

## Chapter 3 The “Demographic Wave” and its Impacts on the Economic Structure

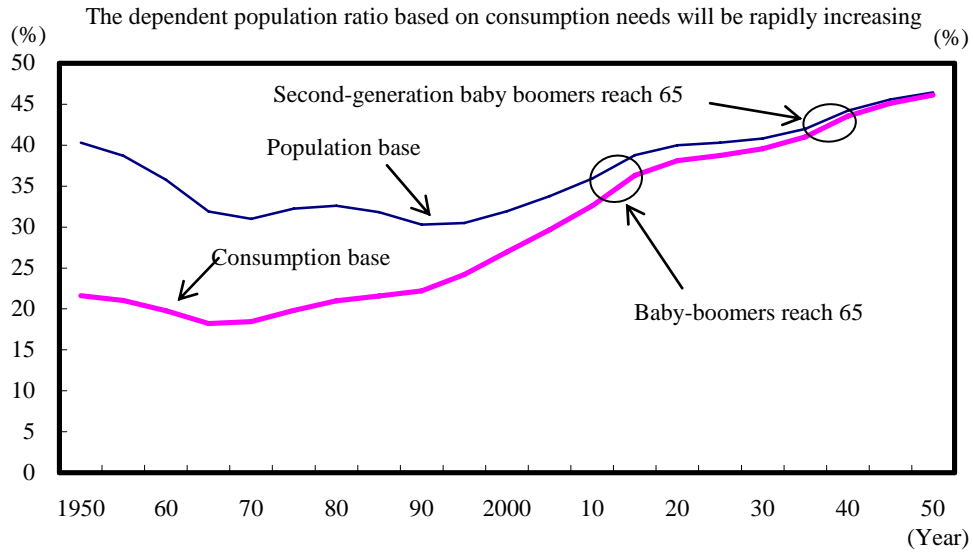
### Section 1 Demographic Change and its Economic Significance

- In 2007, two major demographic changes will commence: the population will begin to decline and the first baby boomer generation will begin to reach the mandatory retirement age. As a result, the decline in the labor force population will accelerate and the economic burden of the current working generation will rapidly increase.
- As the labor force population quantitatively declines, the issue is how to improve the quality of labor force in order to increase productivity. In order to improve the quality of young workers it is important to provide the best possible education.

#### [Analysis]

- The first baby boomer generation (hereafter “Dankai generation”) is aging and will gradually begin exceeding 60 years of age from 2007. The dependent population ratio based on consumption needs of the elderly, etc. will rapidly increase until around 2015 as Dankai generation exceeds 65 years of age and spends more on medical expenses etc.
- The labor force population is expected to decline by 5.8% by 2015 owing to the aging factor alone. It is feared that if the labor participation rate of the elderly declines to the average level of the developed countries, the labor force population will decline by 10% to around 60 million.
- Looking at the relationship between labor productivity and the labor force population, in Japan, unlike in the US, there is no negative relationship in which the rate of labor productivity growth increases as the growth rate of the labor force population slows down.
- The quality of labor (Divisia Labor Index evaluated in terms of wages by employment attribute), the key to increasing productivity, has moderately risen reflecting the popularization of higher education, etc. In future, the aging of the labor force structure, including the second-generation baby boomers (hereafter “Dankai Jr. generation”), etc. will push it up further. At the same time, however, as Japan approaches the “era in which everyone goes to university” it is crucial to improve the quality of labor by improving the quality of education.

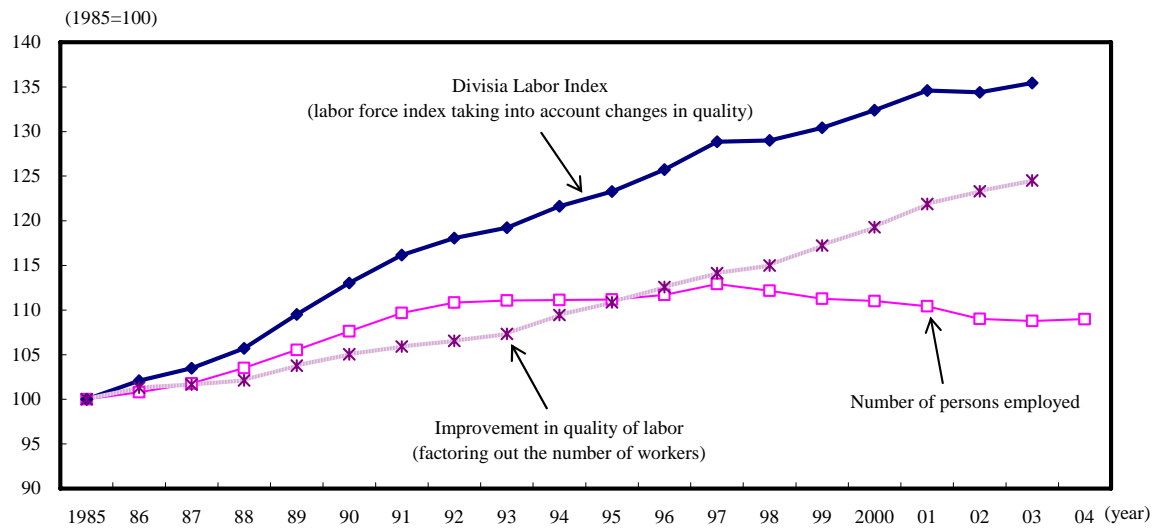
**Fig. 3-1-5 Dependent population ratio of the consumption base**



