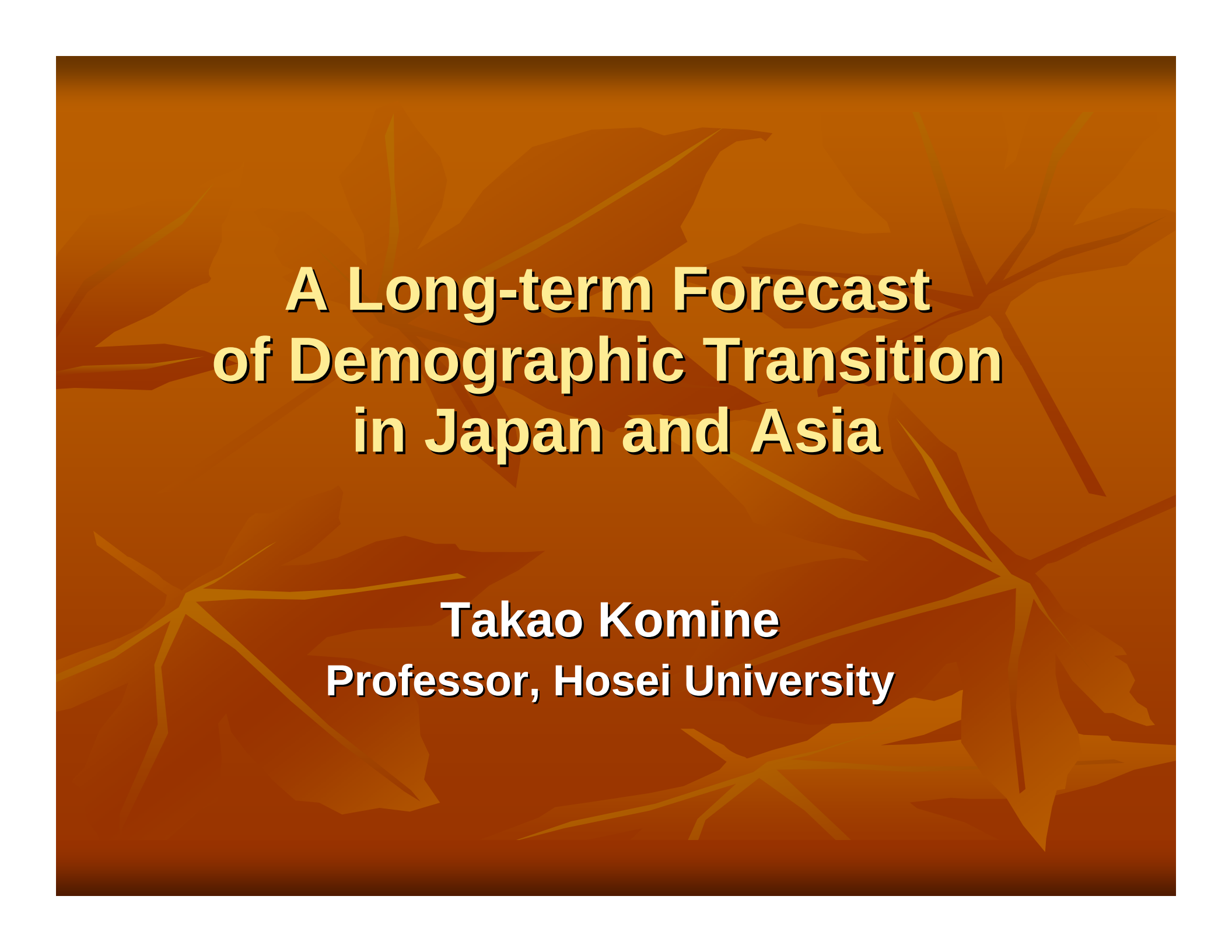
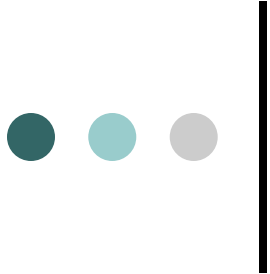




# **A Long-term Forecast of Demographic Transition in Japan and Asia**

**Takao Komine**  
**Professor, Hosei University**



# Why is the Population Problem Important for Asia Today?

1. The uncertainty of population forecasts is relatively low.
2. Asia's demographic structure will undergo major change from here on.
3. Demographics are deeply tied to economic society.



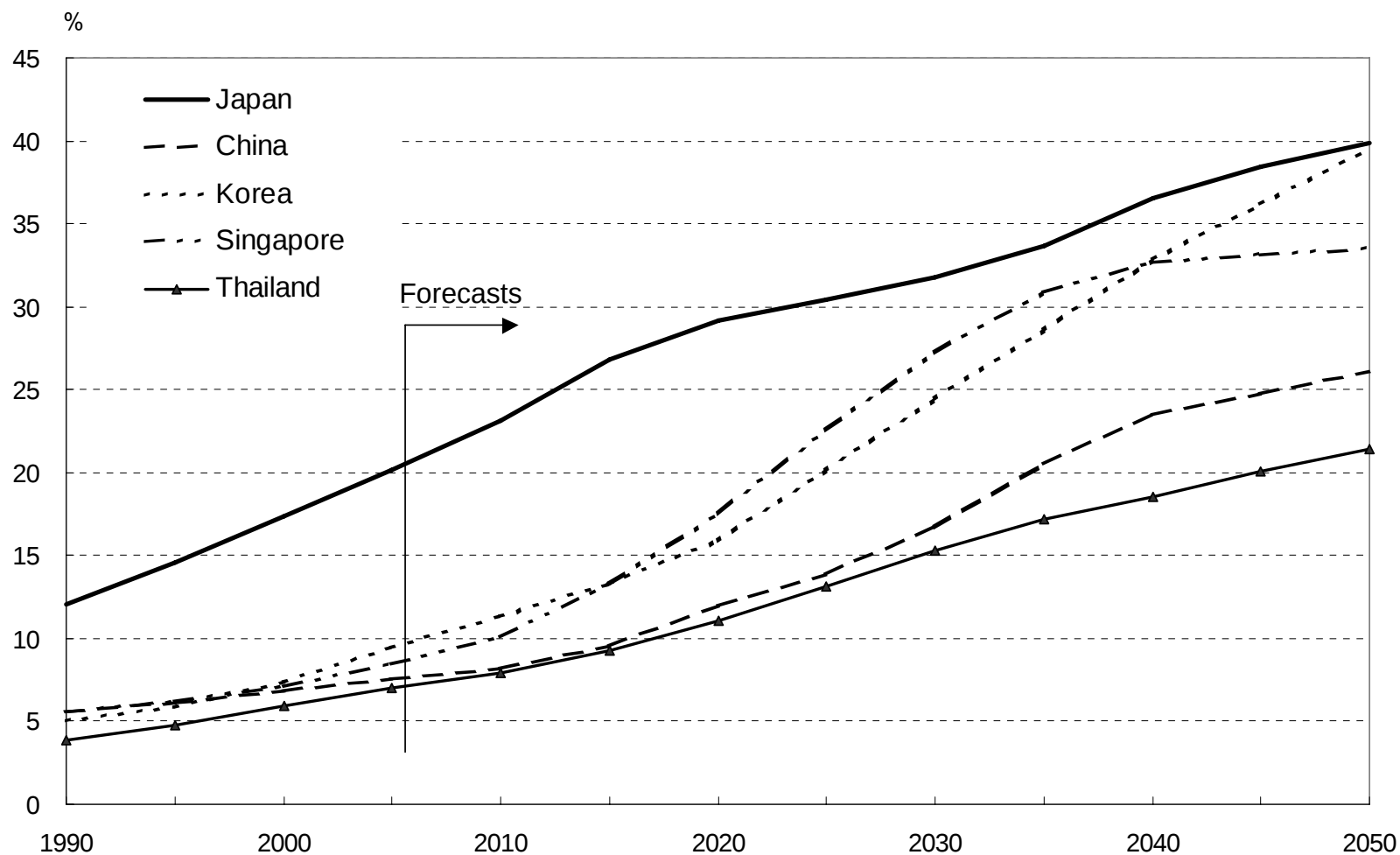
# **Major Changes in Asia's Demographic Structure**

