

## **Why Has Japanese Private Consumption Remained Firm?<sup>1</sup>**

### 1. Private Consumption Trends in Recent Years

- (Strong private consumption trend relative to income)
- (Consumption behavior of the elderly segment is the main cause of the rise in the propensity to consume)
- (Favorable consumption of durable goods and services)

### 2. Background to Why Private Consumption Has Remained Firm

#### (1) Structural and Underlying Factors

- (Demographic factors such as aging of the population)
- (Changes in consumer attitudes and efforts by firms)
- (Effects of the introduction of the nursing care insurance system)

#### (2) Strong Factors in Each Phase

- (Inertia in consumption)
- (Improvement in consumer confidence and the wealth effect)
- (Improvement in actual employee compensation)

#### (3) Check Using the Consumption Function

### 3. Future Outlook

- (Consumption issues over the longer term)
- (Conclusions)

---

<sup>1</sup> This paper is a translation of the Japanese original, which was released on March 13, 2006. The original paper was prepared mainly by the staff of Economic Assessment and Projection, as follows. Analyses were conducted primarily by Hironori Ishizaki and Makoto Minegishi. Charts were prepared by Saki Amano. Yoshihito Saito formulated all of the analyses and wrote the text.

## ABSTRACT

1. Private consumption has been slowly recovering since around the year 2000. This recovery gradually became clearer from the second half of 2003, and its pace is now steadily increasing. The present expansion phase that began from early 2002 reached four years and three months in April 2006, rivaling the longevity of the bubble period. In examining the reasons why the ongoing recovery has lasted so long, one cannot overlook the continued firmness of private consumption together with the expansion in overseas economies and reduced structural adjustment pressures in the corporate sector.

2. The characteristics of private consumption in recent years are summarized as follows: (1) private consumption has remained firm despite significantly restrained household income under firms' strong stance toward restricting personnel expenses, and consequently the propensity to consume has been drifting upward; (2) this trend has been especially conspicuous among the elderly segment (senior citizens); and (3) by category, consumption of durable goods and services has been relatively strong. In addition, the improvement in consumption is spreading to younger age segments recently, supported by the rise in employee compensation.

3. As the background to this firmness of consumption, the underlying factors include (1) demographic factors such as aging of the population, (2) changes in consumer attitudes and efforts by firms, and (3) effects of the introduction of the nursing care insurance system. In addition, there were relatively strong influences from factors which pushed up consumption in each phase, such as (4) inertia in consumption, (5) improvement in consumer confidence and the wealth effect, and (6) improvement in actual employee compensation.

4. In this manner, private consumption has been upheld to some extent by structural and underlying factors over the past few years, and is recently becoming increasingly positive with the growth in income and assets. Estimated results of consumption function also indicate that the basis for the recent recovery in consumption has become firm, supported by such factors as the aging of the population, the rise in employee compensation, the wealth effect from higher stock prices, and the improved income outlook.

5. As for the consumption outlook, employee income is expected to keep rising, and household confidence regarding future income is projected to gradually strengthen. In addition, if the favorable performance of the corporate sector continues, this is expected to keep exerting a positive effect on consumption through such factors as higher stock prices. Furthermore, aging of the population will continue boosting the propensity to consume. Given these developments, there is a high probability that private consumption will continue to steadily expand for the time being, accompanied by a gradual rise in the propensity to consume.

## 1. Private Consumption Trends in Recent Years

The Japanese economy has passed through two recoveries and recessions since the 1990s, and is now in its third recovery phase which began at the start of 2002. The recovery reached four years and three months in April, rivaling the longevity of the bubble period. In examining the reasons for this prolonged recovery, one cannot overlook the continued firmness of private consumption, in addition to the continued expansion of overseas economies, the reduction of the “three excesses” (excessive debt, employment, and production capacity), the improved financial environment from the progress in the disposal of nonperforming loans, and cautious corporate behavior preventing a buildup of inventories and capital stock.

Looking back, the present recovery phase has weathered exogenous shocks that dampened economic growth, including the SARS outbreak from around the spring of 2003 and the IT adjustment from the second half of 2004 to the first half of 2005. Moreover, the household income environment has remained harsh throughout this recovery phase, as firms have cut employment and switched from regular employees to non-regular employees (dispatched and part-time employees) as part of their corporate restructuring efforts. In this environment, one of the reasons why the recovery has not stalled is that private consumption, which is the greatest demand component accounting for nearly 60% of GDP, has maintained a steady growth trend.

Looking at private consumption over this period in greater detail, following weak movements in 1997-1998, private consumption began to slowly recover from around 2000 and this recovery has gradually become more distinct from the second half of 2003. Specifically, real consumption on a GDP basis, which is considered the most comprehensive statistics of private consumption (Chart 1)<sup>2</sup>,

---

<sup>2</sup> Private consumption on a GDP basis is considered a comprehensive indicator of private consumption and the most appropriate data for grasping underlying consumption trends. Regardless, it is necessary to note several issues with this indicator including (1) the lateness of the release timing (about a month and a half after the end of the concerned quarter), (2) the data fluctuations in the preliminary release (affected by the fluctuations in the underlying statistics including the Family Income and Expenditure Survey), and (3) the inclusion of imputed rent for owner-occupied housing (accounting for about 15% of total consumption), which does not actually involve any cash expenditures. Accordingly, it is important to examine the

rose gently by about 1% year-on-year overall from 1999 through 2003, and this increase is now becoming stronger with a year-on-year rise of about 2% since 2004.

The same trend is also confirmed by the other consumption-related indicators (Chart 2). For example, the Indices of Aggregated Sales compiled by the Bank of Japan (BOJ) from major sales indicators (such as supermarket and department store sales, new passenger car registrations, outlays for travel, and food service industry sales) shows a gradual rising trend, except for periods of brief weakness such as the first half of 2003 (influence from the SARS outbreak) and second half of 2004 (influence from natural disasters, i.e. typhoons and the Niigata-Chuetsu earthquake), prior to adjustment for changes in the number of stores. On a same-store basis, the Indices of Aggregated Sales shows a gradual declining trend, but followed by a change in direction from 2005.<sup>3</sup> Furthermore, the “Aggregate Supply of Consumer Goods,” which is compiled to grasp goods consumption developments from the supply side, has also maintained a gradual increase trend, mostly centered on imported goods.<sup>4</sup>

Reflecting these developments, the confidence of retail and other consumption related firms has also been on a rising trend. Specifically, in the BOJ *Tankan* survey (Short-term Economic Survey of Enterprises in Japan), the judgment of business conditions by firms in industries related to private consumption (retailing, services for individuals, and restaurants &

---

developments in wide-ranging indices, such as various sales and supply-side statistics (e.g., consumer goods shipments), to comprehensively grasp overall consumption including the most recent conditions and the developments by category.

<sup>3</sup> While this fact is difficult to grasp from existing sales indicators, it appears that sales via the Internet have recently been rapidly expanding. For example, according to the Survey of the Current Status and Market Scale of E-business in FY 2004 implemented by the Ministry of Economy, Trade and Industry, the market scale of sales via the Internet grew by 28% from the previous year in 2004 to reach approximately ¥5.8 trillion (or 2.1% of all commercial sales). Also, according to the Survey of Household Economy implemented by the Ministry of Internal Affairs and Communications, the percentage of households placing orders via the Internet rose to over 10% in 2005 (compared with about 5% in 2002), and the value of consumption via the Internet roughly doubled from 2002 to 2005.

<sup>4</sup> The Aggregate Supply of Consumption Goods is calculated by adding net imports of consumption goods to domestic consumption goods shipments.

accommodations) has been rising clearly since 2004, after remained essentially flat from 2000 through 2003 (Chart 3). Additionally, in the Economy Watchers Survey compiled by the Cabinet Office, the level of the household-activity related DI for current economic conditions has generally shown similar developments. Thus, the developments of various private consumption indicators confirm that consumption has remained firm for several years, without any major declines, and also that consumption has been growing firmer recently.

This concludes our review of the private consumption developments in recent years. In the following sections, we discuss the characteristics of private consumption. The main characteristics are summarized as follows: (1) private consumption has remained firm despite significantly restrained income under firms' strong stance toward restricting personnel expenses, and consequently the propensity to consume has been drifting upward; (2) by age group, this trend has been especially conspicuous among the elderly segment (senior citizens), but the improvement in consumption has recently been spreading to younger age segments; and (3) by category, consumption of durable goods and services has been relatively strong.

### **(Strong private consumption trend relative to income)**

The greatest characteristic of private consumption in recent years is that it has remained firm despite significantly restrained income under firms' strong stance toward restricting personnel expenses.

In detail, looking at the developments in employee income (the number of regular employees times wages per employee; Chart 4(1)), employee income peaked in 1997, gradually declined through 2000, and then declined at a faster pace in 2001-2002. Then, it turned to a gradual rise from around 2004 as corporate profits recovered and the labor market became tighter, but still remains at a historically low level in contrast with corporate profits, which have posted record highs surpassing the levels during the bubble period. As a result, labor share (employee compensation / nominal GDP; Chart 4(2)), which had been high since the mid-1990s, has declined sharply since the beginning of the present recovery phase. The background to this firms' strong stance toward restricting labor costs during the present recovery includes a need to strengthen profitability in order to improve their balance sheets as well as structural

changes in the labor market which have facilitated more use of non-regular employees.<sup>5</sup> As those adjustments have substantially progressed, labor share has now stopped declining. Nevertheless, it has yet to show any clear signs of turning to a rising trend.

Next, examining disposable income (Chart 5), which in addition to employee income also reflects social security benefits, the income of the self-employed, interest and dividend income, and the payment of income taxes, we find that disposable income dropped substantially from 1999 through 2001 as interest income and the income of the self-employed (both categorized under “others” in the Chart) both declined along with employee compensation.<sup>6</sup> This decline continued in 2002-2003 after the start of the present recovery. Disposable income finally began to rise from 2004, but the rate of increase remains minimal. On a real basis, the growth rate is slightly higher than on a nominal basis, reflecting price declines, but the rate of increase is still limited.

Thus, amid overall income weakness, private consumption has held firm and is steadily rising. Of course, the rate of increase is by no means outstanding compared with the past. Nevertheless, considering the harsh income environment, one may well say that private consumption has remained surprisingly firm.

---

<sup>5</sup> This point is analyzed in detail in Bank of Japan Research and Statistics Department, “The State of the Japanese Economy from the Perspective of Employment and Income” (*Bank of Japan Research Bulletin*, Jan. 2005). For details of the recent developments in corporate profits, see Bank of Japan Research and Statistics Department, “The Improvement in Corporate Earnings and Its Implications for the Japanese Economy” (*Bank of Japan Research Bulletin*, Oct. 2005).

<sup>6</sup> However, it should be noted that the decline in disposable income in 2000-2001 was greatly influenced by the statistical handling under the SNA of the huge volume of postal savings which reached maturity at that time. First, under the SNA, interest income from postal savings is not posted at maturity, but rather posted in installments when it is generated, and thus interest income greatly declined around 2001 reflecting the decline in the outstanding balance of postal savings paying high interest rates (this is included in the negative contribution of “others” in Chart 5). Regardless, the timing of taxation on interest income is on a cash basis, so the income tax on 10 years of interest income is charged all at once upon maturity and posted in that manner in the SNA. The first factor greatly diverged from the impressions of households, which received large amounts of interest income all at once.

This strength of private consumption relative to income is clear from the developments in the propensity to consume (consumption expenditures / income). On a GDP basis using disposable income as the denominator (Chart 6), the propensity to consume has been on a rising trend, and its level has risen sharply since around 2000. Moreover, when the propensity to consume is calculated using only employee compensation as the denominator – excluding items with high fluctuations such as self-employment income (mixed income) – we see more clearly that the tempo at which the propensity to consume rose accelerated from around 2000. More recently, however, the propensity to consume has been basically flat since 2005, indicating that amid the recent rise in income, consumption is now expanding at a pace close to income growth.

A rise in the propensity to consume implies a decline in the savings rate, and in recent years the Japanese household savings rate has declined to a low level by international standards. An international comparison of savings rates (Chart 7) shows that the savings rate in Japan has already fallen below those in Germany and the UK and is now approaching the US level. It was referred that Japan had long maintained high savings rates compared with other industrialized nations, and many research papers analyzing why Japan had high savings rate were being published as recently as 2000.<sup>7</sup> Subsequently, however, the Japanese savings rate has dropped dramatically to the point that researchers are now showing growing interest in examining the background to this precipitous decline.<sup>8</sup>

**(Consumption behavior of the elderly segment is the main cause of the rise in the propensity to consume)**

The second characteristic of private consumption in recent years is that,

---

<sup>7</sup> Examples include Nakagawa, “Why has Japan’s Household Savings Rate Remained High even during the 1990s” (*Bank of Japan Research Bulletin*, April 1999, in Japanese) and Higo, Sugo, and Kanaya, “What Determines the Recent Household Savings Rate?” (*Bank of Japan Working Paper Series*, May 2001, in Japanese).

<sup>8</sup> However, the household savings rate on a GDP basis was revised substantially downward when the GDP statistics were changed from the 68 SNA to the 93 SNA. Under the 93 SNA, the household savings rate shifts to a gradual declining trend from the 1990s, rather than remaining at a high level. So it should be noted that the savings rate (68 SNA) in some earlier analyses differs from the savings rate (93 SNA) analyzed in this paper.

by age group, consumption has been particularly firm among the elderly segment, and consequently the elderly segment is solely responsible for the rise in the propensity to consume over the past few years.

To examine the propensity to consume by age segment, we have to depend on the Family Income and Expenditure Survey (FIES), and the propensity to consume figures in the FIES cannot be directly compared with the GDP propensity to consume figures presented above, since they are compiled on a different basis with different coverage using different definitions.<sup>9</sup> However, the differentials in level and direction narrow significantly when we add the propensity to consume of households where the head of household is at least 60 years old and unemployed (mostly retirees) to the worker household propensity to consume figures frequently used in regular analyses (Chart 8)<sup>10</sup>. Therefore, we calculate the propensity to consume of households by the age segment, including these elderly unemployed households (Chart 9). We find that the propensity to consume stops declining or shifts to a gentle rising trend from around 2000 and in particular that the rise in the propensity to consume accelerates sharply among elderly unemployed households where it has now reached about 125%. In other words, at elderly unemployed households, consumption expenditures are now approximately 25% higher than disposable income.

Furthermore, calculating the contribution ratio by age segment (Chart 10), it becomes clear that the contribution from elderly unemployed households accounts for nearly all of the 7.5 percentage point increase in the propensity to consume from 1998 through 2005.<sup>11</sup> Moreover, the above analyses only cover

---

<sup>9</sup> The main differences between the GDP basis and the Family Income and Expenditure Survey (FIES) basis propensity to consume figures are: (1) the FIES does not include non-worker households because income data is not available; (2) the GDP basis includes imputed rent for owner-occupied housing in both income and consumption while the FIES basis does not; and (3) the FIES includes “remittance” and “money gifts” in consumption while the GDP statistics treats these as current transfers and does not include them in consumption.

<sup>10</sup> Because the FIES does not include disposable income data on non-worker households in general, the propensity to consume cannot be obtained. Nevertheless, the FIES does provide disposable income data for non-worker households in cases where the head of household is elderly and unemployed.

<sup>11</sup> In addition to the above-mentioned increase in their propensity to consume, the increased

households with at least two members, and among single-person households, the propensity to consume is also rising at elderly unemployed households, confirming the same trend at households with at least two members (Chart 11).<sup>12</sup>

Reviewing the developments in consumption expenditures themselves (on a nominal basis) over this period (Chart 12), consumption expenditures per household have posted a clear decline for several years since around 1997-1998 among worker households of all age segments.<sup>13</sup> Among elderly unemployed households, however, consumption expenditures have remained firm with almost no decline. These households depend on pension income for the majority of their disposable income, and they have been forced to suffer a greater decline in disposable income than most worker households as the minimum age to receive pension payments has been raised over the past years (Chart 13). Amid these developments, the private consumption of these elderly unemployed households has been underpinned by the above-mentioned increase in their propensity to consume.

Recently, however, there have been changes in the consumption expenditures trends by age segment. In 2004-2005, consumption expenditures stopped falling or began to rebound in many segments including young age segments (Chart 12, above).<sup>14</sup> Fundamentally, this is the result of the process

---

weight of elderly unemployed households among all households (in other words, the aging of the population, as detailed below) also influenced the rising contribution of these households to the overall propensity to consume.

<sup>12</sup> However, these figures must be interpreted with some caution because no data are available on single-person households prior to 2000 and because the number of samples is only about 700 for single-person households compared with about 8,000 for households with at least two members.

<sup>13</sup> This differs from the (real) GDP base developments presented in Chart 1 mainly because: (1) the figures in Chart 12 show nominal consumption expenditures, which are influenced by price declines; (2) the figures in Chart 12 show per household consumption, so they do not consider the increase in the number of households; and (3) the FIES does not include imputed rent on owner-occupied housing, which has maintained a steady rising trend.

<sup>14</sup> The yearly developments in the FIES are affected by sample factors, so here the developments in 2004 and 2005 are evaluated together. Incidentally, the FIES income figures (worker households) for 2005 alone show a year-on-year decline of 1.4%. However, considering that the total cash earnings figures from the Monthly Labor Survey, which are more stable, indicate a year-on-year increase of 0.6%, the 2005 FIES data for both income and consumption

whereby the recovery of the corporate sector has now spread to households via improvements in employee income.

### **(Favorable consumption of durable goods and services)**

The third characteristic of private consumption in recent years is that, by category, consumption of durable goods and services has remained relatively strong. Dividing GDP-base private consumption into the four categories; durable goods, semi-durable goods, non-durable goods and services (Chart 14), we see that during the present recovery phase, while the consumption of clothing and other semi-durable goods and of food products and other non-durable goods has remained weak overall, the consumption of durable goods (as typified by digital home electronics) and of services has pushed up consumption overall. The sales-side statistics (Chart 15) also show a gradual decline in supermarket and department store sales, where semi-durable and non-durable goods have high weights, in contrast with steady increases at fitness clubs, pachinko parlors and other outlets selling services for individuals.

Looking at basic expenditures (necessities) versus discretionary expenditures (nonessentials) in the FIES (Chart 16)<sup>15</sup>, we see that the growth in basic expenditures exceeded the growth in discretionary expenditures from the late 1990s through around 2002. However, this trend reversed from 2003, with discretionary expenditures growing faster than basic expenditures as a trend. Consequently, the weight of discretionary expenditures in total consumption is now on a rising trend. These figures indicate that recently, among durable goods and services, the consumption of nonessentials has been particularly strong.

Finally, we examined the characteristics by age segment in the consumption of goods and services. Figure 17 presents the changes in the

---

probably have a downward bias.

<sup>15</sup> The FIES categorizes items with expenditure elasticity (an indicator which shows the percentage change in each item when total expenditures change by 1%) of less than 1 as basic expenditures and items with an expenditure elasticity of 1 or more as discretionary expenditures. Basic expenditures include food, rent, utilities, and healthcare services, while discretionary expenditures include educational expenses and durable goods for reading and recreation (personal computers, etc.).

propensity to consume (under the FIES) by age segment from 2001 through 2004, divided into goods and services. The figure indicates: (1) the consumption of services is pushing up the propensity to consume among all age segments; (2) among services, transportation and communication (e.g., portable telephone charges) and reading and recreation (Internet access charges, broadcast reception fees, etc.) have been pushing up the propensity to consume among all age segments; (3) however, there are age group differences whereby educational expenses have a high contribution among those in their 40s and 50s, while housing, medical care and eating out have high contributions among those 60 or older; (4) the rise in the propensity to consume of durable goods is particularly conspicuous among those 50 or older; and (5) there are large differences in consumption of non-durable goods (food products, etc.), pushing up the propensity to consume of elderly households<sup>16</sup> while pushing down the propensity to consume among youth.

## **2. Background to Why Private Consumption Has Remained Firm**

Considering the above characteristics, the structural and underlying factors that explain why private consumption has remained firm for several years are summarized as follows: (1) demographic factors such as the aging of the population; (2) changes in consumer attitudes and efforts by firms; and (3) effects of the introduction of the nursing care insurance system. Additionally, in each phase the following factors have also been important in pushing up consumption: (4) inertia in consumption in a period of income stagnation (around 2001-2002); (5) improvement consumer confidence and the wealth effect (2003-2004, and from mid-2005); and (6) improvement in employee compensation (since around 2004). We now examine each of these factors, in order.

### **(1) Structural and Underlying Factors**

---

<sup>16</sup> As explained below, this may be because the unit purchase prices of food items are rising among the elderly. However, because food items and other non-durable goods have a high weight among senior consumption, it is also possible that seniors cannot sufficiently reduce food expenses amid a decline in disposable income and that consequently the weight of non-durable goods consumption in income is rising.

### **(Demographic factors such as the aging of the population)**

The first factor is the demographic factors such as the aging of the population. Under typical individual life cycle, the propensity to consume declines from youth through middle age, and then rises with age. This is because while the household disposable income rises through the mid-40s or early 50s and then declines, consumption remains more stable than income throughout life. Actually, comparing disposable income and consumption trends by age segment (Chart 18(1)) using the FIES data (worker households, 2004), we find that disposable income tends to rise through age 45-49, then turns to a decline and drops sharply after age 60. Qualitatively consumption also follows this same pattern, but quantitatively the changes in consumption are more gentle. Consequently, the propensity to consume draws a U-shaped curve (Chart 18(2)) with high levels for the youth and elderly segments when income levels are low, and low levels in between.<sup>17</sup>

These are the conclusions drawn from the data observed in 2004. Next, we confirmed whether this life cycle pattern holds over the long term, independent of generational characteristics and changes in macroeconomic environment. Specifically, we used the cohort analysis to break down the propensity to consume (on an FIES basis) into (1) the age effect, (2) the generation effect (also called the cohort effect), and (3) the period effect (see the Reference at the end of this paper regarding cohort analysis). The age effect refers to the part that changes with age, that is, to the lifecycle-driven changes in the propensity to consume which we are trying to grasp here. The generation effect refers to differences in the propensity to consume based on the year of birth, that is, to the consumption behavior peculiar to each generation formed by the environment of the era in which they were born and raised. The period effect is the influence on the propensity to consume from macroeconomic environment, such as business cycle fluctuations, regardless of age or generation. The estimation results (Chart 19) indicate that the generation

---

<sup>17</sup> In Chart 18, which covers worker households with at least two members, the propensity to consume is lowest for the age segment 35-39 years old. However, prior research papers which estimate the figures for all households (including single-member households and households other than worker households) generally find that the propensity to consume bottoms out in the late 40s or early 50s. This is probably because children's education expenses tend to peak when the head of household is in his 40s or 50s in households with at least two members.

effect is not all that great, at least for individuals born after World War II. In contrast, the period effect pushed down the propensity to consume through the mid-1990s and has subsequently had a slight uplifting effect. Finally, the age effect is generally consistent with the individual life cycle, with a relatively high propensity to consume among youth and elderly segments and a lower propensity to consume in between.

Because the elderly segment has a relatively high propensity to consume, the propensity to consume on a macro basis will rise as the aging of society advances and the elderly segment gains a greater weight in the total population. Looking at Japan's population structure (Chart 20(1)), the percentage of elderly persons 65 and older is on a rising trend, and has already reached 20% of the total population. Also, on a household basis, as the percentage of single-person and two-person elderly households is rising, the percentage of elderly households has been rising at a faster pace. Moreover, that pace has been accelerating since the mid-1990s. From a somewhat long-term perspective, this aging of the population has been pushing up the propensity to consume slowly but structurally.

Looking at the changes in population structure over the past few years in greater detail, we find that the percentage of young households in their 20s is declining at an accelerating pace.<sup>18</sup> This is pushing down the propensity to consume on a macro basis, since together with elderly households young households have a high propensity to consume. On the other hand, the aging of baby-boomers has recently been pushing up the overall propensity to consume. During the 1990s, baby-boomers, which accounts for a large portion of the total population, was in their 40s and 50s – the age segment with the lowest propensity to consume – so they were pushing down the propensity to consume overall. However, as the baby-boomers are aging and shifting to the elderly segment – which has a high propensity to consume – they are now pushing up the propensity to consume overall.

We quantitatively estimated the effect of changes in the population

---

<sup>18</sup> However, this is also influenced by the trend toward marrying at a later age, and, therefore, it is possible that the rate of decline would become somewhat slower if single-person households were included.

structure on the overall propensity to consume by multiplying the propensity to consume of each age segment by the share of households in each age segment.<sup>19</sup> The results (Chart 20(3)) indicate that while the rate of increase in the propensity to consume has been slowing slightly since 2001 due to the decline in the number of young households and the slower rate of increase in the number of households 60-64 years old, the changes in the population structure under the aging of society are steadily pushing up the overall propensity to consume.

### **(Changes in consumer attitudes and efforts by firms)**

The second factor is the changes in consumer attitudes, especially in the elderly segment, coupled with the efforts by firms to grasp these changes. Recently, consumers have been characterized not necessarily as positive toward consumption in general, but rather as having a strong tendency toward spending more money on goods and services which satisfy their particular preferences. Also, as a lifestyle change, it has frequently been noted that the elderly segment with abundant financial assets and time has a growing attitude toward “wanting to enjoy life.” According to the Public Opinion Survey on the National Life implemented by the Cabinet Office, the elderly segment is strengthening its stance toward “enjoying everyday life” as a lifestyle emphasis (Chart 21(1)), and while it is somewhat out of date, the Survey on Time Use and Leisure Activities implemented by the Ministry of Internal Affairs and Communications indicates that the percentage of time spent on free-time activities such as hobbies and amusements has been rising, especially among the elderly segment (Chart 21(2)). Moreover, many kinds of surveys show that the elderly segment frequently mentions travel, home remodeling, hobbies & lessons, eating out and other service-related expenditures (especially so-called “time-consumption” type expenditures) as specific items on which they would like to increase their spending (Chart 22).

---

<sup>19</sup> For the propensity to consume of each age segment, we used the smoothed age effect (the dotted line in Chart 19(1)) calculated in the above cohort analysis (on worker households). For those 60 and older, however, considering the large differences in the propensity to consume between unemployed households and worker households, we use a figure estimated from the differential between the average propensity to consume of households in the 55-59 year old age segment and that of households in the 60 and older age segment (including unemployed households).

Given these demand-side changes, firms have strengthened their stance toward skillfully reading consumer demand and providing new products and services that are attractive to consumers, with high value added relative to the price, instead of simply pursuing low-price strategies. In particular, it seems that firms are positioning the so-called “active senior segment” – which is energetic, has ample financial assets, and is also positive toward consumption – as a primary target. As noted above, one of the distinctive characteristics in recent years is the firm consumption among seniors. Efforts by firms to incite such demand are believed to be expanding consumption among senior citizens.

We now proceed to confirm these changes in statistics. First, looking at the trends for each service sector in the Tertiary Industry Activity Index (Chart 23), which presents the level of activity in various service sectors, strong gains are being posted by the travel industry, fitness clubs and Japanese-style pubs, and these are generally consistent with the above-mentioned change in the attitudes of the elderly segment. Also, looking at the breakdown of senior spending in the FIES (Chart 24), compared with younger age segments the elderly clearly have a higher propensity to consume for such items as travel (package tours), home repairs and maintenance, and health-related expenses (nutritional supplements). Moreover, this trend has recently been growing even stronger.

The fields where consumption is expanding through changes in consumer attitudes and corporate efforts to stimulate consumer demand are not limited to only services. New products are appearing and the market scale is growing for durable consumer goods such as flat-panel televisions, DVD recorders, digital cameras, portable music players and other digital home electronics and for high value-added white goods (Chart 25). Of course, these new products are helping to push up consumption overall, including consumption by younger age segments, but on average with their abundant time and financial assets, the elderly constitute an important purchasing segment. This can be illustrated by the purchases of flat-panel televisions, as an example. According to the FIES (Chart 26(1)), the unit prices of televisions among seniors started rising from the beginning of the current recovery phase and have been the highest, although they have recently been rising among all age segments.

Next, the consumption of non-durable goods has been weak overall, but has remained firm among the elderly segment (Chart 17, above). In part, this also reflects the changes in attitudes among the elderly. For example, the unit prices of fresh meat purchased by the elderly are high compared with those purchased by younger age segments and this gap has recently been expanding (Chart 26(2)). The same trend can be observed for fresh vegetables as well, although it is not as pronounced as that for fresh meat (Chart 26(3)). This is apparently because senior citizens, who have a high level of concern regarding health, have been shifting to higher quality food products as they become more conscious of food safety with the BSE outbreak.<sup>20</sup>

As presented above, distinctive consumption developments which reflect changes in consumer attitudes are observed for many products and services. In these fields, firms are making various efforts to provide attractive products and services, and succeed in stimulating consumption, especially among the elderly segment.<sup>21</sup>

### **(Effects of the introduction of the nursing care insurance system)**

The third factor is that the nursing care insurance system, which was introduced in 2000, may have been pushing up consumption among the elderly. There is always a possibility that one may have to provide or receive nursing care in the future, and it is difficult to predict the financial burden of this beforehand. Accordingly, it is possible that households may have been holding excessive savings to prepare for such future uncertainty, prior to the introduction of nursing care insurance. Such uncertainty regarding the future greatly dissipated with the introduction of nursing care insurance in April 2000 whereby, in principle, individuals who are certified as requiring nursing care can receive

---

<sup>20</sup> In fact, the results of the general opinion survey on the traceability of food products implemented by NTT-Resonant and Mitsubishi Research Institute in October 2004 show that awareness of food product safety tends to increase with age. The percentage of individuals who responded that they are “extremely concerned about food product safety” was about 20% for respondents in their 20s, 30s, and 40s, 29.9% for respondents in their 50s, 30.9% for respondents in their 60s, and 43.8% for respondents 70 and older.

<sup>21</sup> However, elderly segment consumption of certain items such as clothing and furniture has been declining substantially. While it is difficult to consistently explain all such phenomena, it is likely that the elderly are also not positive toward consumption in general but rather are exhibiting selective consumption behavior.

nursing care services for a co-payment of 10% of the total costs.<sup>22</sup>

Moreover, the introduction of the nursing care insurance system has also freed up the time of family members who provide nursing care (home nursing care for elderly parents is mostly provided by individuals in their 50s and 60s), and this may somehow be stimulating travel and other consumption activities.

Since the nursing care insurance system was only recently introduced, it is difficult to statistically verify its effect on consumption using time-series data alone. Accordingly, we carried out panel-data analysis using data on the percentage of senior citizens (60 or older) certified as requiring nursing care and the elderly per capita amounts of nursing care insurance benefits disbursed (the total benefits divided by the population of senior citizens) by prefecture (Chart 27). We found that these indices are rising year by year on a nationwide basis, but with substantial variations by region with low levels in the Kanto and Tokai regions and generally high levels in western Japan. There are various hypotheses regarding the background to these regional disparities,<sup>23</sup> such as regional differences in the percentages of senior citizens who require nursing care, in residents' attitudes toward using such services, in the quality of the nursing care facilities, and in business efforts to develop nursing care customers, but the actual reasons remain unclear. Regardless of the reasons, we used the fact that these regional differences exist to estimate the propensity to consume using the percentage of senior citizens certified as requiring nursing care and the elderly per capita amounts of nursing care insurance benefits disbursed (standardized for the disposable income in each prefecture) as explanatory variables, controlling for the differences in the business cycle in each prefecture using the job offers to applicants ratios. The results confirm that both the percentage of senior citizens certified as requiring nursing care and the elderly per capita nursing care insurance benefits disbursed have a positive influence

---

<sup>22</sup> This is similar to the effects of lifetime pension system. Researchers have noted that the upgrading of the pension system during the 1970s diminished uncertainty regarding the economic burden for retirees, and contributed to the subsequent rising trend in the propensity to consume.

<sup>23</sup> See, for example, "Research Report on the Survey Regarding the Reasons for the Regional Differences in Nursing Care Insurance Benefit Payments" National Federation of Health Insurance Societies, 2003.

on the propensity to consume clearly in statistically significant manner (Chart 28).

Households' target savings (Chart 29) in the Public Opinion Survey on Household Financial Assets and Liabilities (a questionnaire survey implemented by the Central Council for Financial Services Information) provide additional evidence showing that the introduction of nursing care insurance has actually stimulated consumption. In fact, these target savings turned to a clear declining trend from 2000, just when the nursing care insurance system was introduced, especially among middle and elderly households, which have a strong tendency toward viewing nursing care as a practical concern. Of course, this does not mean that we can definitely seek the background to lower target savings solely in the introduction of nursing care insurance. In recent years, however, as reasons for savings (Chart 30), the percentage of Public Opinion Survey on Household Financial Assets and Liabilities respondents citing the purchase of consumer durables or leisure activities has been rising slightly while the percentage citing illness or emergencies, a sense of security with savings has been on a declining trend, with some fluctuations. Combining these developments with the decline in target savings, it seems highly likely that the introduction of nursing care insurance has eased household anxiety regarding the future to some extent and worked to push up the propensity to consume.