- Notes:
1. 1999 National Survey of Family Income and Expenditure and Population Estimates, Ministry of Internal Affairs and Communications; Population Projections for Japan, National Institute of Population and Social Security Research.
  2. See Appended Note 3-1 concerning the consumption base and medical expenses base.
  3. Population projections are median estimates.

**Fig. 3-1-10 Divisia Labor Index and trends in the number of people employed**

The number of people employed is stagnant while the quality of labor is improving



- Notes:
- Basic Survey on Wage Structure, Ministry of Health, Labour and Welfare; Labour Force Survey, Ministry of Internal Affairs and Communications.

## Section 2 The Demographic Wave and its Impact on Household Behavior

- Dankai generation will shift to the older age group whose propensity to consumption is higher. This becomes a factor that causes further rise in the propensity to consumption in macroeconomic basis, centered on expenditure on culture and entertainment (digital home appliances, travel, etc.) and others.

**[Analysis]**

- Using the method called cohort analysis to divide propensity to consumption into three effects: 1) the age effect that reflects pure lifecycle differences, 2) the cohort (generation) effect resulting from differences in year of birth, and 3) other period effects, the following results are observed.

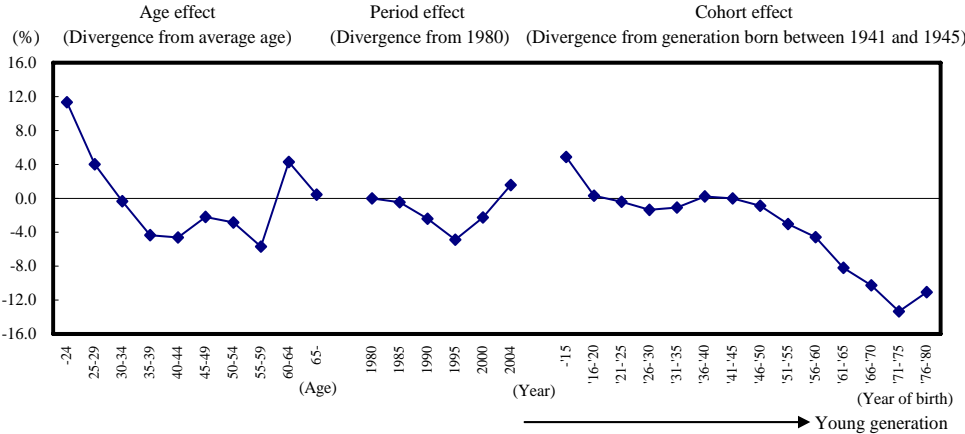
- (i) By cohort effect, the younger the generation, the lower the propensity to consumption,
- (ii) Age effect of the older age group is substantial, and period effect have also been increasing since the second half of the 1990s.

Population changes will cause the propensity to consumption to further rise until 2010.

- Using the same method to investigate consumption weight by expenditure item, culture and entertainment consumption, epitomized by digital home appliance and travel, is higher among the younger cohorts, along with the period effect being higher in recent years. Furthermore, looking at the age effect, consumption by the older age group is higher. Based on these developments, population changes are likely to continue to shift the consumption weight from goods to services and from basic consumption to entertainment and health care as well.

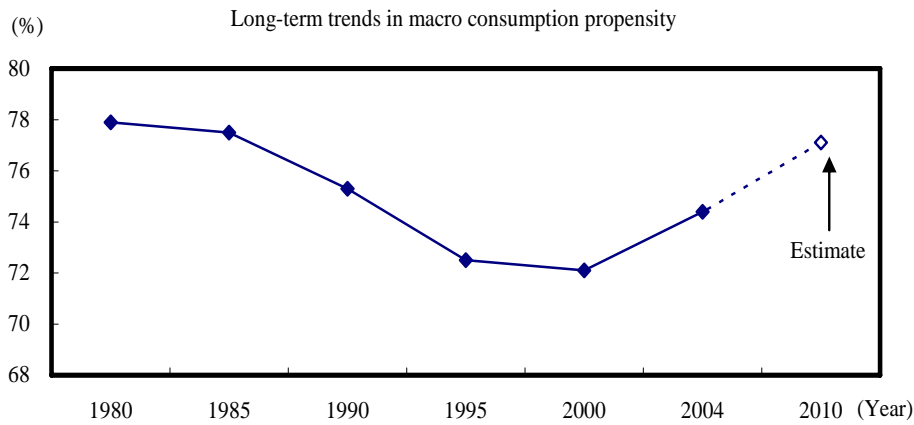
**Fig. 3-2-3 Cohort analysis of propensity to consumption**

The age effect is high for young and the older age group. The cohort effect is lower for later generations than for the baby boomer generation.