# Transitions in Asian Nation Populations

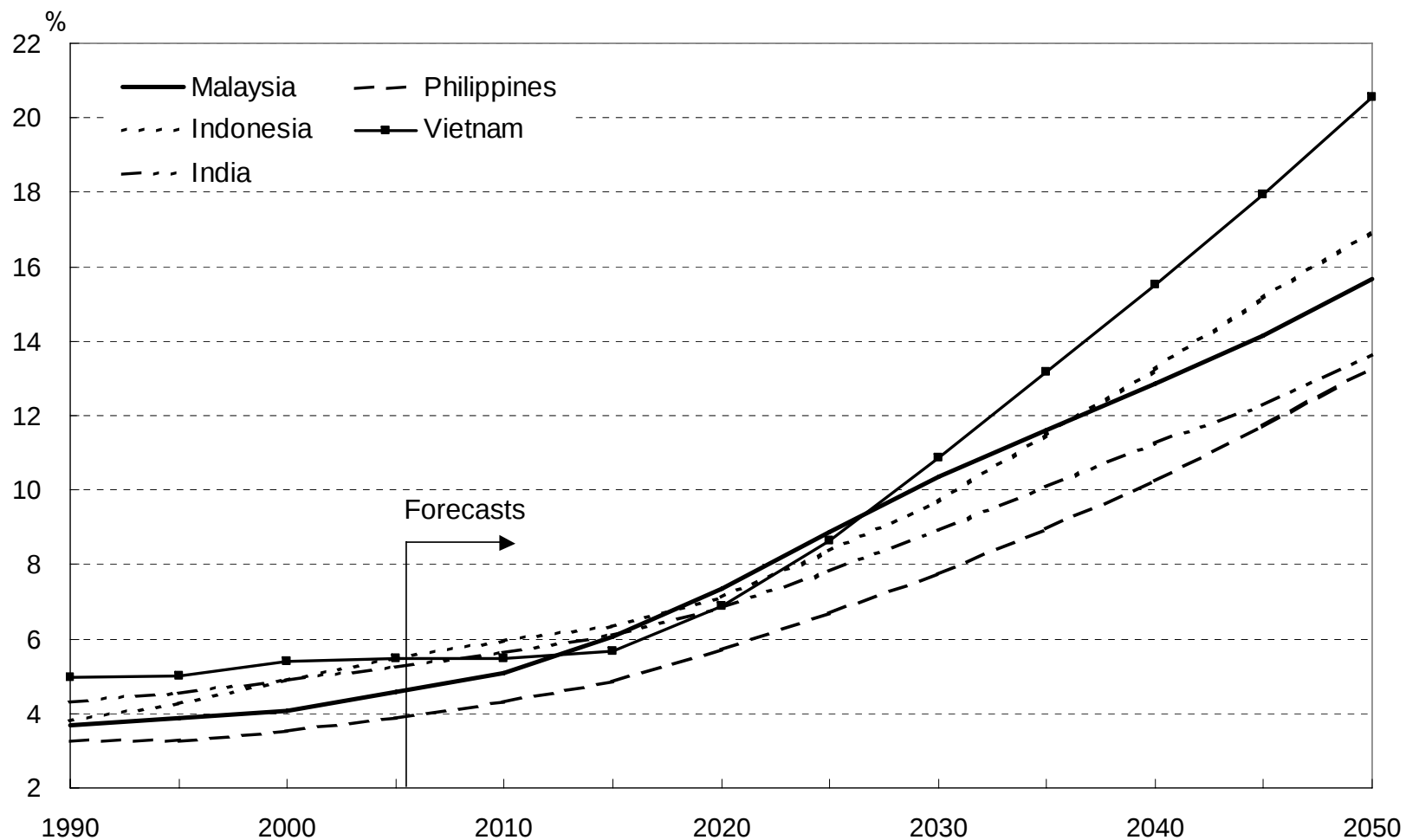
| Period    | Period when total fertility rate falls below 2.1 | Period when elderly population ratio exceeds 14% | Period when labor force begins to decline | Period when total population begins to decline |
|-----------|--------------------------------------------------|--------------------------------------------------|-------------------------------------------|------------------------------------------------|
| 1950-1955 |                                                  |                                                  |                                           |                                                |
| 1955-1960 |                                                  |                                                  |                                           |                                                |
| 1960-1965 | Japan                                            |                                                  |                                           |                                                |
| 1965-1970 |                                                  |                                                  |                                           |                                                |
| 1970-1975 |                                                  |                                                  |                                           |                                                |
| 1975-1980 | Singapore                                        |                                                  |                                           |                                                |
| 1980-1985 | Hong Kong                                        |                                                  |                                           |                                                |
| 1985-1990 | Korea                                            |                                                  |                                           |                                                |
| 1990-1995 | China                                            | Japan                                            |                                           |                                                |
| 1995-2000 | Thailand                                         |                                                  |                                           |                                                |
| 2000-2005 |                                                  |                                                  | Japan                                     |                                                |
| 2005-2010 | Vietnam                                          |                                                  |                                           | Japan                                          |
| 2010-2015 |                                                  | Hong Kong                                        |                                           |                                                |
| 2015-2020 | Indonesia                                        | Korea, Singapore                                 | China, Hong Kong                          | Korea                                          |
| 2020-2025 | Malaysia                                         |                                                  | Korea, Singapore                          |                                                |
| 2025-2030 |                                                  | China, Thailand                                  |                                           | China                                          |
| 2030-2035 | India                                            |                                                  |                                           |                                                |
| 2035-2040 | Philippines                                      | Vietnam                                          | Thailand, Vietnam                         | Singapore                                      |
| 2040-2045 |                                                  | Malaysia, Indonesia                              |                                           | Thailand, Vietnam                              |
| 2045-2050 |                                                  |                                                  |                                           |                                                |

Note: Rates of change for the total fertility rate, labor force and total population were measured as five-year averages. The elderly population ratio was viewed by five-year intervals (for 1995, for example, the results are classified as being for 1990-95).

