

## **Chapter 3 Addressing Aging and Declining Population**

### **[Section 1 Meaning of Aging and Declining Population]**

#### 1. Aging and declining of Population

- Japan's total fertility rate hit another all-time low of 1.32 in 2002. The fertility rate in Japan has been falling faster than in other industrialized nations.
- Population aging has also advanced. Ratio of elderly people to Japan's total population stood at 18.5% in 2002 and is expected to reach 28.7% in 2025 and 35.7% in 2050, the highest level among industrialized nations.
- Japan's productive population has declined since its peak in 1995. The total population is expected to start declining after 2006.

#### 2. Background to Aging and Declining Population

- Factors behind birthrate decline: the general tendencies to remain unmarried, marry later, delay in having children, and decline in fertility among married couples.
  - Owing to the rise in opportunity costs for raising children.
- The factor behind the aging population: Fall in the death rate accompanying extending lifespans.

#### 3. Is A Birthrate Upturn Possible?

- Economic and social systems and practices must be reformed to allow women to get jobs and work while delivering and raising children.
  - The government has promoted birthrate-boosting measures including "Immediate Action Plan to Support the Development of the Next-generation (adopted in March 2003)" and "the Law for Measures to Support the Development of the Next-generation (enacted in July 2003)".
- Even if the birthrate picks up, however, Japan's population structure will not change immediately. Japan must reorganize its economic and social systems into those sustainable under aging and declining population.

#### 4. Encouraging Women and Elderly People to Work

- In order to ease the impact of the workforce decline, Japan will have to encourage women and elderly people to work. The M-shaped curve of the age-wise labor force participation rate for women may be corrected, given the high potential labor force participation rate. Increased labor force participation by women may help offset a

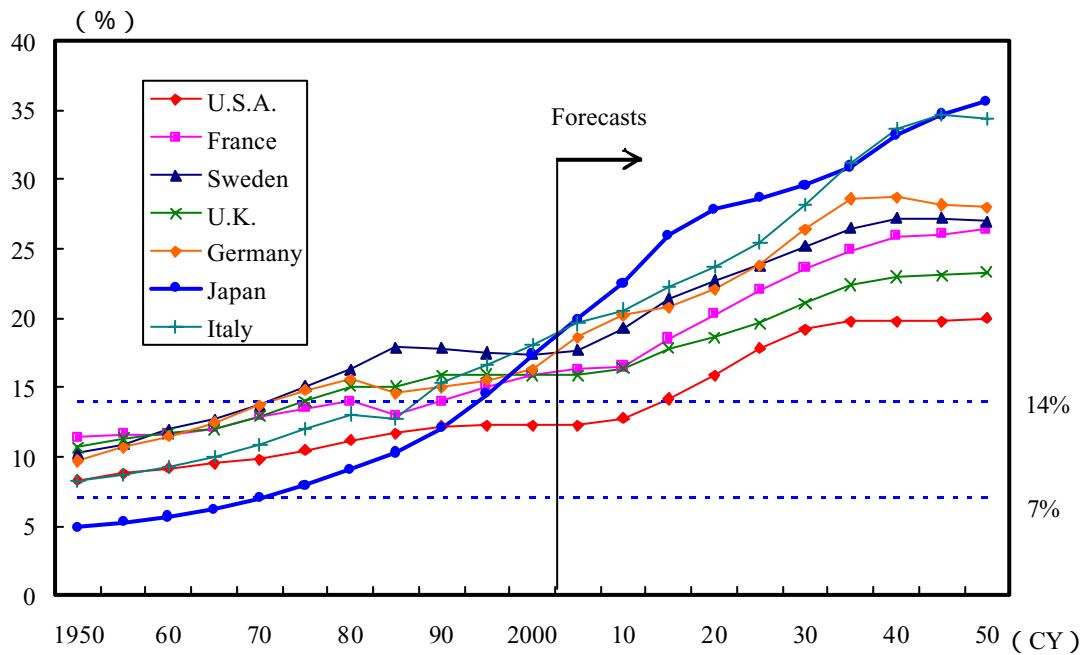
future decline in labor force.

→ In order to enable women to both work and raise children, Japan will have to increase its number of nursery centers and develop a work environment that allows women to work while raising children. Tax and pension systems should be made neutral to women's decisions to work or not.

- Japan should also boost the labor force participation rate for elderly people, whose share of the total population will increase.

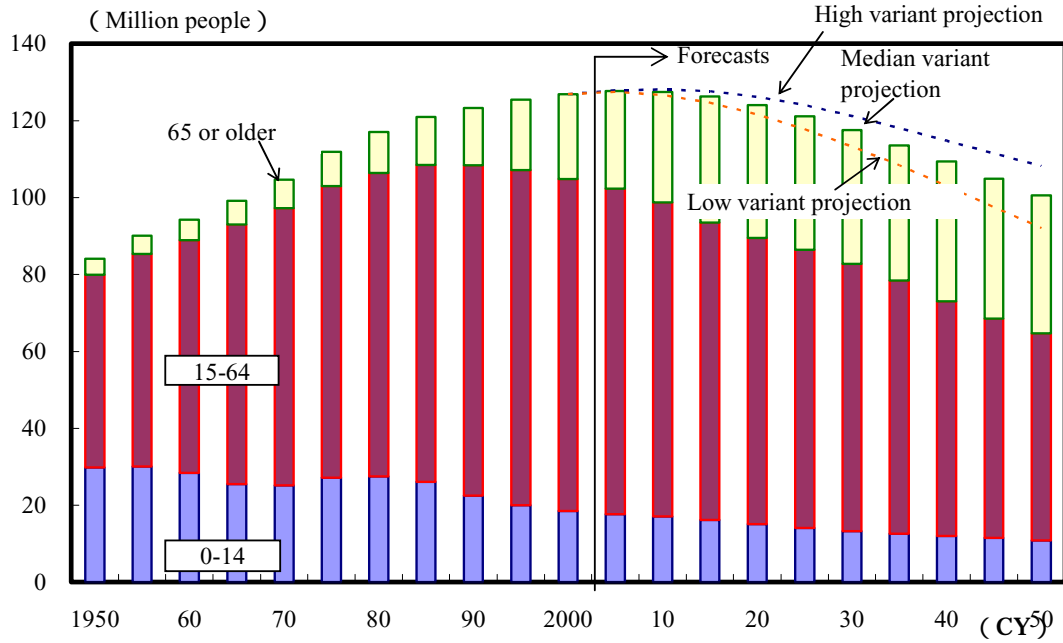
→ Enterprises should be encouraged to raise the retirement age, expand continued employment of aged workers, and diversify working styles to meet the individual working capabilities of the aged.

**Figure 3-1-2 Ratio of Elderly People to Total Population  
in Major Industrialized Countries**  
Japan's population is aging fast



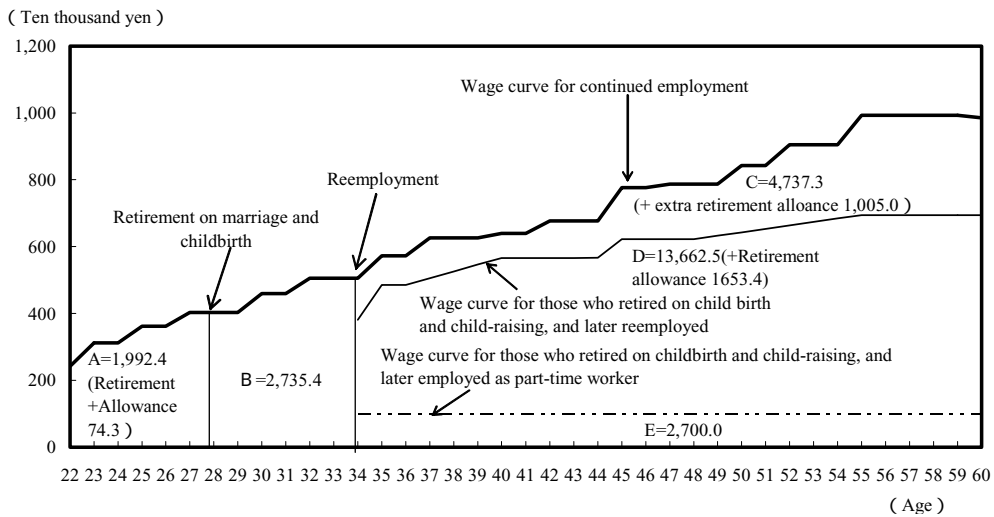
**Figure 3-1-3 Japan's Total Population (Median variant projection)**

The total population is declining and the share of productive population is also falling.