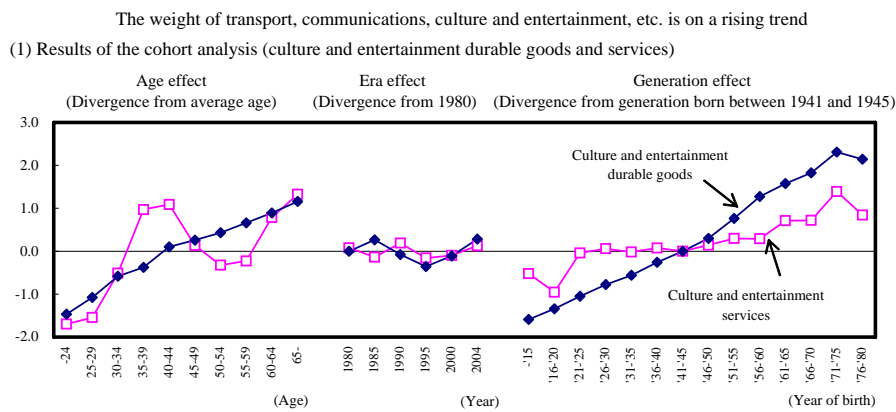
Reference: how to read the graph

<p>(Age effect) Shows the divergence from the average consumption propensity explained only by factors of each age (approximately 80%). For example, it can be seen that consumption propensity is 4 percentage points higher for people aged 25-29 years and 6 percentage points lower for people aged 55-59 years.</p>	<p>(Period effect) Consumption propensity was in a declining trend until 1995 but since then it has been in a rising trend.</p>	<p>(Generation effect) The consumption propensity of the generation born between 1971 and 1975 is 14 percentage points lower than that for the generation born between 1941 and 1945, the base generation.</p>
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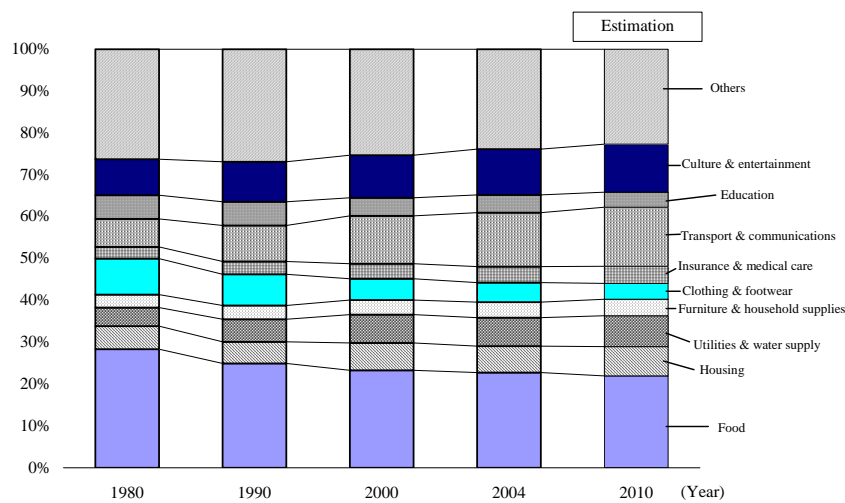


Notes: Estimated by the Cabinet Office based on the Family Income Expenditure Survey (two-or more-person households (except for households in agriculture, forestry and fisheries sectors, Worker's Households)), Ministry of Internal Affairs and Communications.