# Trends in Elderly Population Ratios for Major Asian Countries (Japan + Group 2 Countries)

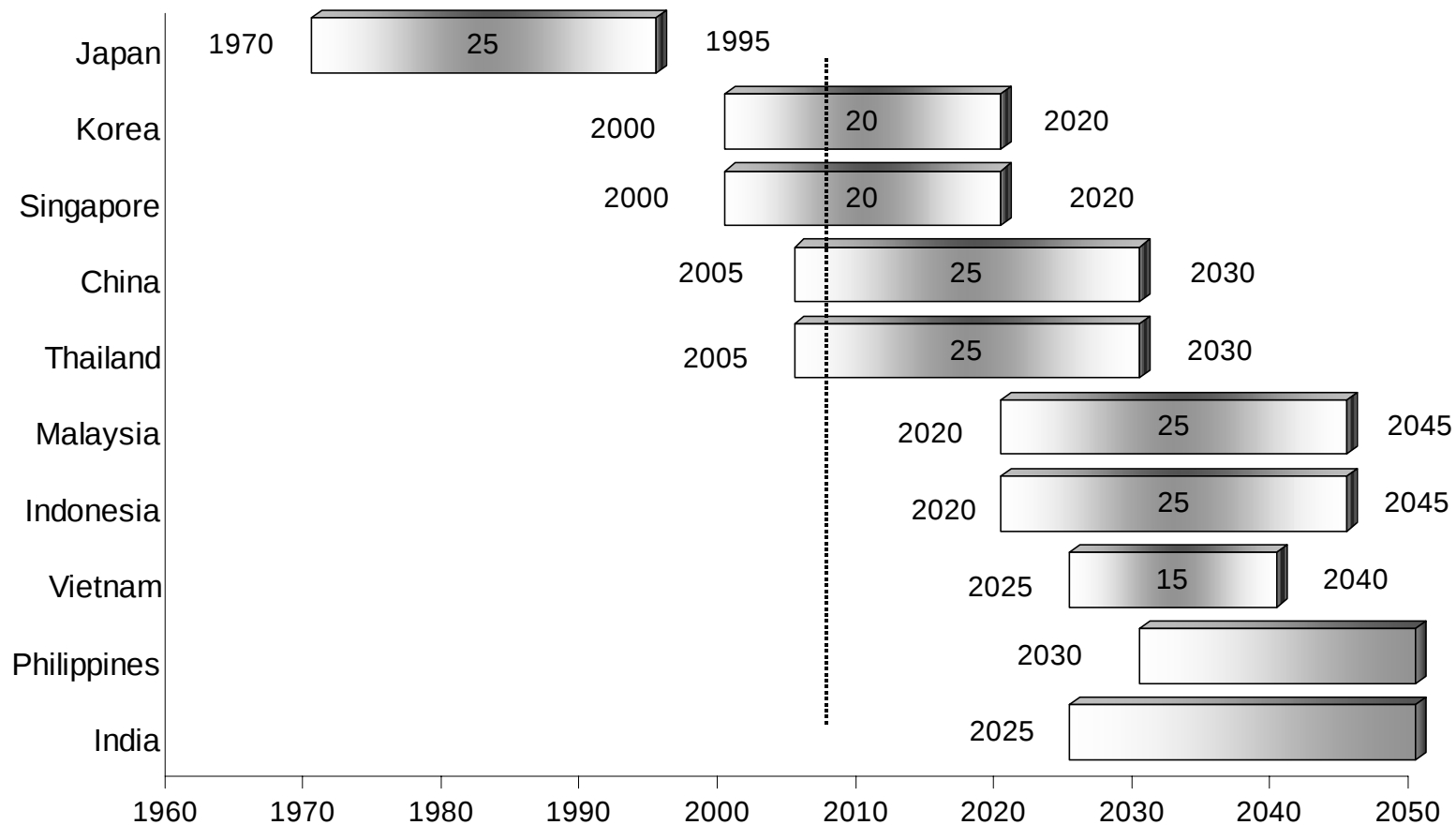


# Trends in Elderly Population Ratios for Major Asian Countries (Group 3 Countries)



Source: United Nations, *World Population Prospects: The 2004 Revision Population Database*.

# Overview of Population Aging Speed



## (Notes)

1. Periods when age 65+ segment reaches 7% and 14% of total population (data viewed at five-year intervals).  
Even by 2050, neither the Philippines nor India will have achieved the status of "aged societies."

2. Data for 2006 and after based on Japan Center for Economic Research (JCER) forecasts.

Source: United Nations, *World Population Prospects: The 2004 Revision Population Database*.



# **Demographics will Change the Asian Economies**

# Demographic Change and Economic Growth



## ① Manpower

Labor forces decrease due to declining birthrates.

## ② Capital

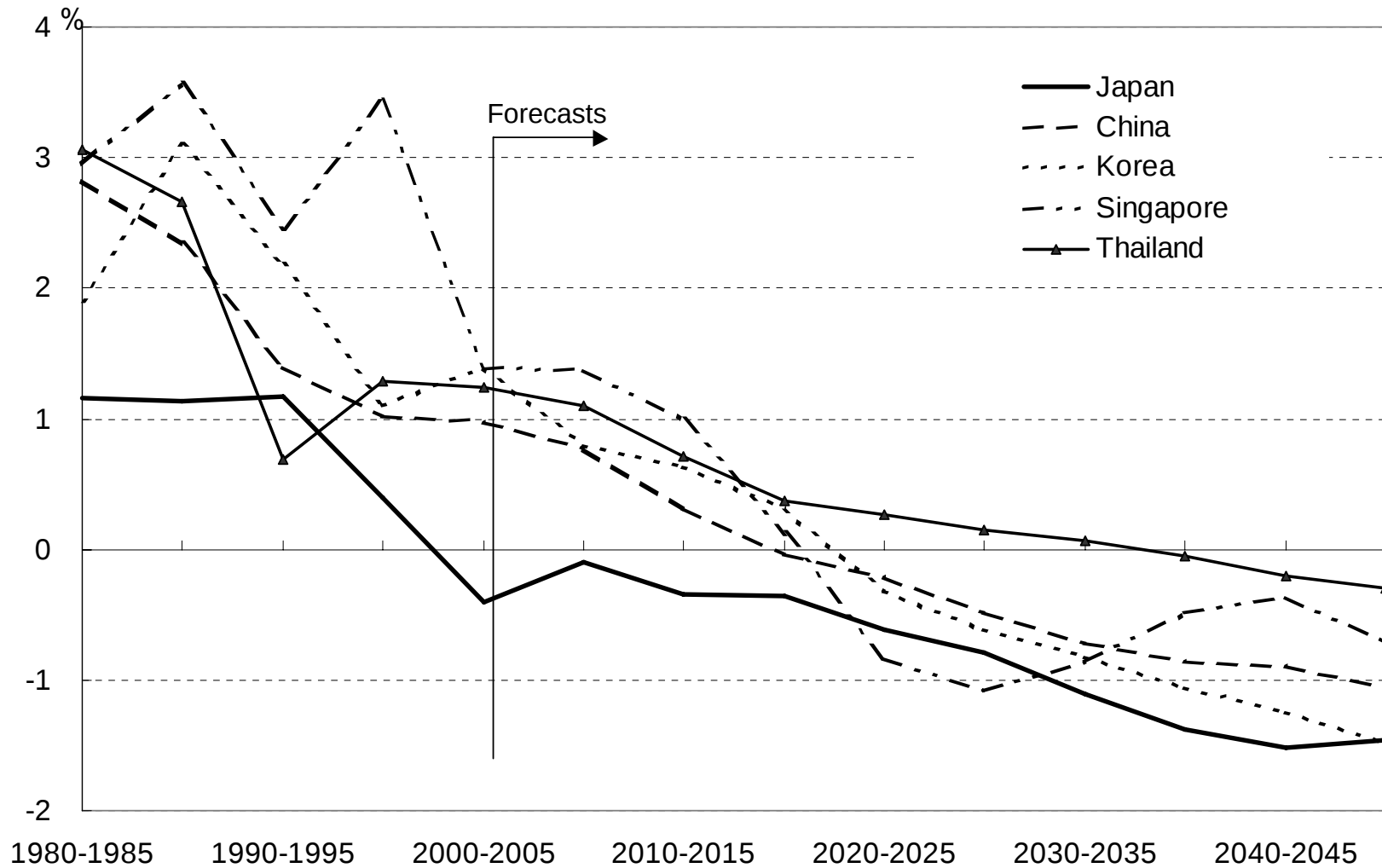
Savings rates decline due to aging populations.

## ③ Economic and Social Systems

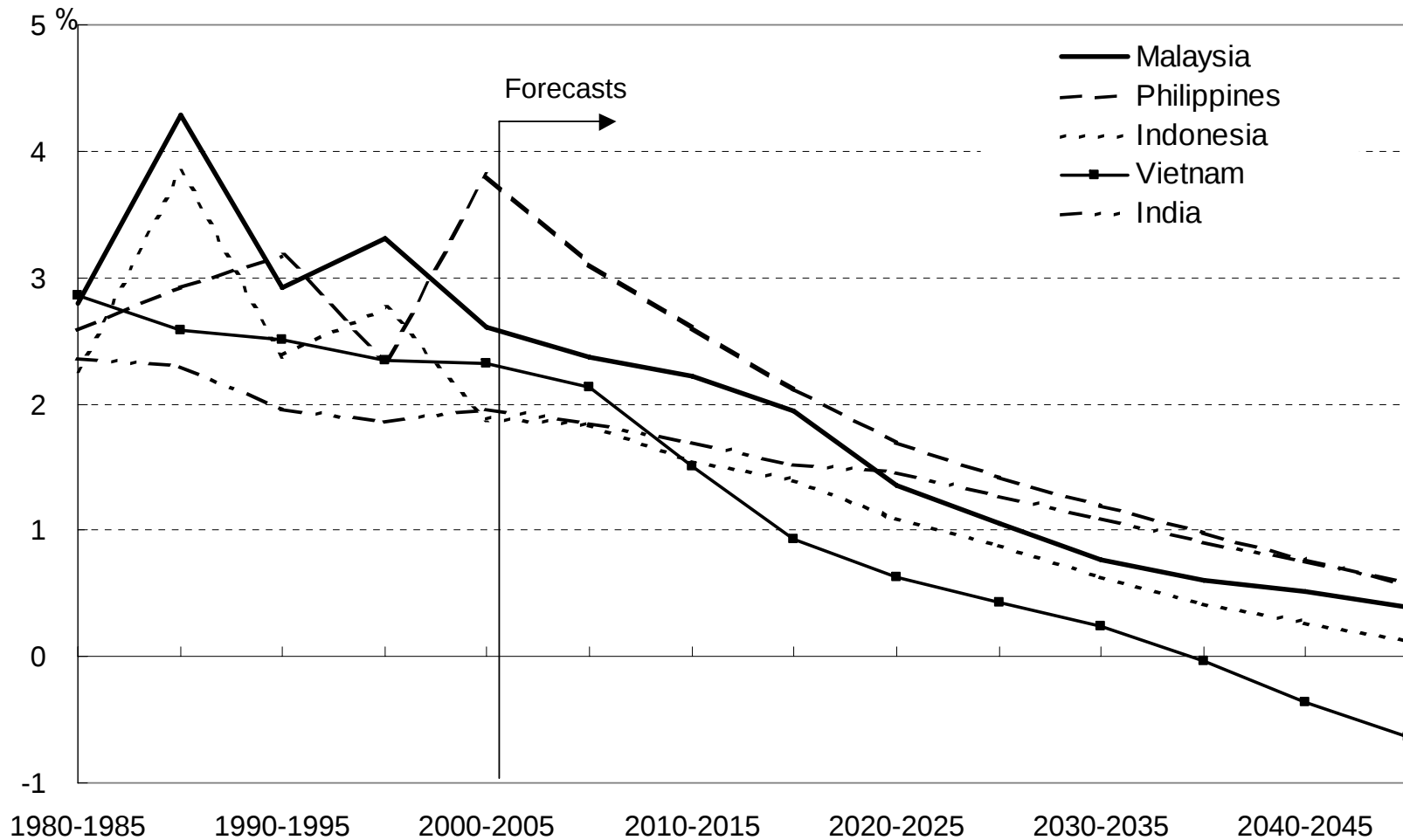
Changes in balances between working generations and non-working generations, leading to unbalances in intergenerational benefits and burdens.