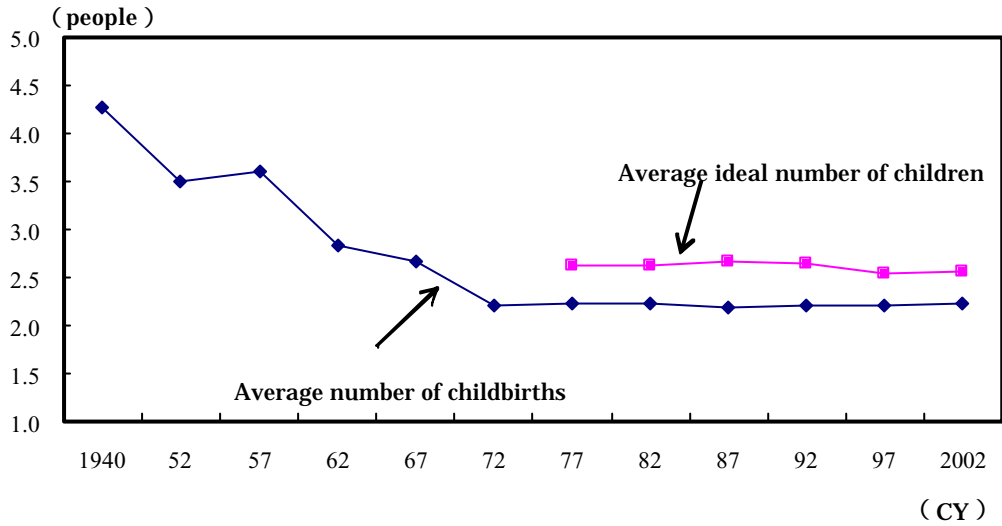
**Figure 3-1-6 Income Loss due to Retirement for Childbirth and Child-Raising (Case of Women University Graduates)**

Opportunity costs total some ¥85 million for reemployment after child-raising



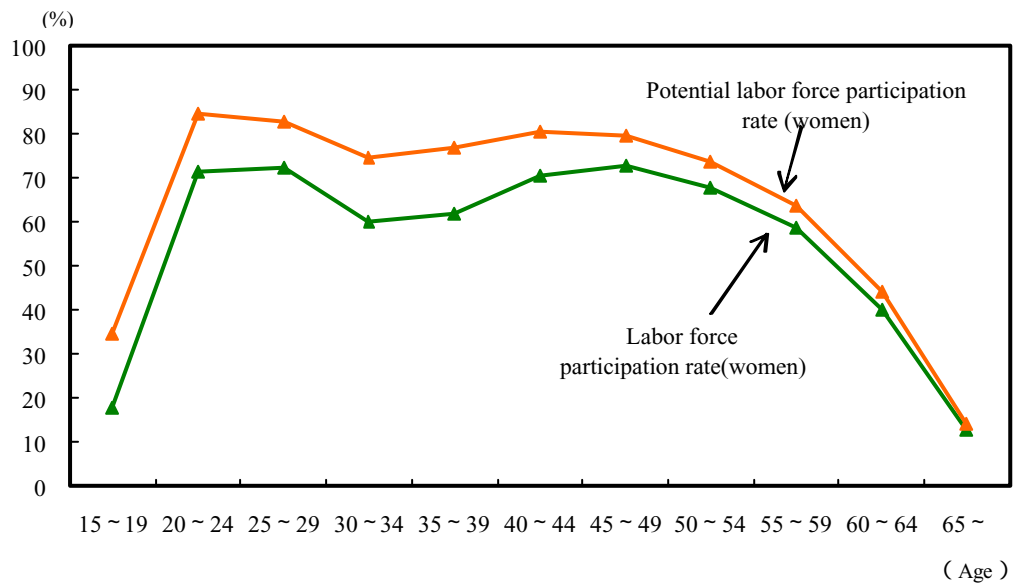
**Figure 3-1-8 Average Childbirths and Average Ideal Number of Children**

The actual number of childbirths is less than the ideal number of children



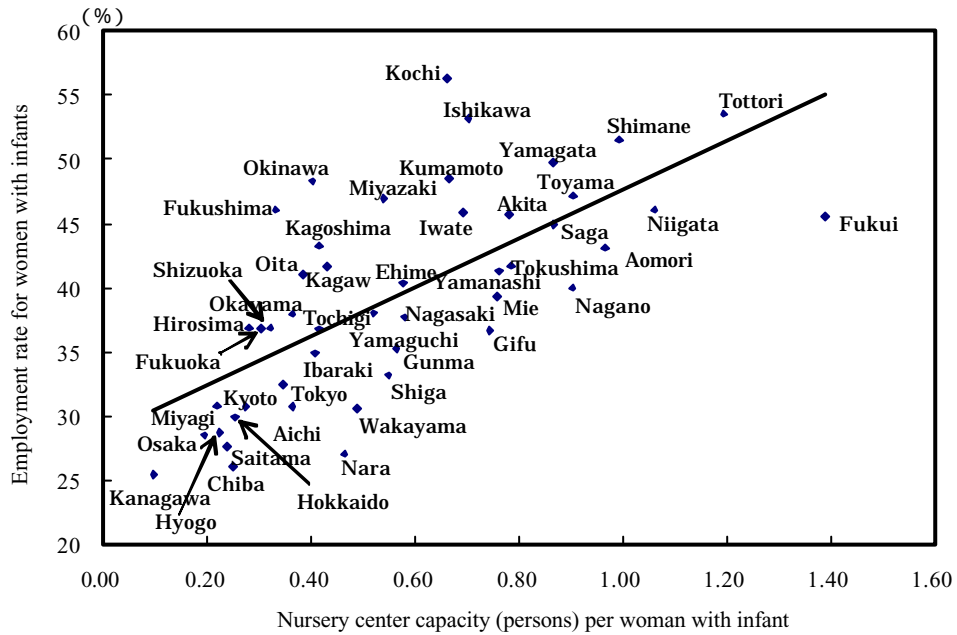
**Figure 3-1-10 Women's Actual and Potential Labor Force Participation Rates**

Women have high potential to work



**Figure 3-1-12 Correlation between Nursery Center Capacity and Women's Employment Rate**

The higher the regional child care center capacity, the higher women's employment rate



## **[Section 2 Prospects for Economic Growth under Aging and Declining Population]**

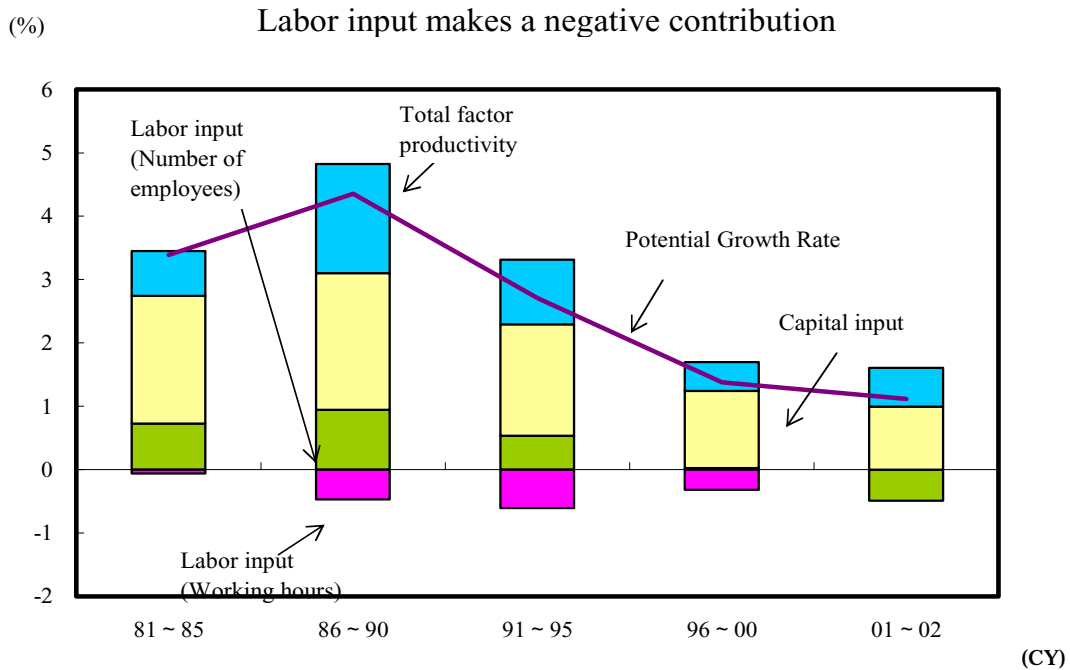
1. Past Record of Japan's Economic Growth
  - Japan's real economic growth rate has followed a downtrend. Per capita economic growth rate has also done so.
  - Behind the downtrend of economic growth rate has been a fall in potential rate of growth
  - Breaking down economic growth into three factors
    - (1) Labor input has made a negative contribution to economic growth since 1990's, indicating an emerging effect of slower growth or a decline in the productive population amid the falling birthrate, as well as of drops in working hours and employment.
    - (2) Capital input has made a positive contribution, but this contribution has been falling year by year.
    - (3) The total factor productivity has made a positive contribution, but this contribution has been falling year by year.
  