## **(2) Strong Factors in Each Phase**

The factors reviewed above have apparently pushed up the propensity to consume since around 2000 as underlying trends. At the same time, breaking down into shorter time periods, it seems that, in certain phases, other factors such as inertia in consumption, improved consumer confidence and the wealth effect, and improvements in employee compensation also played important roles in underpinning or pushing up consumption. Under the lifecycle or permanent income hypothesis, households determine consumption and savings to even out their lifetime consumption expenditures, based not only on present disposable income but also financial assets and expected future disposable income as their budget constraints. If this hypothesis is correct, present consumption levels will not drop all that much even when present disposable income declines, as long as there are no major changes in expected future disposable income, and this results in an increase in the present propensity to consume. Similarly, when financial asset holdings increase, for example from

higher stock prices, present consumption expenditures and accordingly the propensity to consume will rise. Keeping this mechanism in mind, we now review the factors that manifest strongly during each phase.

### **(Inertia in consumption <circa 2001-2002>)**

Around 2001-2002 was the phase when the economy contracted from the collapse of the IT bubble, followed by the start of the subsequent recovery. Employee income declined sharply under corporate restructuring, and self-employed income also dropped off. Over the two years 2001-2002, household employee compensation fell by 3.2%, and disposable income by 3.3%. Nevertheless, over the same two years 2001-2002, consumption remained nearly level, declining by just 0.1% (these are all nominal figures on a GDP basis). To a large extent, the rise in the propensity to consume during this phase was not the result of any improvement in household attitudes toward consumption. On the contrary, the propensity to consume (consumption / income) simply rose as a result of the decline in the denominator, income.

Inertia in consumption, whereby consumption tends to change more slowly than income, may be one reason why consumption remained essentially flat, amid a decline in income at that time.<sup>24</sup> In general, inertia in consumption strongly appears more easily for basic expenditures such as utilities, rent and food expenses than for discretionary expenditures. In fact Chart 16, which categorizes household expenditures into basic expenditures and discretionary expenditures, confirms that during this phase discretionary expenditures greatly declined while basic expenditures restrained the decrease in consumption overall.<sup>25</sup>

According to the lifecycle or permanent income hypothesis, inertia in consumption comes from an understanding by households that income declines,

---

<sup>24</sup> Consumption inertia, whereby consumption does not react much to income declines is sometimes referred as “ratchet effect.” One of the reasons for this asymmetry is that consumption tends not to decline after it reaches a certain level.

<sup>25</sup> More precisely, this scrimping on discretionary expenditures began from around 1997. This was apparently because the income decline from the collapse of the IT bubble hit households before consumer behavior to restrict spending following the 1997-1998 financial crisis recession had run its course.

or at least some portion of them, are only temporary. Examining this point, looking at the breakdown for 2001 which was the year with the largest decline in disposable income (Chart 5, above), the drop in self-employment income (mixed income; categorized under “others”) greatly contributed to the decline. By its nature, self-employment income tends to fluctuate greatly, and it is highly likely that the large drop at that time was viewed to some extent as being temporary.<sup>26</sup> It is difficult to extract the propensity to consume of only the self-employed from the GDP statistics or the FIES, but we can roughly estimate the propensity to consume of the self-employed by dividing the consumption amount of “individual proprietors’ households” in the FIES by the amount of “mixed income” in the GDP statistics. The calculation results (Chart 31) indicate that from 2000 through 2001 there was a large decline in income but only a relatively mild decrease in consumption, and that consequently the propensity to consume sharply increased.

**(Improvement in consumer confidence and the wealth effect <2003-2004, and from mid-2005 >)**

In 2003-2004 and again from mid-2005 forwards, improved consumer confidence accompanying the upturn in the employment environment and the wealth effect from rising stock prices exerted relatively strong influences as factors pushing up consumption. Under the lifecycle or permanent income hypothesis, the interpretation is that these boosts to consumption occurred because households increased their lifetime consumption budgets in response to higher future income expectations and increases in the value of their financial asset holdings.

Regarding these points, first, looking at several indicators of consumer confidence (Chart 32), consumer confidence worsened for a few years after it peaked around 2000, and then significantly improved from 2003 through 2004. According to the Consumer Confidence Index compiled by the Cabinet Office,

---

<sup>26</sup> While revenue declines are considered the main cause of this large decline in mixed income, statistical fluctuations may also have had some influence. Additionally, as explained above (in Footnote 5) disposable income may have been substantially lower statistically than as perceived by households, because of the statistical handling under the SNA of the huge volume of postal savings which reached maturity at that time. Probably, this pushed up the propensity to consume on a statistical basis.

the employment environment outlook in particular suddenly improved at that time. That timing also generally corresponds with a decline in involuntary unemployment and a rise in the job offers to applicants ratio. Thus, it seems that the propensity to consume rose in this phase because consumers' expectations of future income rose – or at least their concerns over further income declines eased – from the improvement in the employment environment, even before any clear rise in actual income. Then, economic activity subsequently turned flat and consumer confidence eased slightly, but consumer confidence then rose once again from around late 2005 when production activities recovered and bonus payments solidly increased.<sup>27</sup>

Secondly, stock prices have risen rapidly since they bottomed out in 2003. After dropping to 770 points on March 11, 2003, the TOPIX rose more than 50% by around April 2004. The TOPIX then turned flat but began to rise suddenly once again from the summer of 2005 and has recently been at a level more than twice as high as the March 2003 low. Reviewing the household assets (Chart 33(2)), stock holdings (on a market value basis) and total financial assets rose in 2003 and 2005, reflecting the rises in stock prices. These developments are believed to have exerted a positive influence on consumption in 2003-2004 and in the 2<sup>nd</sup> half of 2005. While stocks only account for about 10% of total household financial assets (Chart 33(1)), dividend income has also increased significantly during the present recovery phase to slightly surpass interest income in FY 2004 (Chart 34). Additionally, individual investors who repeatedly buy and sell stocks over the short term without maintaining long-term share holdings may also have realized capital gains as stock prices rose. In this manner, it is highly likely that the rise in stock prices worked to push up consumption via routes that are not necessarily reflected in the outstanding balance of stock holdings.<sup>28</sup>

---

<sup>27</sup> In December 2005, the Consumer Confidence Index posted its highest level in 14 and half years, since June 1991.

<sup>28</sup> Additionally, the commissions that individuals pay to securities companies are regarded as private consumption in the GDP statistics because they are consumption of financial services, and stock turnover is used for estimation. Especially, in the 2<sup>nd</sup> half of 2005, net transactions rose and stock turnover suddenly increased, so they significantly contributed to the increase in consumption on a GDP basis.

One characteristic of these financial asset holdings (especially holdings of stocks, investment trusts and other risk assets) is that they increase in line with household age (Chart 35(1)). Looking at the proportions of stocks and investment trusts held by each age segment under the FIES (Chart 35(2)), we see that elderly households 60 and older account for over 60% of the total. While it is important to note that there is a large differential in the holdings amounts among senior households, so they cannot all be lumped together (Chart 35(3)), it is highly likely that the rise in stock prices primarily stimulated consumption among the elderly. Estimating a simple consumption function (with wage income and the balance of financial assets as the explanatory variables) by age segment using the FIES (Chart 36(1)), we find it is households in their 60s where changes in financial assets outstanding have a statistically significant influence on consumption. Estimating a similar consumption function for goods and services (Chart 36(2)), we find that it is mostly the consumption of durable goods and services which are easily influenced by changes in financial assets outstanding. These estimation results are generally consistent with the fact that private consumption has remained firm especially for the elderly segment and for services and durable goods. Furthermore, examining various consumption related statistics for the 2<sup>nd</sup> half of 2005 when stock prices suddenly rose (Chart 37), we find that sales recovered at department stores, which handle high-priced items, with particularly strong sales of “accessories” including brand-name bags and accessories and of “others” including jewelry and luxury watches. Additionally, sales increased at restaurants, especially at those charging high prices, and occupancy rates rose somewhat at Tokyo hotels. Overall, the wealth effect is believed to be one cause behind these developments.<sup>29</sup>

### **(Improvement in actual employee compensation <since around 2004>)**

Since 2004, improvement in actual employee income is believed to have gradually become a main factor behind the recovery of consumption. As explained above, households choose their consumption and savings behavior not only based on current income but also on their expectations of future

---

<sup>29</sup> Among the demand-side statistics, Survey of Household Economy implemented by the Ministry of Internal Affairs and Communications shows that consumption of high-priced items (in principle, items which cost at least 30,000 yen per expenditure and which are bought no more than once per year) is rising at a fast pace.

income. Over the long term, however, expectations must be backed up by actual performance, so ultimately it seems that actual employee income is what determines private consumption trends. In particular, for younger households with insufficient financial assets (mainly, younger households), in other words, under liquidity constraints, consumption is easily influenced by short-term income trends. This is confirmed by the consumption function by age segment (Chart 36(1), above) which shows high elasticity of consumption to wage income for young households in their 20s.<sup>30</sup>

Looking at recent developments in employee income (Chart 4, above), we see that employee income turned to a rise from 2004 with the increase in the number of regular employees, the payment of higher bonuses under favorable firms profits, and the halt in the rise of the percentage of part-time workers, and has accelerated gradually through to the present. Also, disposable income has been on a gentle rising trend since around 2004 although disposable income on an FIES basis is presently somewhat weak due to sample factors.

This increase in consumption backed up by improved income can also be confirmed using the FIES. Using the income-class and age-segment data to examine the relationship between disposable income and consumption (Chart 38), we find that amid falling disposable income, consumption declined overall during 2001-2003 (except for the elderly segment), but not as much as the decline in disposable income. From 2004 forwards, however, a growing number of age segments and income classes show the year-on-year increases in both income and consumption. Hence, steady increase in private consumption is judged to be underpinned by actual income growth.

### **(3) Check Using the Consumption Function**

So far, we have investigated the characteristics of the private consumption trends in recent years, and also have considered both the factors that seem to have pushed up private consumption as underlying trends and the factors that seem to have exerted relatively strong influences on private

---

<sup>30</sup> Employment environment for youth clearly improved from around 2005 as the unemployment rate which had been at high level began to decline and the employment of new graduates became more active with higher employment of regular employees. It is likely that these changes contributed to the recovery of consumer confidence among young age segments.

consumption in each phase. These developments may be summarized once again, as follows.

First, looking over the somewhat long term, the aging of the population is contributing to boosting the propensity to consume as a trend. By age segment, one distinctive characteristic is that the propensity to consume has risen substantially among the elderly (especially among elderly retirees). The background to this is thought to include: (1) a growing trend toward active expenditures on highly satisfactory goods and services among seniors, coupled with corporate recognition of the elderly as an important customer segment and corporate efforts to incite their latent demand; (2) the introduction of nursing care insurance has freed up a portion of contingency savings and also freed up some of the time of those providing nursing care to family members; and (3) the wealth effect amid a rise in stock prices, especially among elderly households with accumulated assets. Recently, however, consumption has held firm not only among the elderly but also among younger age segments, and it seems that this can largely be attributed to the improvements in employee income. By category, consumption has been particularly strong for durable goods and services. It has been noted that the background to this includes; (1) the expansion of market scale with the introduction of digital home electronics and other new products; (2) the expanded demand for travel and other “time consumption” type expenditures against the background of changes in the consumer attitudes and lifestyles of the elderly; and (3) the strong influence of the wealth effect in boosting expenditures on durable goods and discretionary services.

We then estimated the macro consumption function using the Error Correction Model (ECM) to quantitatively confirm the above findings. The ECM predicts consumption by first confirming that consumption has a long-term stable relationship with present and future income and financial asset holdings – in other words, there is a co-integration relationship – and then assuming that the dynamic works toward restoring the stable relationship whenever the relations among these variables fall out of order.<sup>31</sup>

---

<sup>31</sup> Four explanatory variables for the long-term equilibrium are used here: the percentage of the population 60 and over (the population aging factor), household real net financial assets outstanding (the net assets factor), real employee compensation (the income factor), and  $<1 - \text{the unemployment rate}>$  times real employee compensation (the income outlook factor). The

The estimation results (Chart 39) indicate: (1) the population aging factor is pushing up consumption as a trend; (2) from 2003 through 2004 the net assets factor and the income outlook factor were primary factors for the increase in consumption; (3) from the middle of 2004 the improvement in employee income also began contributing to increased consumption; and (4) there was a substantial discrepancy between the movements of the long-term equilibrium and the actual consumption figures in 2001 and 2002, suggesting that the developments may have been influenced by consumption inertia and by the gap between the statistics and household impressions as a huge volume of postal savings reached maturity. These findings are consistent with the explanations of private consumption trends over the past few years presented in this paper. Additionally, the consumption function estimation indicates that at present consumption is being upheld by increased employee income, the wealth effect from rising stock prices, and an improved income outlook. The estimated consumption function also indicates that while present consumption does not greatly diverge from the long-term equilibrium, it is a bit weak by comparison. This suggests that while recent private consumption is generally consistent with the household environment, the influences from rising stock prices will gradually manifest in the near future.<sup>32</sup>

### **3. Future Outlook**

#### **(Consumption issues over the longer term)**

In examining the future developments in consumption, some factors which may affect consumption in middle to long-term perspective need to be considered. Here, we now briefly examine several issues regarding future consumption.

First, we examine household attitudes toward the future. In the Public

---

last term is used as the income outlook factor on the understanding that the tightness of the labor market as represented by the unemployment rate can be viewed as a proxy variable for the future wage increase.

<sup>32</sup> According to this consumption function, a 10% rise in stock prices will ultimately push up consumption by about 0.2%. However, these quantitative relationships need to be viewed with circumspection.

Opinion Survey on Household Financial Assets and Liabilities (a questionnaire survey implemented by the Central Council for Financial Services Information), roughly 80% of households responded that they were “very worried” or “somewhat worried” about their post-retirement livelihood (Chart 40(1)-1), indicating that at present household anxiety regarding the future remains strongly entrenched. According to the same survey, the number of households citing “insufficient pension and insurance benefits” as reasons for these anxieties have been gradually increasing. Also, in the Opinion Survey on the General Public’s Mindset and Behavior implemented by the Bank of Japan, the percentages of households citing “anxiety of future cuts in pension and social security payments” and “anxiety of a tax increase or a rise in social security burden” as reasons why they “have decreased their spending compared with one year ago” are on a rising trend (Charts 40(1)-2 and 40(2)). As noted above, with the introduction of nursing care insurance, anxieties regarding post-retirement life have been easing somewhat over the past few years. Nevertheless, as Japan’s economy is faced with long-term problems such as pension system, a declining birthrate and the aging of society, the developments in household anxiety regarding the future and their influence on private consumption must continue to be carefully monitored.

Moreover, the dispersion in consumption among households may well be rising as the gaps in household’s present and future income and financial assets are gradually widening. Regarding this point, we examined the dispersion of consumption among households using data from the National Survey of Family Income and Expenditure implemented by the Ministry of Internal Affairs and Communications (Chart 41), and found a gradually widening trend. By age segment, the consumption disparities among elderly households are on a narrowing trend, while the disparities among working-generation households are gradually expanding overall.<sup>33</sup>

Meanwhile, recent survey results suggest that the percentage of households with low savings is gradually rising. For example, looking at the

---

<sup>33</sup> It has often been pointed out that this growing differential in consumption cannot solely be attributed to growing differences in present income, and rather that different outlooks on future income also play a large role (for example, see Otake, *Japan’s Inequality*, Nihon Keizai Shimbunsha, in Japanese).

percentage of disposable income allocated to savings, the Public Opinion Survey on Household Financial Assets and Liabilities (it is important to note that this survey does not include savings for business purposes, account transfer payments and other items that only remain in accounts temporarily in its definition of “savings”) shows a growing percentage of households responding that they “allocated zero funds to savings” over the past year (Chart 42(1)). On an outstanding balance basis, the percentage of households responding that they have “no savings holdings” has risen conspicuously since around 2000, and reached about 23% of households with at least two members (and about 41% of single-person households) in the 2005 survey (Chart 42(2)).<sup>34</sup> Given the definition of “savings” under this survey as presented above, the survey results do not mean that the percentage of households that always have zero savings is necessarily increasing.<sup>35</sup> Nevertheless, the gaps in financial assets and income among households are one important point which cannot be ignored in examining future private consumption trends.

Finally, a point of great interest is how the retirement of the baby boomers will affect private consumption over the next few years. The baby boom generation, centered around those born in 1947-1949, will be reaching retirement age from 2007. This is a large population segment, accounting for around 5% of the total population and 8% of the working population. So if consumption behavior of baby boomers changes with retirement, this may have an impact on macro basis that is too great to ignore. Nevertheless, there are too many uncertainties and mutual influences among diverse factors to predict the influence from the retirement of the baby boomers on the macro economy at the present time. For example, how many members of this generation will seek re-employment after their first retirement and thus remain in the labor market, and how will their retirement change the labor market itself overall? Given these unknowns, we limit ourselves to rough considerations here based on those

---

<sup>34</sup> By age segment (for households with at least two members), the rise in the percentage of households responding that they have zero savings is particularly conspicuous for younger households, but it has also been on a rising trend for other age segments since around 2000. The figures by income class also show a general rising trend from around 2000, with a very rapid rate of increase among low-income households with annual incomes of ¥3 million or less (Charts 42(3) and (4)).

<sup>35</sup> It is also possible that in some cases the statistics may simply reflect a shift from time deposits to liquid deposits.

items that can be predicted from the consumption behavior of the elderly segment to date.

First, we use the cohort analysis to confirm whether consumption levels greatly decline with the retirement and whether the baby boomers has any unique generational consumption behavior characteristics in comparison with other generations.<sup>36</sup> Our findings (Chart 43) confirm that (1) the baby boom generation born in 1946-1950 does not have any distinctive differences in its consumption pattern compared with the preceding and following generations, and (2) there is an age effect whereby consumption levels decrease somewhat with retirement, but this decline in consumption is marginal. These findings contrast with those in Western countries where consumption levels tend to greatly decline upon retirement.<sup>37</sup>

As reasons why consumption drops only slightly in Japan upon retirement, it has been noted that individuals who are actively working have relatively little free time (Chart 44(1)), and therefore additional free time they gain upon retirement facilitates consumption such as travel and other leisure activities. Also, in the US, individuals often move to small houses after retirement so their imputed rent and other housing-related expenses drop sharply, while no such decline in housing expenses is observed in Japan, where senior citizens often remain in the same house after retirement (Chart 44(3)-1).<sup>38</sup> Other possible

---

<sup>36</sup> While Chart 19 presents the cohort analysis on the propensity to consume, the analysis here is on the consumption level to focus on changes in the level of consumption accompanying retirement. Because of the differences in the number of household members between households in their 50s and those in their 60s partly resulting from children becoming independent, it is difficult to extract just the influence from the retirement of the head of household using consumption per household as the dependent variable. Accordingly, we adopt consumption per capita (or consumption per capita after excluding expenses that are largely fixed such as housing and utilities expenses) as the dependent variable for this analysis.

<sup>37</sup> This tendency toward a sudden decline in consumption levels upon retirement in Western countries is referred to as the “retirement-consumption puzzle” since workers know when they will retire beforehand and this sudden decline contradicts the smoothing of consumption under the life cycle hypothesis.

<sup>38</sup> Conversely, educational expenses greatly decline among the elderly in Japan in contrast with the US trend (Chart 44(3)-2). This should probably be understood as arising from differences in how the working generation spends money on children’s education in Japan and the US.

reason why consumption levels in Japan do not greatly decline upon retirement is that the skewness of income distribution is small in Japan (Chart 44(2)), and that not many Japanese households face liquidity constraints upon retirement because elderly Japanese have accumulated financial assets. As noted above, there have recently been increases in time-consumption type expenditures such as travel and other housing-related demand including remodeling. Moreover, these are areas in which the baby boomers have a great interest. Consequently, in several years, there is a high likelihood that consumption by the elderly age segment will become even firmer, at least compared to income.

### **(Conclusions)**

This completes our examinations of several points at issue – and some points of concern – regarding the outlook for future consumption. Based on the analyses in this paper, we view the basic future path of private consumption in Japan as follows.

First, regarding household income, firms are generally maintaining a cautious employment and wage stance, and institutional revisions which will increase the household burden, such as the abolition of fixed-rate tax reduction measures and an increase in the social security burden are planned in FY 2006. However, winter bonuses posted a solid increase in 2005, and corporate earnings, which continue to grow at a high level, are slowly but surely being shared with households. Furthermore, the pressure to increase regular cash wages is rising as the labor market is gradually becoming tighter. Thus, even after considering the above-mentioned increases in the household burden, the rate at which disposable income is rising is projected to gradually accelerate.<sup>39</sup> Additionally, household confidence regarding future income should gradually strengthen as increases in regular cash wages become firmly established.

We can also expect a positive influence on households via higher stock prices and other channels if the corporate sector continues to achieve favorable performance, and the strong attitude toward consumption of the elderly

---

<sup>39</sup> While the specific timing for abolishing the fixed-rate tax relief measures was not determined, given the widespread understanding that they will eventually be abolished, if many households' consumption behavior is consistent with the permanent income hypothesis, then there should be no sudden major impact on private consumption when the abolition is implemented.

segment reflecting lifestyle changes is expected to continue for the time being. Meanwhile, the rising trend in the propensity to consume brought by the aging of the population is expected to continue.

In sum, there is a high probability that private consumption in Japan basically will continue to solidly expand, accompanied by a gradual rise in the propensity to consume, while being influenced by such factors as household anxiety regarding the future and the retirement of the baby boomers.

## Outline of Cohort Analysis

### (What is Cohort Analysis?)

Cohort analysis is a method of dividing the following three effects from time-series data that is categorized by age segment: (1) the age effect (effects that are particular to a given age segment), (2) the period effect (effects that are particular to a given survey year), and (3) the generation (or cohort) effect (effects that are particular to individuals born in a given year).

For example, assume time series data on the consumption of a certain good as presented in the left-hand table below (the standard cohort table), with the three survey years 1995, 2000 and 2005 divided into four five-year age segments (the arrows in the table denote the same generations over time). In this case, the cohort analysis estimates the respective effects of (1) the three periods, (2) the four age segments, and (3) the six generations as marked in each table. The results make it possible to divide the consumption of each age segment at each point in time into those three effects, as follows.

$$X_{it} = \beta_0 + \beta_i + \beta_t + \beta_c + e_{it}$$

where  $X_{it}$  is the consumption of age segment  $i$  at time  $t$ ,  $\beta_0$  is a constant,  $\beta_i$  is the age effect,  $\beta_t$  is the period effect,  $\beta_c$  is the generation effect, and  $e_{it}$  is the error term.

Division into the three effects

	20-24	25-29	30-34	35-39
1995	79	76	74	72
2000	70	72	69	68
2005	83	73	69	67

	20-24	25-29	30-34	35-39
1995	●	●	●	●
2000	△	△	△	△
2005	□	□	□	□

	20-24	25-29	30-34	35-39
1995	○	▲	×	◆
2000	○	▲	×	◆
2005	○	▲	×	◆

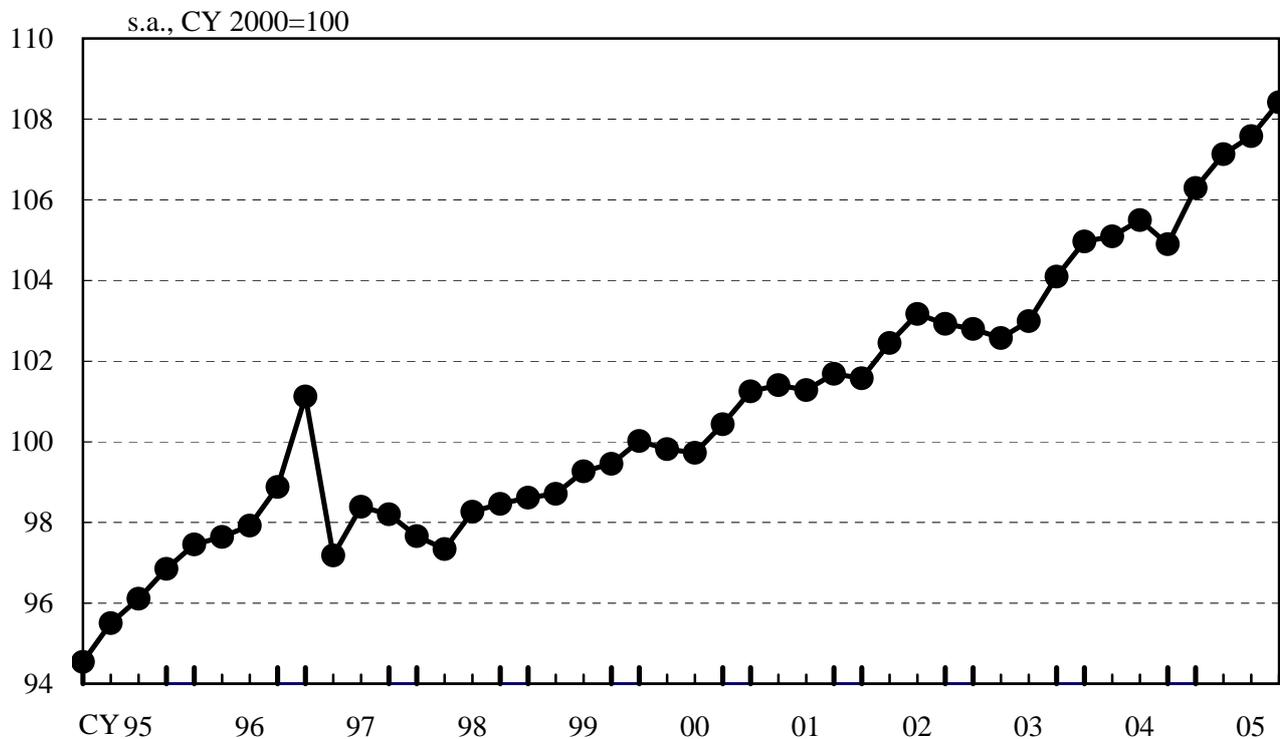
	20-24	25-29	30-34	35-39
1995	▼	○	△	□
2000	×	▼	○	△
2005	◆	×	▼	○

### **(Specific Analysis Method)**

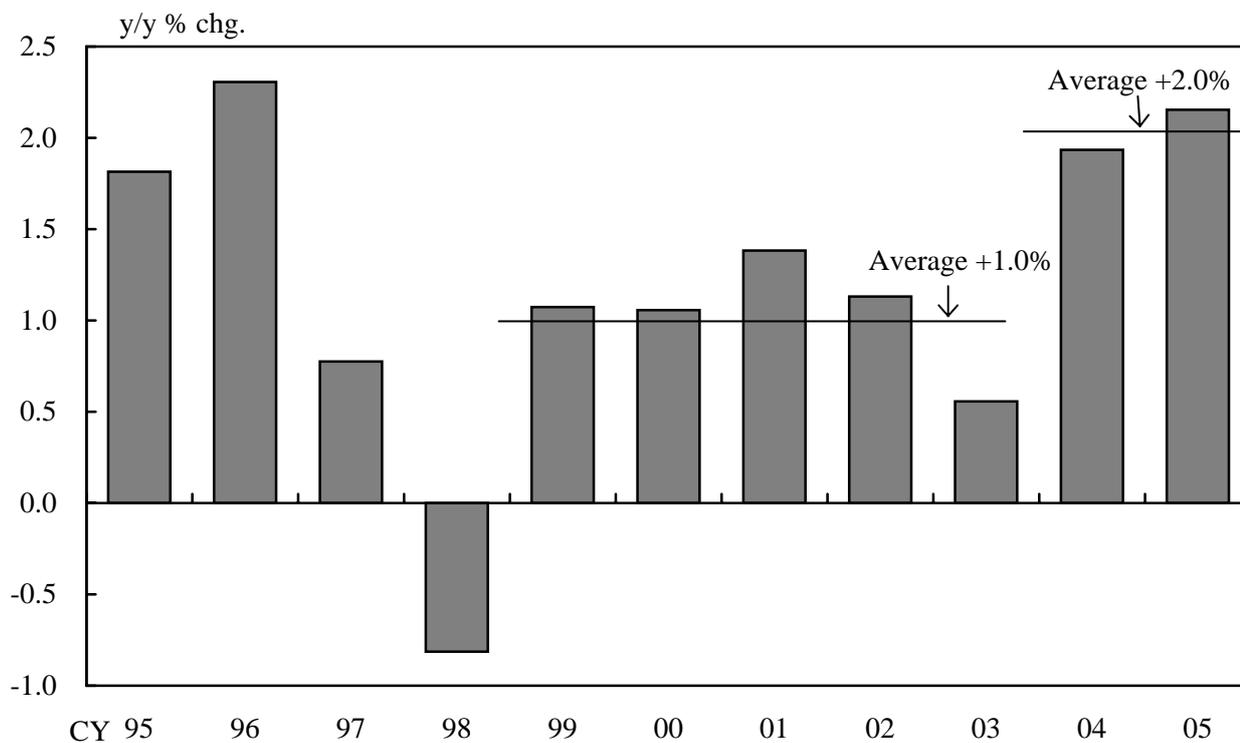
Specifically, cohort analysis takes each datum in the standard cohort table as the explanatory variable, sets a dummy variable for each classification (age, period, and generation), and performs least squares method regression. In the main body of this paper, we conduct cohort analysis on nine five-year periods from 1965 through 2005 (except for the consumption analysis in Chart 43 which covers eight periods from 1970 through 2005) and on ten five-year age segments. Setting dummy variables for all those categories would make it impossible to discern the parameters, so for our estimations we assume the same generation effect for those born in 1936-1940 and in 1941-1945.