**Fig. 3-2-4 Future projection of consumption expenditure weight based on Cohort analysis**



(2) Changes in the consumption expenditure weight



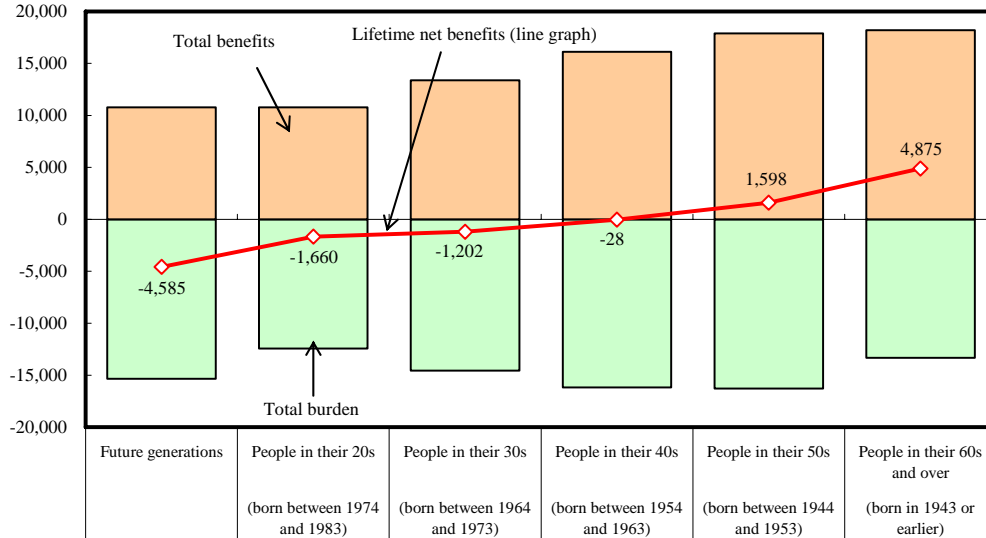
- Expenditure on health care, in particular medical expenses, is also increasing. If medical expenses for the elderly grow at a rate higher than the economic growth rate, the future burden of these expenses will drastically increase. The challenge of medical care system reform is to prevent the generation gap from deteriorating.
- Along with the population aging and the pervasion of the long-term care insurance system, long-term care expenses are increasing partly because of the increase in the certification of a moderate degree of long-term care need. There are a lot of concerns about the increase in the burden, and it is necessary to aim at managing a sustainable system.

#### **[Analysis]**

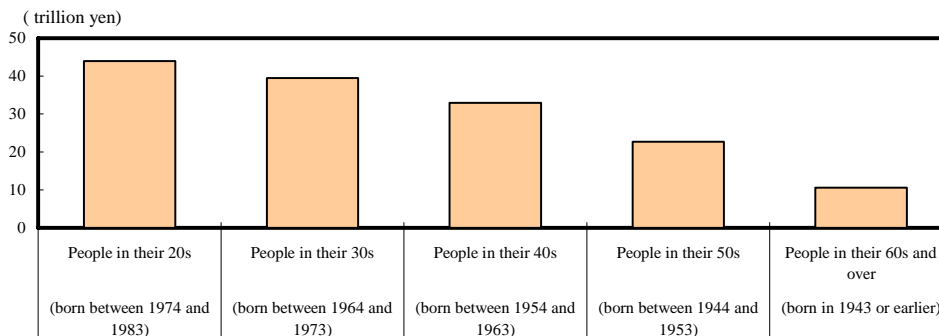
- Health care consumption is rapidly increasing as the selective health expenditure of the older age group increases, etc. In addition, the aging of the Dankai generation begins to contribute to an increase in national medical expenses.
- Hypothetically, considering the case in which the medical care expenses for the elderly grow at higher rate than economic growth rate, compared with the case in which both grow at about the same rate, total amount of benefit for the current generations who are 20 years of age or older would be approximately 150 trillion yen, resulting in an enormous burden in the future.
- The challenges are to curb the “supply factors” (e.g. the number of hospital beds, etc.) that are pushing up medical expenses for the elderly, by reviewing the medical treatment fee system and insurers’ functions, etc., and to reduce the burden of future generations through medical care system reforms that prevent a deteriorating of the generational balance.
- As aging continues and the long-term care insurance system becomes more pervasive, per capita long-term care expenses are also increasing. One of the factors behind is the increase in certification of a moderate degree of long-term care need. Judging from the original consumer survey, people’s concerns about long-term care especially for the one about the future increase in the burden is strongly-rooted. and it doesn’t seem that the establishment of long-term care insurance system has contributed to suppressing precautionary saving. It is important to enhance the preventive measures to keep people from becoming ill to the extent that they require nursing care, etc. and to aim at establishing a sustainable system as well.

**Fig. 3-2-11 The Estimate of Generational Account as of FY2003, and Increase in Medical Expenses**

(1) Lifetime benefits from government sector and burdens to government sector  
 (The growth rate of the medical care expenses is assumed to be same as the economic growth rate. )  
 (per household 10,000 yen)



(2) Increase in benefits if medical expenses for the elderly grow (in the case elderly medical expense grows faster than economic growth)



- Population aging will further push down household saving rate due to the increase in elderly consumers with higher propensity to consumption. Demand for risk assets is expected to increase in the future, considering high level of financial asset holdings and risk tolerance of this age group.
- Housing acquisition among Dankai Jr. generation will peak when they are in their late 30s. Willingness to change residence after the retirement among Dankai generation is also expected. On the other hand, there remains a challenge to utilize existing housing stock, in particular to disseminate reverse mortgage utilization.