2. Economic Growth under Aging and Declining Population
  - OECD nations' cross-country data indicate the following:
    - (1) Loose positive correlation between population growth rate and economic growth rate
      - Population growth rate is a key determinant of economic growth rate in any country.
      - But other economic conditions including capital stock, technological levels and human capital are also important.
    - Meanwhile, there is no correlation between population growth rate and per capita economic growth rate.
    - (2) Loose negative correlation between employment growth rate and labor productivity growth rate
      - As employment growth decelerates or declines, labor productivity growth accelerates.
      - This stems from a rise in capital labor ratio and from a growth in total factor productivity attributable to efficient production methods, technological progress and human capital development.
  - As the aging population brings about a decline in the national saving rate, it may affect the accumulation of capital stock and lower economic growth.

- In order to allow foreign capital inflow to make up for the domestic saving shortage, Japan must become a more attractive investment target for foreign countries.
- The basic strategy in an aging and population declining society is to boost labor productivity.
  - Growing importance of the accumulation of productive capital stock, technological innovation through revitalization of research and development investment, and human capital development through education investment.

### 3. Economic Growth Simulation Using Macroeconomic Models

- Macroeconomic models have been used to simulate long-term economic growth (for period from the 2010s to the 2040s):
  - (1) “Baseline Scenario”
    - The average growth rate for these decades ranges from 0.2% to 0.4%. The negative contribution of labor input lowers the economic growth rate by 0.7 to 0.9 percentage point.
    - Aging and declining population will significantly lower Japan’s economic growth rate mainly through reduced labor input for next several decades.
  - (2) “Economic Vitalization Scenario”
    - Average growth for these decades ranges from 1.4% to 1.6%. A higher labor force participation rate will raise economic growth by 0.2 to 0.5 percentage point. Rise in total factor productivity (TFP) through structural reform and technological progress will boost economic growth by 0.8 to 0.9 percentage point.
  - (3) Impact of Birthrate Change
    - A rise (or decline) in the birthrate will raise economic growth by 0.2 to 0.3 percentage point (or lower economic growth by 0.3 to 0.4 point) in the latter half of the forecast period.
- In order to maintain economic growth even under the aging and declining population, Japan should adopt a comprehensive policy to raise productivity and labor force participation rate.

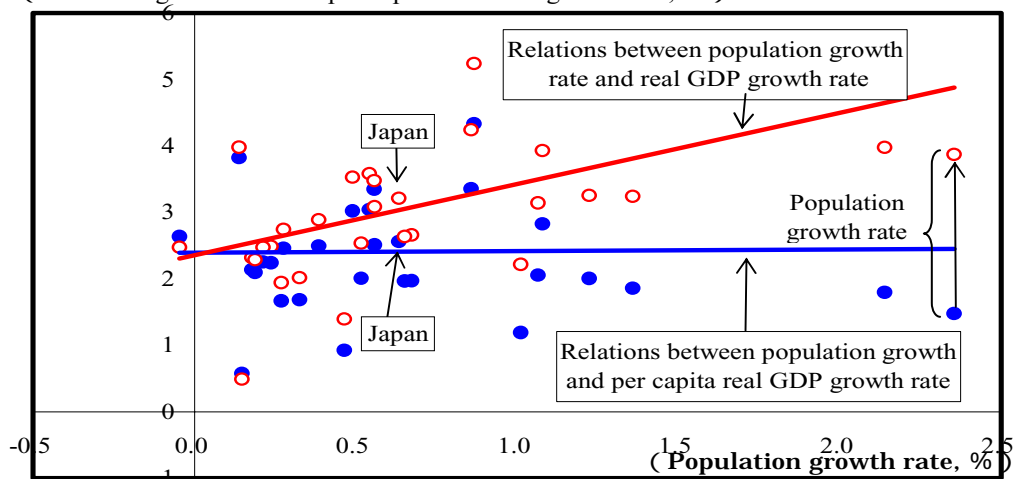
**Figure 3-2-2 Changes of Potential Growth Rate and Its Factor Decomposition**



**Figure 3-2-3 Relations between Population Growth Rate and Economic Growth Rate**

Population is an important factor for economic growth, but other factors are also important

( Real GDP growth rate and per capita real GDP growth rate, % )

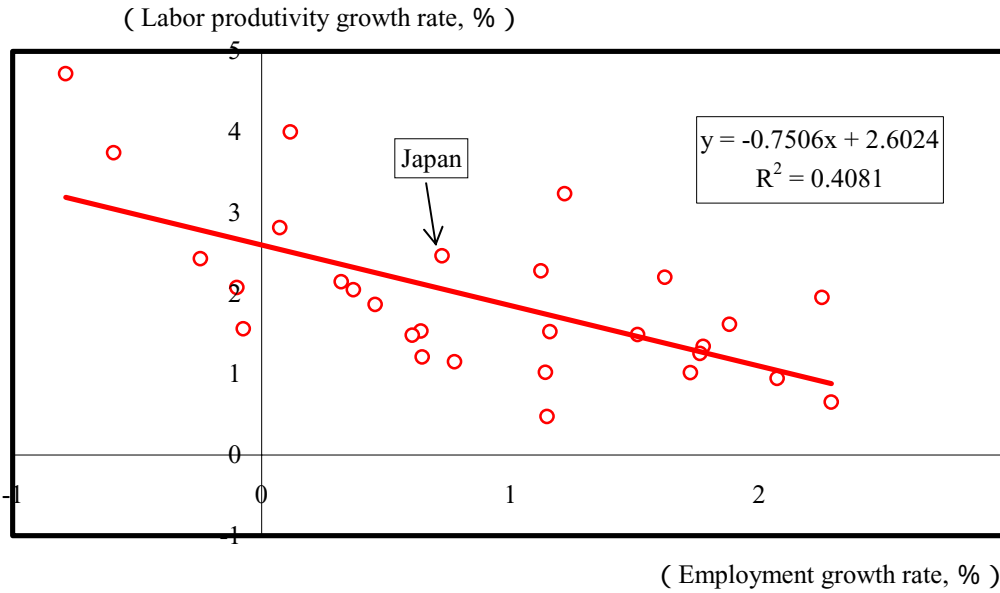


- Notes:
1. White dots plot real GDP growth rate and population growth rate. Black dots plot per capita real GDP growth rate and population growth rate.
  2. Since per capita real GDP growth rate is real GDP growth rate minus population growth rate, the gap between white and black dots is equal to population growth rate.
  3. Source: "National Accounts", OECD (Average figures for 1971-2001)
  4. Real GDP growth rate =  $1.0722 \times \text{Population growth rate} + 2.3511$  ( $R^2 = 0.2434$ )  
Per capita real GDP growth rate =  $0.0225 \times \text{Population growth rate} + 2.3953$  ( $R^2 = 0.0001$ )



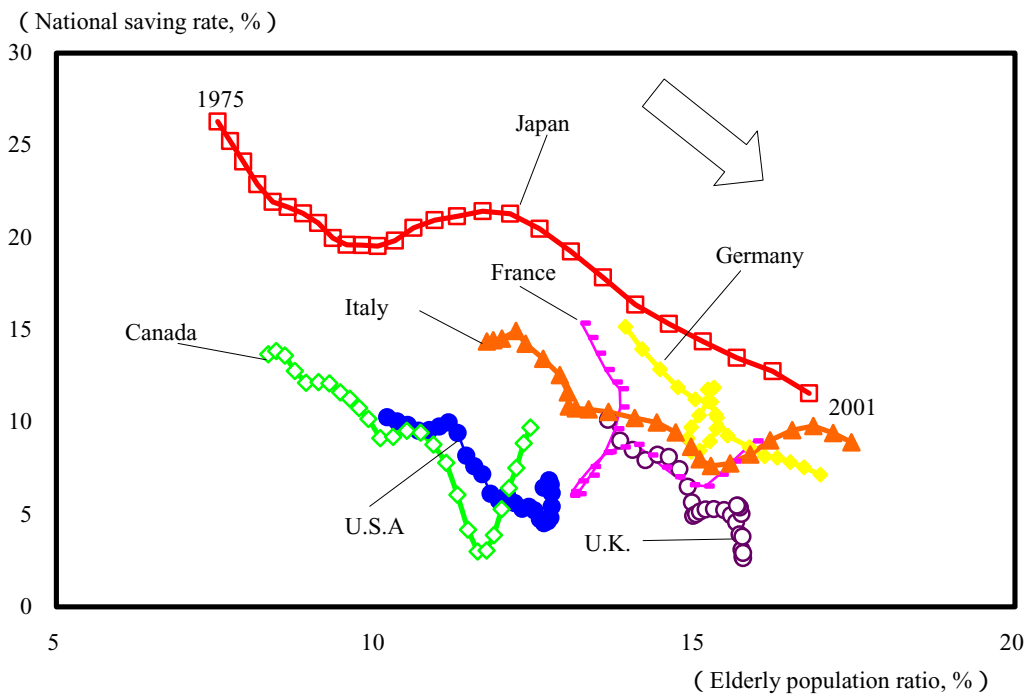
### Figure 3-2-4 (1) Relation between Employment Growth Rate and Labor Productivity Growth Rate