## Real Private Consumption on a GDP Basis

(1) Level



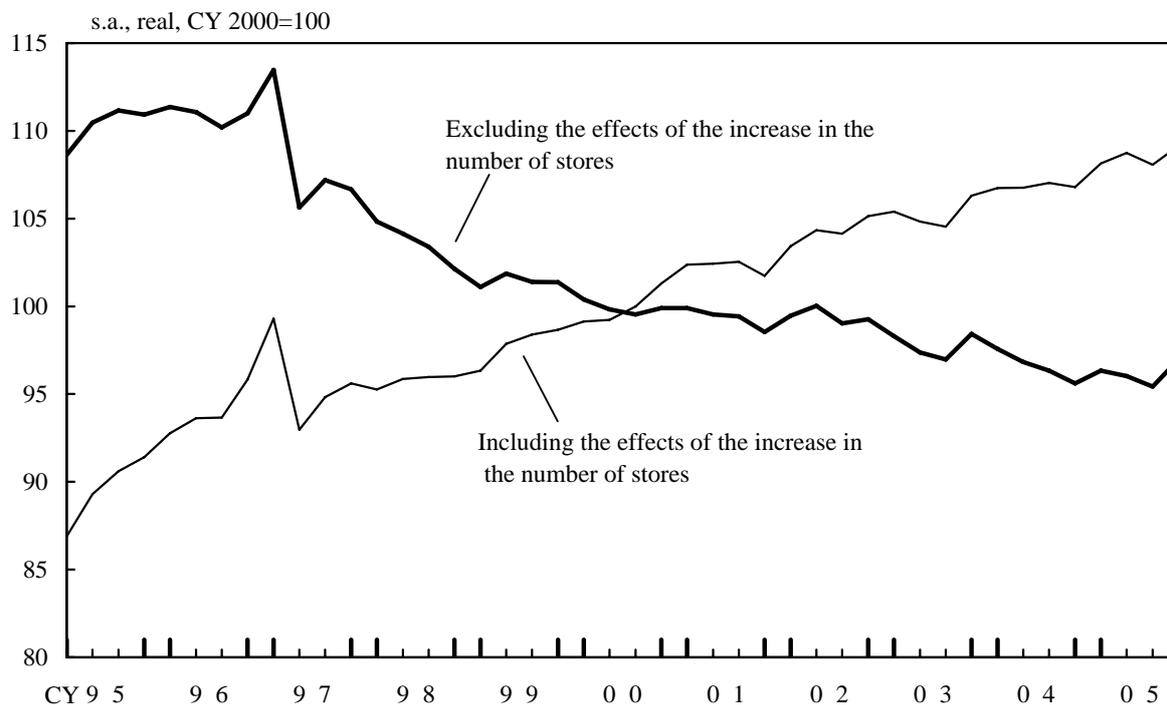
(2) Changes from a Year Earlier



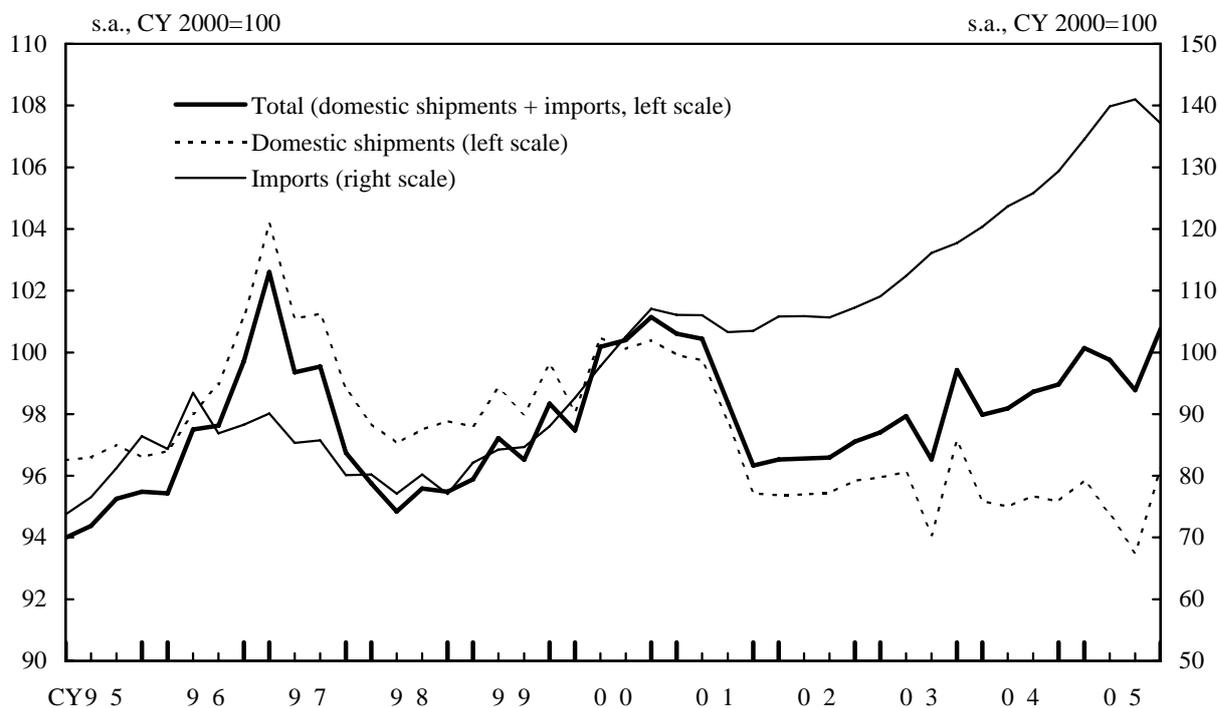
Source: Cabinet Office, "National Accounts."

## Other Indicators for Consumption (1)

### (1) Indices of Aggregated Sales



### (2) Aggregate Supply of Consumer Goods



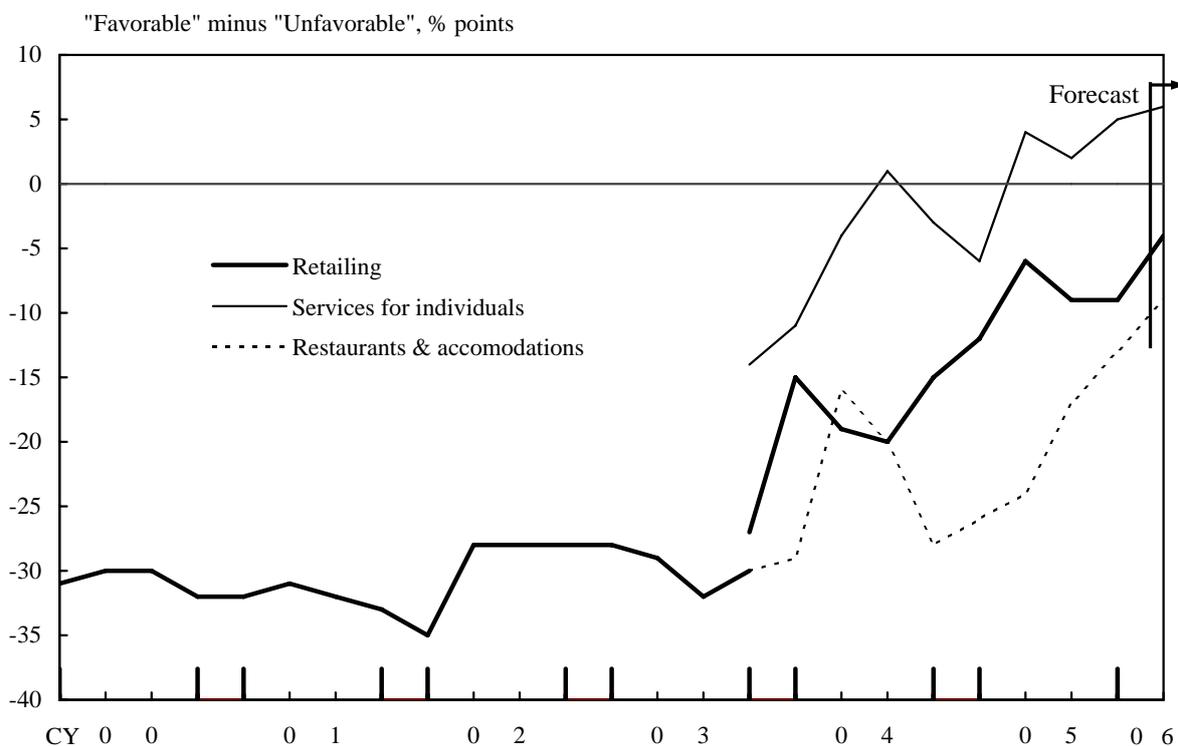
Notes : 1. Indices of aggregated sales are the weighted sum of Sales at department stores and supermarkets; New passenger-car registrations; Sales of household electrical appliances; Outlays for travel; and Sales of food service industry. Indices "including the effects of the increase in the number of stores" include sales at convenience stores.

2. Aggregate supply of consumer goods is calculated using shipments of consumer goods in Indices of Industrial Production and real exports and imports of consumer goods.

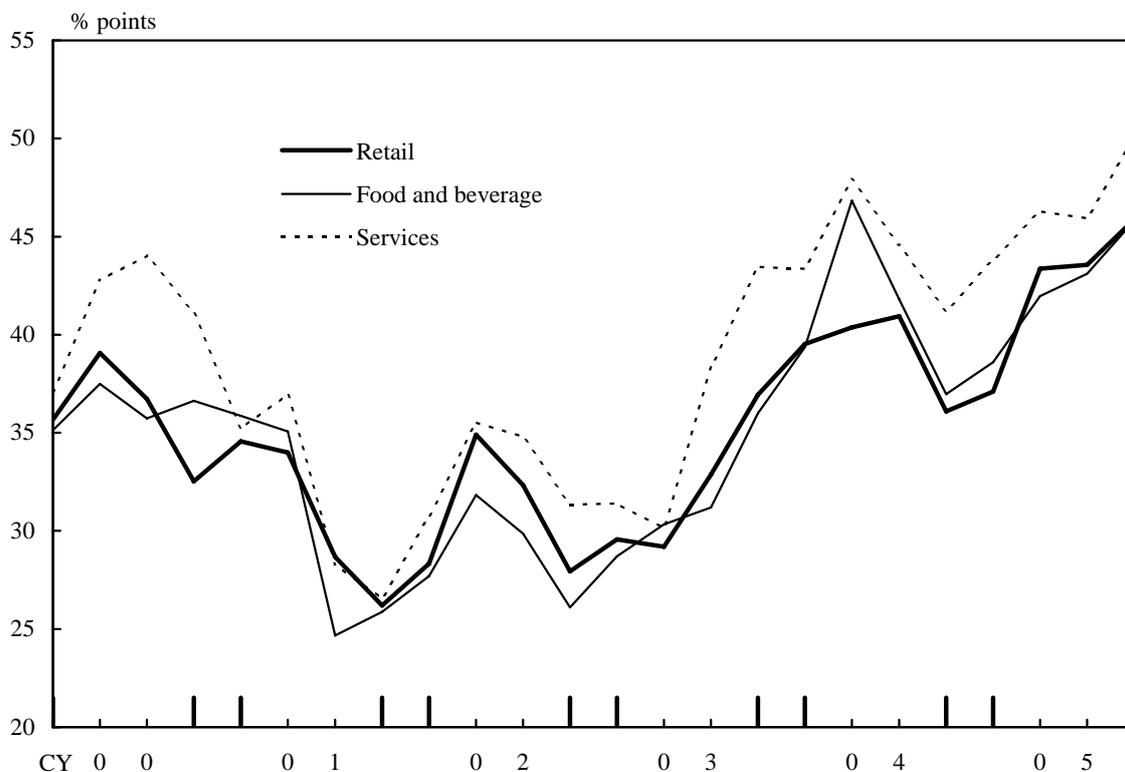
Sources: Ministry of Economy, Trade and Industry, "Indices of Industrial Production," "Indices of Industrial Domestic Shipments and Imports"; Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Indices of Aggregated Sales," "Corporate Goods Price Index."

## Other Indicators for Consumption (2)

(1) Tankan (Business Conditions D.I.)



(2) Economy Watchers Survey (Assessment of Current Economic Conditions<Level>)



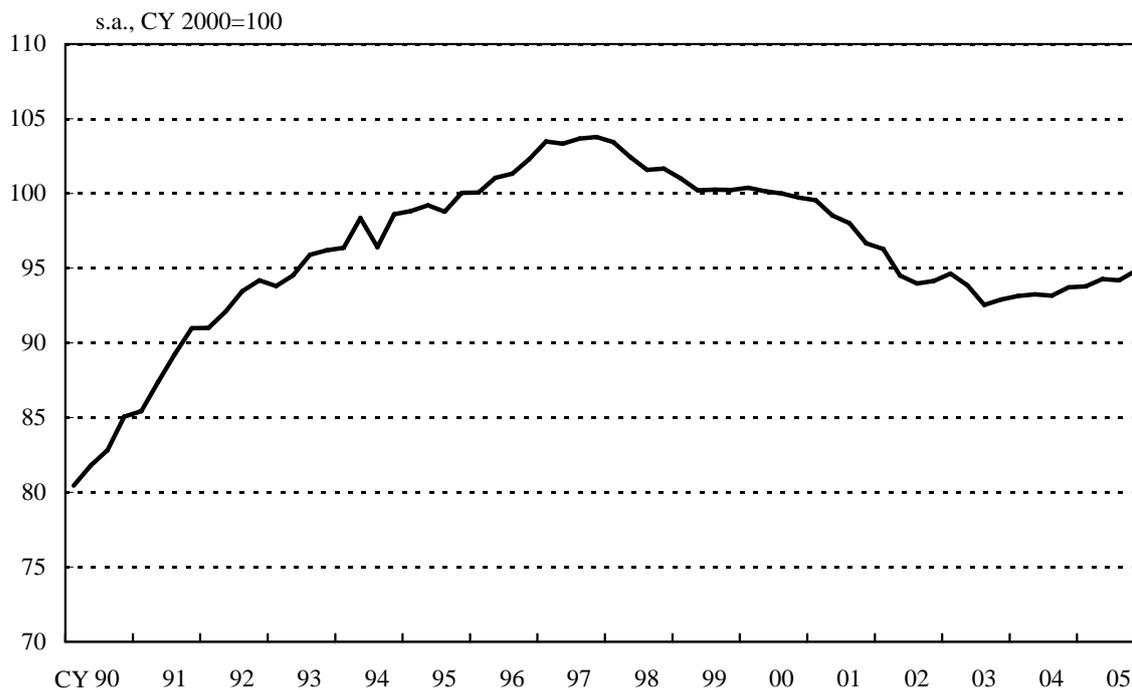
Note : The D.I. of the Economy Watchers Survey is calculated by multiplying the following points by the component ratio of each response category.

$$\text{"Good"} \times 1 + \text{"Slightly good"} \times 0.75 + \text{"Neither good nor bad"} \times 0.5 + \text{"Slightly bad"} \times 0.25 + \text{"Bad"} \times 0.$$

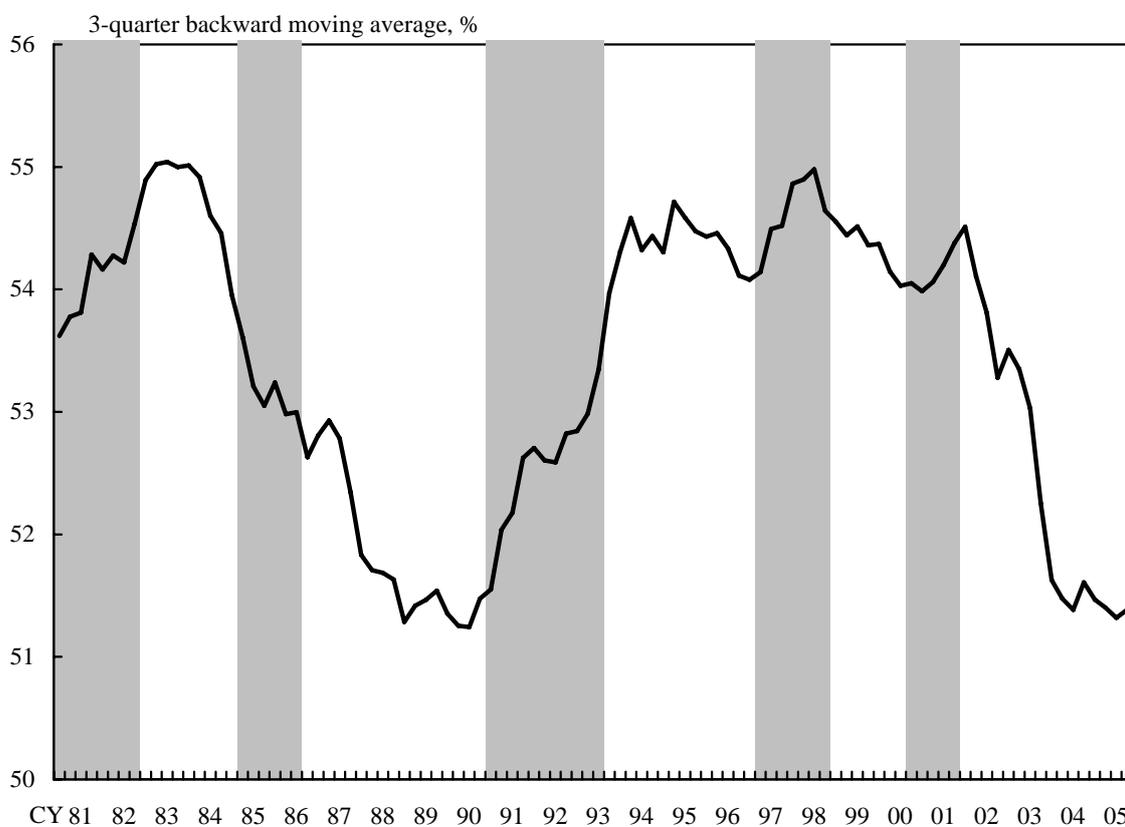
Sources: Bank of Japan, "Tankan, Short-Term Economic Survey of Enterprises in Japan";  
 Cabinet Office, "Economy Watchers Survey."

## Employee Income

(1) Employee Income (Monthly Labour Survey basis)



(2) Labor Share (Employee Compensation / Nominal GDP)

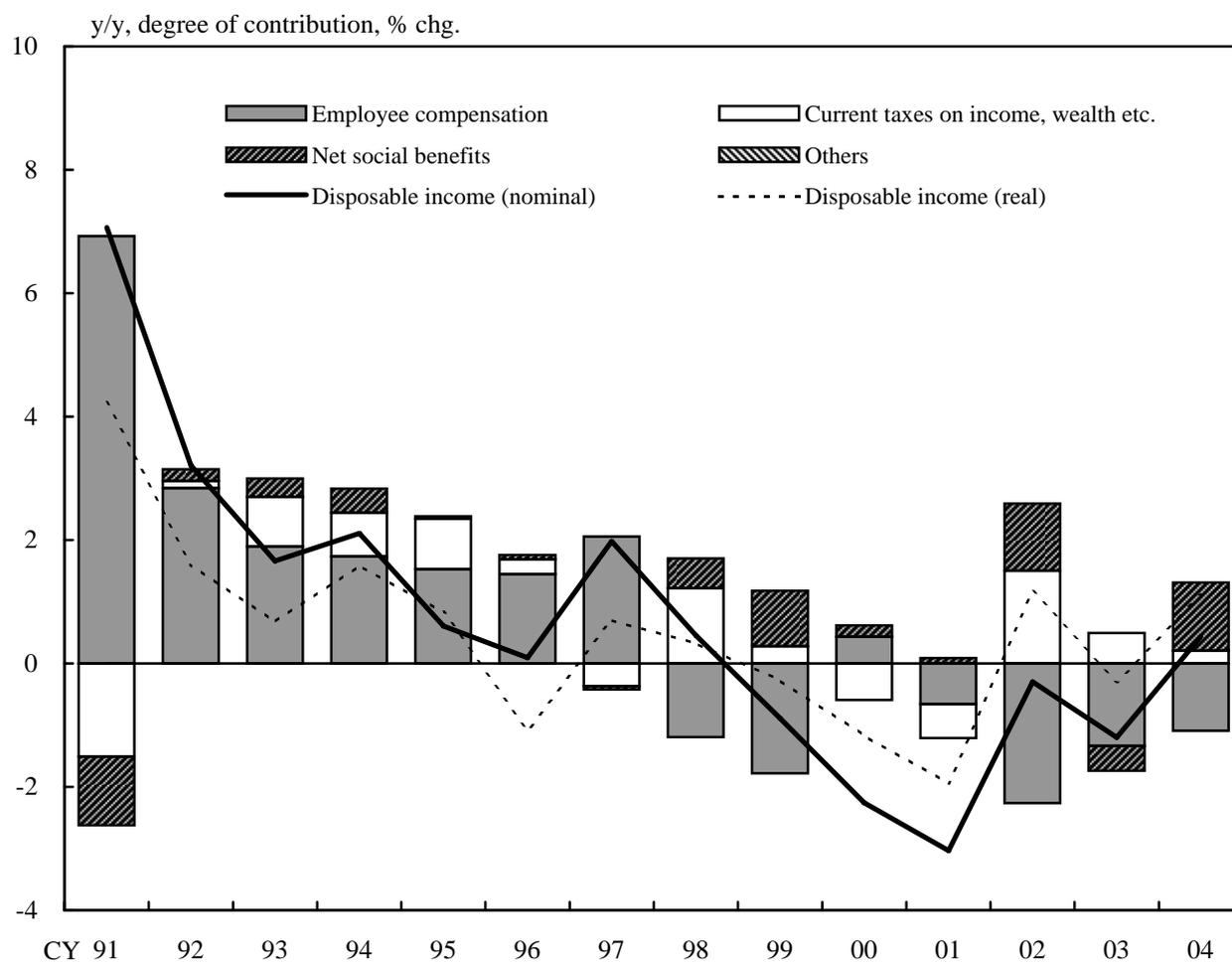


Notes : 1. Shaded areas indicate recessions.

2. Employee income is calculated by multiplying nominal wages per worker by the number of regular employees. Compensation in Chart (2) includes employers' actual and imputed social contributions.

Sources: Ministry of Health, Labour and Welfare, "Monthly Labour Survey";  
Cabinet Office, "National Accounts."

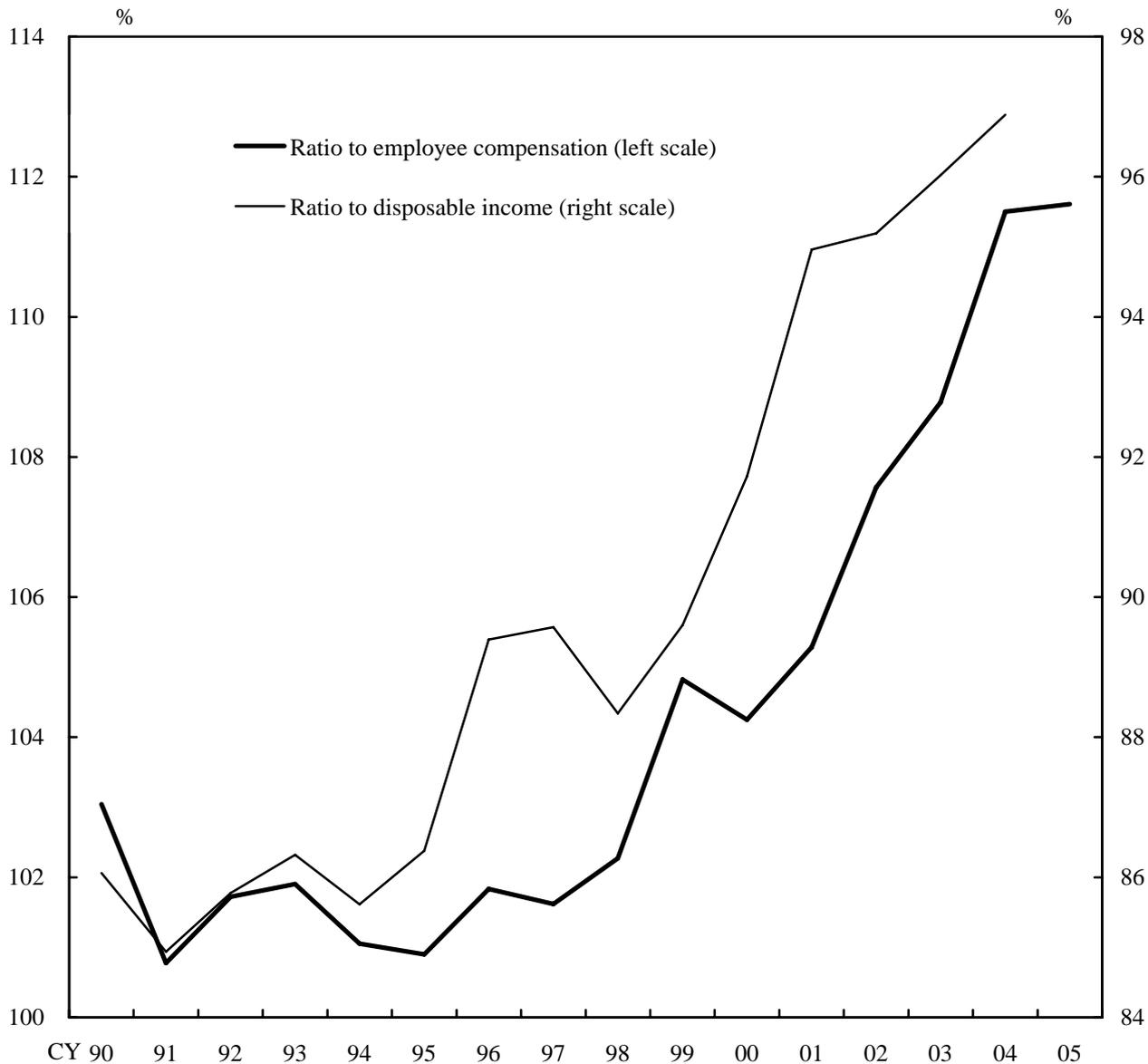
## Disposable Income on a GDP Basis



- Notes : 1. "Others" include mixed income (income of the self-employed), property income (interest, dividends etc.), operating surplus (imputed service of owner-occupied dwellings), and other current transfers.  
 2. Real disposable income is calculated as the disposable income deflated by the private consumption deflator.

Source: Cabinet Office, "National Accounts."

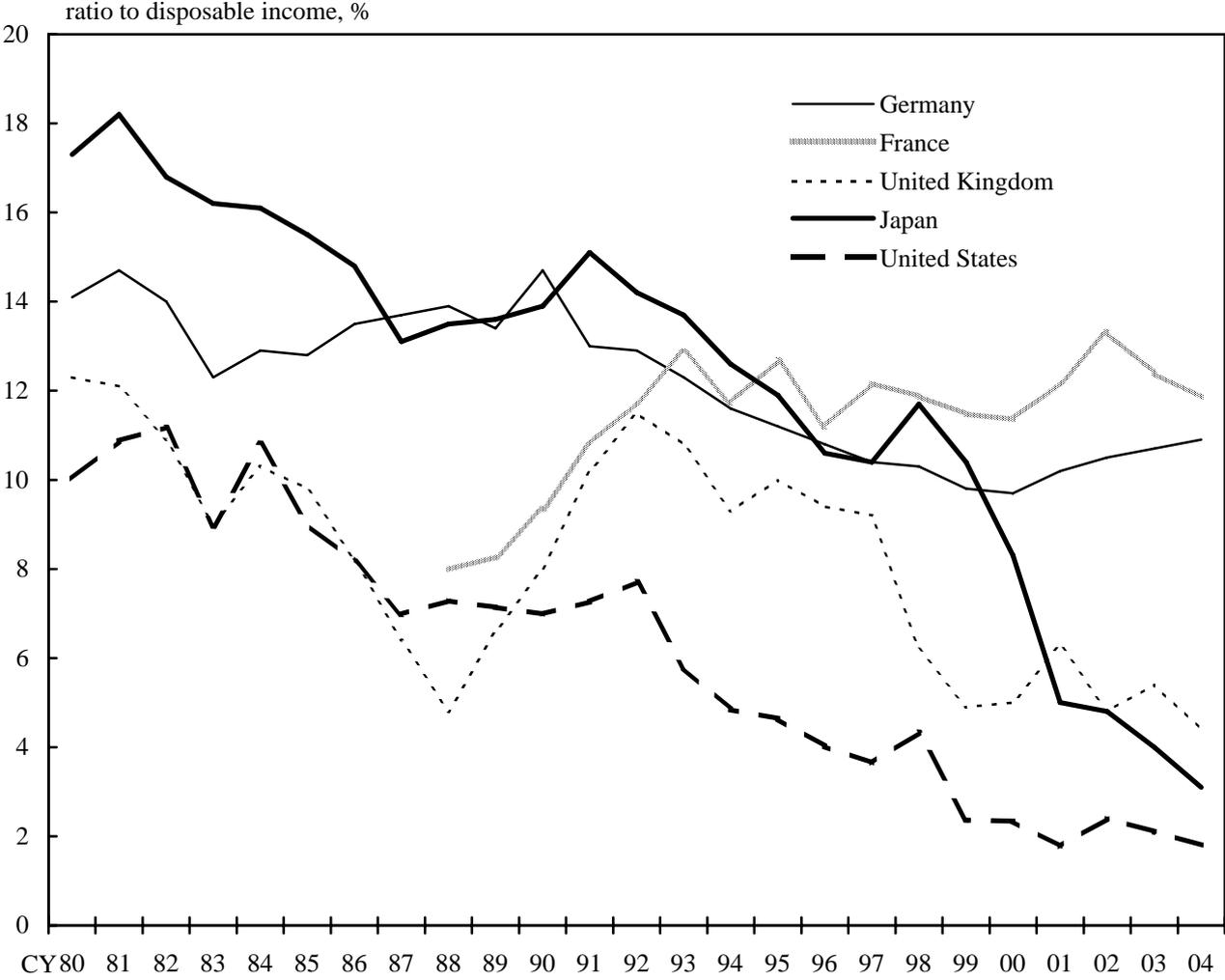
## Propensity to Consume on a GDP Basis



Notes: Propensity to consume (ratio to disposable income) = Final consumption expenditure of households / (Disposable income + Changes in pension reserves in pension funds).  
 Propensity to consume (ratio to employee compensation) = Private final consumption expenditure / Employee compensation.

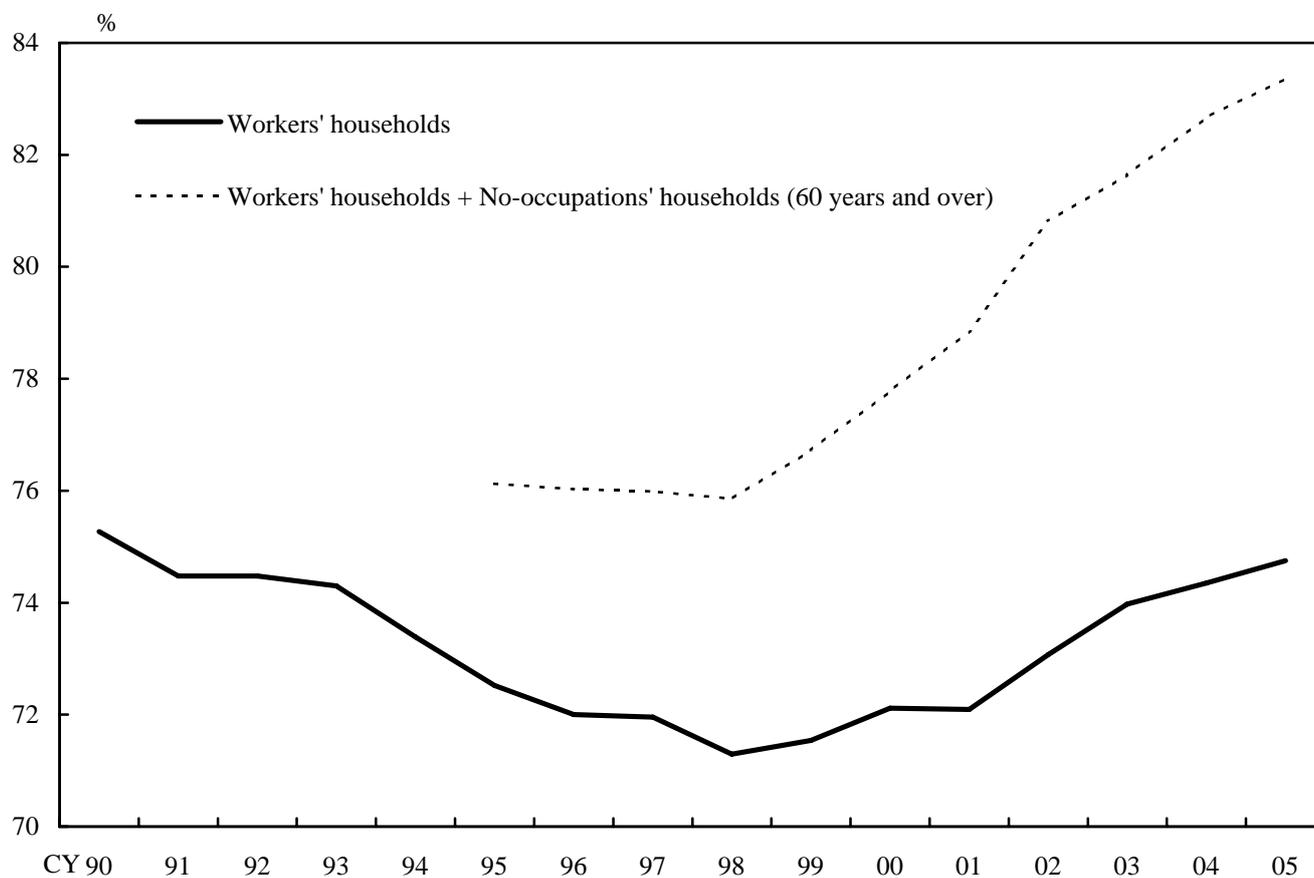
Source: Cabinet Office, "National Accounts."

# International Comparison of Saving Rates



Sources: Cabinet Office, "National Accounts"; Governments.