$$\begin{aligned}
 \text{per capita GDP} &= \frac{\text{GDP}}{\text{population}} \\
 &= \frac{\text{labor force}}{\text{population}} \times \frac{\text{GDP}}{\text{labor force}} \\
 &\quad (\text{labor participation rate}) \quad (\text{labor productivity})
 \end{aligned}$$

# Changes in Labor Forces (Japan + Group 2 Countries)



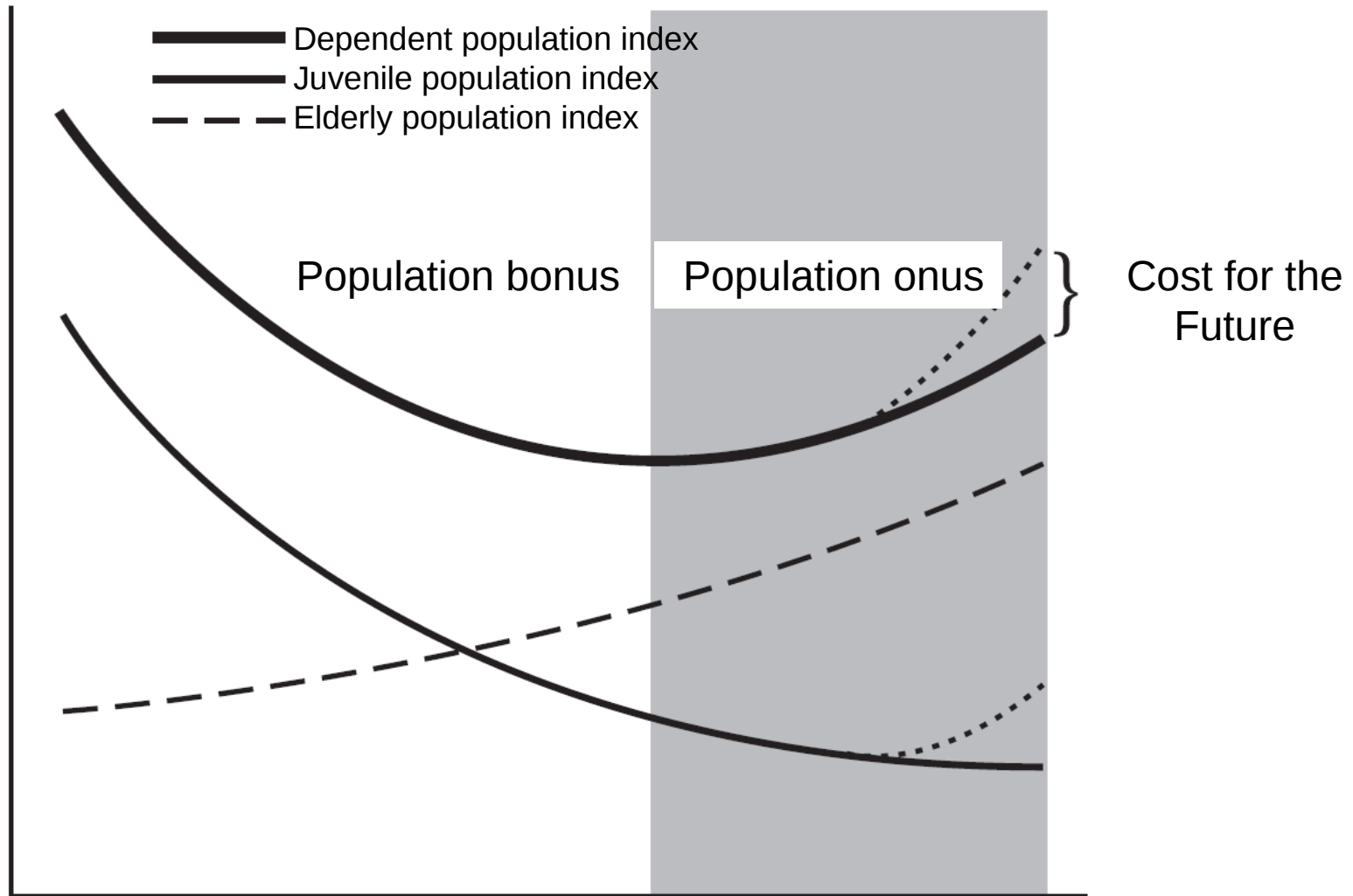
# Changes in Labor Forces (Group 3 Countries)



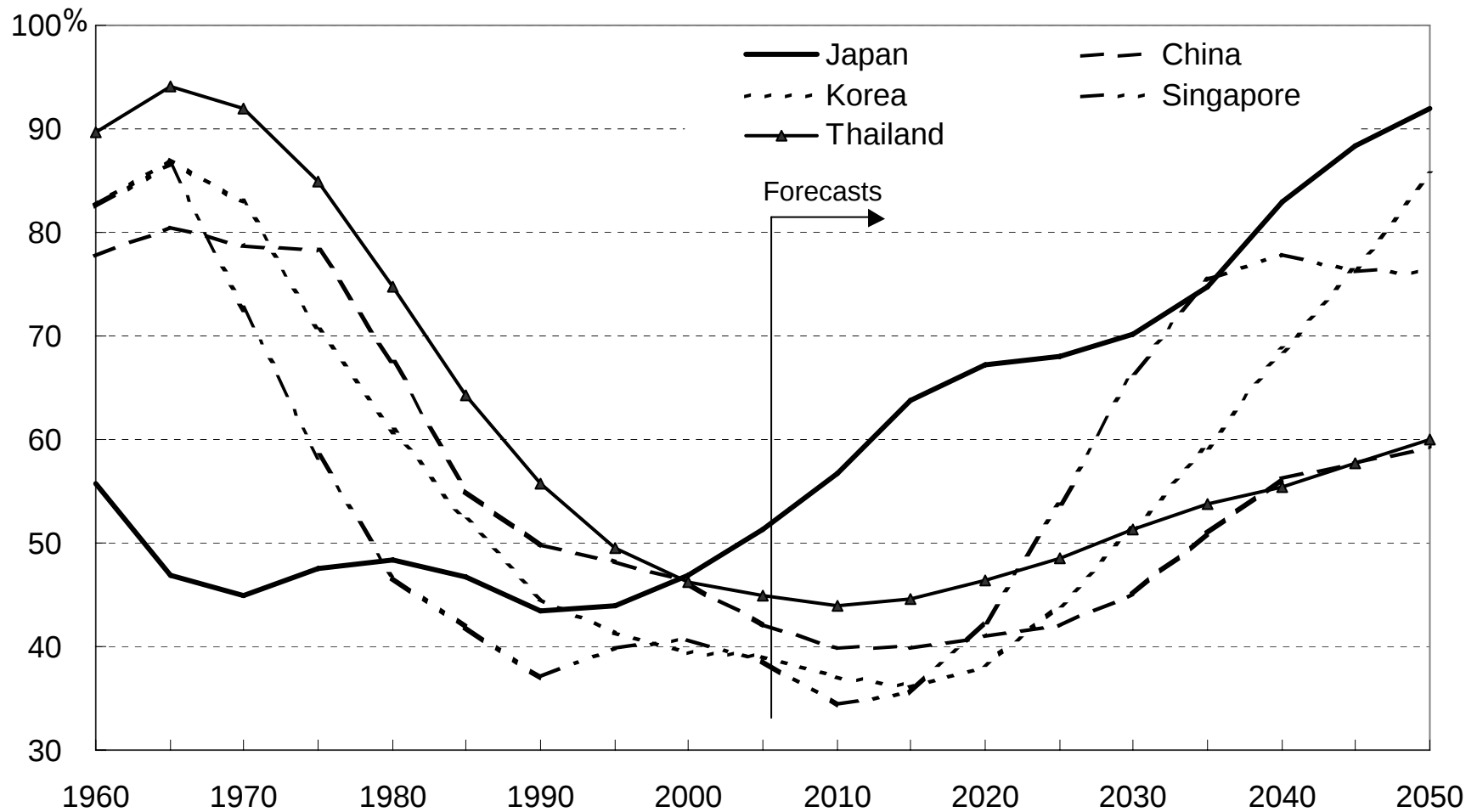
Note: Data for 2006 and after based on Japan Center for Economic Research (JCER) forecasts.