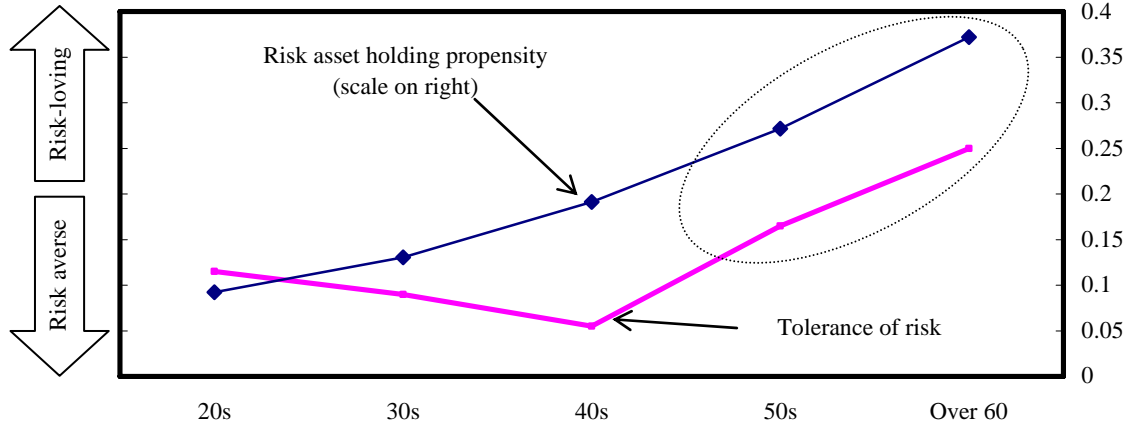
#### [Analysis]

- Based on the long-term equilibrium explaining the savings rate by dependent population ratio, etc., it is possible that the saving rate will decline to around 3% until about 2010 by the aging factor alone. It is necessary to bear in mind, however, that there is a group with zero savings rate, in particular among low income young people.
  - Older age groups hold more financial assets and hold a higher proportion of risk assets such as stocks and stock investment trust, etc. This is because the risk tolerance of the older age groups is relatively higher than other age groups. Hence, it is unlikely that there will be a severe decline in demand for risk assets due to the population aging (i.e. “asset market meltdown”).
  - According to the original consumer survey, housing acquisition of Dankai Jr. generation will peak when they are in their late 30s, later than their parent generation (Dankai). Willingness to change residence after the retirement among Dankai generation is also presumed. Based on the housing preference of those generations, housing demand especially for apartments (both new and second-hand) and rehabilitation of existing homes will increase to some extent.
  - Due to the slowdown in the growth of the number of households, effective utilization of existing houses will be important in future. Reverse mortgage scheme has a potential effect of promoting consumption by the elderly (\*). The challenge is to develop the second-hand housing distribution market, etc.
- \* In a model case of housing assets of 30 million yen, living expenses increase by 70,000 yen a month; of that 30,000 yen is additional consumption.

**Fig. 3-2-21 Risk aversion by age group**

Absolute risk aversion and risk asset holding propensity by age group

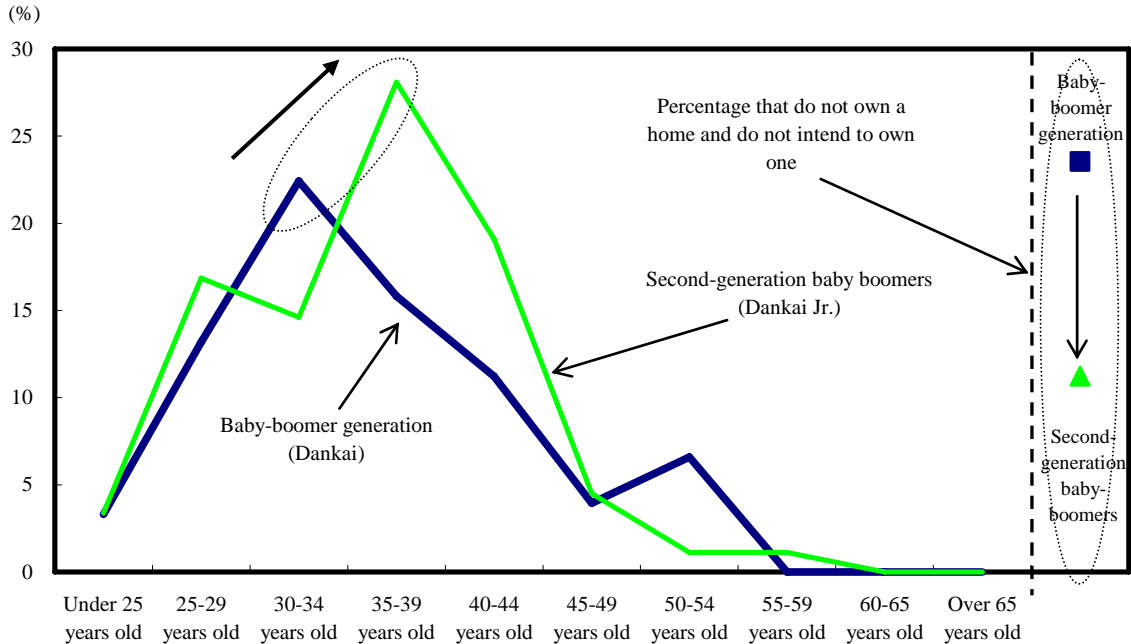
The older the age group, the higher the risk tolerance and the propensity to hold risk assets