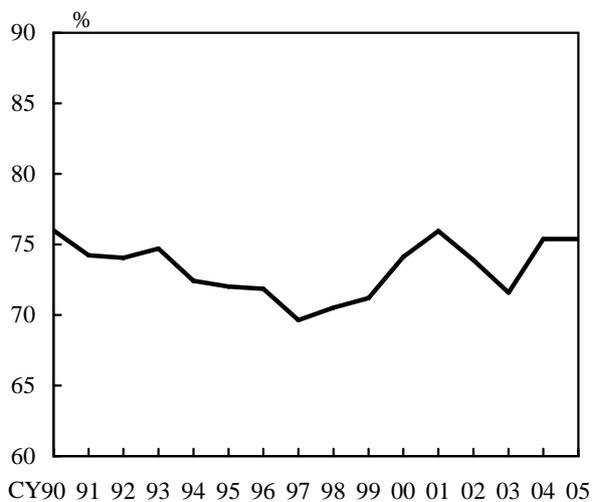
## Propensity to Consume on a FIES Basis



Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Propensity to Consume by Age Group of Household Head

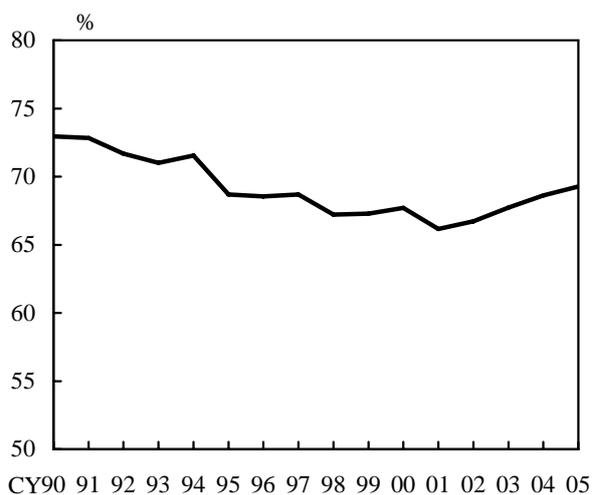
(1) -29 years



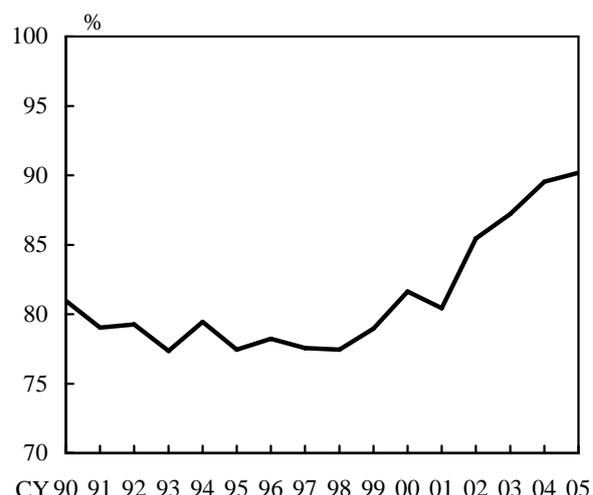
(4) 50-59 years



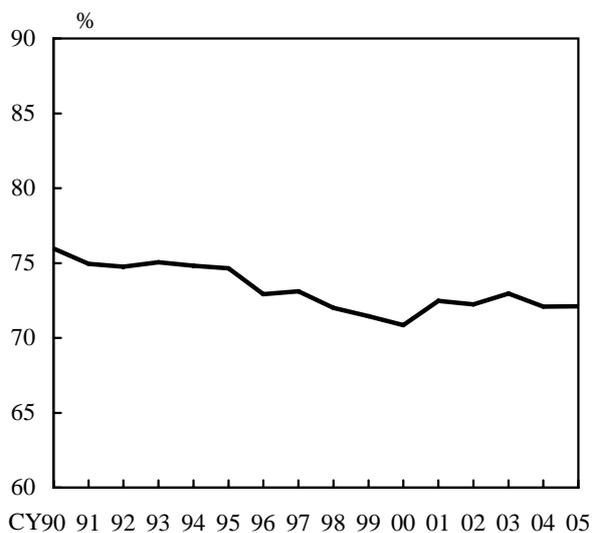
(2) 30-39 years



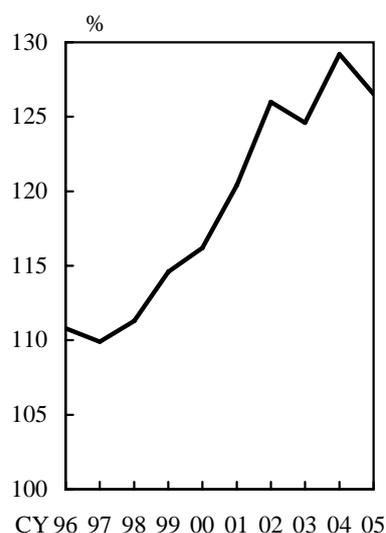
(5) 60 years and over



(3) 40-49 years



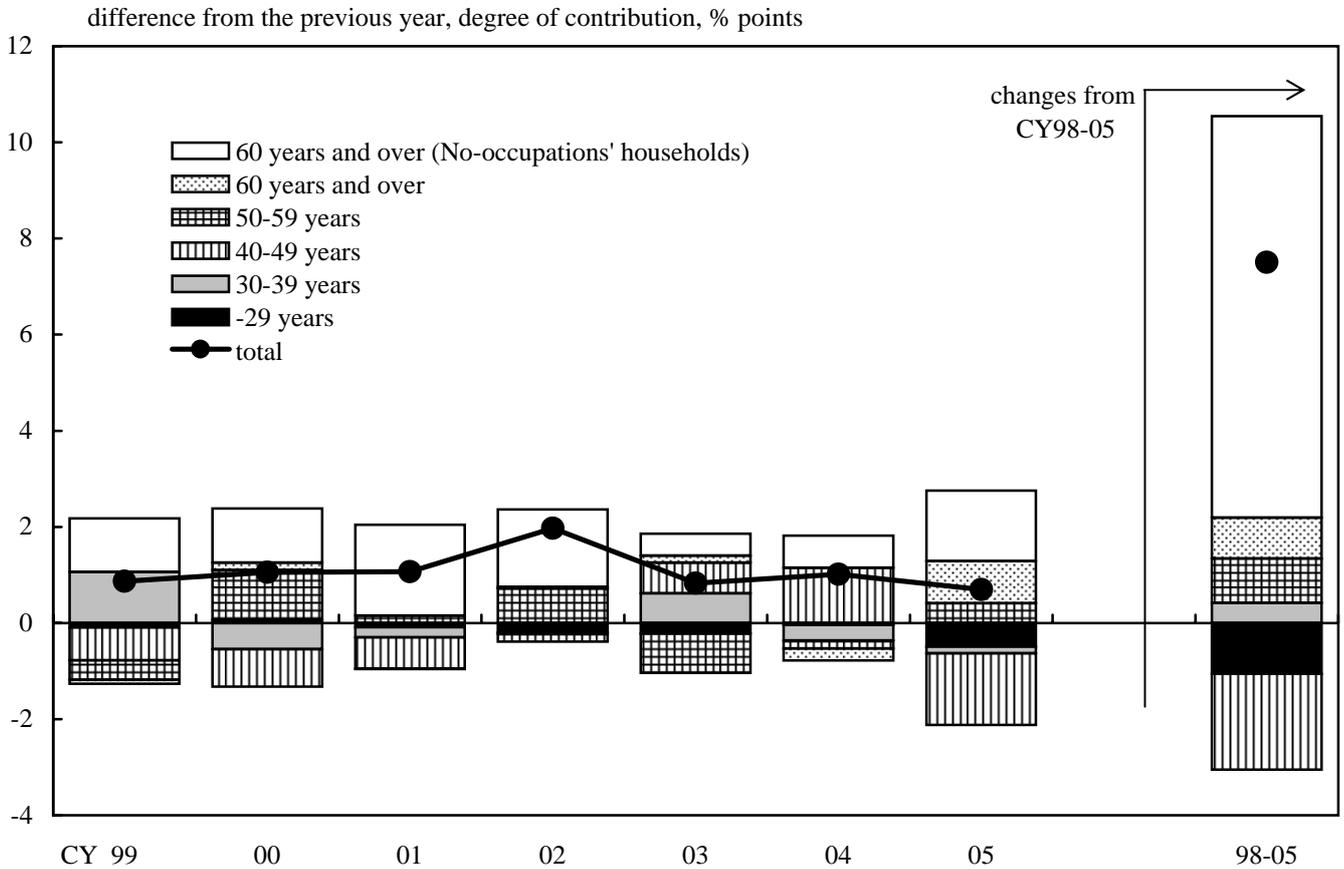
(6) 60 years and over (No-occupations' households)



Note : The figures from (1) to (5) are those of workers' households.

Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

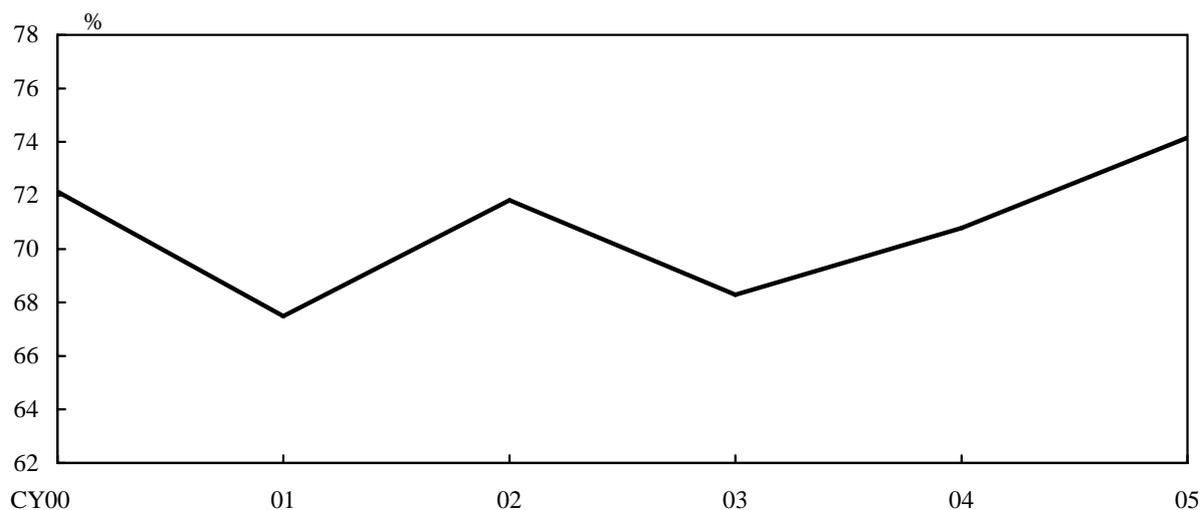
## Changes of Propensity to Consume by Age Group of Household Head



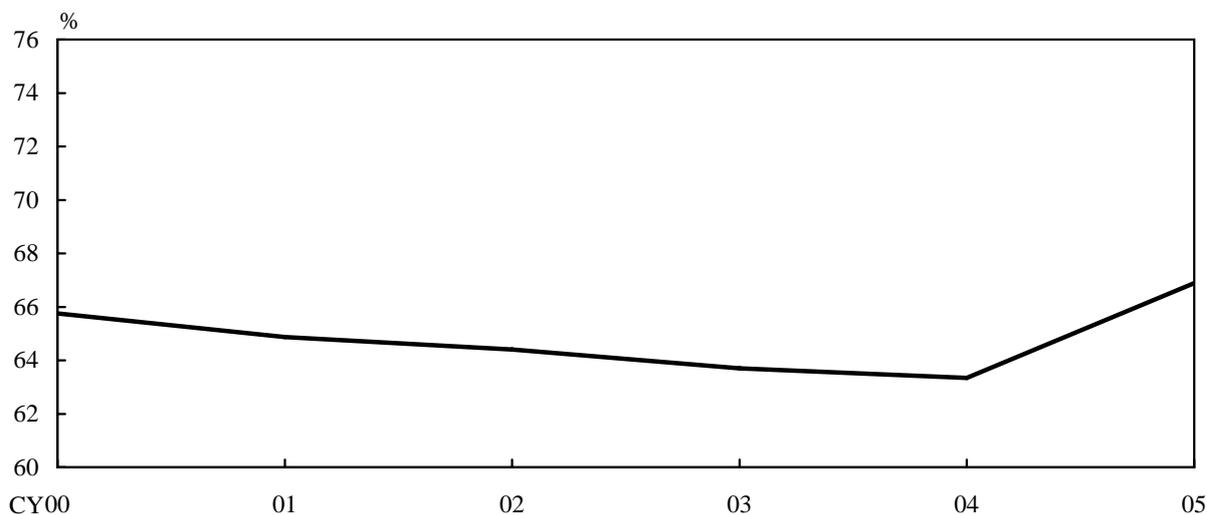
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Propensity to Consume by Age Group (One-person Households)

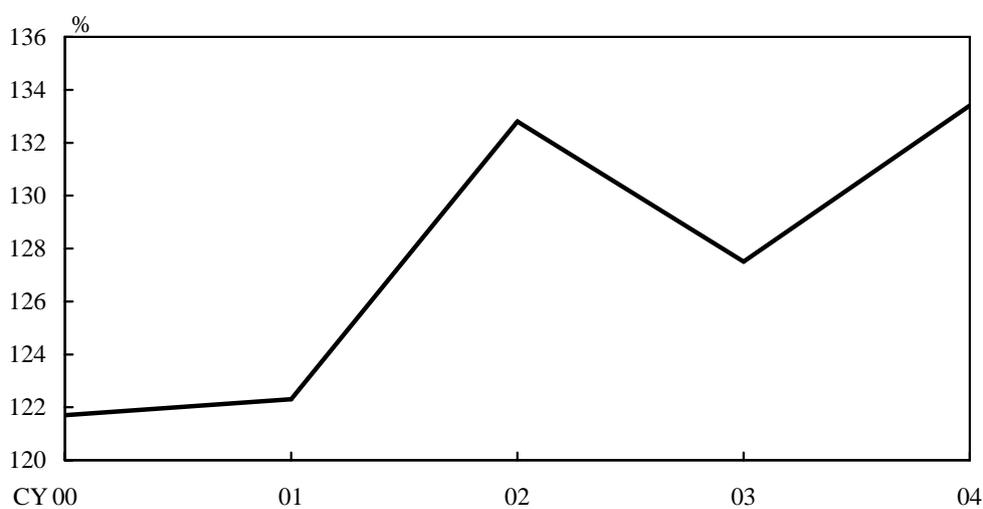
(1) -34 years



(2) 35-59 years



(3) 60 years and over (No-occupations' households)



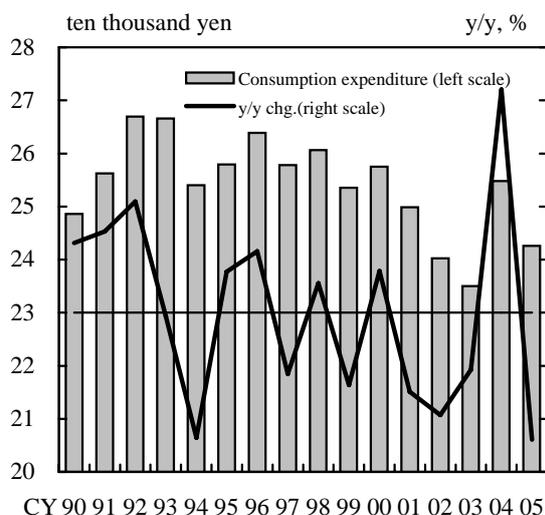
Notes : 1. All figures are those of one-person households.

2. The figures from (1) to (2) are those of workers' households.

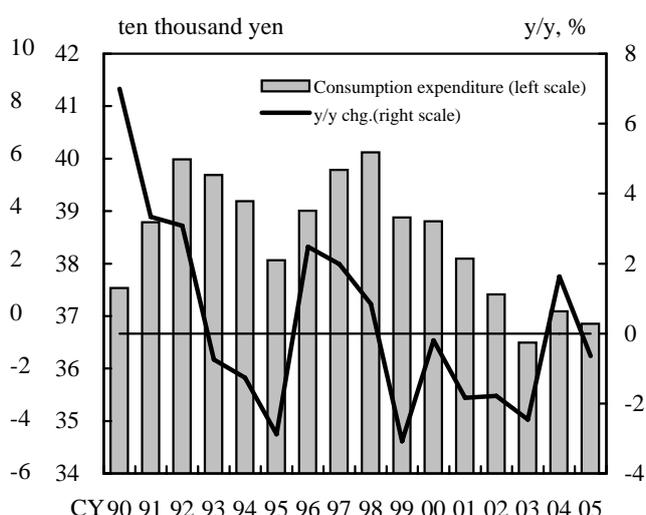
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Consumption Expenditure by Age Group of Household Head

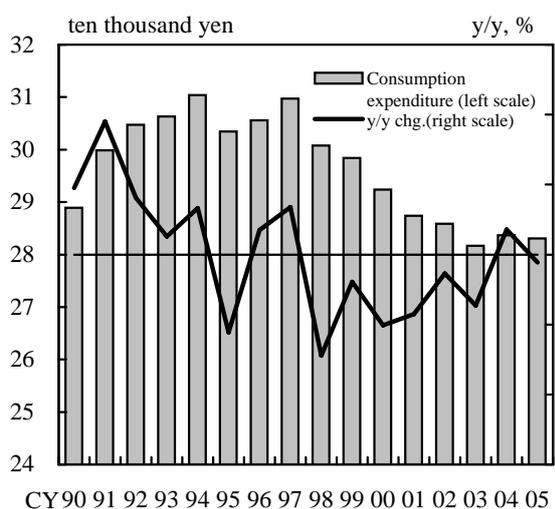
(1) -29 years



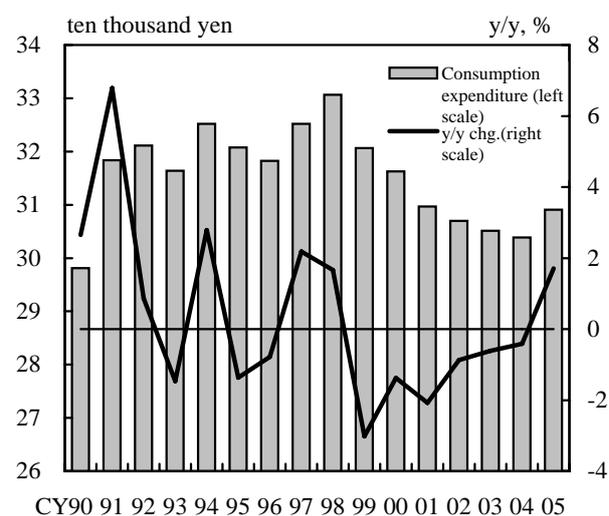
(4) 50-59 years



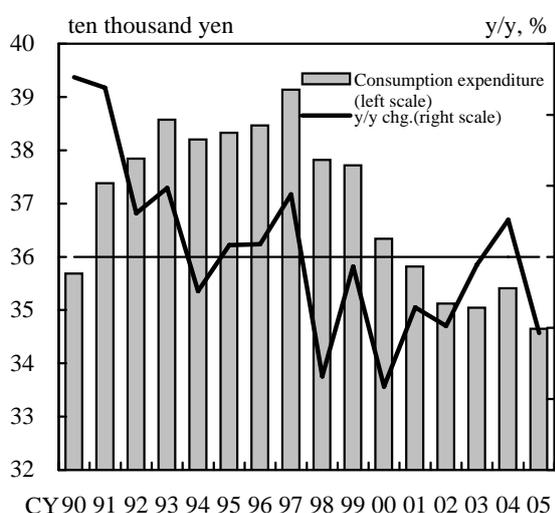
(2) 30-39 years



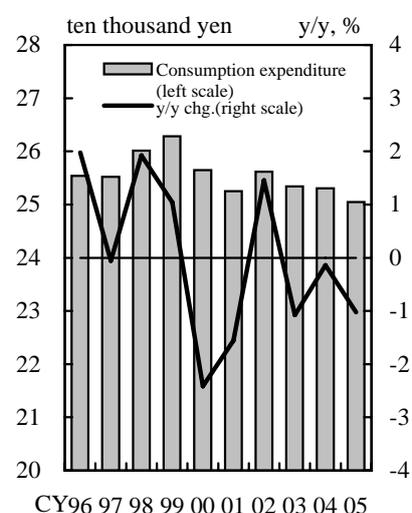
(5) 60 years and over



(3) 40-49 years



(6) 60 years and over (No-occupations' households)



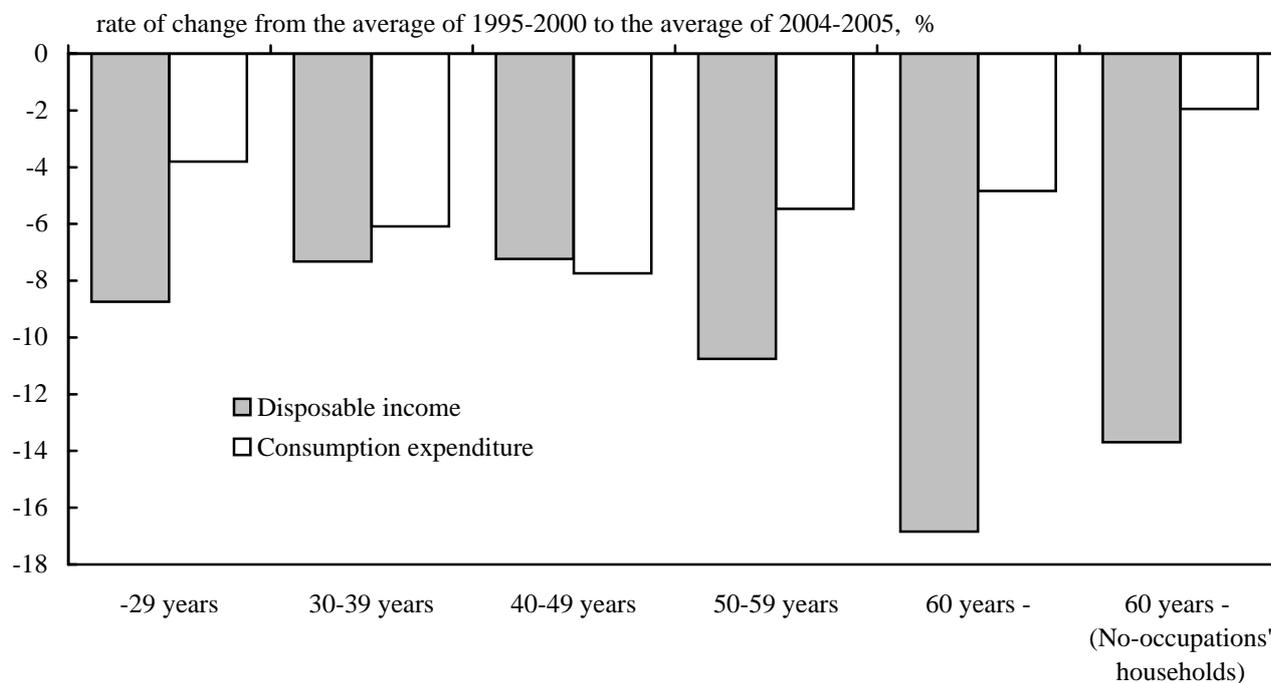
Notes : 1. Data for each calendar year are those of corresponding years' monthly average.

2. The figures from (1) to (5) are those of workers' households.

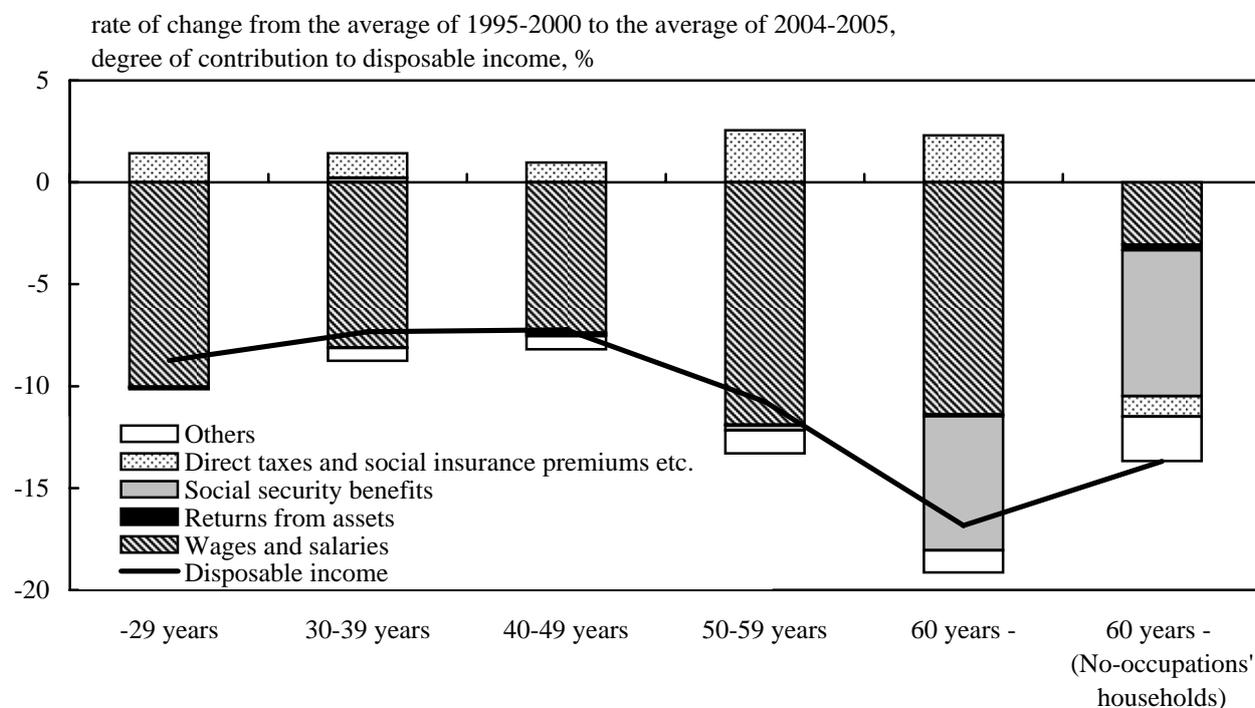
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Disposable Income and Consumption Expenditure by Age Group

(1) Disposable Income and Consumption Expenditure by Age Group



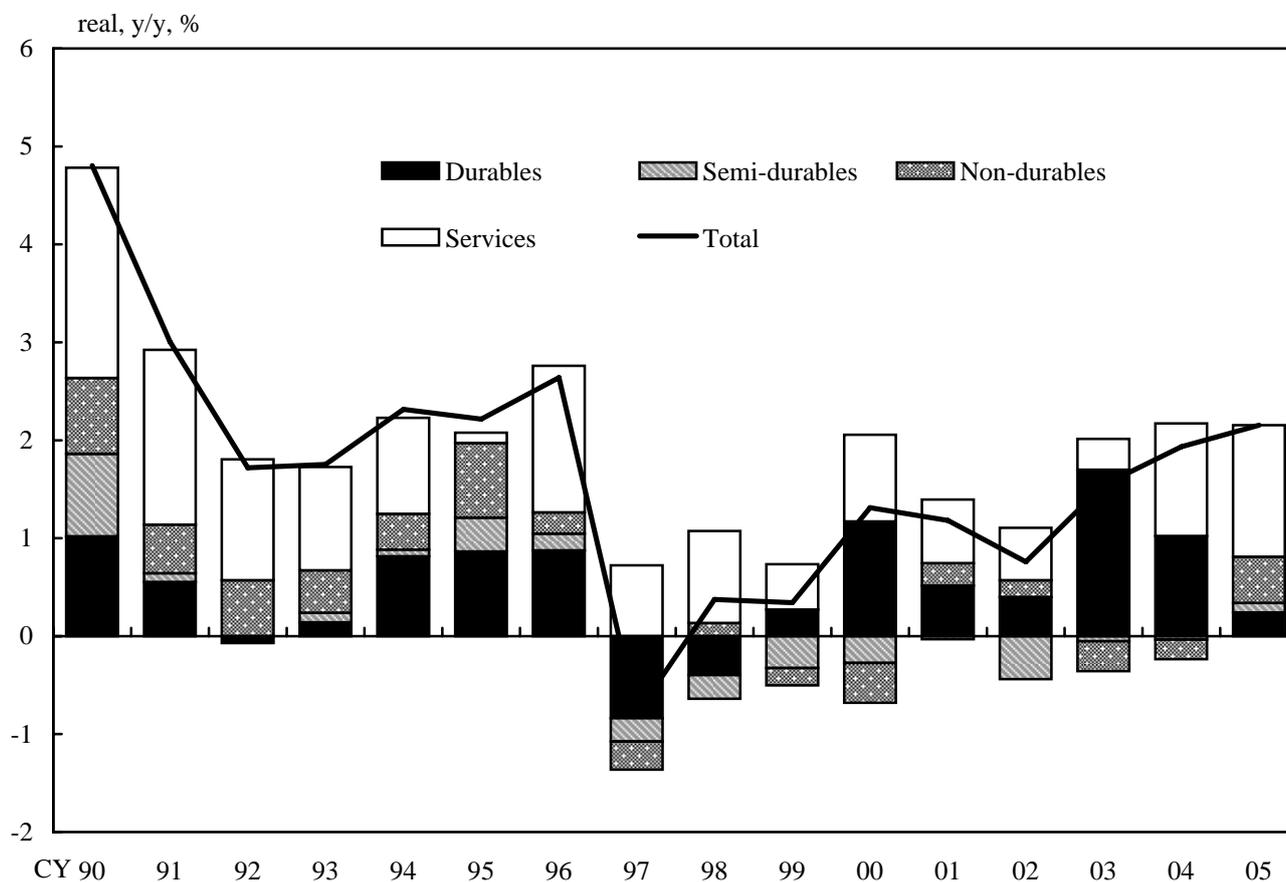
(2) Breakdown of Disposable Income



- Notes : 1. Wages and salaries include those of the other household members.  
 2. Decreases in direct taxes and social insurance premiums increase disposable income because those items are deducted from disposable income.

Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

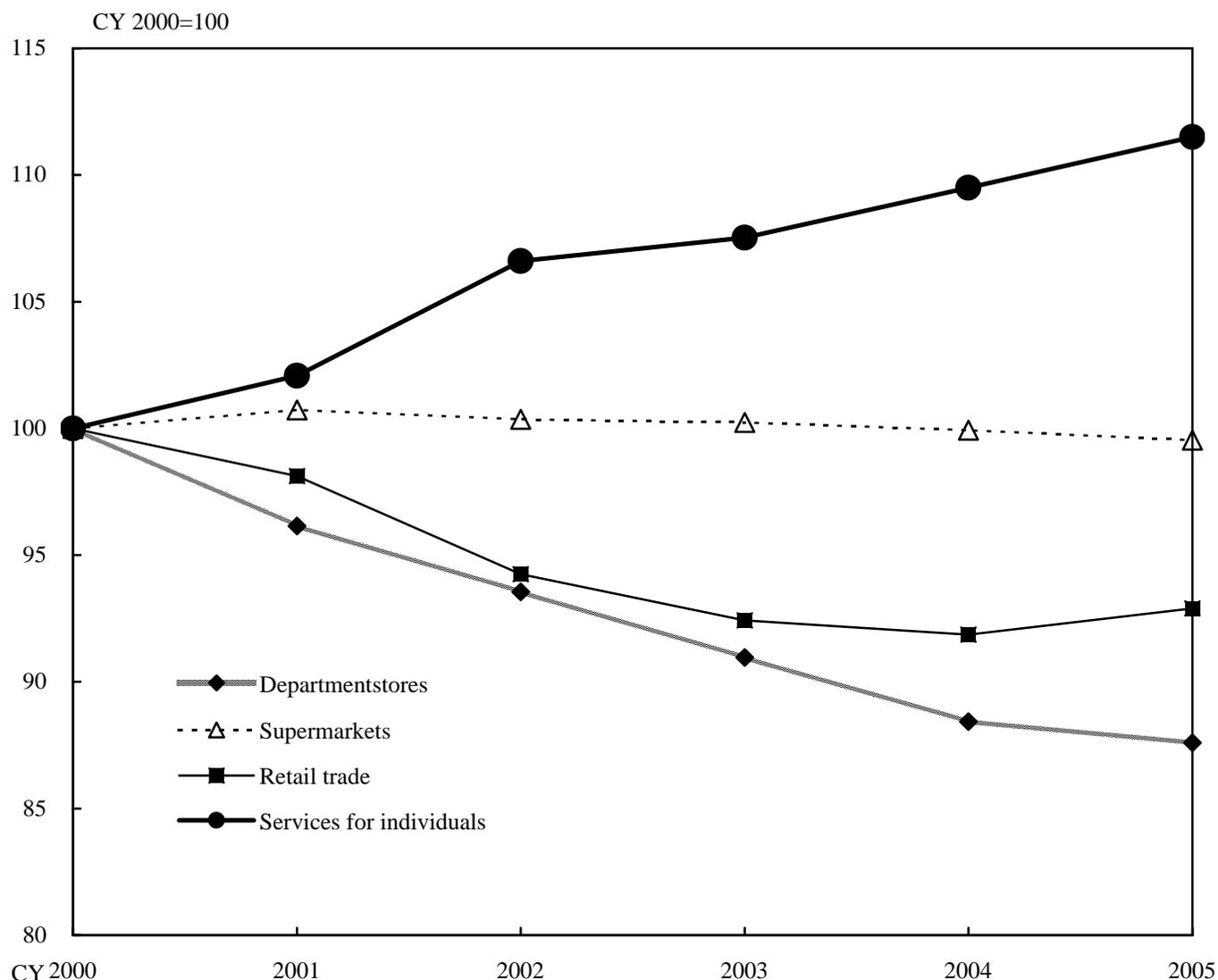
## Consumption by Type of Goods and Services on a GDP Basis



- Notes : 1. The figures are those of the fixed-based method (the previous 1995 base), which is different from the chain-linked method used in Chart 1.
2. For 2004 and 2005, data for overall consumption are those of the chain-linked method (the newly 2000 base). Breakdown of consumption is calculated using the figures from the Family Income and Expenditure Survey, which are deflated by the corresponding consumer price indexes.

Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey"; Cabinet Office, "National Accounts."

## Sales of Goods and Services



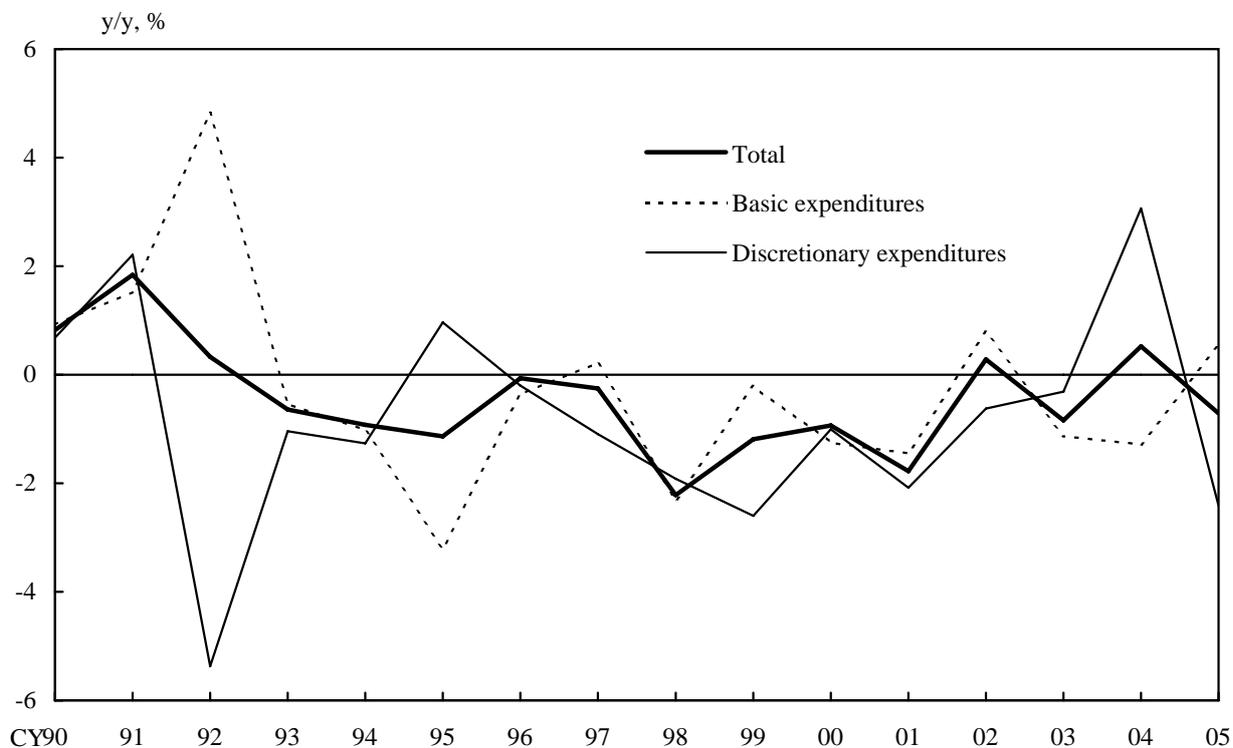
Notes : 1. Services for individuals include Movie Theaters, Theaters, Performances and Theatrical Companies, Golf Courses, Golf Range, Bowling Alleys, Amusement Parks and Theme Parks, "Pachinko" Parlors, Funeral Services, Wedding Ceremony Halls, Foreign Language Schools, Culture Centers, Fitness Clubs, and Supplementary Tutorial Schools.

2. The sales value of Department stores, Supermarkets, and Retail trade include the effects of the fluctuations in the number of establishments.

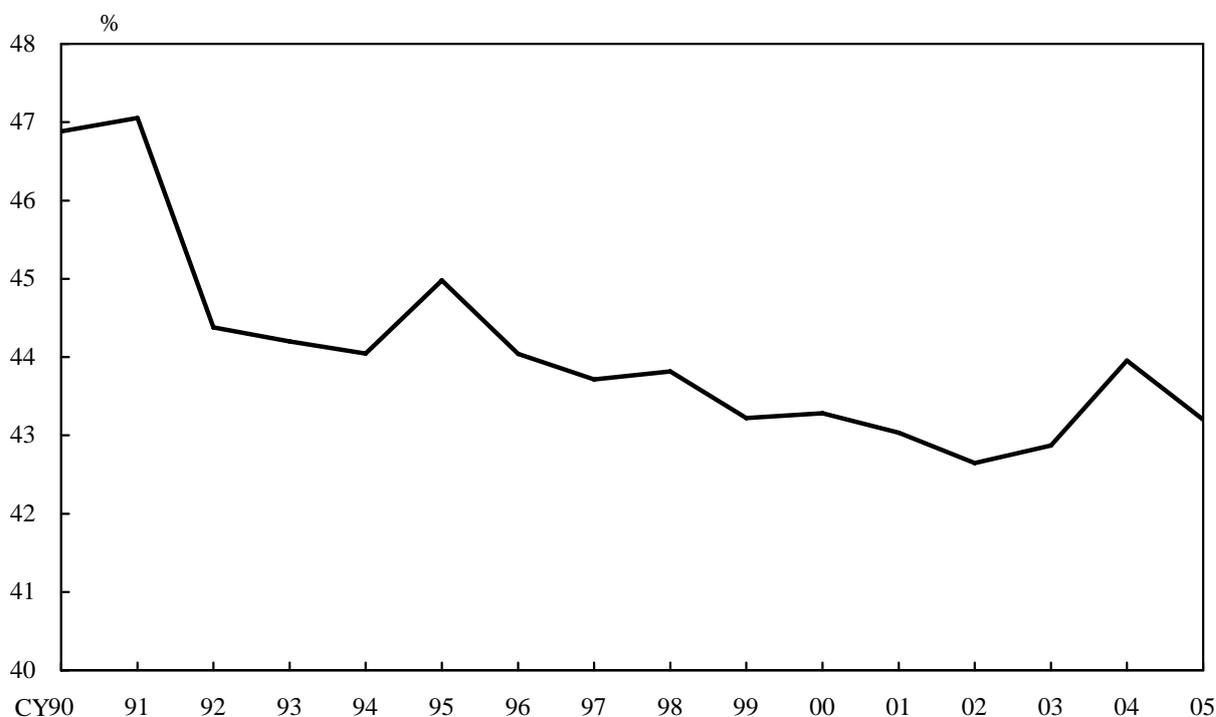
Sources: Ministry of Economy, Trade and Industry, "Current Survey of Commerce,"  
"Survey of Selected Service Industries."

## Basic Expenditures and Discretionary Expenditures

(1) Basic Expenditures and Discretionary Expenditures (Changes from a Year Earlier)



(2) The Weight of Discretionary Expenditures

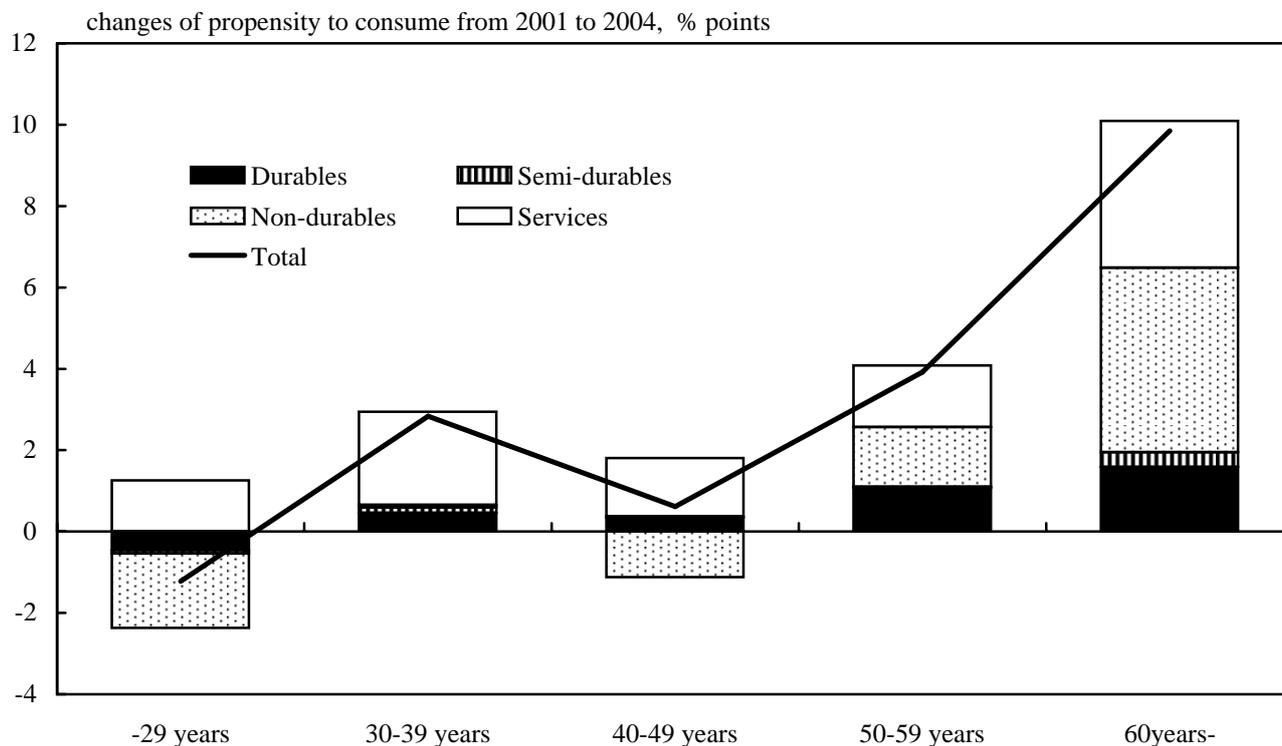


Notes : 1. The figures are deflated by the corresponding consumer price indexes.

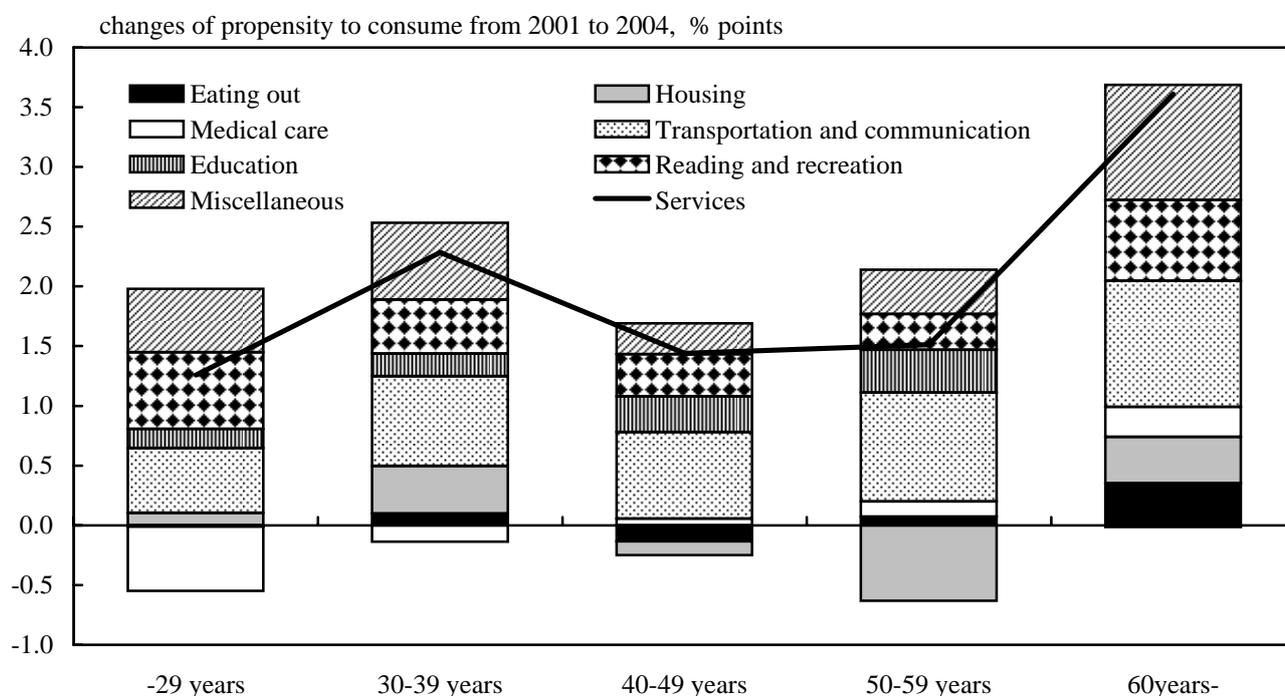
2. The classification of goods is partly different for 1990-1995, 1996-2000 and since 2001 respectively.

Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Consumption by Type of Goods and Services by Age Group



### (Breakdown of Services)



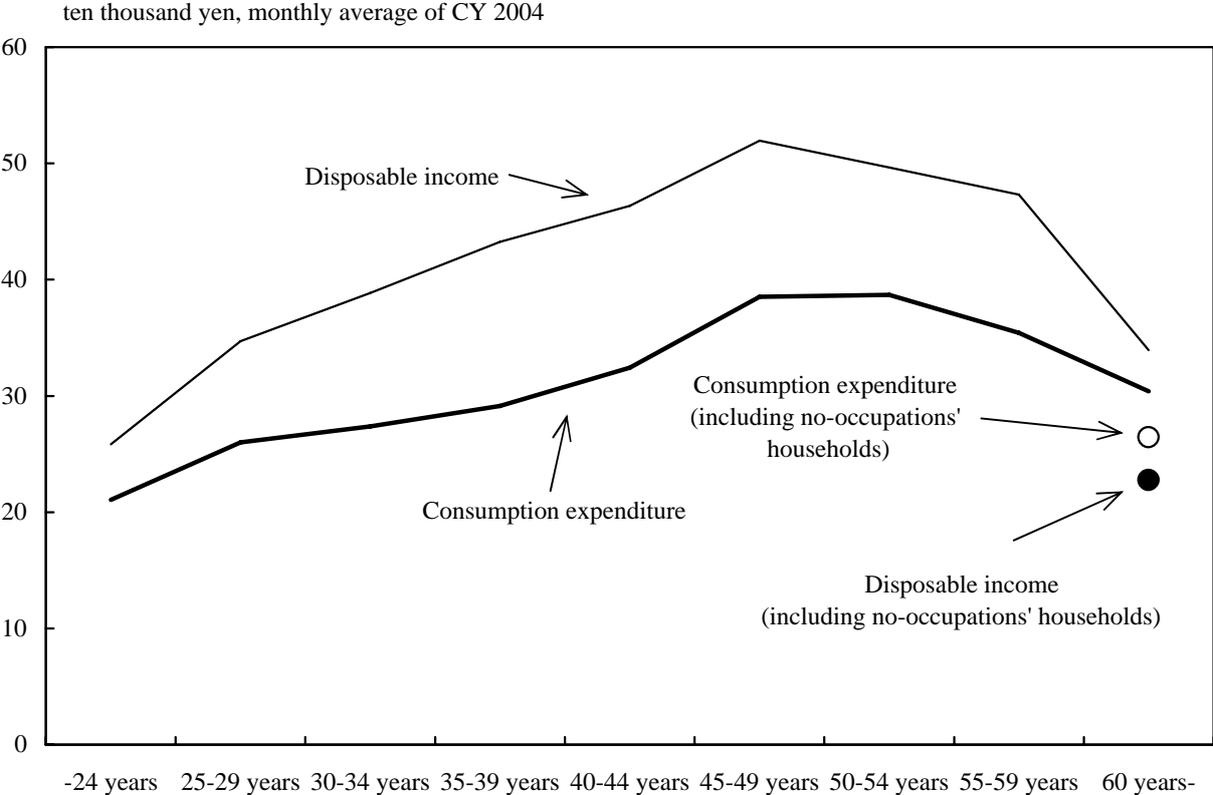
Notes : 1. The consumption expenditure figures are those of all households. The disposable income figures used for calculating the propensity to consume are those of workers' households (Disposable income figures for 60 years and over also include no-occupations' households).

2. Each item of expenditure is deflated by the corresponding consumer price indexes. Overall expenditure and disposable income are deflated by the consumer price index (excluding imputed rent).

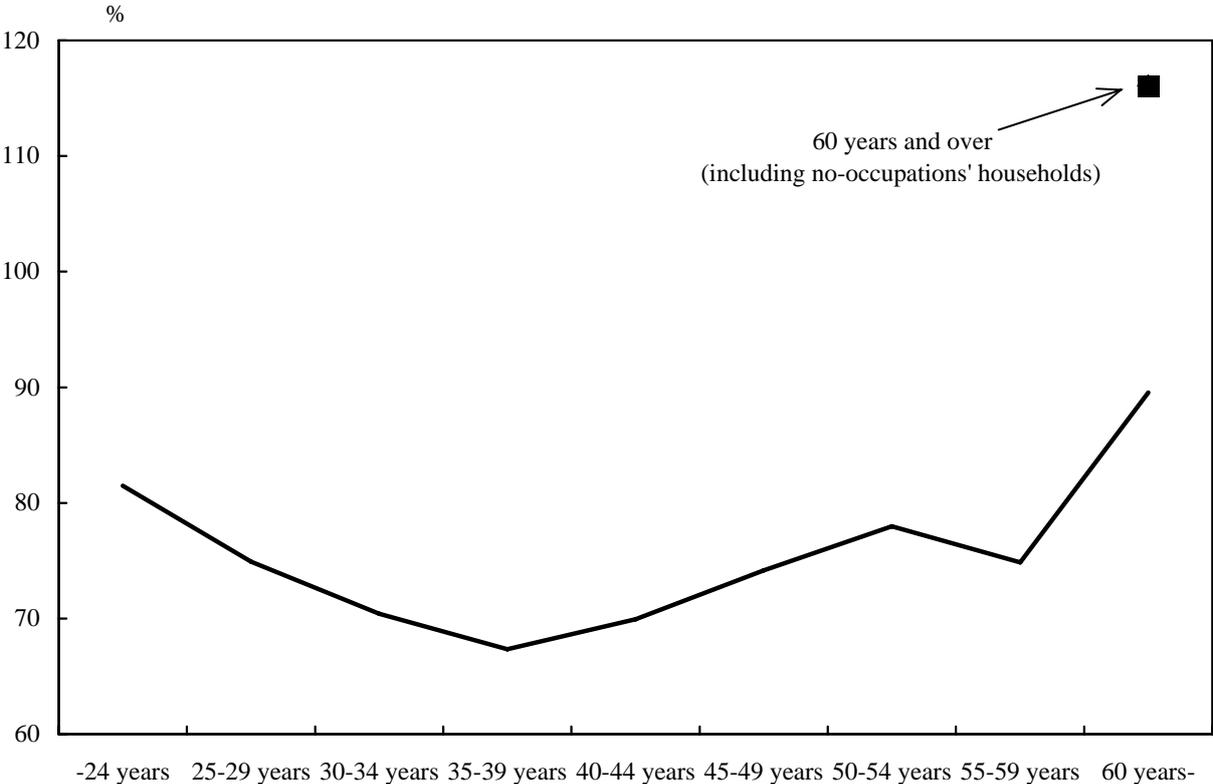
Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Consumer Price Index."

# Life Cycle Curve of Income and Consumption

(1) Disposable Income and Consumption Expenditure by Age Group of Household Head  
(Workers' Households)



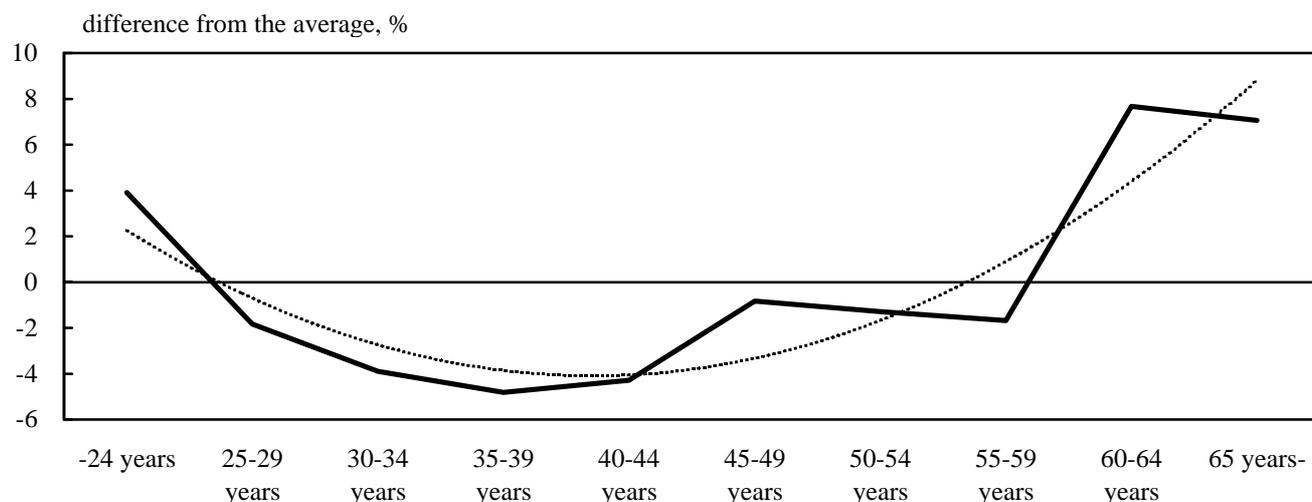
(2) Propensity to Consume by Age Group of Household Head (Workers' Households)



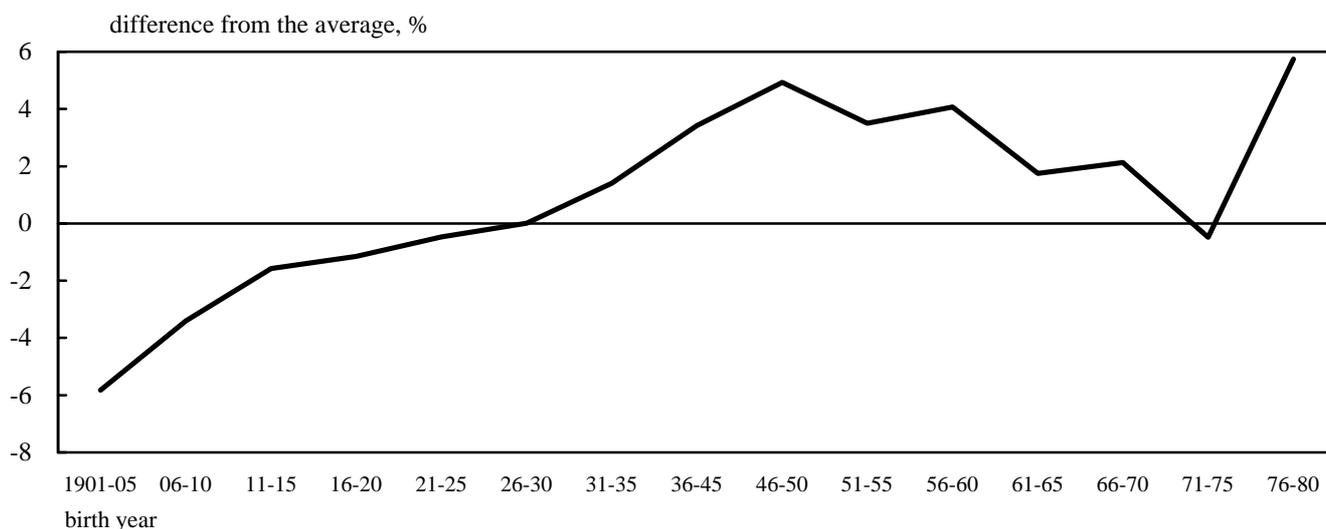
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Cohort Analysis of Propensity to Consume

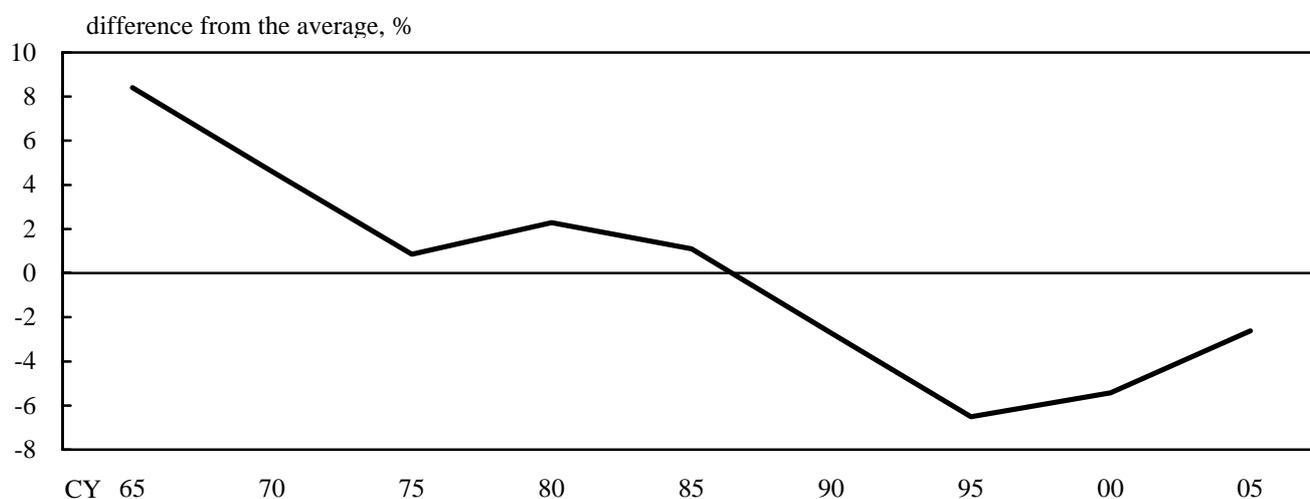
### (1) Age Effect



### (2) Generation Effect (Cohort Effect)



### (3) Period Effect

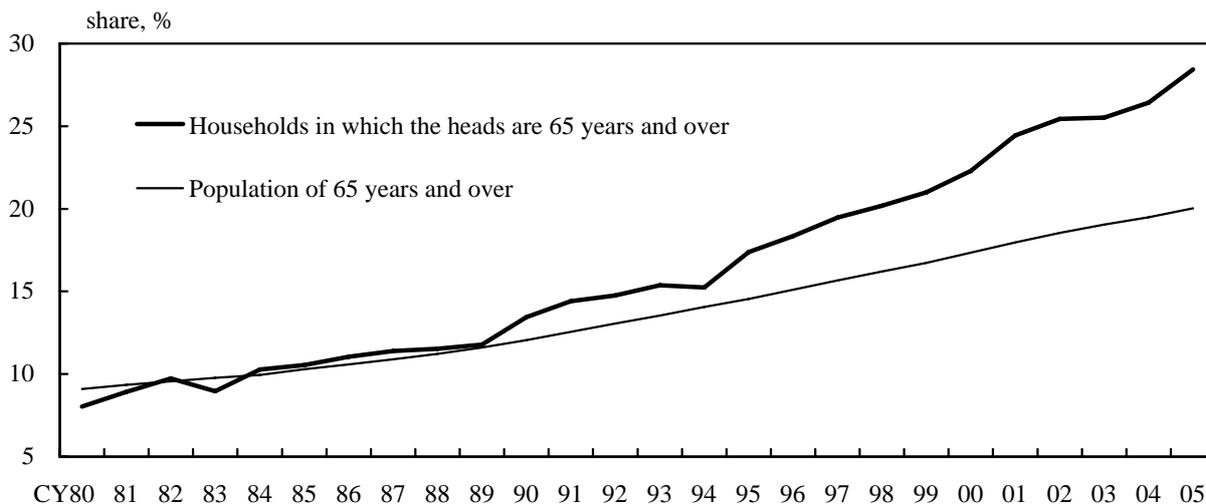


Note: The figures are those of workers' households. The detailed explanation of the analysis appears in the Reference at the end of this paper.

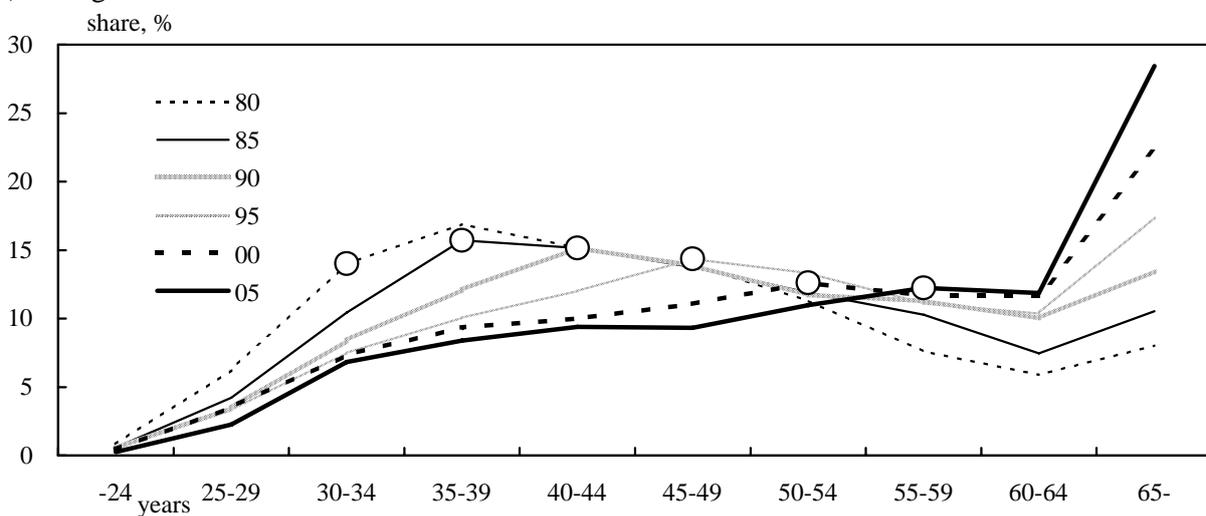
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Changes in the Population Structure

### (1) Percentage of the Elderly

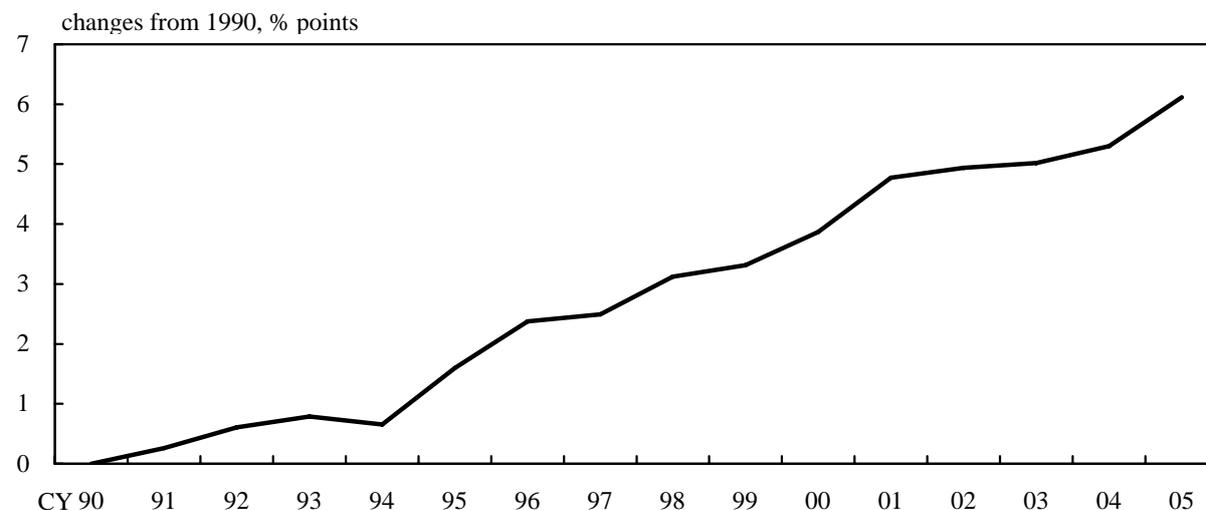


### (2) Changes in the Distribution of Households



Note : Circles indicate the cohort, including baby-boomers.