Source: Ministry of Internal Affairs and Communications, *Labor Force Survey*; ILO, *LABORSTA*.

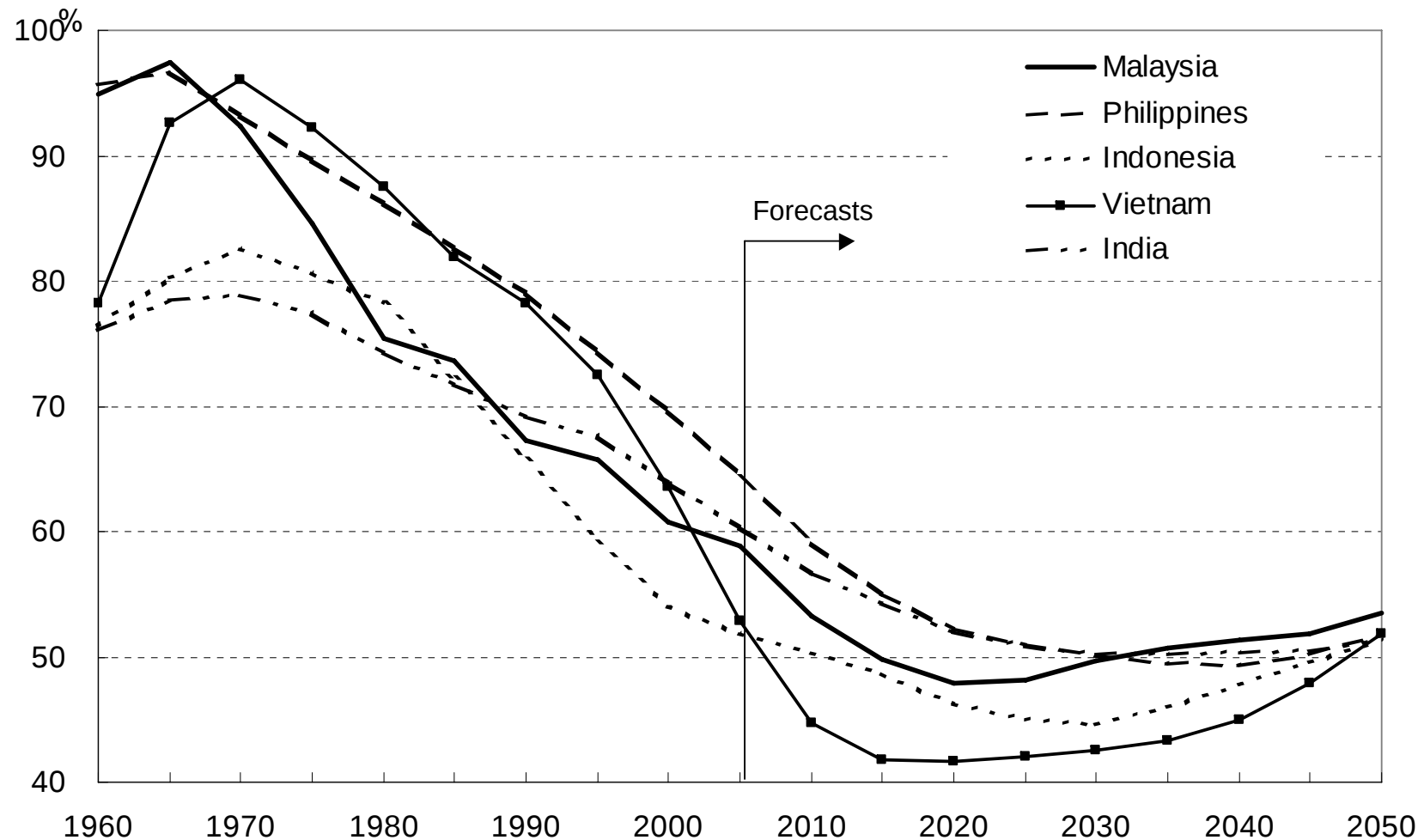
# Population Bonus and Population Onus



# Changes in Dependent Population Index (Japan + Group 2 Countries)



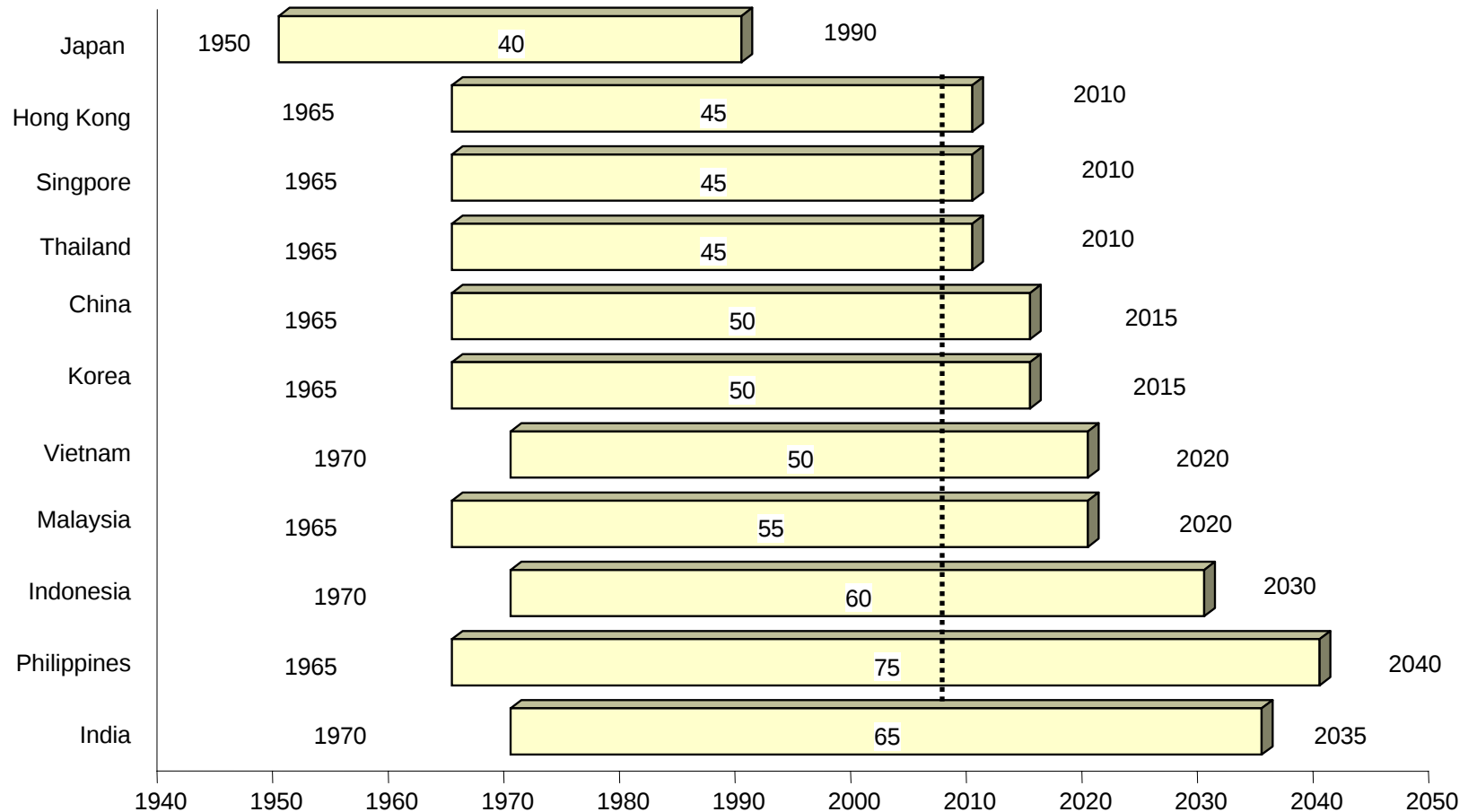
# Changes in Dependent Population Index (Group 3 Countries)



Note: Data for 2006 and after based on Japan Center for Economic Research (JCER) forecasts.

