0 if the individual is out of the labor force, on the following explanatory
- We use the sample of individuals aged 50 to 59 and combine both sexes for the baseline regression.

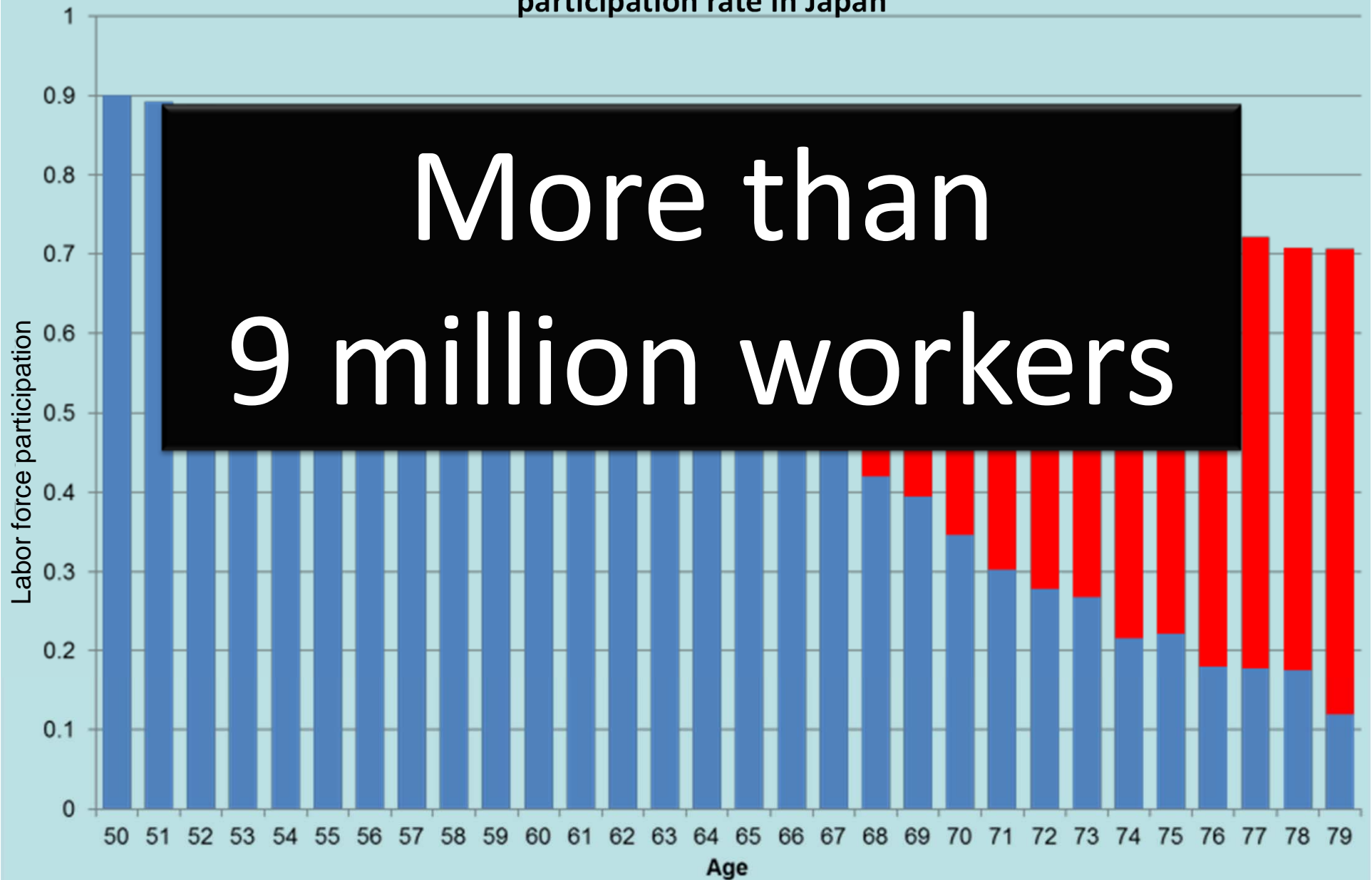
## Explanatory variables:

- (1) **dummy variables for self-reported health status (five-point scale)**
- (2) the prevalence of limitations on instrumental activities of daily living (**IADLs**)
- (3) the **CESD depression scale**
- (4) the **Nagi** physical ability index
- (5) **limitations in sensory organs** (eyesight, hearing and chewing)
- (6) individual attributes, such as **sex, educational attainment** and marital status. In addition, dummy variables for each municipality and survey years are included.