Slower growth or decline of employment boosts labor productivity

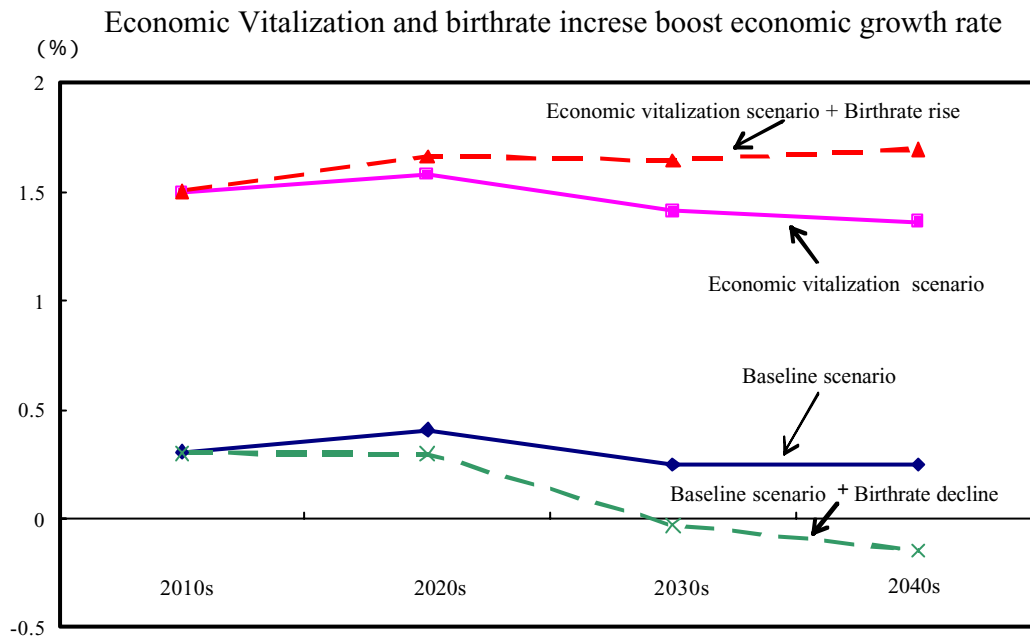


### Figure 3-2-5 Relation between Elderly Population Ratio and National Saving Rate

The saving rate falls on a declining birthrate and aging population



**Figure 3-2-9 Real Economic Growth Rate by Scenarios**



- Notes: 1. Results of simulation by Director-General for Economic Assessment and Policy Analysis in Cabinet Office using "Social Security Model" developed by Masubuchi et al (2002), "A study on Japan's Social Security System by a Macro-economic Model Endogenizing It"(Economic and Social Research Institute, Cabinet Office).
2. Assumption of Baseline scenario:  
 Birthrate: median estimate, Labor force participation rate: Calculated by model based on present economic and policy environment, TFP growth rate: Fixed at the present level.
3. Assumption of Economic vitalization scenario:  
 Birthrate: median estimate, Labor force participation rate: Achieve the potential labor force participation rate toward FY 2050, TFP growth rate: Average for the 1980's.

### **[Section 3 Building Public Sector that Match Aging and Declining Population]**

#### 1. Growing National Burden and Challenges Facing Public Sector

- Social security benefit expenditures have swollen year by year on the progressive aging of population. → The ratio of national burden (tax burden + social security contribution) to national income has also grown.
- Income gaps have tended to widen on the aging of the population in Japan. But they have been improved by income redistribution (especially income redistribution by social security) through taxes and social security contribution.
- As for relations between benefits and burdens through the public sector, net burdens increase with age for those aged below 50, while only those at or above 60 have net benefits.

→ The public sector have redistribute income mainly between generations.

Relations between lifetime benefits and burdens indicate that only those in their 50s and 60s at present have net lifetime benefits. Younger generations post larger net burdens.

→ Great gaps exist between generations.

- Cross-country data of OECD nations show that economic growth tends to be lower for countries with higher ratio of potential national burden (tax burden + social security contribution + budget burden) to nominal GDP.
- In order to maintain the sustainability of the public sector and economic vitality, the ratio of national burden must be prevented from being excessive.

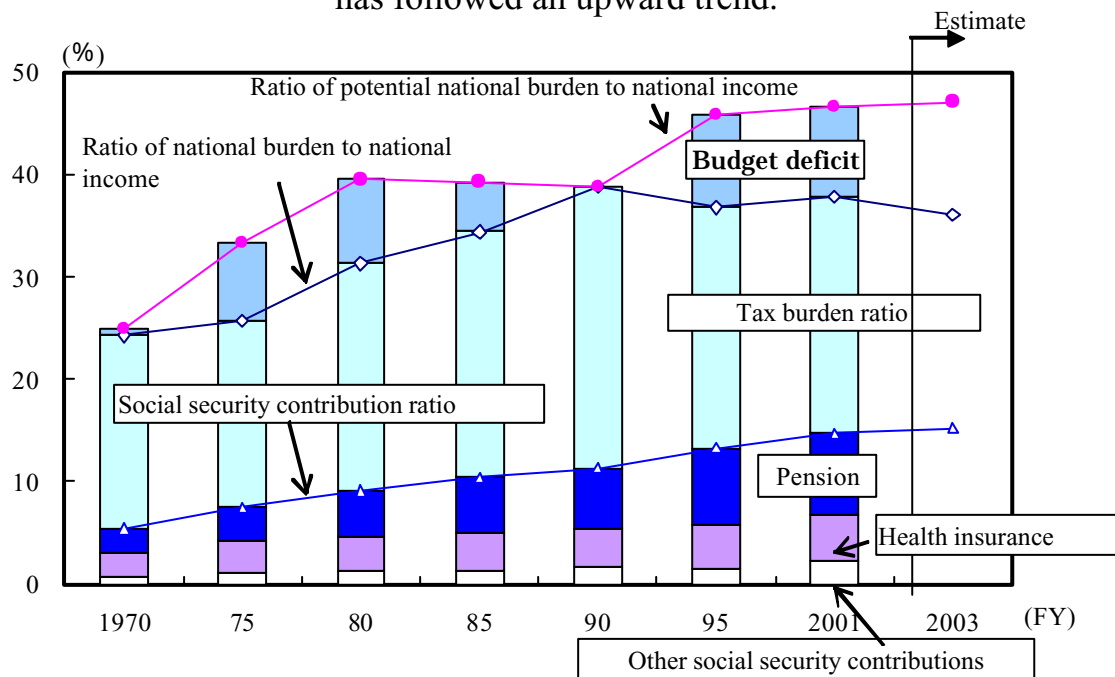
#### 2. Administrative and Public Finance Organization Reform through New Public Management

- In order to rebuild public finance while minimizing the ratio of national burden, Japan must use private enterprise management know-how to increase the efficiency of administrative and public finance organizations.
- In its Basic Policies for Economic and Fiscal Management and Structural Reform 2001 (June 2001), the government made it clear to introduce new public management for budget formation and other processes.
- The NPM features:
  - (1) Utilizing private enterprise management know-how (independent administrative agencies, private finance initiatives, etc.)
  - (2) The public sector sees the people as clients and improves the goods and services it provides.

- The achievement-oriented management cycle should be developed to improve the efficiency and cost consciousness.
- (3) Improving the accountability (introduction of accounting system used by private enterprises, linkage between budget and policy evaluation).
- The planning division should be separated from the operations division to make the relationship between costs and benefits clear.
- Initiatives based on the NPM have made progress, including “Model Projects” introduced in FY2003.