- Notes: 1. *Public Opinion Poll on Consumption and Savings Behavior and the National Burden* (2005), Cabinet Office.  
 2. Risk asset holding propensity is calculated by assigning the value "1" if either stocks, stock investment trusts or foreign currency deposits are presently held and the value "0" if they are not.

**Fig. 3-2-24 Change in housing acquisition age**

Housing acquisition peak of baby boomer generations shifts from people in their early 30s to in their late 30s



- Notes: 1. *Public Opinion Poll on Consumption and Savings Behavior and the National Burden* (2005), Cabinet Office  
 2. Percentage of age (age acquired for the first time, or age acquisition is desired) of acquisition of a house for each generation.



### Section 3 The Demographic Wave and Business Competitiveness

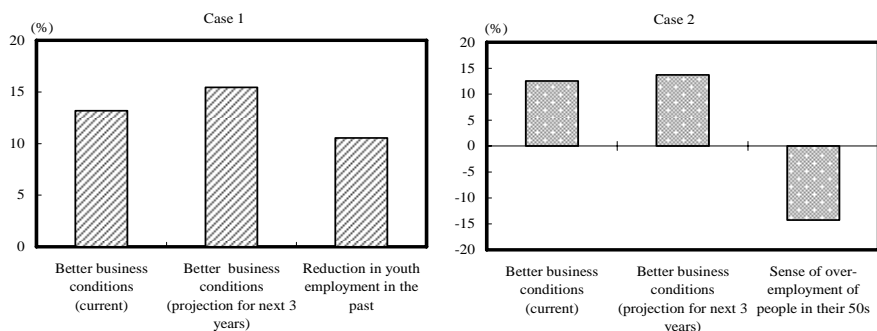
- The retirement of the Dankai generation will have conflicting two impacts on employment in the business sector as follows: 1) the positive impacts of lowering total labor costs and encouraging youth employment, including employment of new graduates and mid-careers, and 2) the negative impact of a large number of highly skilled elderly workers withdrawing from the market.

#### [Analysis]

- Dankai generation has pushed up labor share between the range of 0.2% to 0.9% throughout the 1990s because of increased total labor costs. The estimate shows that total labor costs will decline about 2.6% by 2009 as a result of the Dankai generation reaching retirement age. While the labor costs of the Dankai Jr. generation increases, a decline in labor costs of the Dankai generation will make a huge contribution.
- It is possible that the employment of the elderly, including the Dankai generation, etc. which involves a large labor costs burden seemed to have led to suppression of youth employment to some extent. According to an analysis using micro data, there was an employment dampening effect for instance in 2000 as follows: in workplaces with a 1 percentage point higher proportion of Dankai generation employees, the growth rate of total employment was 0.08 percentage points lower. However, the employment dampening effect had plateaued by 2003.
- Preparing for the retirement of Dankai labor force, companies are making active efforts to recruit new graduates. According to an analysis of firm-level micro data, there is a strong tendency for companies that have strong business sentiment and/or have discouraged youth employment in the past to have employment growth plans. Hence, an increase in youth employment, including mid-career recruitment, is expected in the future.

**Table 3-3-10 Impact on the employment plans for the next three years of companies**

The better business conditions are and the more companies discouraged youth recruitment in the past, the more likely they are now to have a plan to increase employment