### (3) Effects of the Changes in the Population Structure on the Propensity to Consume

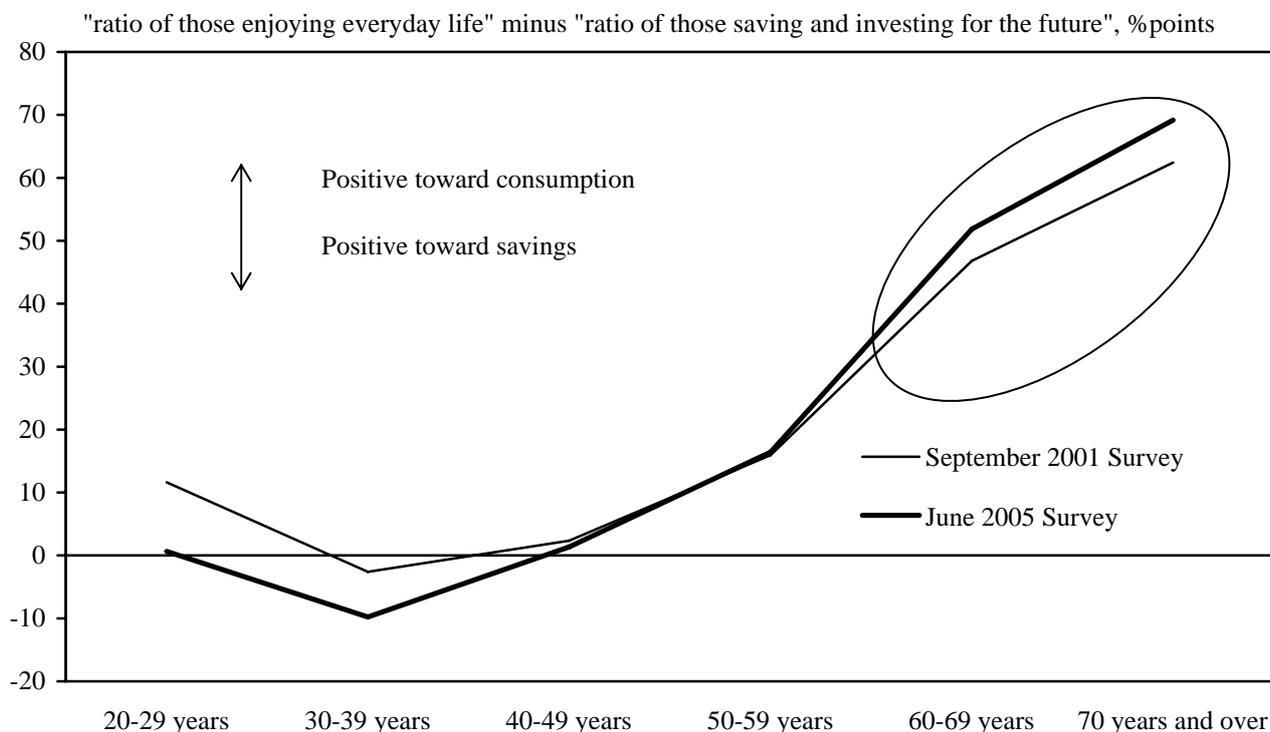


Note : The effect is calculated by multiplying the age effect estimated in the cohort analysis in Chart 19 by the share of households in each age group. For those 60 and over, the differences in the propensity to consume between no-occupations' and workers' households are taken for granted.

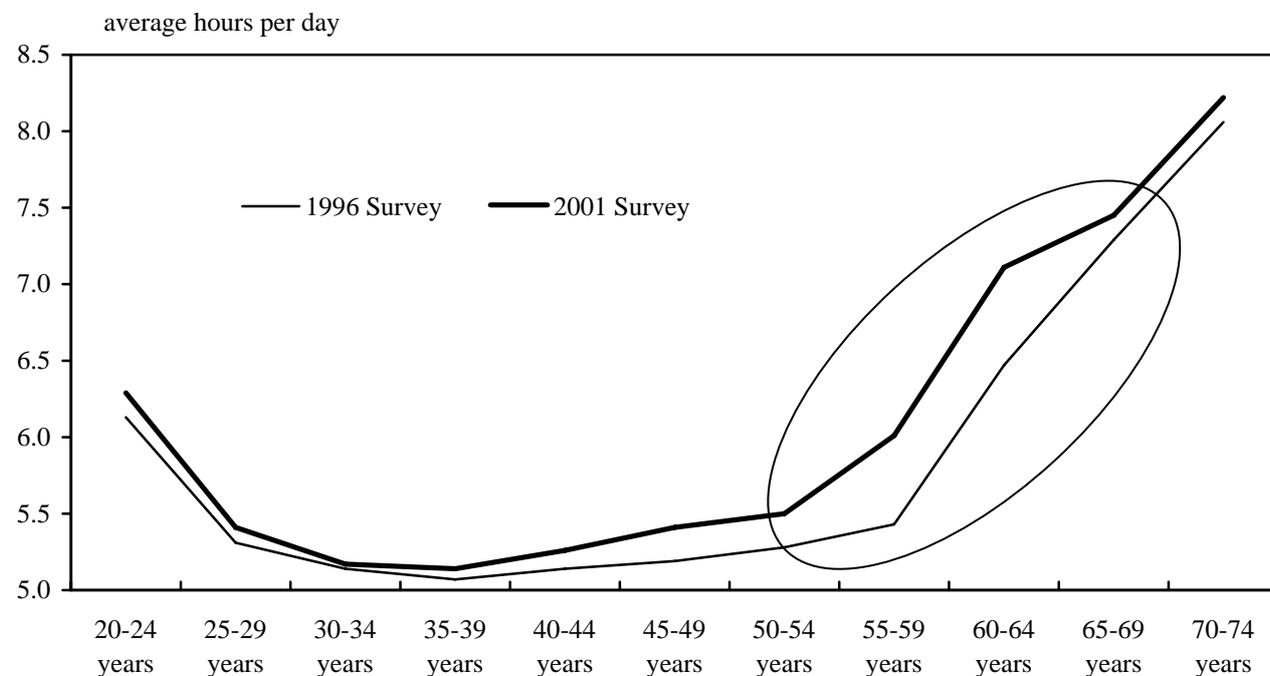
Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Population Estimates."

## Lifestyle of the Elderly

### (1) Attitudes toward Future Life



### (2) Spare Time by Age Group

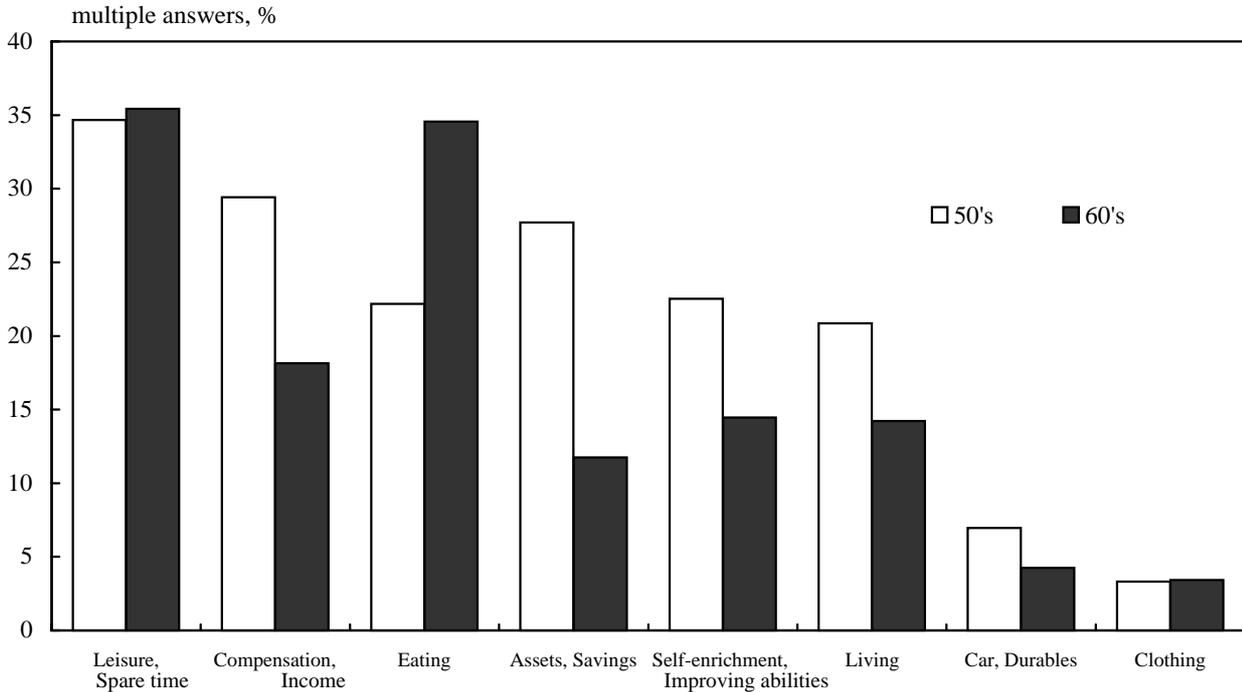


Note : Spare time is the time spent on tertiary activities (TV, Hobbies and Amusements, Sports, Social Life, Medical Examination etc.) per day.

Sources: Cabinet Office, "Public Opinion Survey on the National Life";  
 Ministry of Internal Affairs and Communications, "Survey on Time Use and Leisure Activities."

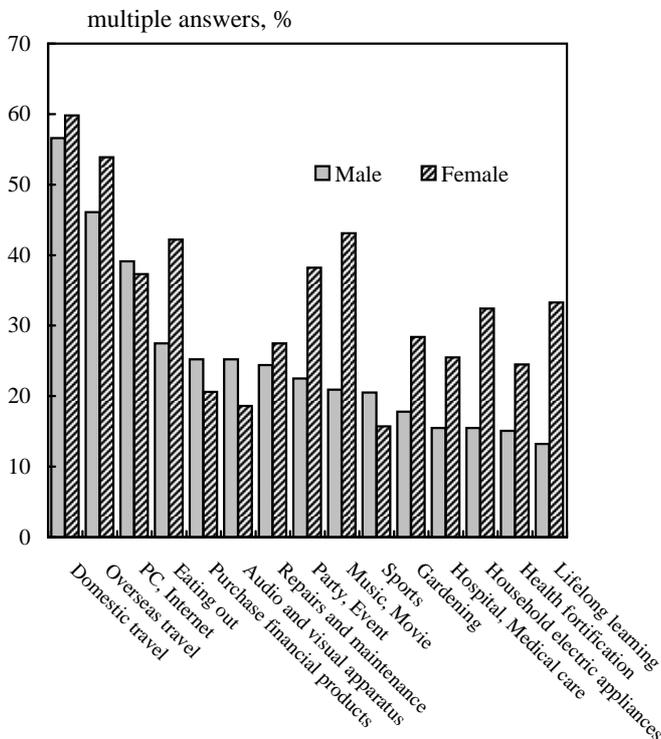
## Elderly's Attitudes toward Consumption

(1) Lifestyle Desired in the Future (Cabinet Office, "2005 Public Opinion Survey on National Life")



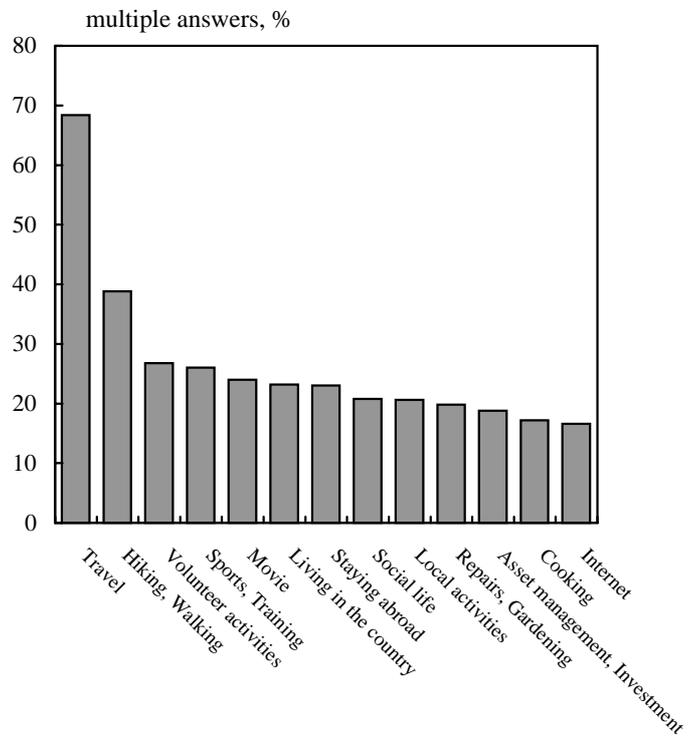
(2) Elderly's Motivation to Expenditure

a) What you are willing to spend for after retirement



Note: 360 people (including 258 males and 102 females) belonging to the *Dankai-sedai*, who were born in 1946-51, were surveyed via internet at the beginning of July 2005 by Hakuhoudo Inc.

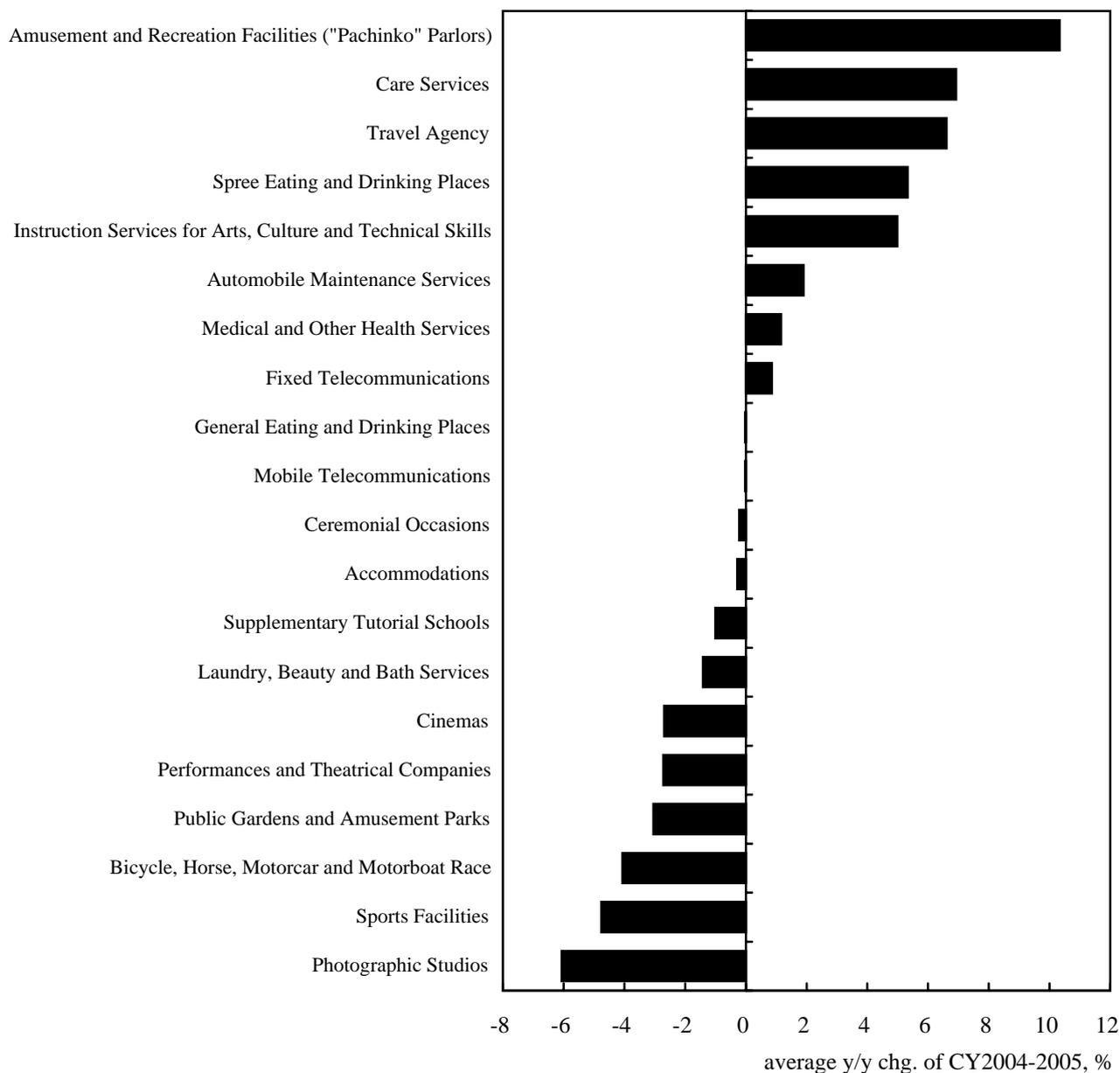
b) What you would like to do after 60



Note: 500 people of 55 to 60, who were office workers or public servants, were surveyed via internet in August 2005 by Nomura Research Institute, Ltd.

Sources: Cabinet Office, "Public Opinion Survey on National Life"; Hakuhoudo Inc., "the Dankai-Sedai - Survey on the lifestyle after retirement"; Nomura Research Institute, Ltd., "Survey on second life of the Dankai generation."

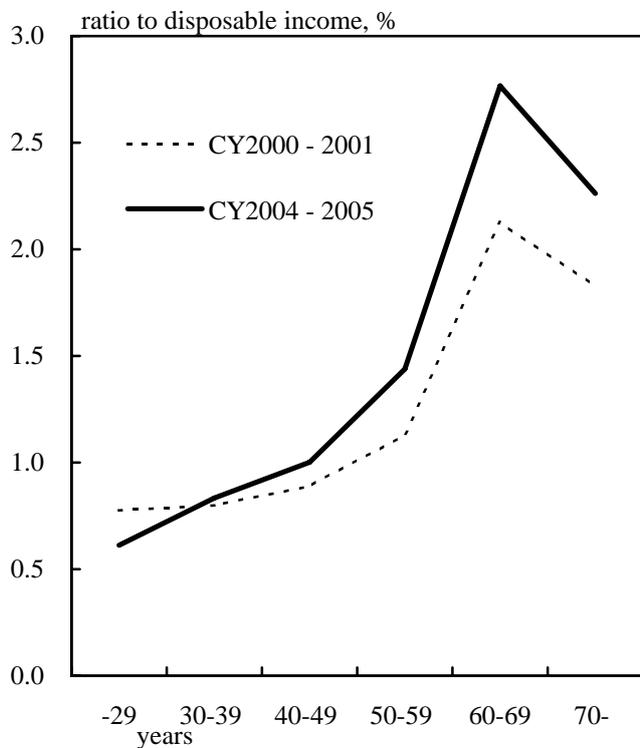
## Level of Activity in Service Sectors (Indices of Tertiary Industry Activity)



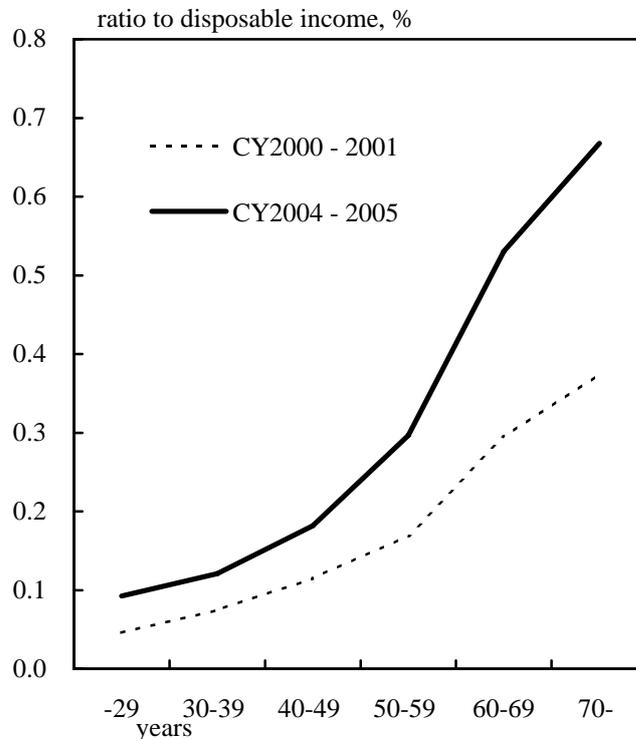
Source: Ministry of Economy, Trade and Industry, "Indices of Tertiary Industry Activity."

## Consumption Characteristics of Elderly Households

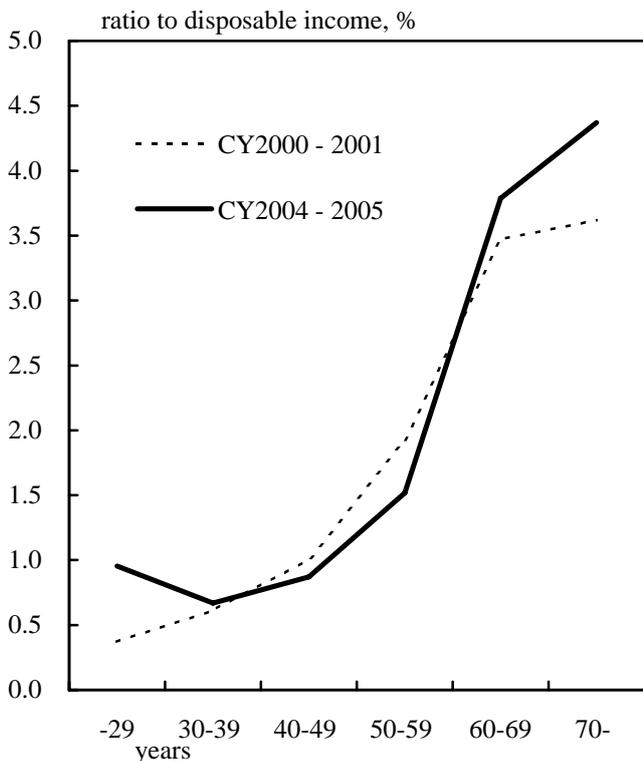
(1) Package Tours



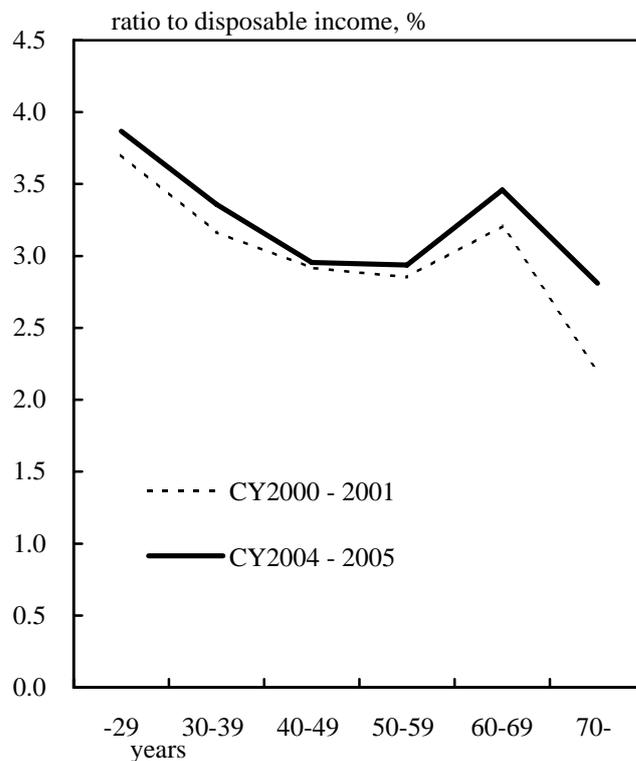
(2) Health Fortification (e.g., Nutritional Supplements)



(3) Repairs and Maintenance

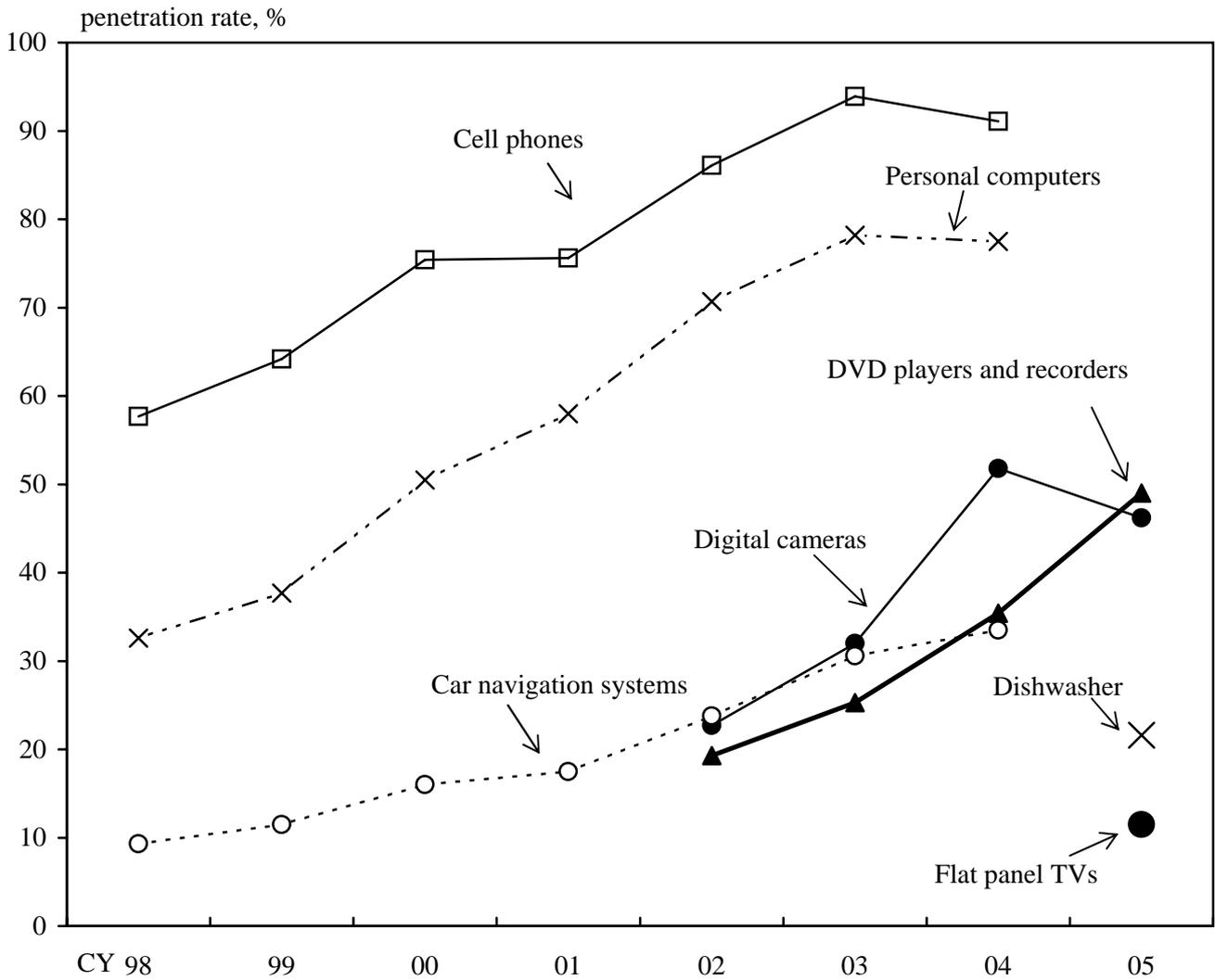


(4) Eating Out



Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Survey of Household Economy."

## Spread of New Durable Goods

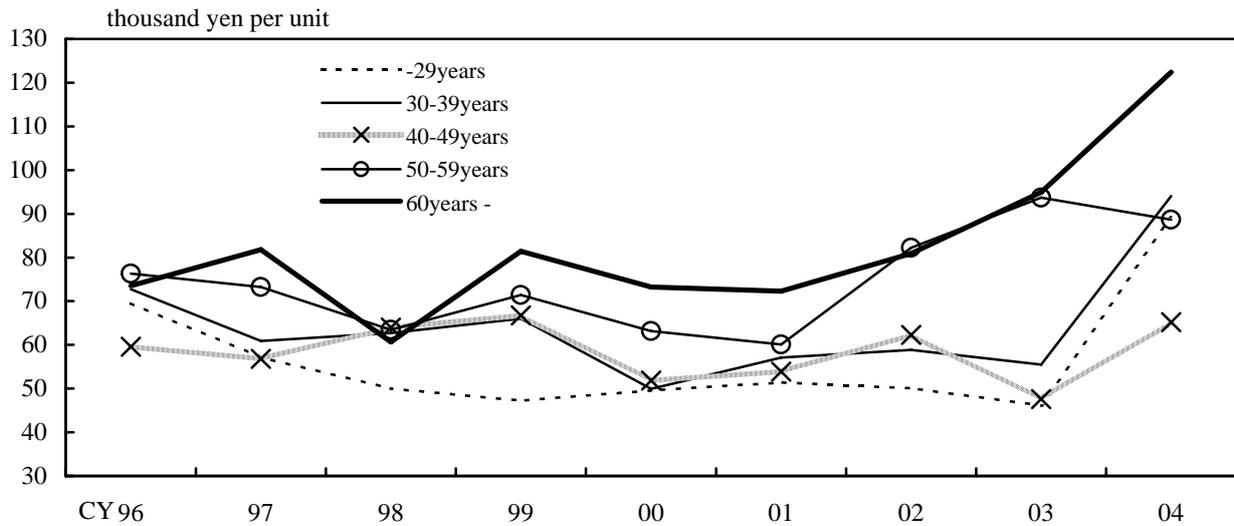


Note: Cell phones with cameras are excluded from digital cameras in 2005.

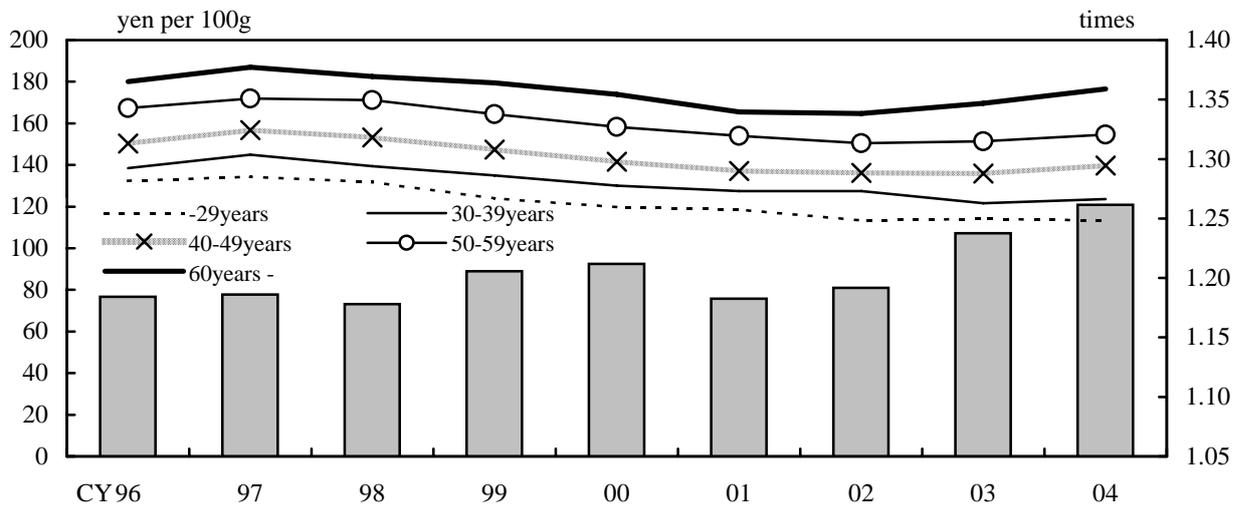
Sources: Ministry of Internal Affairs and Communications, "Communications Usage Trend Survey"; Cabinet Office, "Consumer Confidence Survey."

## Unit Prices Purchased by Each Age Group

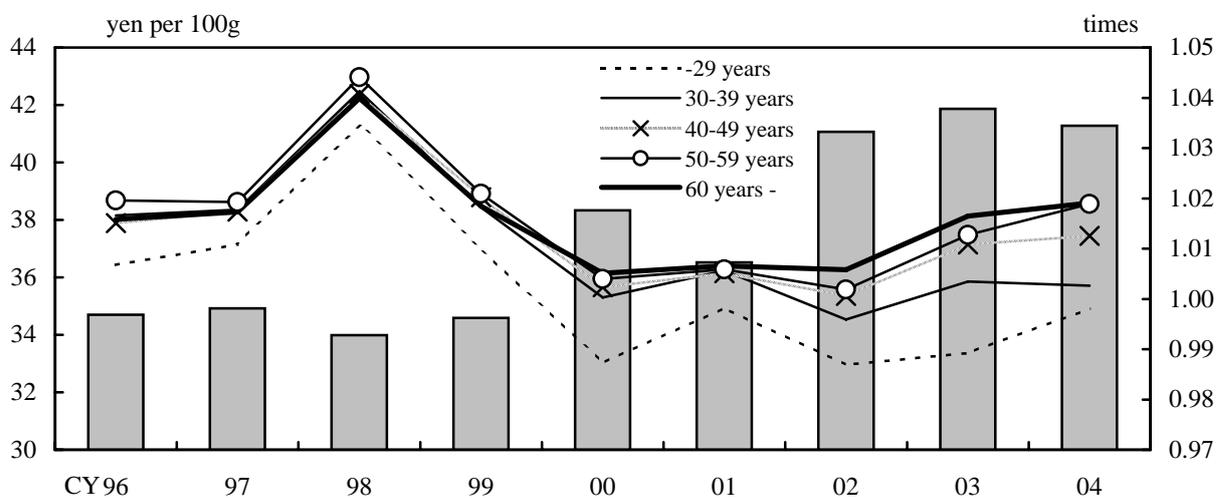
### (1) TV Sets



### (2) Fresh Meat



### (3) Fresh Vegetables



Note: Bar charts are the ratio of unit prices of 60 years and over to unit prices of under 60 years (right scale).