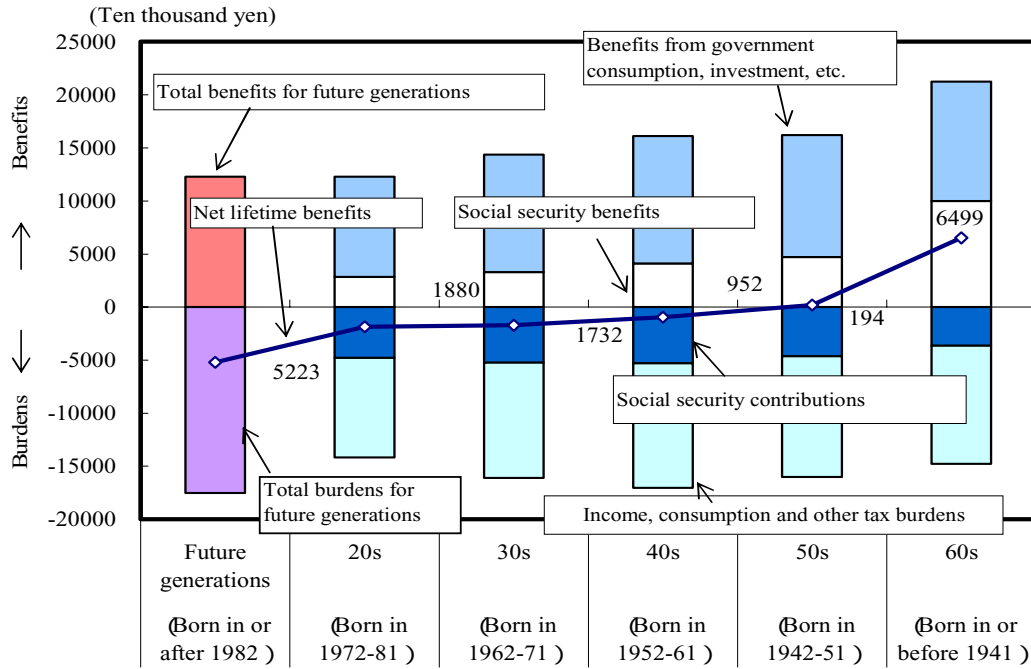
**Figure 3-3-2 Ratio of National Burden to National Income**

The ratio of social security contribution to national income has followed an upward trend.



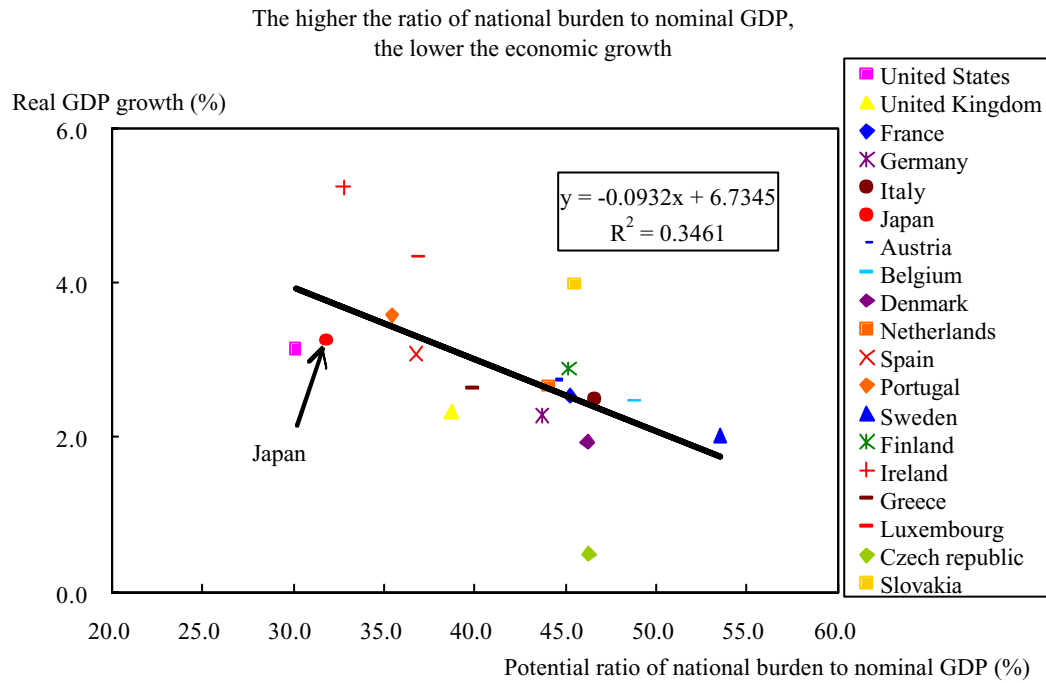
**Figure 3-3-5 Lifetime benefits and burdens**

Future generations have substantial net burdens



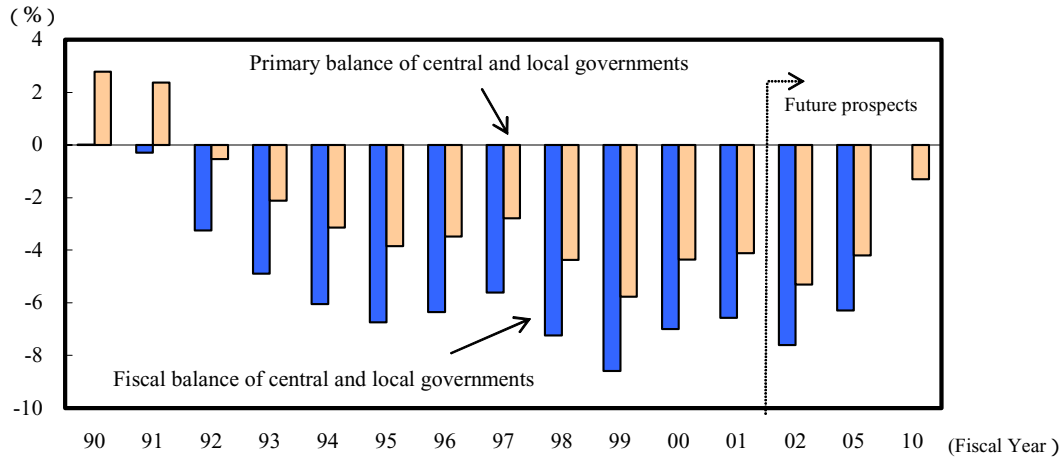
Note: Net lifetime benefits (total lifetime benefits - total lifetime burdens) are calculated for one household in each generation.

**Figure 3-3-6 Relation between Ratio of Potential National Burden to nominal GDP and Economic Growth in OECD Countries**



**Figure 3-3-8 Primary balance of Central and Local Governments**

Surplus needs to be achieved in the primary balance.

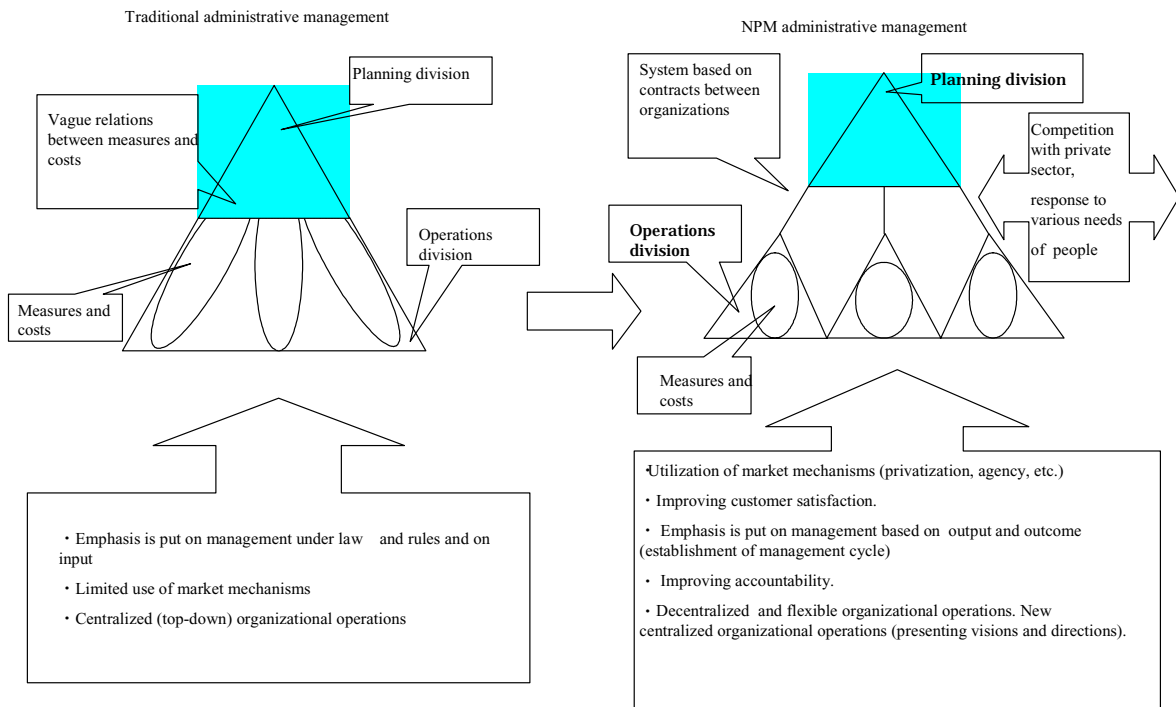


Notes: Primary balance is calculated by deducting net interest payments from the balance of savings and investment.

Primary balance means the fiscal balance calculated by deducting “expenditures excluding interest and final payments for past borrowings” from “expenditures such as tax revenue excluding loans payable.”