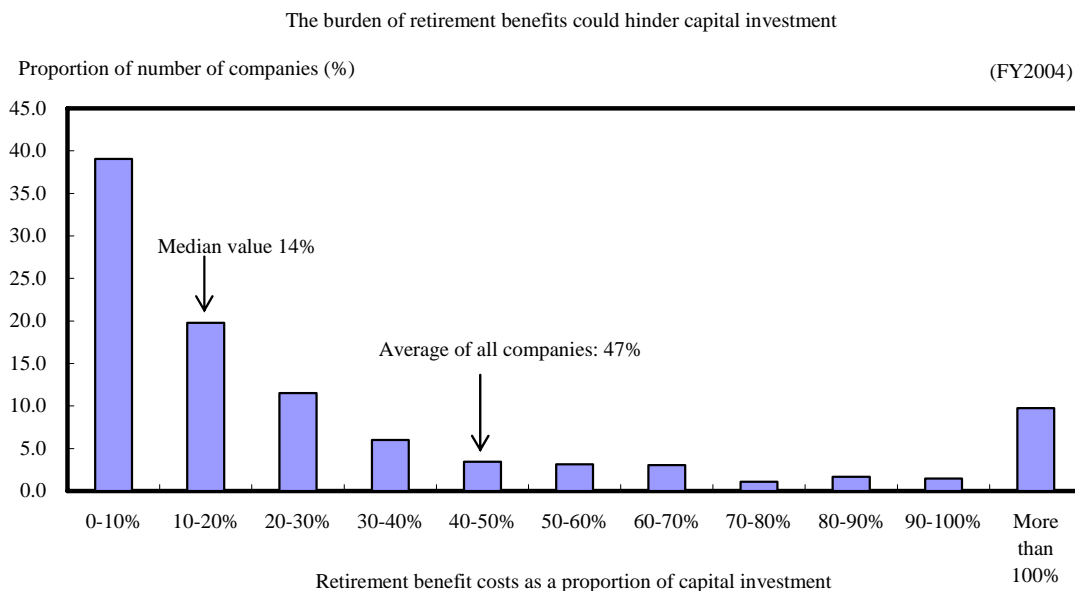
- Notes: 1. Calculated by getting a special aggregate of the *Annual Survey of Corporate Behavior* (2004), Cabinet Office using a probit model.  
 2. The dependent variable is a dummy variable which assigns the value of "1" to companies which plan to increase the number of personnel in the next three years and the value of "0" to other companies. "Business conditions," "reduction in youth unemployment," and "sense of over-employment of people in their 50s" are dummy variables assigning the value of "1" to companies which replied that "conditions are good (becoming good)," "the age group which has declined the most is people in their 20s," and "people in their 50s have the greatest sense of over-employment," respectively, and the value of "0" to other companies.  
 3. The graphs show a marginal effect. For example, companies that replied that "current business conditions are good" were 13.2% more likely to have a plan to increase employment.

- Company pensions and other burdens accrued from retirement benefit plans could put downward pressure on corporate profits and capital investment. Reform of company retirement benefit plans has been promoted but there is still more room to enhance the adoption of defined-contribution pension plans.

**[Analysis]**

- While there has been reform of the pension systems of companies, such as introduction of refunds to the government by the employees' pension funds, defined-contribution pensions, etc., there has been no remarkable change in the relationship (i.e. reserve ratio) between retirement benefit debts (already promised retirement benefit payouts) and pension assets (assets companies are reserving externally).
- The cost of eliminating the unreserved portion of retirement benefits in about 10 years is on average about 47% of the capital investment (median value of 14%), and it should be noted that the increase in the burden that stems from company pensions could have a negative impact on capital investment by putting downward pressure on profits.
- Approximately only 2% of all workers are covered by defined-contribution pension plans. Measures such as raising the maximum allowable contribution and improving portability, etc. have been taken, but the challenge is to take further measures to enhance the adoption of defined-contribution pensions.

**Fig. 3-3-14 Potential costs of elimination of reserve shortfall (relative to capital investment)**



- Notes: 1. Based on 1,016 companies for which it was possible to assess data from Nikkei NEEDS.  
 2. An estimation of the extent to which retirement benefit costs have to be subsidized as a proportion of capital investment each year in order to eliminate the gap between retirement benefit debts and pension assets in the ten years beginning FY2004 ended on March 31 (see Appended Note 3-12).

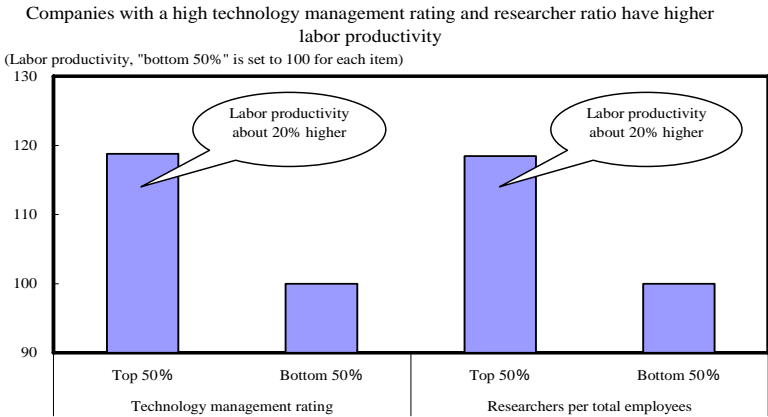
### Section 4 The Source of Innovation and the Challenge to Improve Competitiveness

- As the population declines, to improve productivity is essential. It is necessary for companies to strengthen their competitiveness through the creation of technology with high added value.
- The source of competitiveness is nothing else innovation. In order to achieve innovation and the resulting productivity improvement, the development of organizations to utilize technology in management, and ensuring and enhancing the quality and quantity of human resources is important.
- Another challenge is innovation in the service industries and the resulting productivity improvement.