# “Untapped Work Capacity”

- The estimated regression for those **50-59** was applied to those aged **60-79** to compute the additional work force to be generated

Age-specific observed labor force participation rate and potential labor force participation rate in Japan



More than  
9 million workers

- Applied the three different wage levels:
- **Case1**: NTA's age-specific labor income profile
- **Case2**: Market wage rates
- **Case3**: Minimum wages



In Case II, the labor income to be generated by the additional elderly workers corresponds to **4.8%** of Japan's real GDP in 2014.

**“Silver”  
demographic dividend**

## **Message (3)**

**Changing cognitive  
function among old age  
groups and their  
economic potential  
contributions**

## Changing cognitive function among the elderly: Global evidence

● **Dementia prevention, intervention, and care, *Lancet* 2017 Vol.390. pp.2673-2734. Livingston, Gill, et al.**

In 2015, there are 50 million elderly persons suffering from dementia, and it is expected to increase to 150 million by 2050. The economic cost of dementia was estimated to be US\$818 billion. Nearly 85% of costs are related to familial and social, rather than medical, care.

● Medically, dementia is not curable, but **modifiable!**

● Countries where the onset of dementia has been delayed

**USA, UK, Sweden, the Netherlands, Denmark, Germany, Canada**

● Factors contributing this new trend are as follows: medical progress, lifestyle changes, better social and economic life, particularly education

● Countries where the onset of dementia has been getting earlier

**China and Japan**

## International comparison of the CADR score

|  |       |             |
|--|-------|-------------|
| ● USA  | ..... | 0.10        |
| ● Northern Europe (Denmark, UK, Ireland, Sweden)   | ..... | 0.12        |
| ● Western Europe (Austria, Belgium, France, Germany, the Netherlands, Poland, Switzerland) | ..... | 0.18        |
| ● Southern Europe (Greece, Italy, Spain)   | ..... | 0.32        |
| ● Asia   |       |             |
| India  | ..... | 0.14        |
| China  | ..... | 0.15        |
| <b>Japan</b>   | ..... | <b>0.18</b> |

## Regression Analysis of Immediate Recall Score

(Dependent variable = immediate recall score)

| Explanatory variables | Coefficient | t-value |
|-----------------------|-------------|---------|
| <b>Age</b>            |             |         |
| 50-54                 | 0.34599     | 1.88    |
| 55-59                 | 0.13683     | 1.67    |
| 60-64 ♀               | -           | -       |
| 65-69                 | -0.25622    | -3.85   |
| 70-74                 | -0.51452    | -7.23   |
| 75-79                 | -0.85736    | -11.21  |
| 80+                   | -1.09697    | -10.05  |
| <b>Sex</b>            |             |         |
| Men                   | -0.69841    | -14.95  |
| Women ♀               | -           | -       |
| <b>Marital status</b> |             |         |
| Married               | 0.20015     | 3.89    |
| Not married ♀         | -           | -       |
| <b>Work status</b>    |             |         |
| Working               | 0.08243     | 1.68    |
| Not working ♀         | -           | -       |
| <b>Education</b>      |             |         |
| Junior high ♀         | -           | -       |
| Senior high           | 0.29770     | 5.07    |
| Junior college        | 0.54121     | 7.19    |
| University            | 0.61923     | 7.91    |

|                       |          |       |
|-----------------------|----------|-------|
| <b>Health status</b>  |          |       |
| Very good             | 0.06619  | 0.80  |
| Good                  | 0.10765  | 1.39  |
| Fair ♀                | -        | -     |
| Rather bad            | -0.04787 | -0.64 |
| Bad                   | -0.14599 | -0.83 |
| <b>CESD16 score</b>   | -0.06311 | -1.08 |
| <b>IADL score</b>     | 0.05047  | 7.06  |
| <b>Municipalities</b> |          |       |
| Takigawa              | -0.61109 | -5.89 |
| Sendai                | -0.33201 | -3.27 |
| Adachi                | -0.45270 | -4.19 |
| Chofu                 | -0.45723 | -4.17 |
| Kanazawa              | -0.43710 | -4.27 |
| Shirakawa             | -0.29666 | -3.17 |
| Tondabayashi          | -0.25684 | -2.52 |
| Hiroshima             | -0.73435 | -8.42 |
| Tosu                  | -0.78988 | -7.97 |
| Naha ♀                | -        | -     |
| <b>Year of survey</b> |          |       |
| 2013 ♀                | -        | -     |
| 2015                  | 0.30753  | 7.1   |
| <b>Intercept</b>      | 4.04219  | 28.01 |

Adjusted R-squared = 0.1383

Number of observations = 6,576

**Message (4)**  
**Unprecedented  
value shifts**

**Thank you**