**Figure 3-3-9 Administrative System Concept under New Public Management (NPM)**

Making use of private sector principles to increase efficiency of administration and public finance organization



### 3. Public Pension System Reform

- The Japanese public pension system is close to a “pay-as-you-go” system.
  - Its sustainability is facing problems on the aging of the population, which has been reducing the number of supporters of the system.
- Generation-wise benefit ratios (pension benefits divided by premium contributions) for the employee pension plan indicate that ratios are lower for younger generations.
  - Benefit levels must be reviewed to correct the gap between generations.
- In order to boost the credibility and sustainability of the system, relations between contributions and benefits should be made fairer also within each generation.
  - (1) As for basic pensions, the national and employees’ pension plans differ in terms of the way contribution is made. The employees’ pension plan features a vague relationship between premium contributions and benefits.
  - (2) A rising number of adults are not contributing premiums and not joining the national pension plan.
  - (3) Full-time homemakers are given preferential treatment for premium contributions and benefits (third-clause insured system).
  - (4) Public pension deductions, having been applied to the aged in the same way regardless of their economic situation, have caused contributions gap between generations and within the aged.
- The public pension system is fundamental to the people’s security and vitality. The system should be made more credible and sustainable.

### 4. Health Care System Reform

- Medical expenditure has been increasing faster than national income since FY 1992. Financial balance of the health insurance system is deteriorating..
- The rising medical expenditure is attributable primarily to the aging of the population.
- In an inter-generational comparison, medical expenditure exceeds health insurance premium contributions for those aged 60 and above. → Health insurance system is a structure in which working population pays much of aged people’s medical expenses.
  - Japan should reform health care system, insurance system for the aged in particular, in order to prevent the aging of the population from increasing burden on the young in an excessive way, and from adversely affecting the financial sustainability of the insurance system.
- The efficiency and appropriateness of health care demand and supply should be improved in order to correct medical expenses.



(1) Rationalization of medical examination and treatment

→ Patients' over-the-counter-payment should be made more appropriate to stimulate cost consciousness.

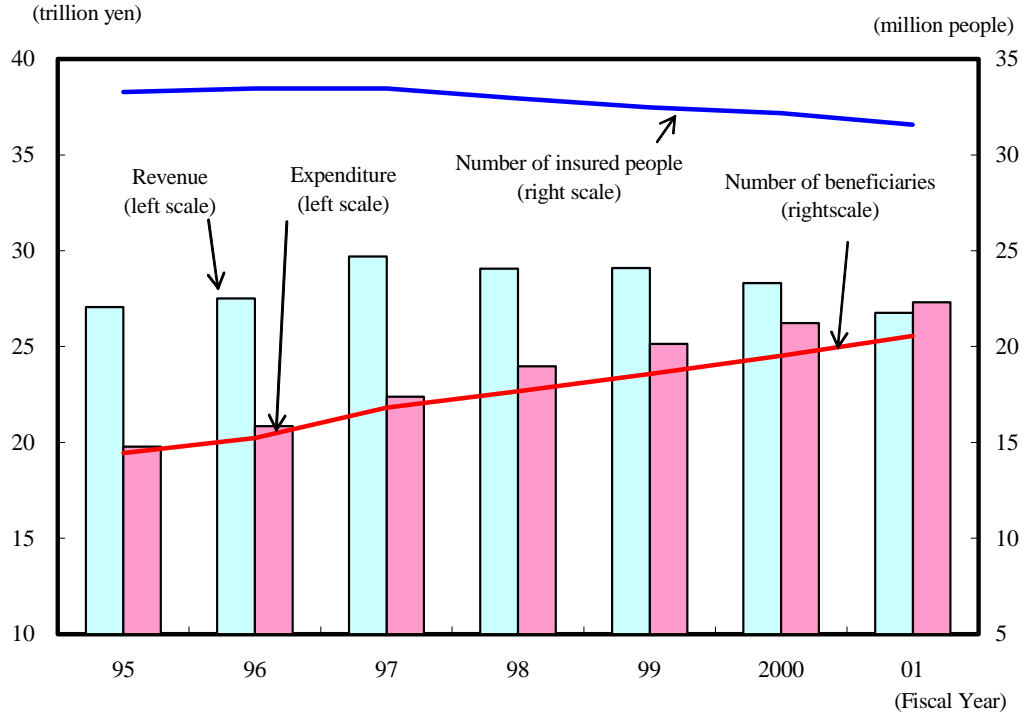
(2) The following efforts are required to improve the efficiency of health care service provision:

- As for health care service fees system, the scope for prospective payment system (PPS) should be expanded, based on a full analysis of the advantages and disadvantages of fees-for-services and PPS.
- As for the drug pricing system, gaps between standard and actual prices should be narrowed further, with considerations given to the promotion of generic drugs.
- The roles of various health care service providers should be specified to increase the efficiency of the service provision system.
- In order to promote the modernization and efficiency of hospital and clinic management, medical records and receipts should be computerized. The handling in the whole country should be considered in the light of the experience of the incorporated companies in managing medical institutions in the special zones for structural reform.

(3) The function of the insurer should be strengthened in order to bring medical bills down to a more appropriate level through health care providers' collection, assessment and supply of information, the so-called direct contract of medical treatment fee between an insurer and a medical institution, and other measures.

**Figure 3-3-12(1) Real Financial Balance for Employees' Pension System**

The employees' pension system posts deficit.

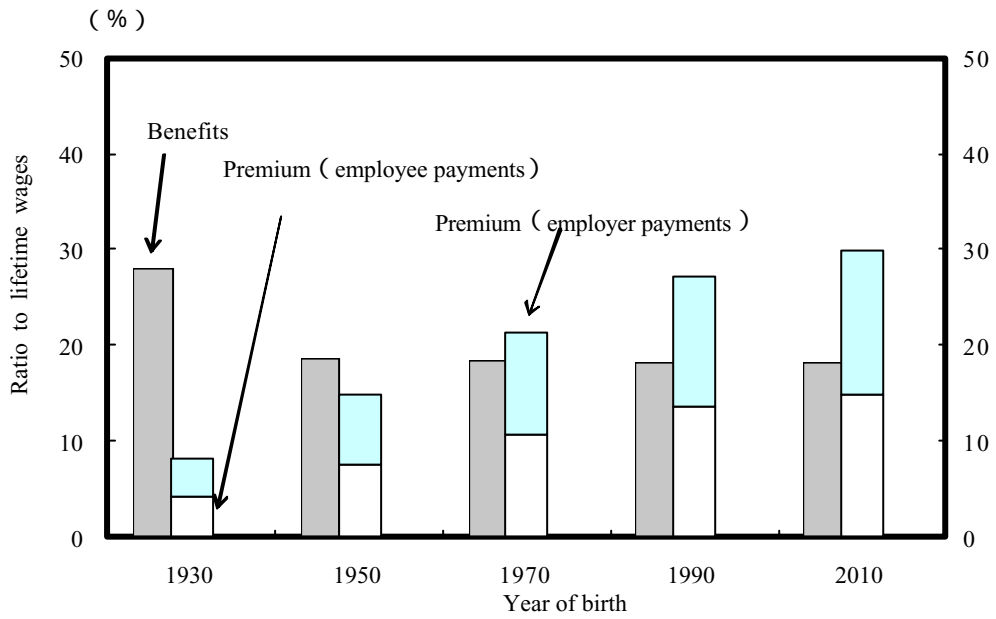


Note Basic Pension contributions are deducted from revenue and expenditure.

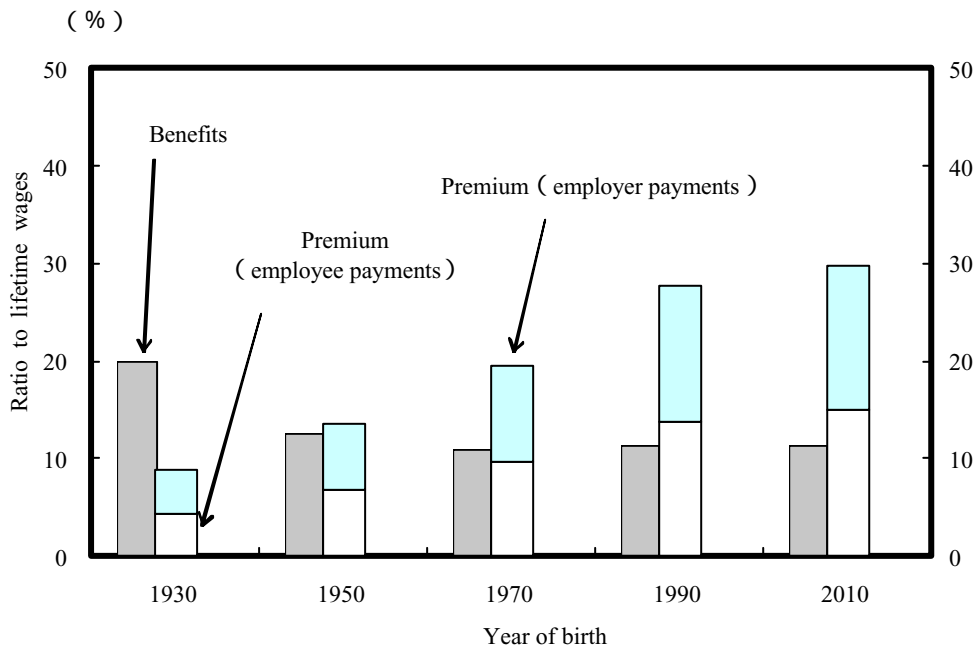
**Figure 3-3-13 Ratios of Pension Premiums and Benefits to Lifetime Wages for Each Generation**