Source: United Nations, *World Population Prospects: The 2004 Revision Population Database*.

# Population Bonus Period Overview



Note: Population bonus periods defined as periods during which dependent population indexes continue to decrease. Figures measured at five-year intervals.

Source: United Nations, *World Population Prospects*.

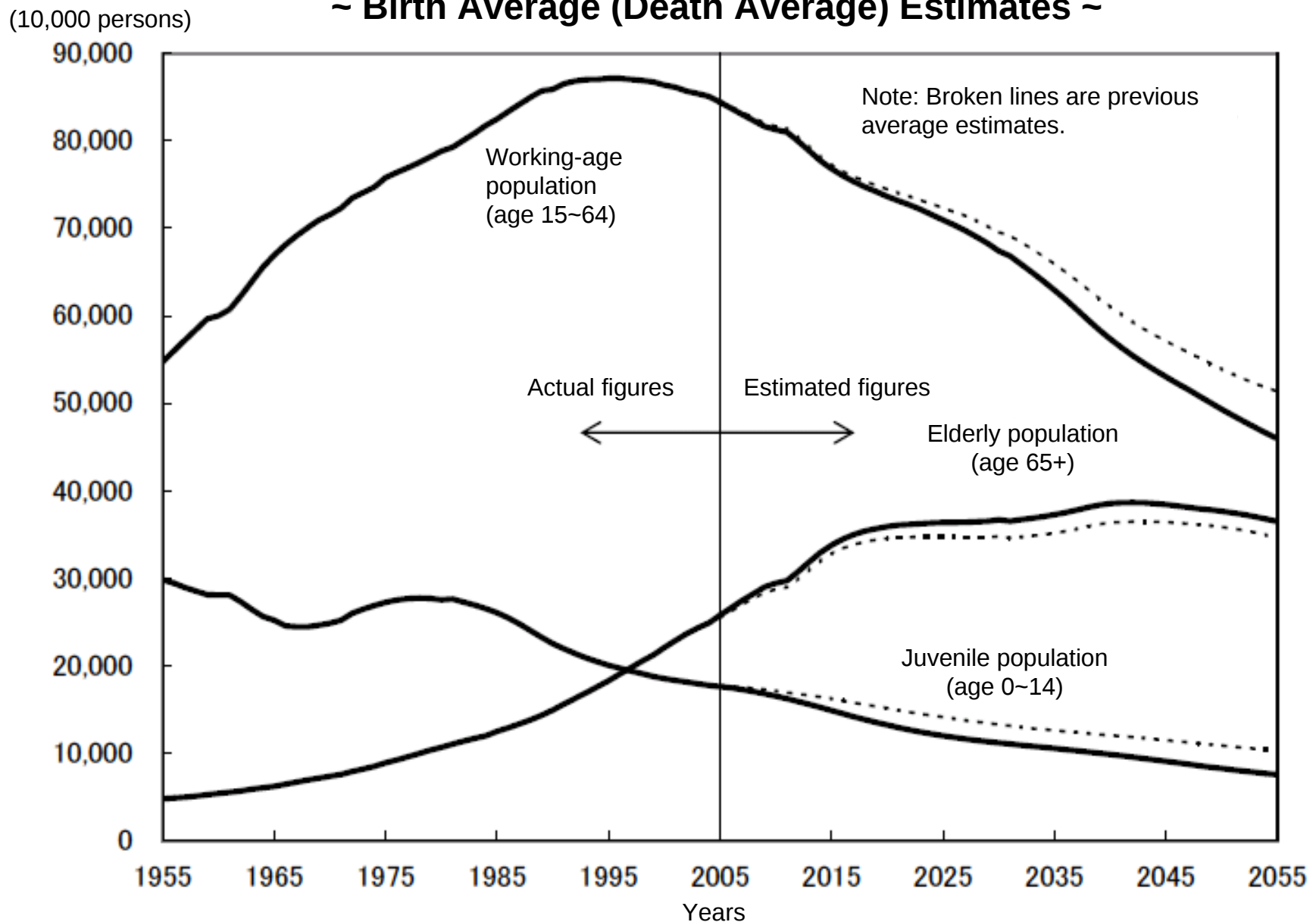
## Per-Capita GDP at Conclusion of Population Bonus

| Country     | Population bonus final year | Per-capita GDP |
|-------------|-----------------------------|----------------|
| Japan       | 1990                        | 23,504         |
| Thailand    | 2010                        | 8,740          |
| Singapore   | 2010                        | 30,391         |
| Hong Kong   | 2010                        | 32,040         |
| Korea       | 2015                        | 27,724         |
| China       | 2015                        | 9,722          |
| Malaysia    | 2020                        | 15,571         |
| Vietnam     | 2020                        | 4,763          |
| Indonesia   | 2030                        | 6,207          |
| India       | 2035                        | 7,758          |
| Philippines | 2040                        | 12,289         |



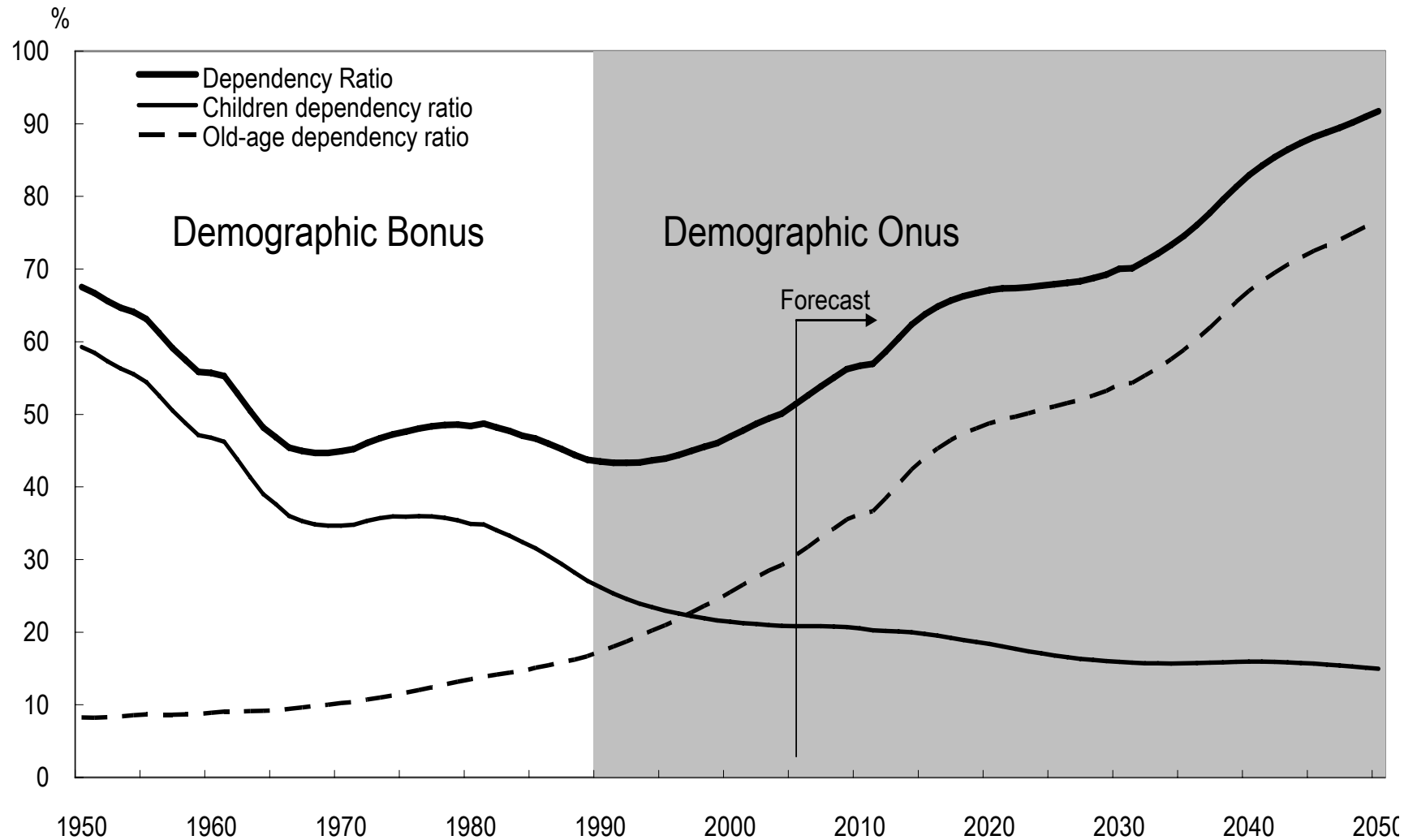
# **Demographic Changes and Japan's Economic Society**