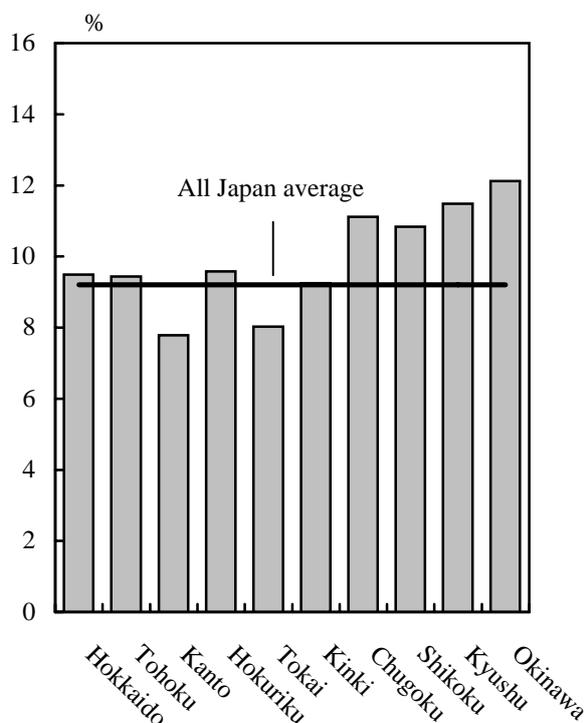
Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Nursing Care Insurance by Area

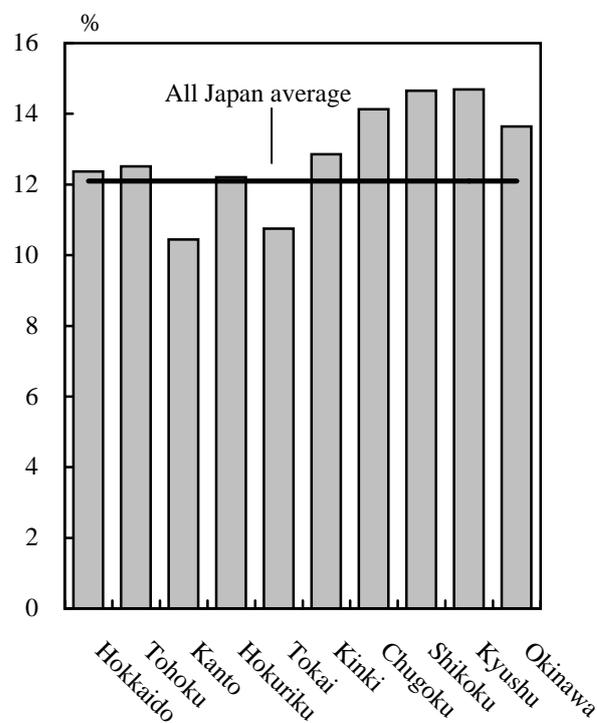
(1) Certification Rate

(Number of Those Certified as Requiring Nursing Care / Population of 60 Years and Over)

<FY2001>

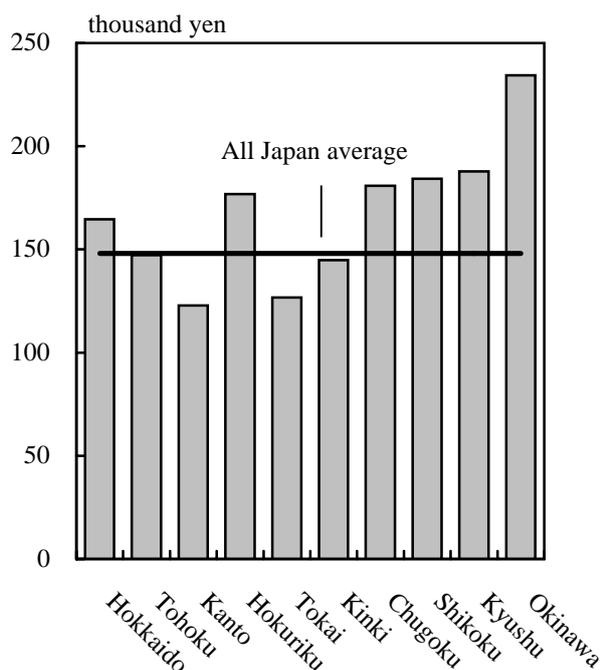


<FY2004>

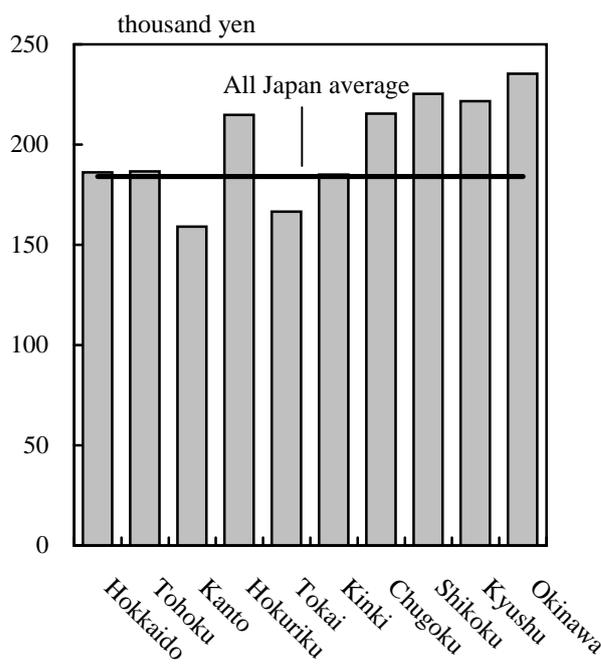


(2) Amounts of Nursing Care Insurance Benefits (per Population of 60 Years and Over)

<FY2001>



<FY2004>



Sources: Ministry of Internal Affairs and Communications, "Population Census";  
 All-Japan Federation of National Health Insurance Organizations, "State of  
 Nursing Care Insurance Benefits."

## The Effect of Nursing Care Insurance on Consumption

### (Panel Data Analysis)

#### Case 1. Ratio of Those Certified as Requiring Nursing Care as Explanatory Variable

Propensity to consume by prefecture

$$= 0.163 \times \text{Ratio of those certified as requiring nursing care}^*$$

t-statistics <5.38>

$$+ 0.018 \times \text{Ratio of job offers to applicants} + \text{Fixed effects by prefecture}$$

<1.37>

\* Number of those certified as requiring nursing care / Population of 60 years and over

Adjusted R-squared: 0.587, S.E of regression: 0.034

#### Case 2. Amounts of Nursing Care Insurance Benefits as Explanatory Variable

Propensity to consume by prefecture

$$= 0.675 \times \text{Amounts of nursing care insurance benefits}^{**}$$

t-statistics <6.25>

$$+ 0.018 \times \text{Ratio of job offers to applicants} + \text{Fixed effects by prefecture}$$

<1.38>

\*\* Amounts of nursing care insurance benefits per population of 60 years and over / Disposable income

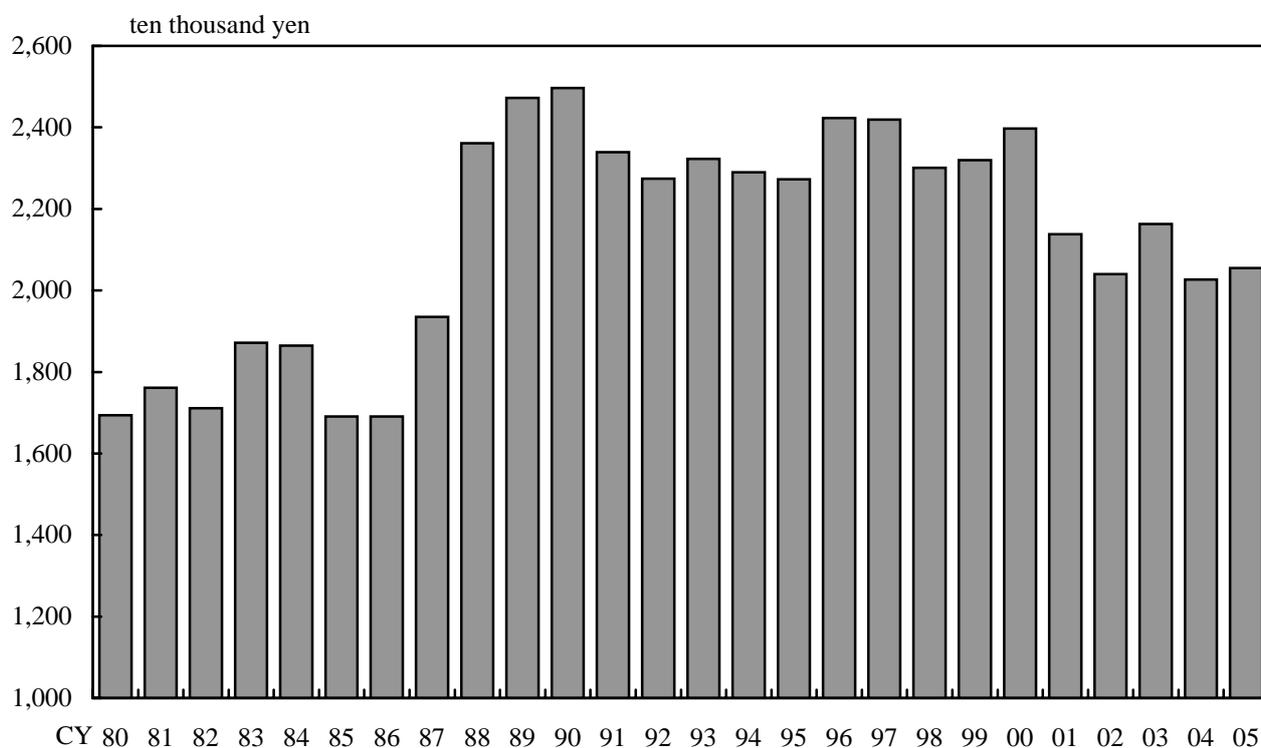
Adjusted R-squared: 0.599, S.E of regression: 0.034

Note: Sample period: CY1997-2004, Each propensity to consume is calculated using *Monthly Report on the Family Income and Expenditure Survey* (Data by prefecture are those for the corresponding cities with prefectural governments).

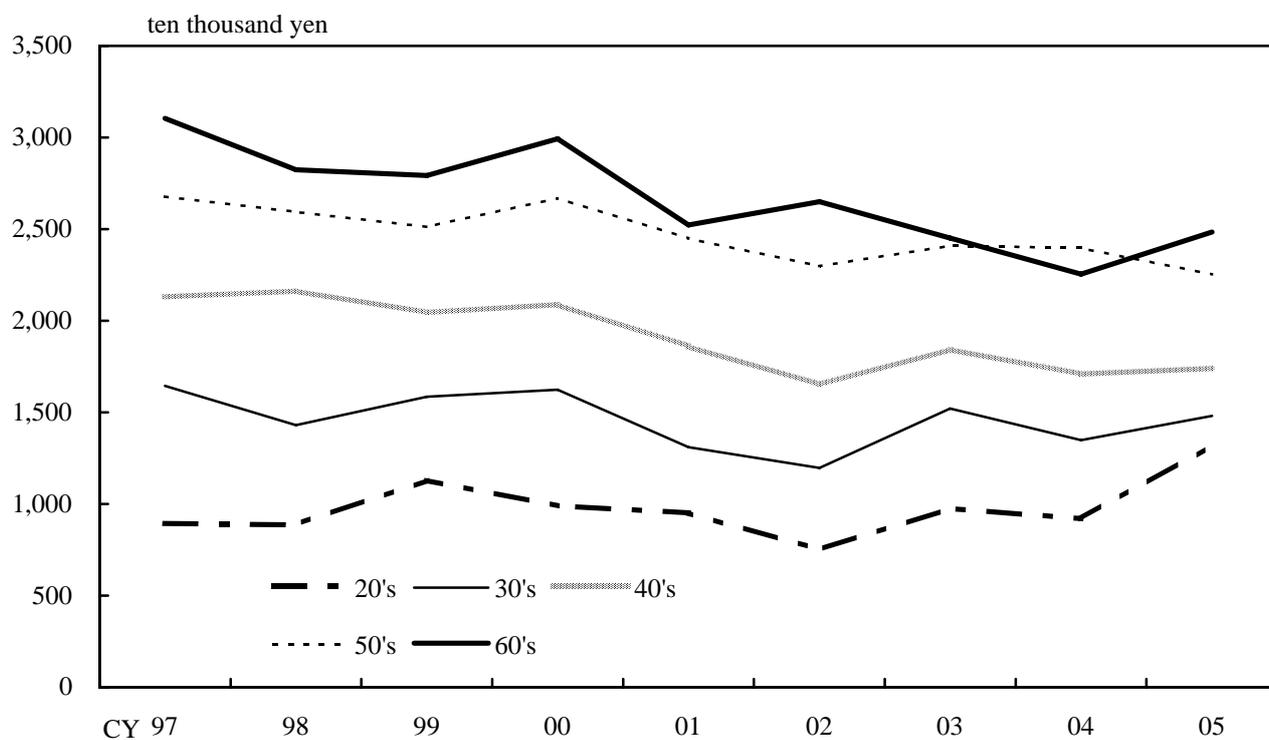
Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Population Census";  
All-Japan Federation of National Health Insurance Organizations, "State of Nursing Care Insurance Benefits."

## Households' Target Savings

(1) Households' Target Savings



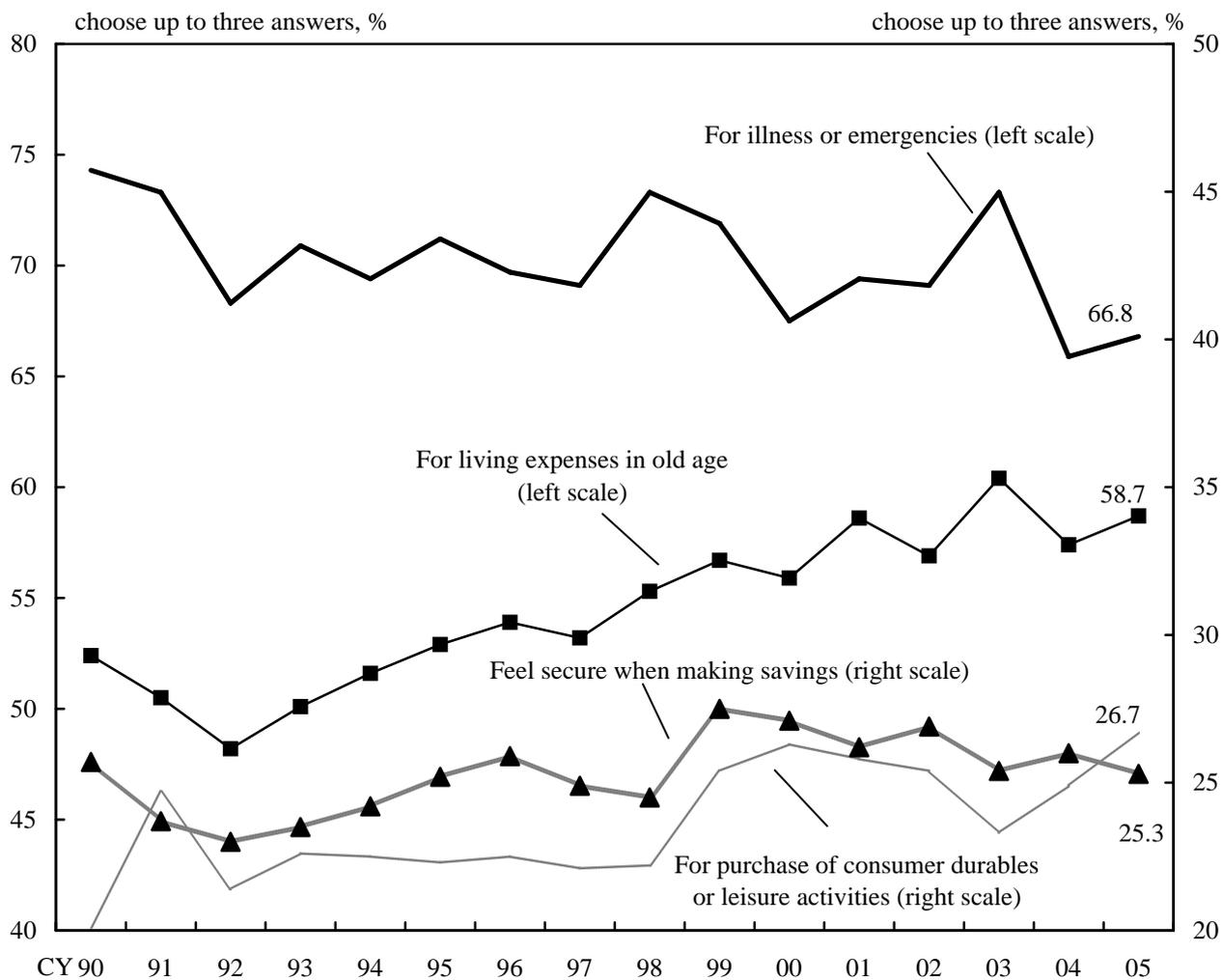
(2) Households' Target Savings by Age Group



Note: Only figures for two-or-more person households are used to secure data continuity, but figures for one-person households are included after the 2004 survey.

Source: The Central Council for Financial Services Information, "Public Opinion Survey on Household Financial Assets and Liabilities."

## Reasons for Households Savings

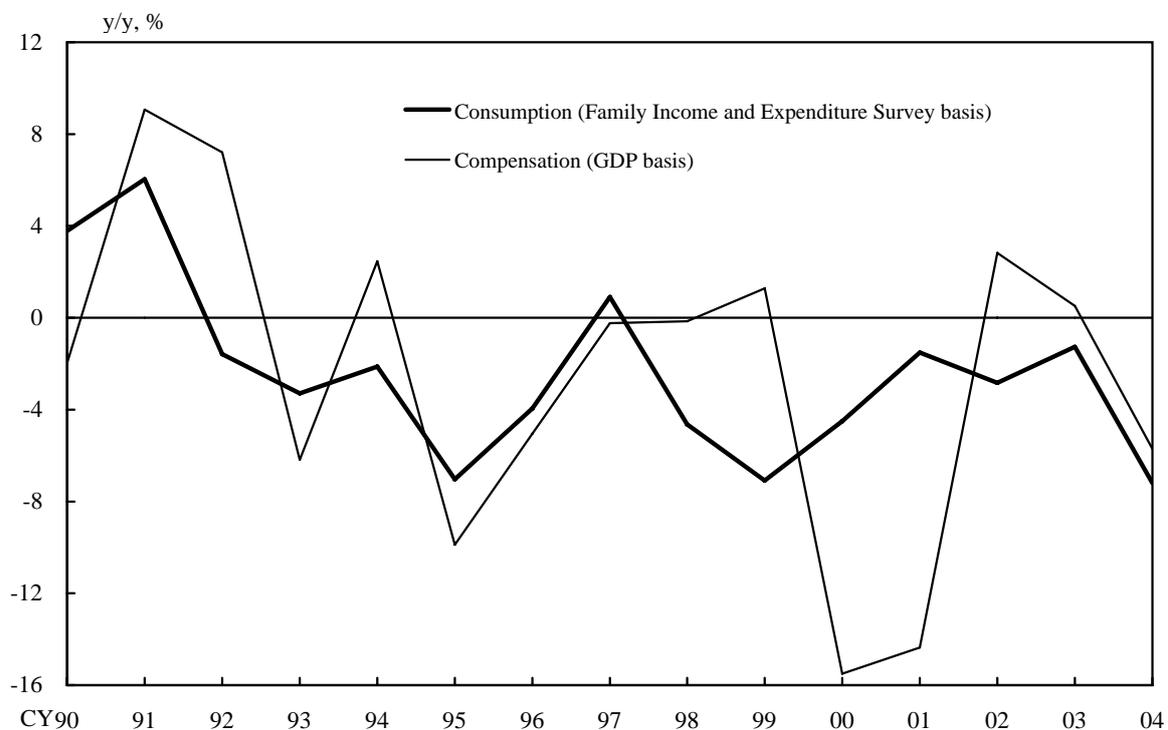


Note: "For purchase of consumer durables or leisure activities" indicates the percentage of respondents citing the purchase of consumer durables (automobiles, furniture, home appliances, etc.) and travel or other leisure activities.

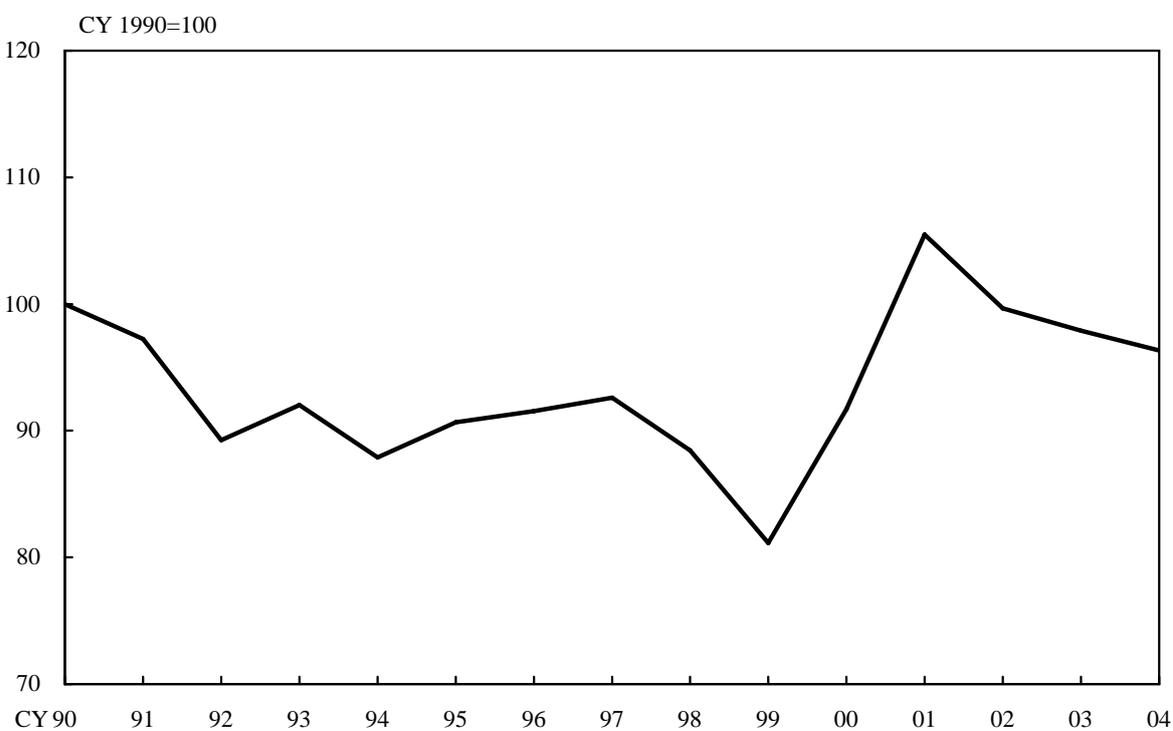
Source: The Central Council for Financial Services Information, "Public Opinion Survey on Household Financial Assets and Liabilities."

## Compensation and Consumption of the Self-Employed

### (1) Compensation and Consumption of the Self-Employed



### (2) Propensity to Consume

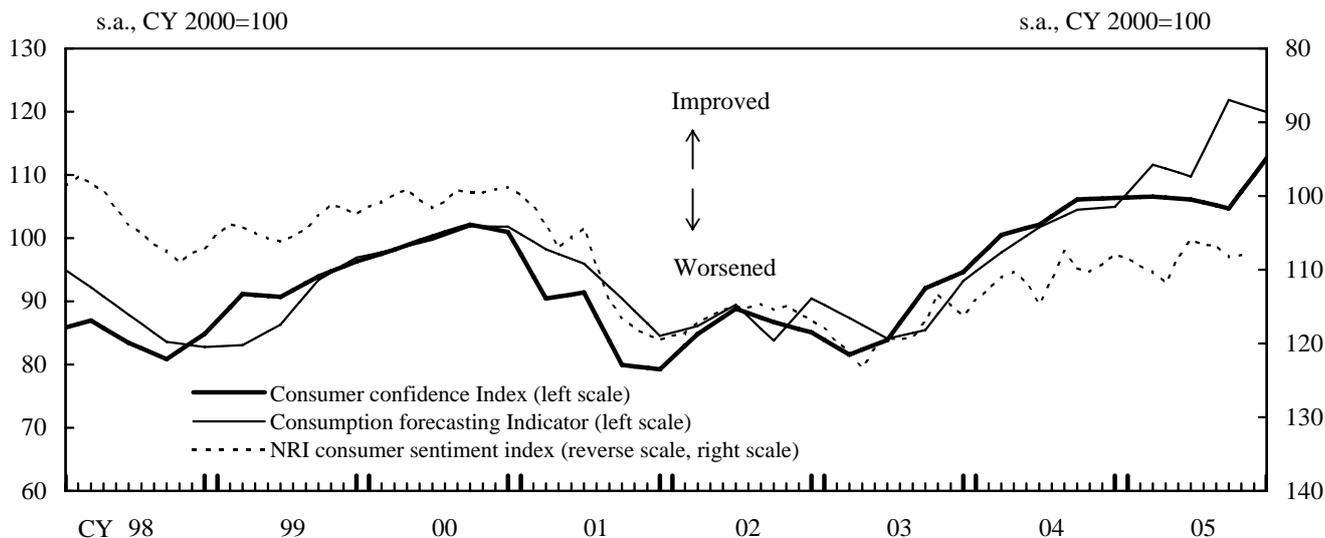


Note : Consumption is calculated as consumption expenditure per individual proprietor's household, multiplied by the distribution of households. Mixed income from National Accounts is used for compensation.

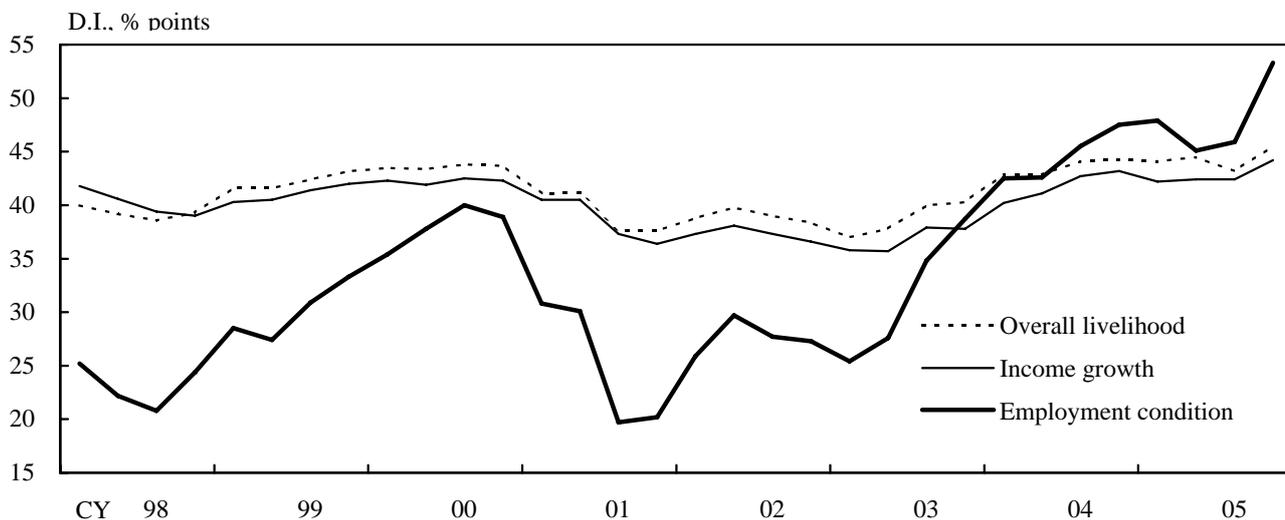
Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey"; Cabinet Office, "National Accounts."