Higher contributions for younger generations

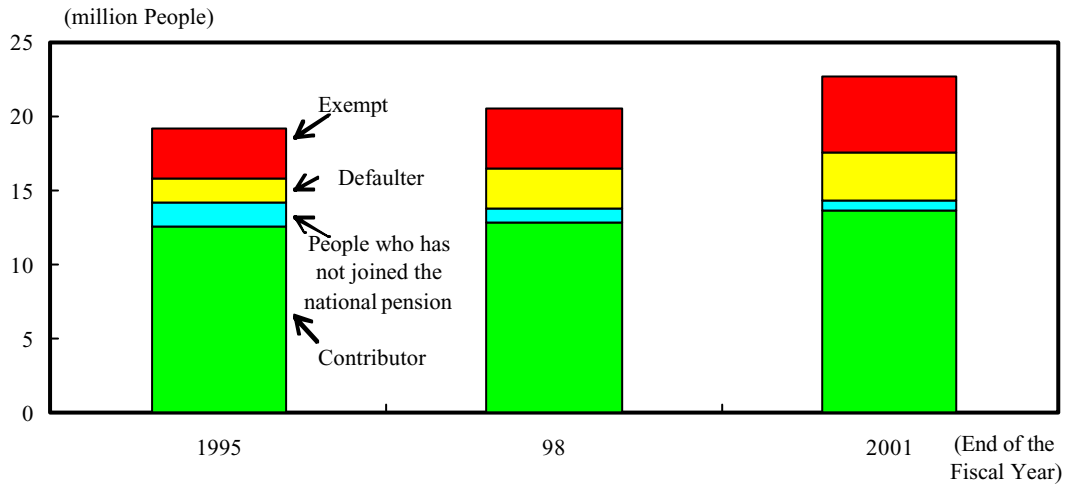
(1) Model Husband-and-wife households ( including full-time housewife )



(2) Model Single-member households

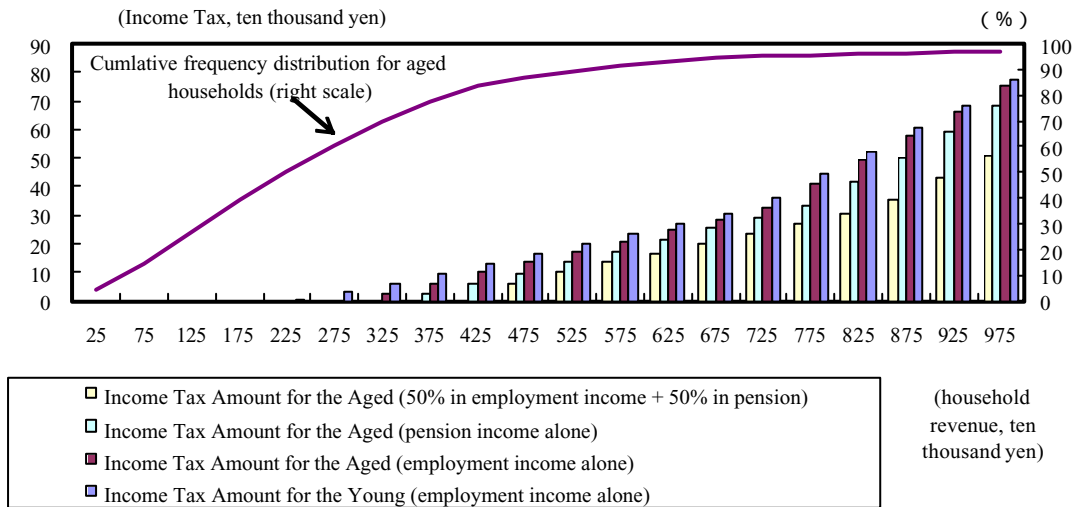


**Figure 3-3-15(1) Insured Persons(Self-employed and others)**  
 Defaulter and Exempt have been increasing



**Figure 3-3-17(2) Comparison of Income Tax Amount between the Aged and Young**

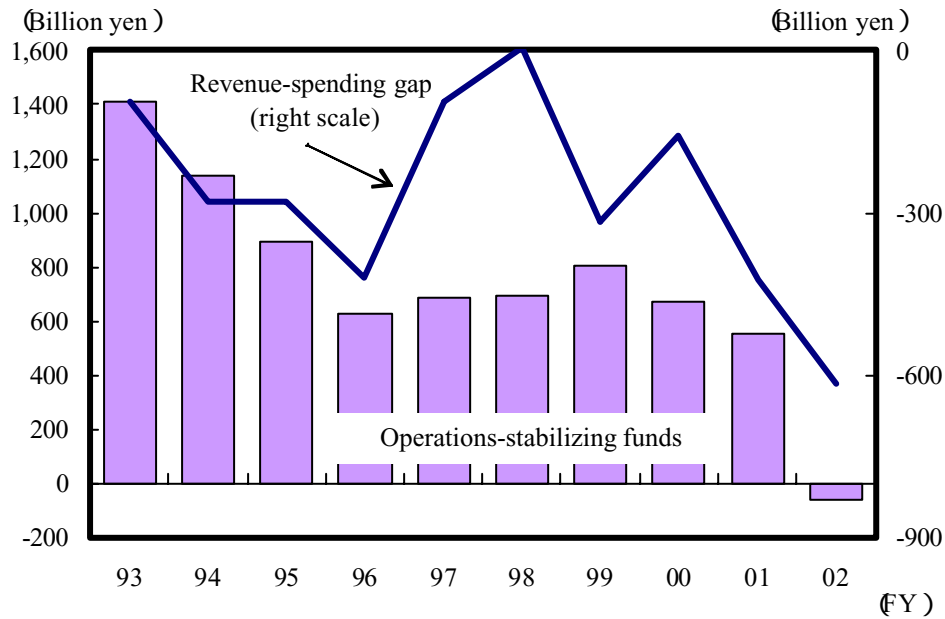
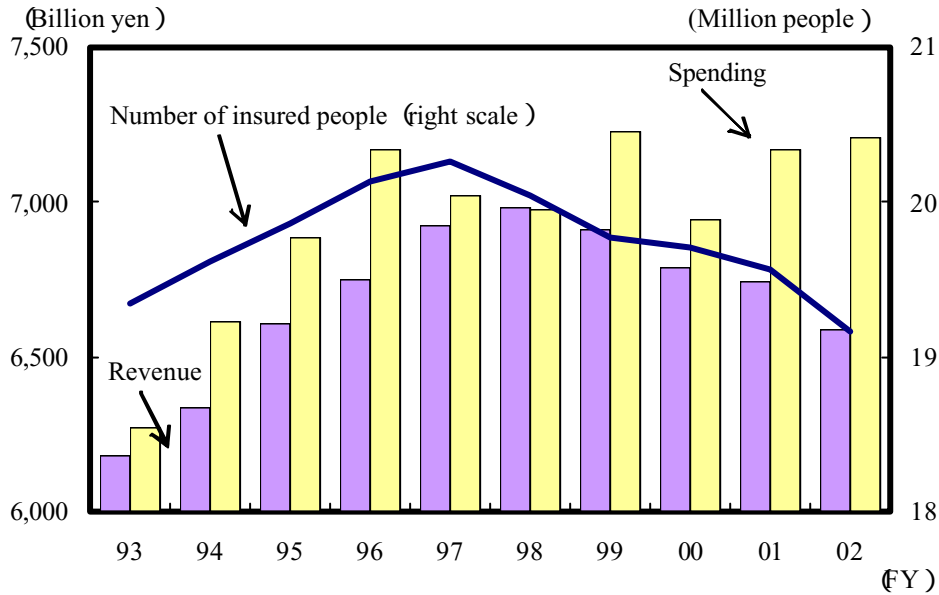
Public Pension Deductions have caused contributions gap between generations and within the aged



- Notes 1. In calculating the income tax amount, an aged household is assumed to consist of a husband and a wife aged between 64 and 70. It is also assumed that the wife has no job while the husband income includes wages and pension benefits.
2. Deductions form taxable income are employment income deduction, basic deduction, deduction for spouse and special deduction for spouse. Additional deductions for the aged are deduction for public pension and exemption for the elderly.