## Demographic Trends for Three Age Categories ~ Birth Average (Death Average) Estimates ~



Medium estimates for *Population Estimates* (December 2006), National Institute of Population and Social Security Research.

# Shift from demographic “bonus” to “onus”



Note : Figures after 2006 are based on JCER forecast.

Source: JCER (2007).

# Changes in Dependent Population

|                                     | 2005                                | 2030                                | 2050                                |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Dependent population index          | 51.4<br>(1.9 dependents per person) | 70.9<br>(1.4 dependents per person) | 93.0<br>(1.1 dependents per person) |
| Dependent elderly population index  | 30.5<br>(3.3 dependents per person) | 54.4<br>(1.8 dependents per person) | 76.3<br>(1.3 dependents per person) |
| Dependent juvenile population index | 20.8<br>(4.8 dependents per person) | 16.5<br>(6.1 dependents per person) | 16.7<br>(6.0 dependents per person) |

Medium estimates for *Population Estimates* (December 2006),  
National Institute of Population and Social Security Research.

# **Japan Economic Society Under Population Onus**

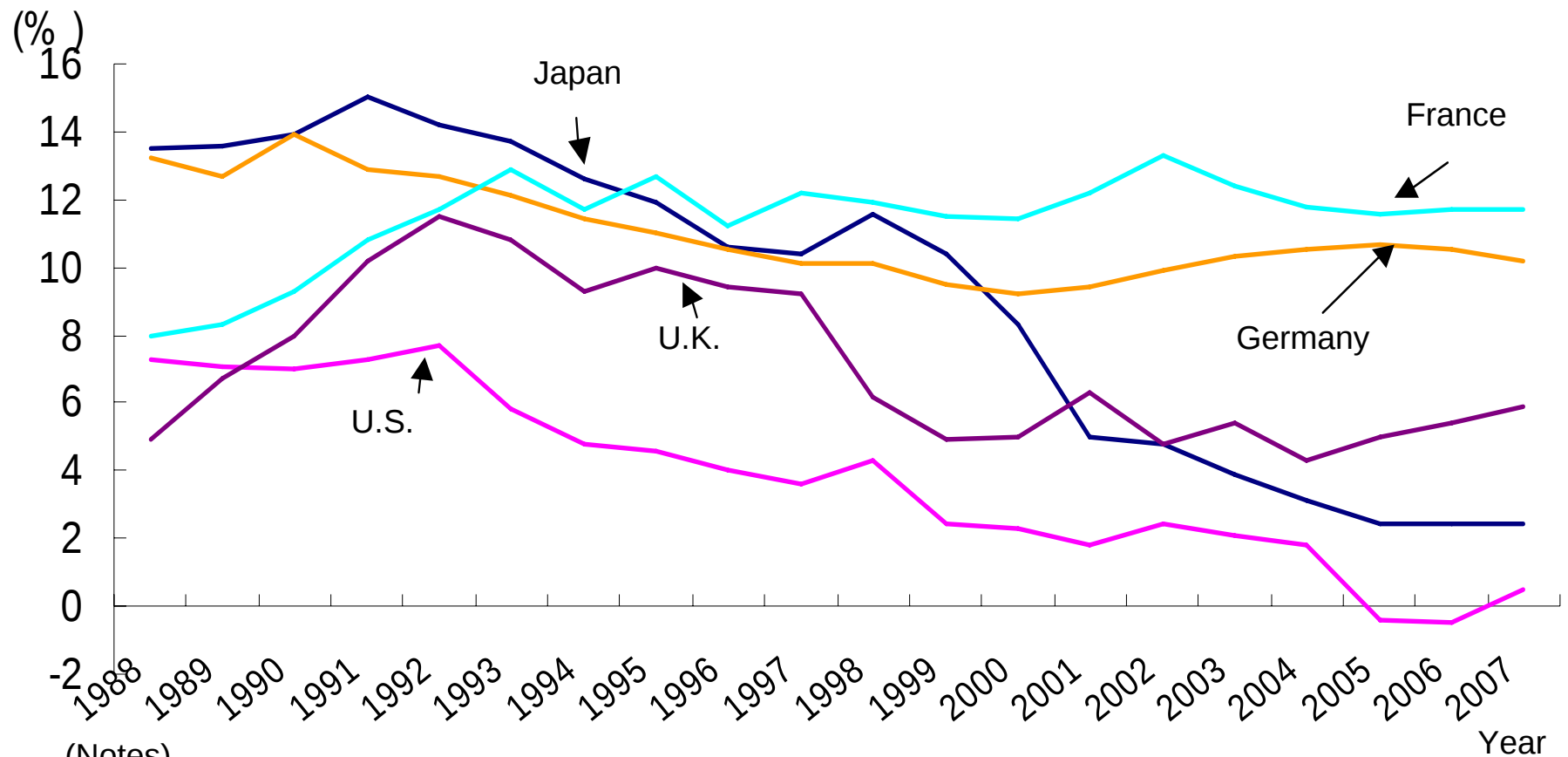
Economic impact: Decline in growth potential