**[Analysis]**

- In a firm-level survey on innovation, about 31% of companies stated that their competitiveness became stronger, less than the 33% stated that it became weaker. One of the factors separating these two groups lies in product and service development capability.
- Research and development investment in Japan is at a high level among developed countries, though it is pointed out that R&D investment in Japan is not that efficient. Innovative activities are important to ensure that such investment leads to increased competitiveness. Companies whose competitiveness has improved are more likely to realize innovations embodied in their products than companies whose competitiveness has not improved.
- For innovations to be successful, infrastructure such as managerial measures and enhancement of human capital are important rather than the amount of research and development investment.
- These infrastructure elements also have an impact on labor productivity by stimulating innovative activities. Companies whose technology management rating or researcher ratio is in the top 50% have about 20% higher labor productivity than companies who are in the bottom 50% in either of these categories.

**Fig. 3-4-8 Factors which have an impact on labor productivity**



Notes: 1. *Questionnaire Survey of the Technological Creativity of Companies* (2005), Cabinet Office; NEEDS-Financial Quest Corporate Finance Database, Nihon Keizai Shimbun, Inc.  
 2. For the 311 companies for which financial data matching was possible and labor productivity could be calculated, dummy variables were created concerning technology management rating and researcher ratio. These variables divided the sample into two approximately equal-sized groups, a high group and a low group, and assigned the value "1" to companies in the high group and the value "0" for companies in the low group for each item. Then a regression was carried out with labor productivity (natural logarithmic value) as the dependent variable and the value of relative labor productivity was calculated using the coefficient of the dummy variable (the "bottom 50%" is set to 100 for each item).  
 3. See Appended Note 3-14 for details.

## **Conclusion (Summary)**

### **● Elimination of the negative legacy of the bubble economy**

The negative effects of the collapse of the bubble economy lasted more than ten years but now the adjustments in the economy needed to overcome these effects have been largely completed. The non-performing loans issue, which was a major drag on the economy and a big factor behind the long-term stagnation, has normalized. Japan has also overcome the issues of excessive employment and excessive capital stock, which were factors hindering economic revitalization. It can be concluded that the concentrated adjustment period has mostly achieved the hoped-for results.

### **● Moderate recovery of the economy continues**

Labor share, which had been undergoing continuous adjustments, has declined to the long-term equilibrium level. Sustainability of the current expansion phase depends partly on whether or not an improved demand and supply condition in the labor market leads to employment growth and wage increase.

### **● Overcoming deflation still an important challenge**

Moderate deflation is continuing. It is necessary for the government and the Bank of Japan to continue to work together to strengthen and expand policies for overcoming deflation.

### **● Aiming for small government**

Surveys have made it clear that the people of Japan are becoming more supportive of the idea of small government. Beginning in this fiscal year, market tests that compare private and public sector service provision efficiency have been introduced on a trial basis and the government in Japan is attempting to enter a new era.

### **● Importance of “from public sector to private sector”**

Firstly, it is important to improve the quality of services and to offer a variety of services. Survey analyses of designated management entities have made it clear that private businesses are capable of improving the convenience of residents, who are their customers.

Secondly, it is also important to reconstruct the government sector. There are many types of economic activities which the public sector should carry out at a certain stage of economic development but should leave to the private sector at the next stage. It is necessary to constantly review the role of the public sector.

### **● Population decline begins**

Japan's total population will begin to decline in 2007. However, although the population is growing in some prefectures in Kanto, Tokai and Kinki and in Okinawa, in other regions the population has already begun to decline. The regions in which the population is declining account for about half of Japan's

GDP but 80% of Japan's total land area.

- **Approaching retirement of the baby-boomer generation**

The baby-boomer generation made a big contribution to the development of the post-war economy. In recent years the retirement of the baby-boomer generation has come into view, and youth employment is beginning to rise in both the mid-career employment field and new graduates employment field. On the other hand, there is the new problem of the difficulty of ensuring the highly-developed skills built up by the baby-boomer generation are handed on to the next generation. The baby-boomer generation has led the way in creating a new lifestyle with respect to consumption, housing, and financial assets selection.

- **Promotion of market-driven reforms**

Expressing “from public sector to private sector” in different words, “from the state to the market” most appropriately reflects its content.

Now that adjustment of the problems of excess in the economy has been completed, Japan has a good opportunity to move from defensive to aggressive reforms. It is important to advance reforms that encourage the flow of resources into sectors with high productivity and profitability, in the concentrated consolidation period beginning in this fiscal year. Eliminating factors hindering market mechanisms and enhancing the spread of economic effects will lead to the development of the acorn of reform into a mighty oak tree.