### Figure 3-3-19 Financial Balance for Government Health Insurance System

An income-spending gap expanded to deplete reserves in FY2002

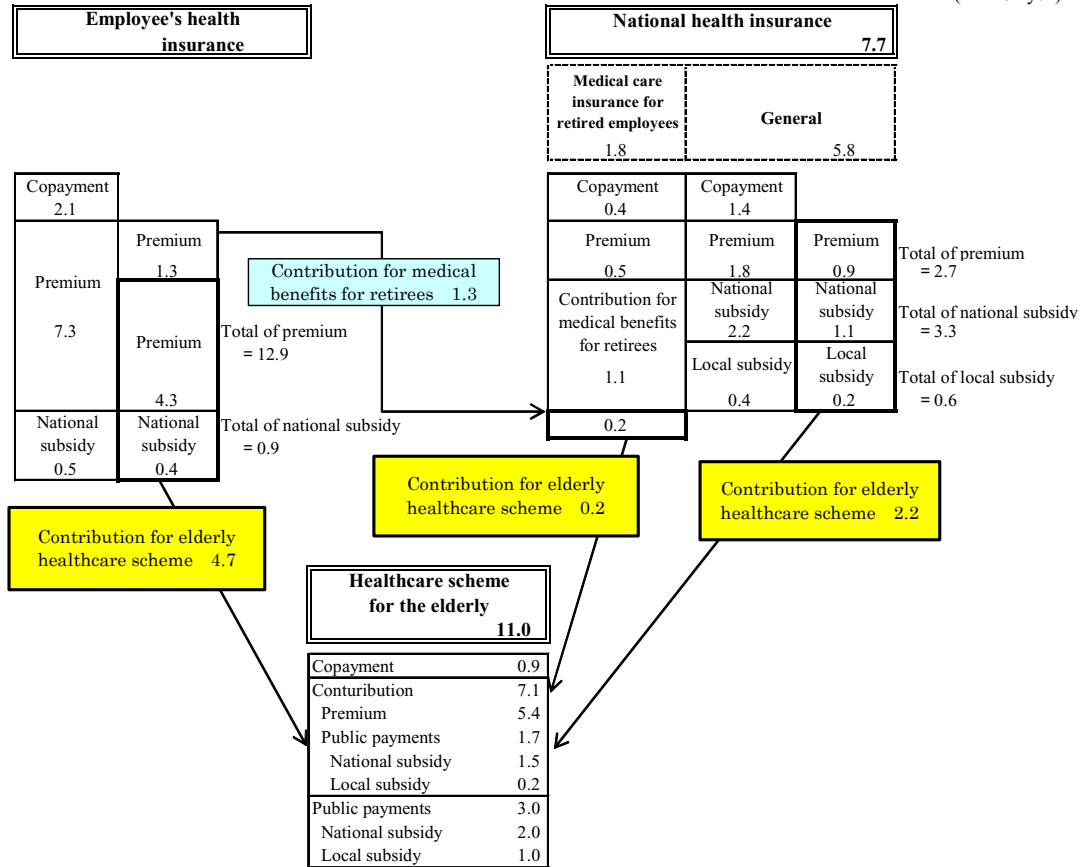


Note: The government health insurance system covers small and medium enterprise employees and their family members.

**Figure 3-3-23 System of Fiscal Coordination among Medical Insurance Plans**

Intergenerational income redistribution is implemented by contribution scheme

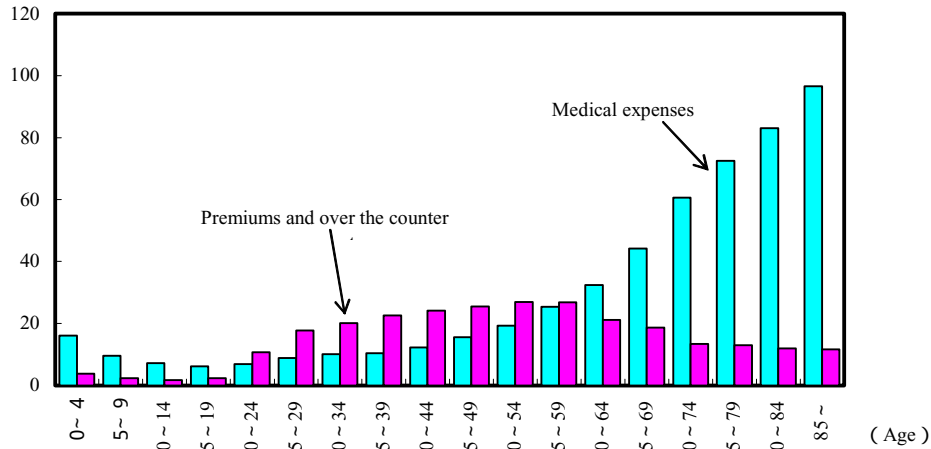
(Trillion yen)



**Figure 3-3-24 Age-by-Age Medical Expenses, Premiums and Over the counter payments**

Income is redistributed from the working generation to the aged generation

(Ten thousand yen)



Notes: 1. From materials of the Ministry of Health, Labour and Welfare.  
2. Estimates are based on actual figures in 2000.

#### 5. Reforming Social Security System Taking Into Consideration Its Integrated Nature and Mutual Relationship

- Japan should develop a social security system that is invulnerable to downside risks of demographic changes and of economic growth.
- The social security system should be considered comprehensively to ensure consistency between pension, health insurance, nursing care and other components. Benefit overlaps between components should be adjusted.
- Japan should reconsider the roles that the social security system plays, by separating areas for public security from those for private sector services and self-help efforts. Reconsideration of the social security should be consistent with how the tax system would be.
- In order to develop a sustainable social security system, Japan should take comprehensive measures including measures to boost the birthrate.

## Conclusion

### **1. The business sector has shown positive signs. If exports pick up, the Japanese economy will recover. But Japan should resolve structural problems in order to achieve autonomous economic recovery.**

- As the economy recovers, prospects will emerge for reversing deflation. But there are some risks (regarding the U.S. economy, etc.).
- The economy has some vulnerabilities. For Japan to achieve autonomous economic recovery, the private sector needs to be more optimistic about the future (through disposal of non-performing loans, reduction of excessive debts, social security system reform and other measures).

### **2. Not only improving direct financing but normalizing indirect financing is needed for efficient utilization of funds. Financial institutions should dispose of non-performing loans and improve their profitability, while non-financial enterprises should reduce excessive debts further and increase their profitability by taking advantage of M&A deals and other measures.**

- Indirect finance has failed to work normally due to banks' non-performing loans (that reduce risk-taking capacity) and non-financial enterprises' excessive debts (that raised credit risks). Both problems must be resolved.
- In order to resolve the non-performing loan problem, banks should dispose of non-performing loans not only to those firms that are in danger of bankruptcy and below but also to borrowers that require careful management, and should also prevent loans to normal borrowers from degrading. In order to secure resources for disposal of non-performing loans, banks should take risk-matching interest rates and improve their profitability.
- The reduction of excessive debts is still a major challenge facing the construction, real estate, and retail and wholesale sectors, as well as small and medium non-manufacturing enterprises. In particular, considerable difficulties face enterprises that are heavily indebted and less profitable.
- The merit of business reconstruction and turnaround is in the prevention capital stock, human resources and financial resources from getting scattered



and lost. But considerable efforts are required to carry through the task of reconstruction and turnaround, and not just to postpone more severe liquidation.

- Enterprises are exploiting M&A deals to go beyond reduction of excessive debts and business turnaround, and making efforts to improve their profitability.

**3. The “pains accompanying structural reform” are not “new pains created by structural reform.” They are inevitable costs Japan must pay for building systems that meet the needs of the times.**

- The number of job losers has not increased so much despite progress in disposal of non-performing loans and reduction of excessive debts. This is due to reconstruction-oriented disposals of NPLs. But younger unemployment and long-term unemployment are increasing.
- Vocational education and training, and other active employment measures should be enhanced.
- The “pains accompanying structural reform” are the costs for system reform that had been delayed. The reform should have been conducted earlier at lower costs.

**4. The aging and declining population can have a major impact on Japan’s macroeconomic performances. The unsustainable public finance and social security systems must be boldly reformed without delay, with due considerations given to foreseeable changes.**

- The aging and declining population alone has negative effects on macroeconomic growth. But it can boost per capita income.
- The negative effects can be offset, though this depends heavily on efforts by enterprises, households and the government.
- Sustainability of public finance and social security systems is in doubt. Japan must implement (1) reform of the systems to those that are sustainable and stable by taking into account the risk of a faster decline in the population and uncertainties about economic growth, and (2) consistent and comprehensive

institutional reform covering pensions, health care, public finance and tax system.

**5. Japan must design a system encompassing incentives for institutional reform.**

- The past delay in rebuilding financial institutions and enterprises and in addressing the aging and declining population indicates that incentives have been inappropriate.
- In future institutional reforms, system designing and system reform implementation should give due consideration to how incentives should be.