1. Intensifying labor shortage
2. Declining savings rate

Social impact: Increasingly heavy pressure on social security system

1. Pension system demands reform
2. Increases forecast in medical expenses

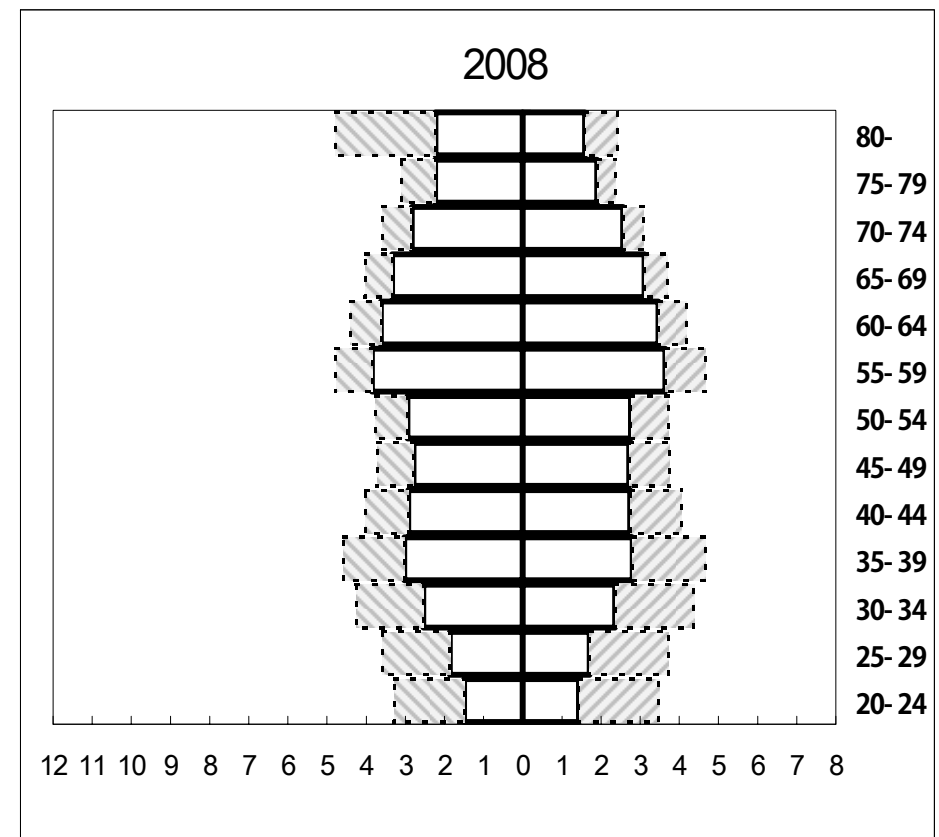
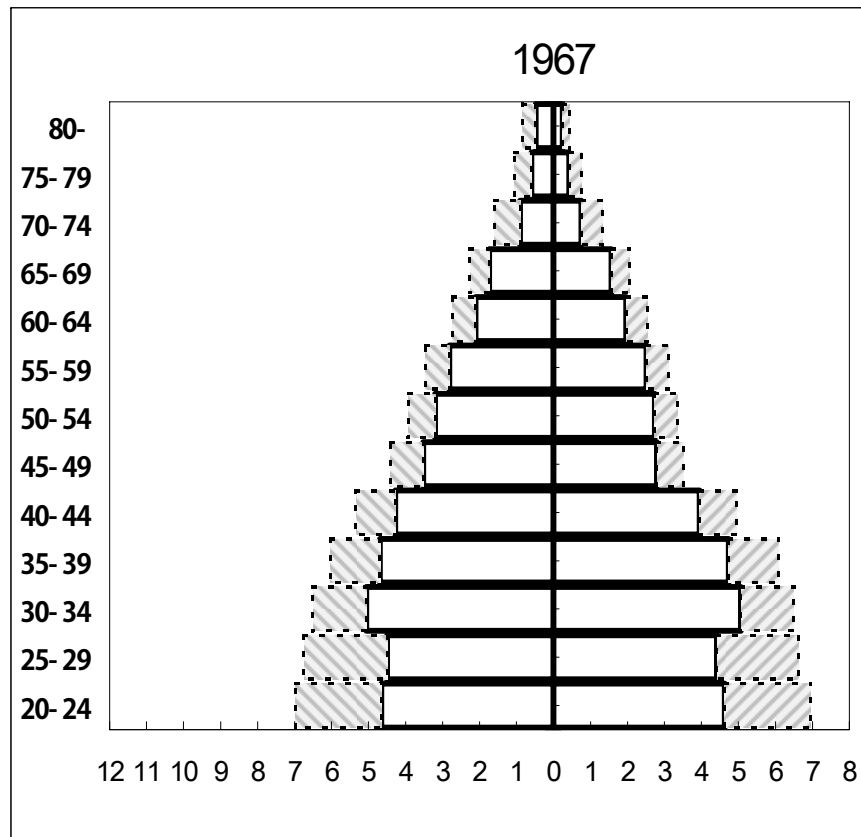
## Japan's Declining Savings Rate



(Notes)

1. Prepared from OECD, *Economic Outlook No. 73*; Cabinet Office, *National Economic Accounting*.
  2. Japan figures prior to 1989 based on 68SNA.
- Source: Cabinet Office, 2003 *Economic Policy White Paper*.

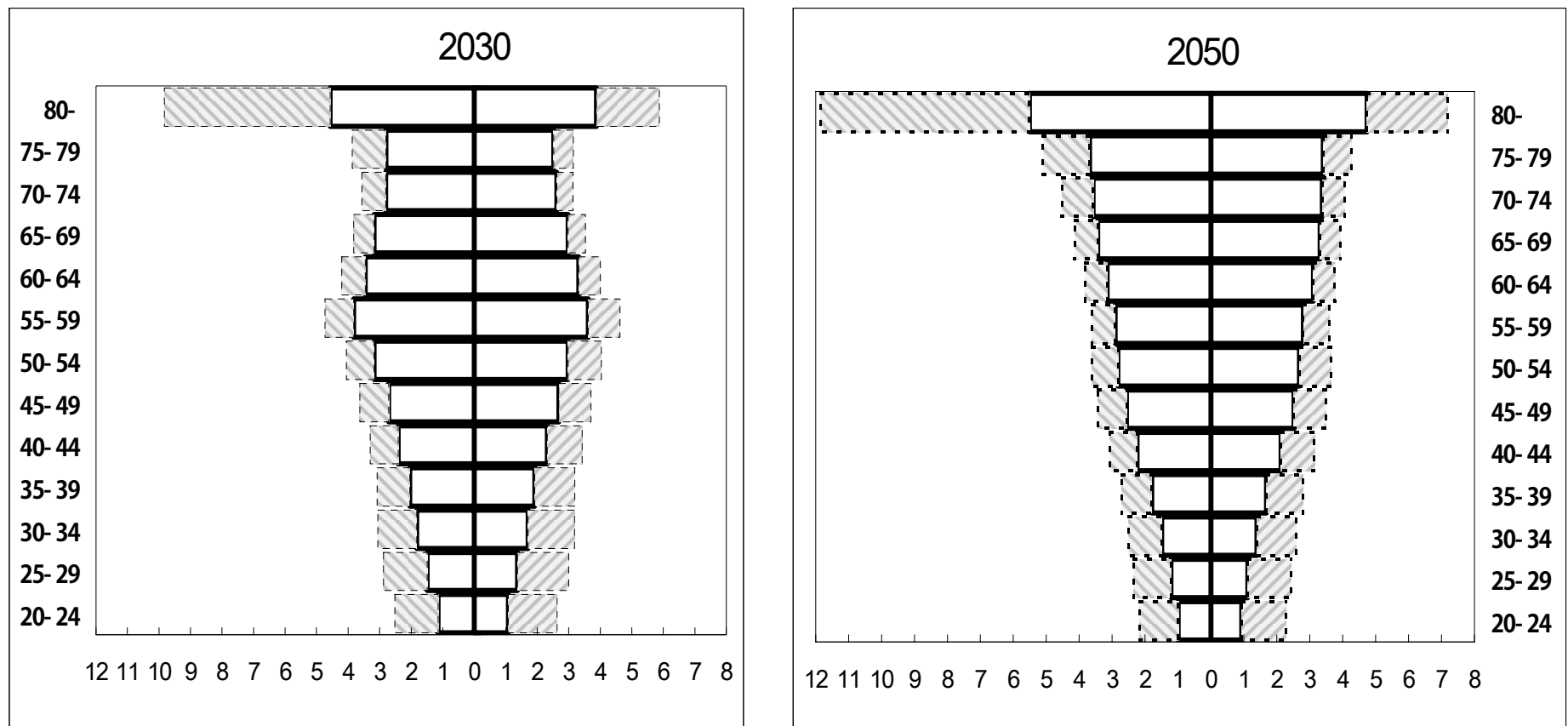
# Distribution of eligible & actual voters by age group changes dramatically (1967, 2008).



Note 1: Outer dotted line shows the age structure of eligible voters and inner solid line shows that of actual voters. Figures indicate the ratio of voters (eligible/actual) by age group to the total eligible voters in each year.

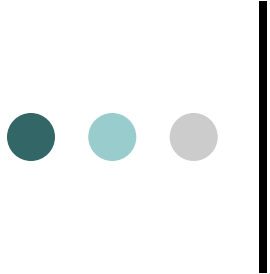
Source: Author's calculations.

# Distribution of eligible & actual voters by age group changes dramatically (2030, 2050)



Note 1: Outer dotted line shows the age structure of eligible voters and inner solid line shows that of actual voters. Figures indicate the ratio of voters (eligible/actual) by age group to the total eligible voters in each year.

Source: Author's calculations.



## Conclusion (1)

- Asian nations will follow the path of aging populations and declining TFRs like Japan.

**negative impacts** seen in Japan.

1) Labor force shortages

⇒ Utilizing female and the aged labor force more extensively.

2) Declining savings rates

⇒ Attracting overseas investment funds.

3) Changes in voting structure

⇒ Being aware that the burden of aging is shared fairly among different generations.



## Conclusions (2)

- The characteristics of Asia's aging:

- \* Faster than Japan's

- negative impacts:**

- 1) Difficulty of taking universal measures
      - 2) Systems (e.g. pension) are bound to be modified **in a proactive way** after introduction.

- \* Enormous in scale.

- negative impact:**

- 1) Its burden will increase sharply.

- positive effect:**

- 1) A possibility of new markets/industries.