# Consumer Confidence

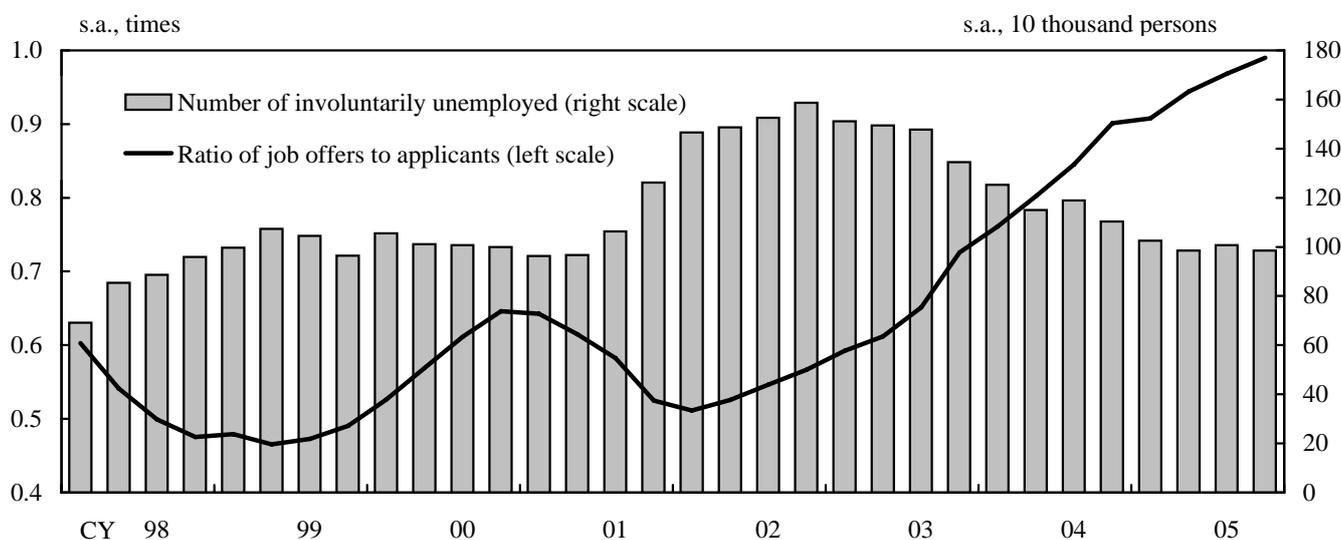
## (1) Surveys on Consumer Confidence



## (2) Breakdown of Consumer Confidence (Consumer Confidence Index)



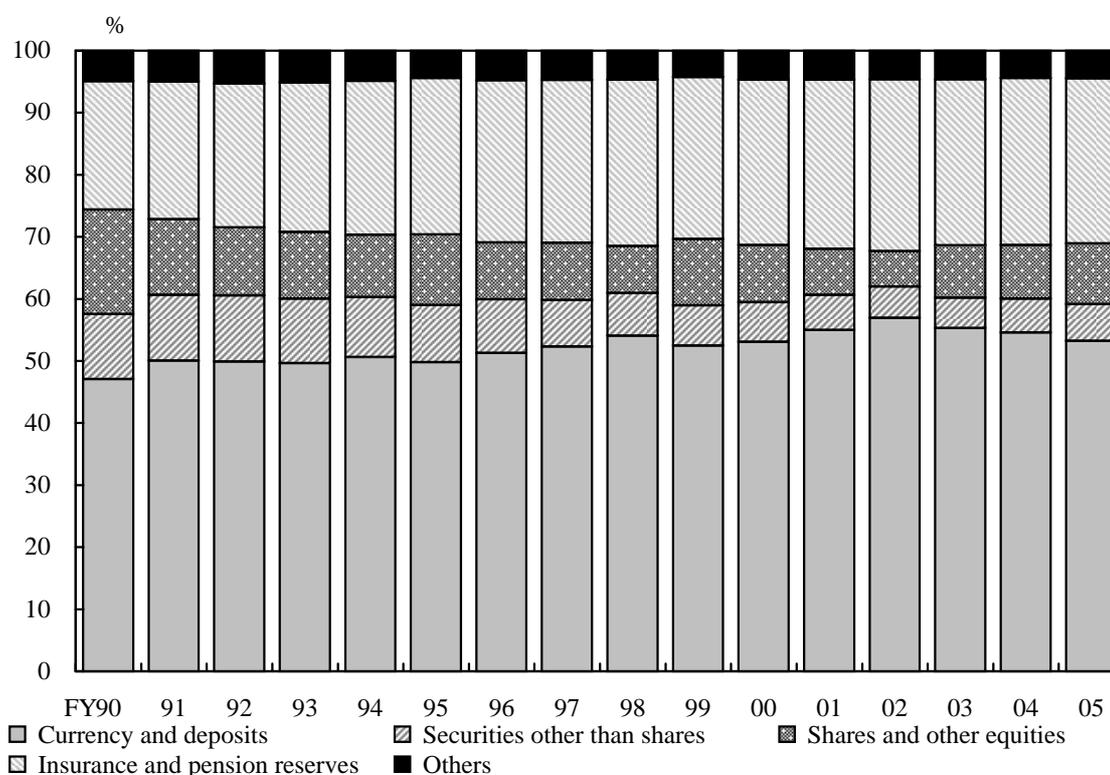
## (3) Indicators for Employment



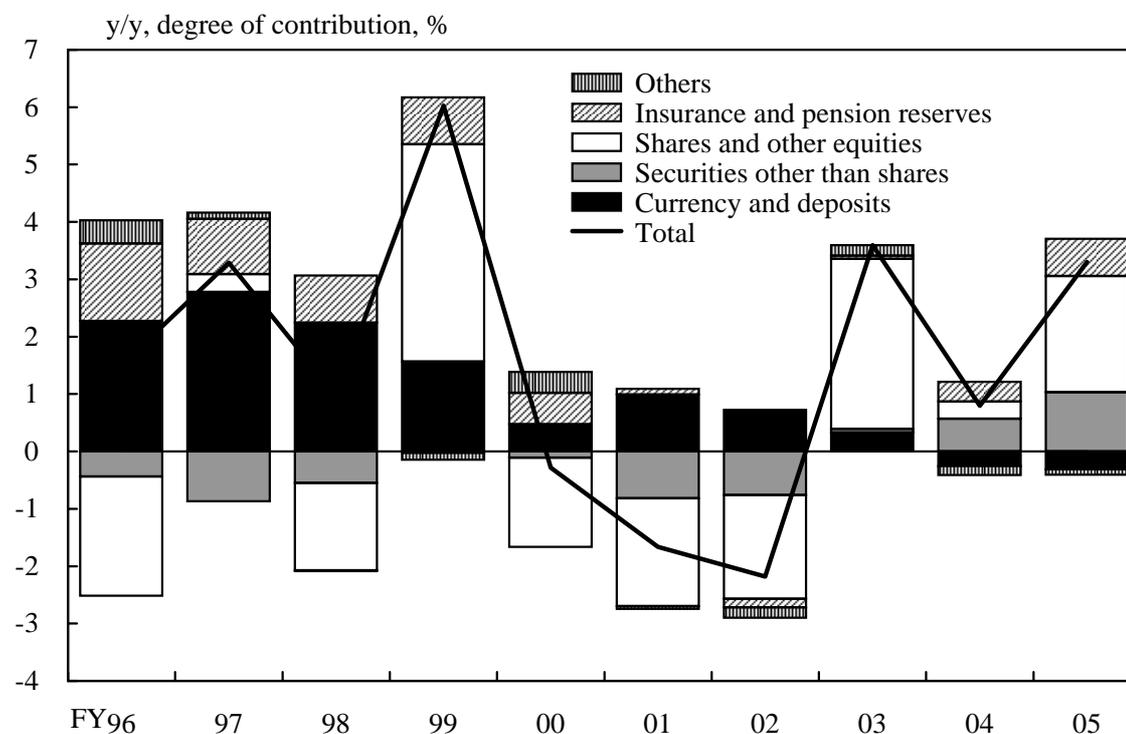
Sources: Cabinet Office, "Consumer Confidence Survey"; Nippon Research Institute (NRI), "Consumer Sentiment Survey"; Nikkei Research Institute of Industry and Markets (NIKKEI RIM), "Consumption Forecasting Indicator"; Ministry of Internal Affairs and Communications, "Labour Force Survey"; Ministry of Health, Labor and Welfare, "Report on Employment Service."

## Outstanding Amount of Financial Assets Held by Households

(1) Composition of Outstanding Amount of Financial Assets Held by Households



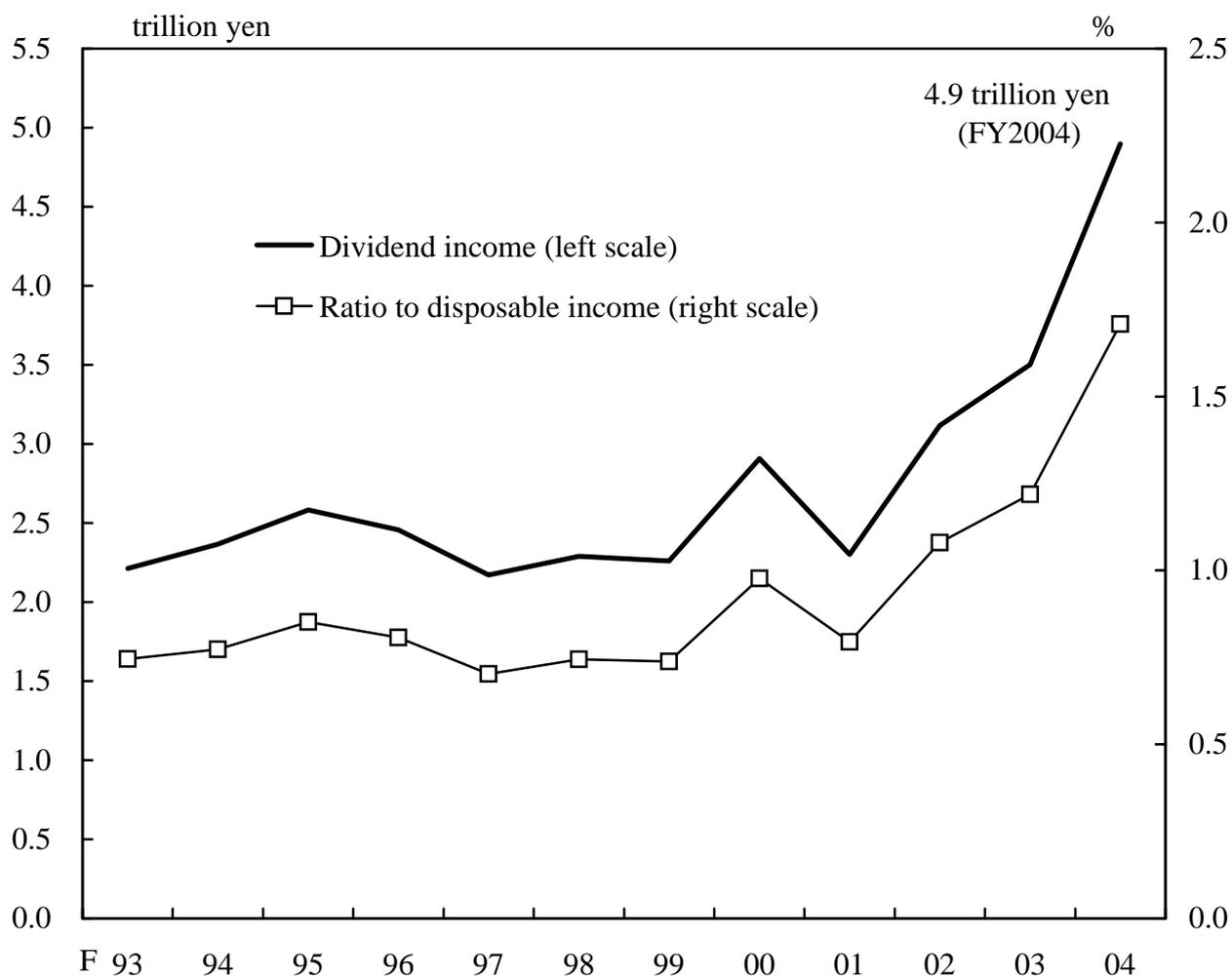
(2) Rate of Change of Outstanding Amount of Financial Assets Held by Households



Notes: 1. Securities other than shares include central government securities and securities investment trusts.  
2. Data for FY 2005 are those at the end of September.

Source: Bank of Japan, "Flow of Funds."

## Dividend Income of Households

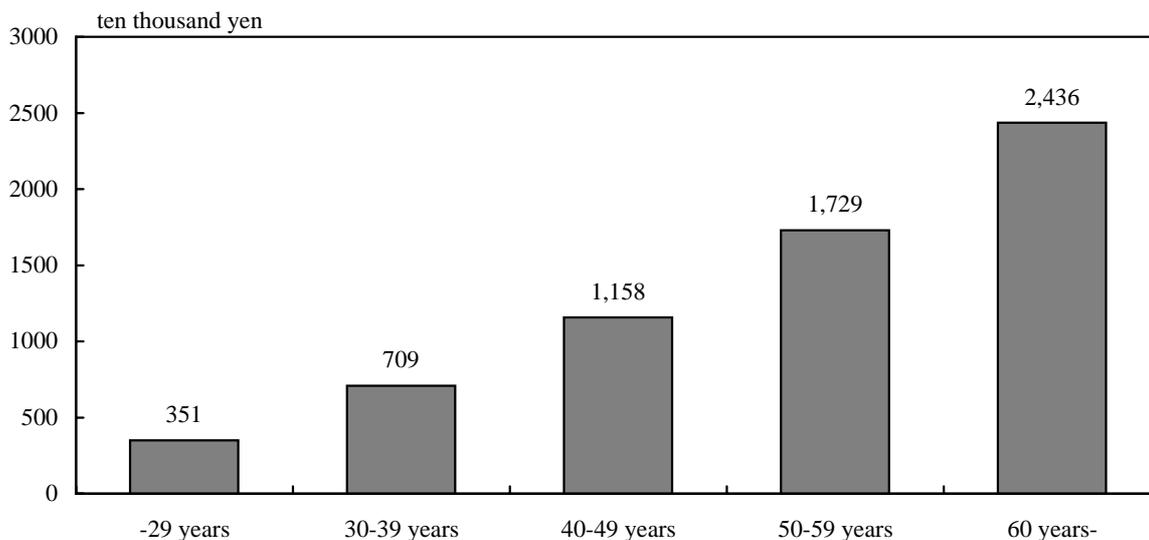


(Reference) Interest income: FY 1990 36.6 trillion yen → FY 2004 4.5 trillion yen

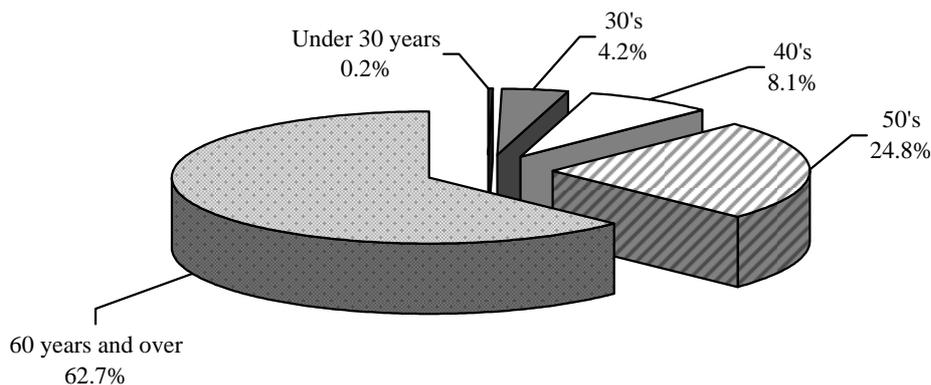
Source: Cabinet Office, "National Accounts."

## Savings by Age Group

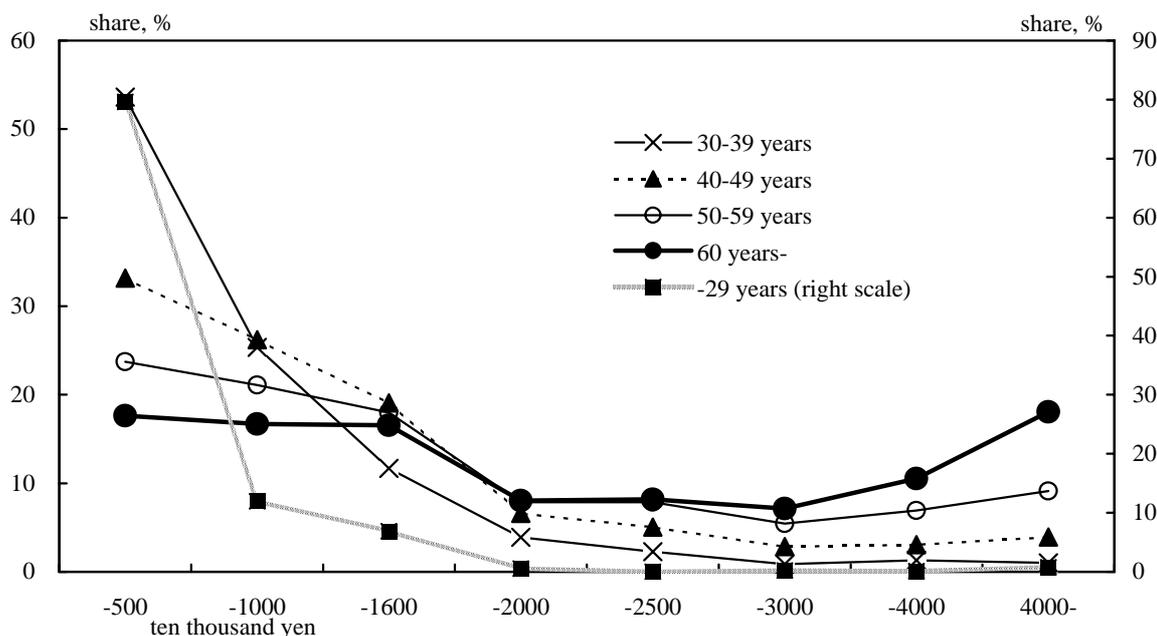
(1) Savings by Age Group of Household Head



(2) Ratio of Stocks and Investment Trusts Held by Age Group of Household Head



(3) Financial Assets Held by Age Group of Household Head



Note : All figures are those of CY2004.

Source: Ministry of Internal Affairs and Communications, "Annual Report on the Family Income and Expenditure Survey (Savings and Liabilities)."

## Consumption Function by Age Group and by Type of Goods and Services

### (1) Consumption Function by Age Group

$$\text{dlog}(C_{i,t}) = \alpha + \beta \times \text{dlog}(W_{i,t}) + \gamma \times \text{dlog}(A_{t-1})$$

C : Real consumption expenditure per household W : Real wages per household  
 A : Real net financial assets i : Age of household head t : Year  
 Estimation period : CY1982 - 2004

#### Estimation Results

	$\beta$	$\gamma$
20's	0.72 *** <3.39>	0.065 <-0.47>
30's	0.45 ** <2.58>	-0.000 <-0.00>
40's	0.69 *** <7.52>	-0.016 <-0.29>
50's	0.64 *** <4.64>	0.010 <0.12>
early 60's	0.39 *** <3.70>	0.343 *** <2.81>

Notes: 1. The "\*\*\*\*" sign indicates significance level of 1%.  
 2. Numbers in parentheses indicate t statistics.

### (2) Consumption Function by Type of Goods and Services

$$\text{d4log}(C_{i,t}) = \alpha + \beta \times \text{d4log}(Y_t) + \gamma \times \text{d4log}(A_{t-1})$$

C : Real consumption expenditure Y : Real employee compensation  
 A : Real net financial assets i : Goods or services t : Quarter  
 Estimate period : 1981/2Q - 2005/3Q  
 Note : "d4log" means the logarithmic difference from four quarters before.

#### Estimation Results

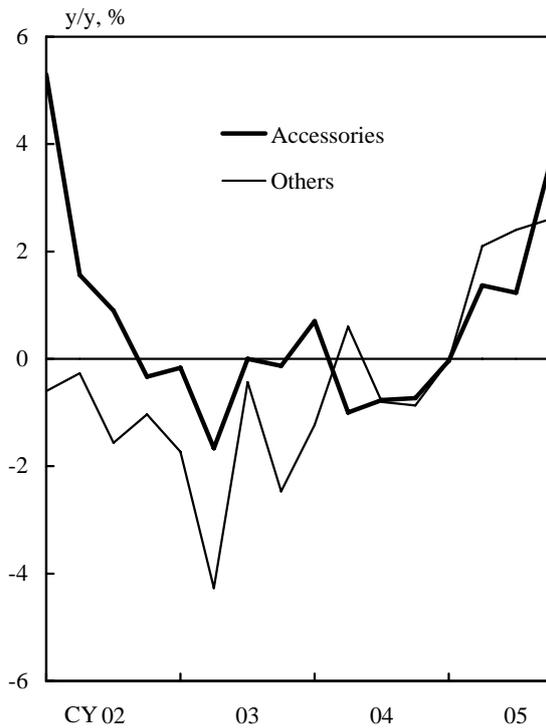
	$\beta$	$\gamma$
Durables	0.72 * <1.92>	0.87 *** <3.77>
Semi-durables	0.69 *** <3.83>	0.23 ** <2.10>
Non-durables	0.27 *** <2.91>	0.02 <0.42>
Services	0.31 *** <4.04>	0.20 *** <4.28>

Notes: 1. The "\*\*\*\*", "\*\*\*" and "\*" signs indicate significance levels of 1%, 5% and 10% respectively.  
 2. Numbers in parentheses indicate t statistics.  
 3. Consumption data by type of goods and services are those on a GDP basis.  
 Since 2004/Q2, figures are extended using the year-on-year rates of change in consumption expenditure on a Family Income and Expenditure Survey basis, deflated by the corresponding consumer price indexes.

Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey"; Bank of Japan, "Flow of Funds"; Cabinet Office, "National Accounts."

## Consumption Spurred by the Wealth Effect

(1) Sales of Luxuries at Departmentstores

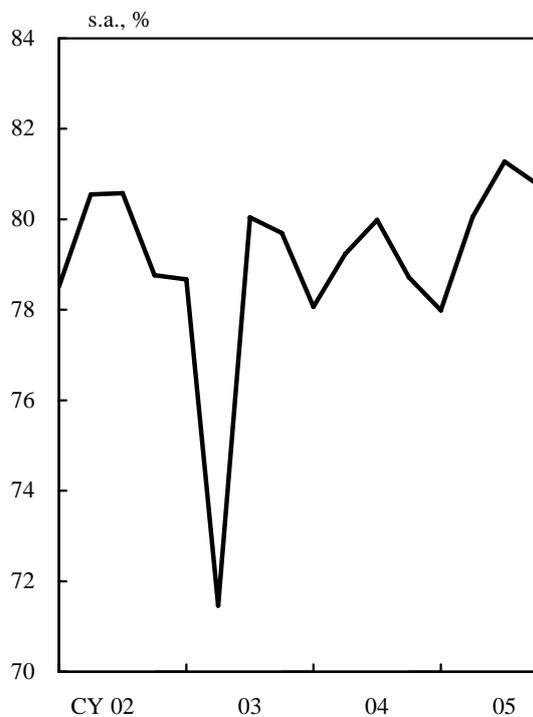


Note: "Accessories" include handbags as well as accessories, and "Others" include jewelry and luxury watches.

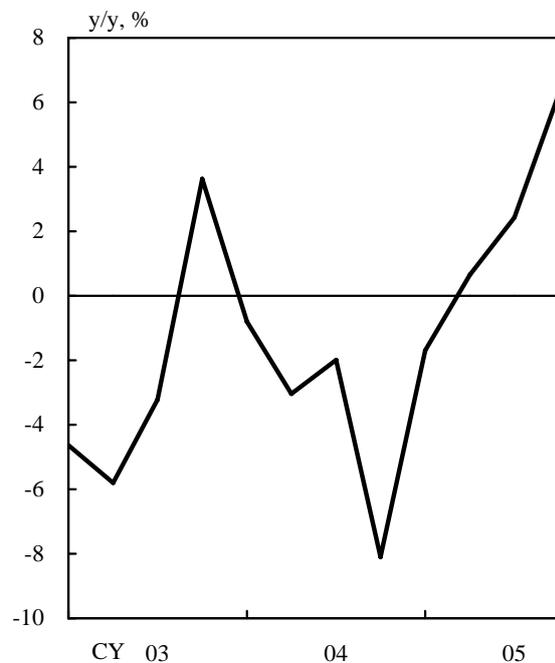
(2) Sales at Restaurants



(3) Occupancy Rates at Tokyo Hotels



(4) Consumption of High-Value Products and Services (Survey of Household Economy)

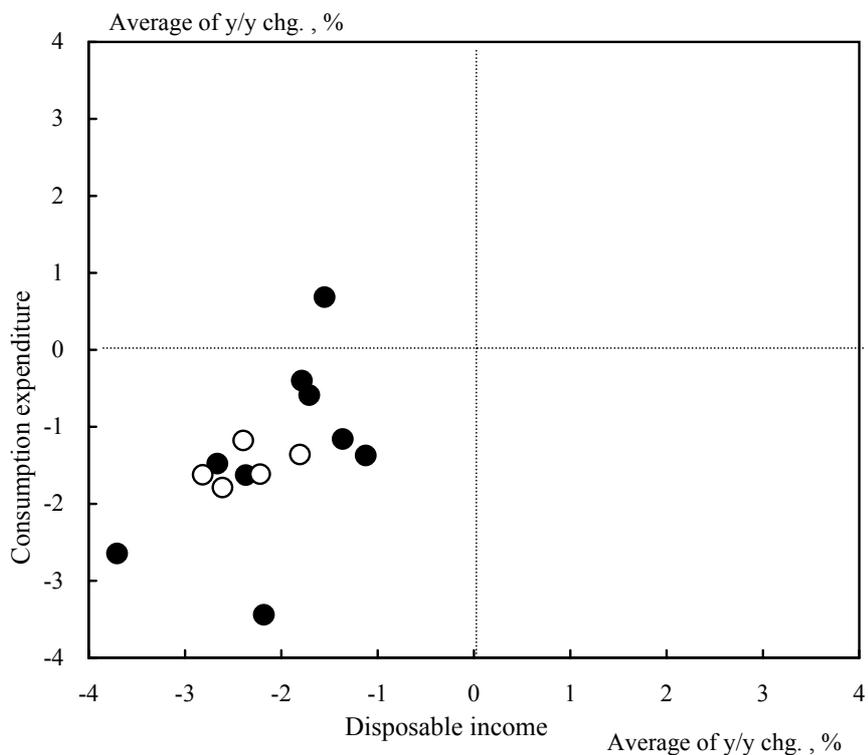


Note: High-value products and services in the *Survey of Household Economy* are in principle, items which cost at least 30,000 yen per expenditure and which are bought no more than once per year.

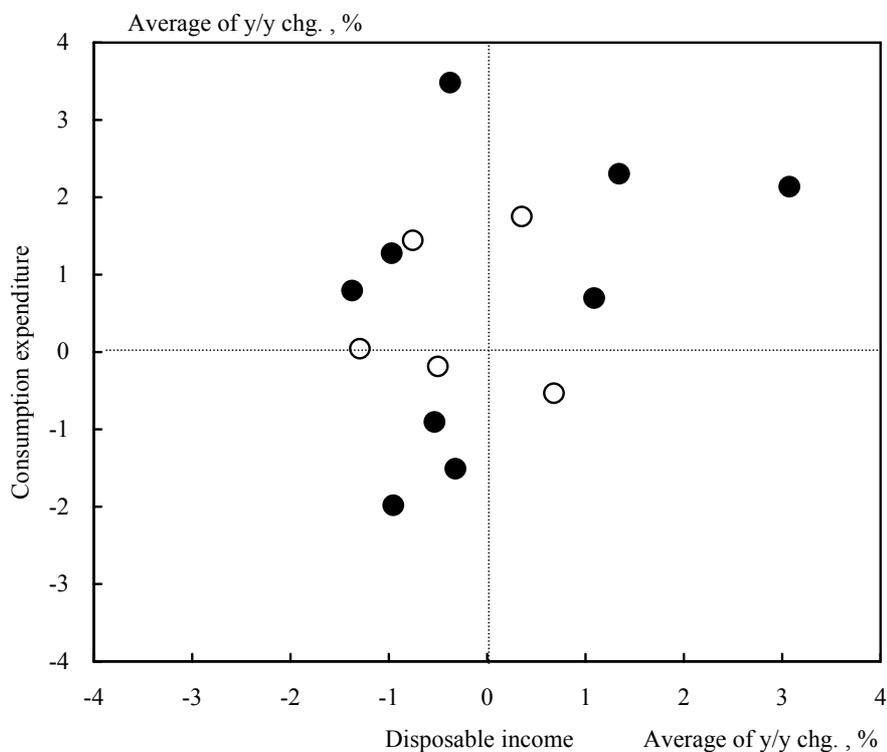
Sources: Ministry of Economy, Trade and Industry, "Current Survey of Commerce"; Japan Food Service Association, "Gaishoku Sangyou Shijou Doukou Chousa (The Research of Food Service Industry)"; Nikkei Business Daily, "Syuyou Hotel Kadouritsu (The Occupancy Rates of Major Hotels)"; Ministry of Internal Affairs and Communications, "Survey of Household Economy."

## Disposable Income and Consumption Expenditure

(1) Average of CY2001-2003



(2) Average of CY2004-2005

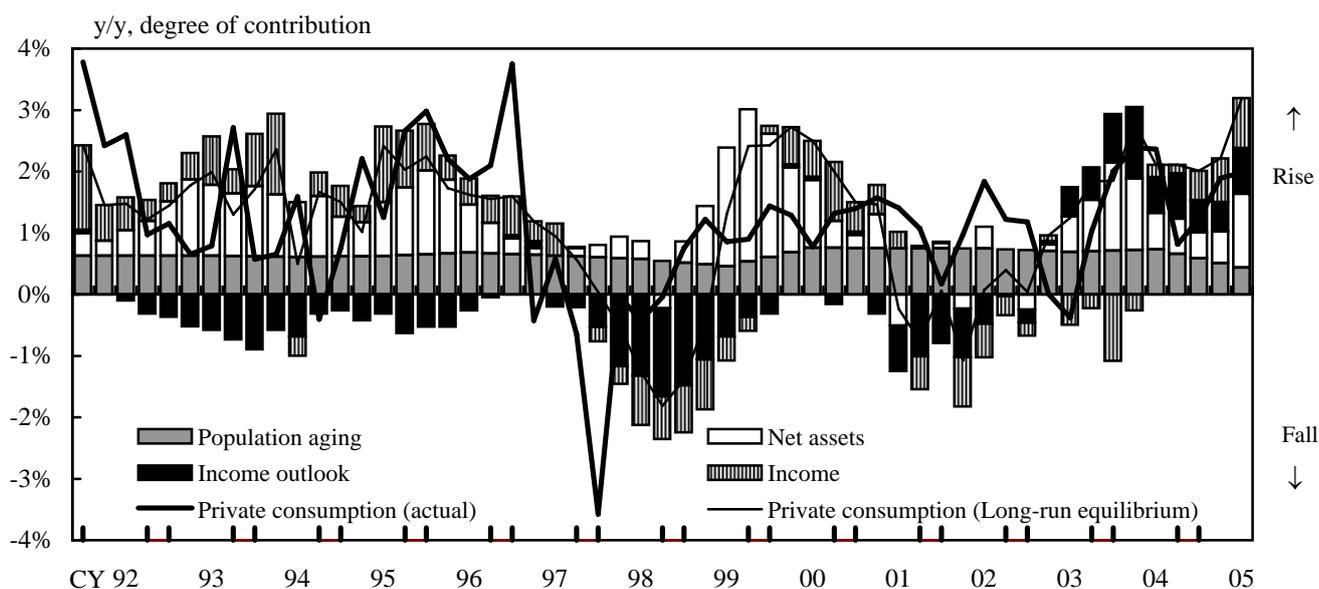


- Notes :
1. The "●" and "○" signs indicate data by age group and by income group respectively. Both are those of workers' households.
  2. Data of under 25 for which the number of samples is few, and of age groups for which figures fluctuate very widely, are excluded from the above charts.

Source: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey."

## Estimation Results of Consumption Function

### (1) Long-run Equilibrium of Private Consumption



Long-run equilibrium formula:  $\ln(\text{Real consumption of households}) = 2.18 + \{0.19 + 0.20 \times (1 - \text{Unemployment rate})\} \times \ln(\text{Real employee compensation}) + 0.01 \times (\text{Percentage of the population of 60 years and over}) + 0.22 \times \ln(\text{Real outstanding amount of net financial assets})$

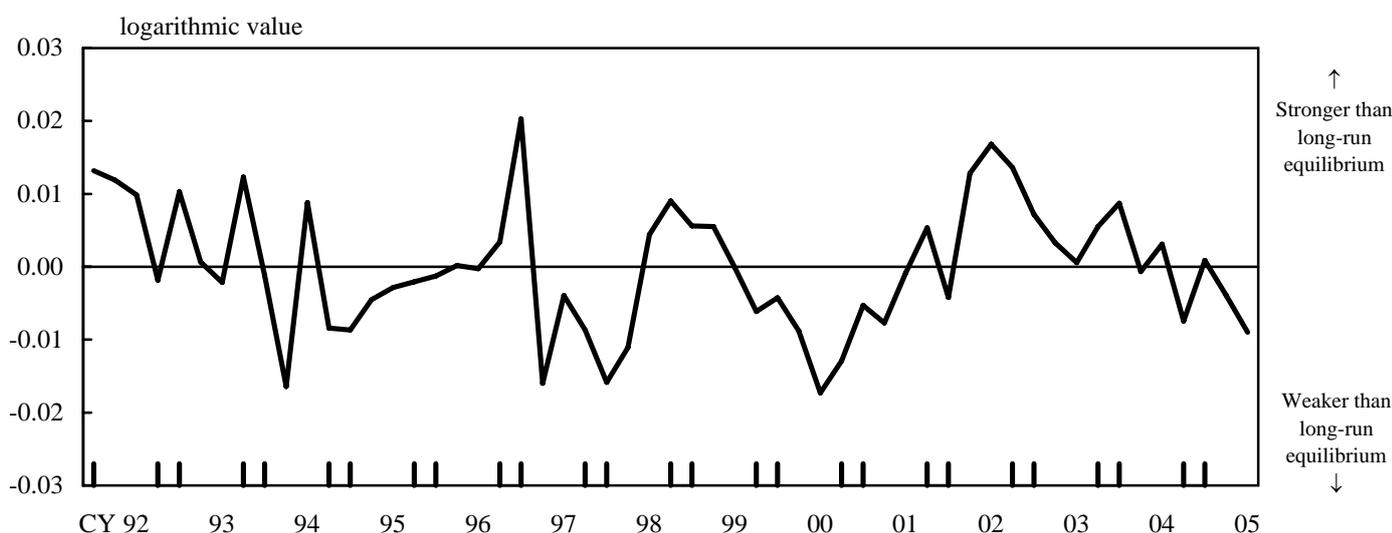
[0.10] [0.04] [0.02] [0.001] [0.02]

Estimation period : 1980/1Q-2005/3Q

Numbers in [ ] indicate standard errors of each coefficient.

Note: "(1-Unemployment rate)×Real employee compensation" is used as the income outlook factor.

### (2) Divergence from the Long-run Equilibrium of Private Consumption



### (3) Short-run Adjustment Formula

$$\begin{aligned} \text{dlog}(\text{Real consumption of households}) = & 0.005 - 0.03 \times \text{dlog}(\text{Real consumption of households}(-1)) \\ & + 0.26 \times \text{dlog}(\text{Real employee compensation}) + 1.27 \times \text{d}(1 - \text{Unemployment rate}) - 0.68 \times \text{Error correction term}(-1) \end{aligned}$$

<4.64> <-0.34> <2.91> <1.77> <-5.83>

Estimation period : 1980/3Q-2005/3Q

Numbers in <> indicate t statistics of each coefficient.

Adjusted R-squared=0.32

Durbin-Watson stat=1.98

Sources: Cabinet Office, "National Accounts"; Ministry of Internal Affairs and Communications, "Population Estimates"; Bank of Japan, "Flow of Funds."

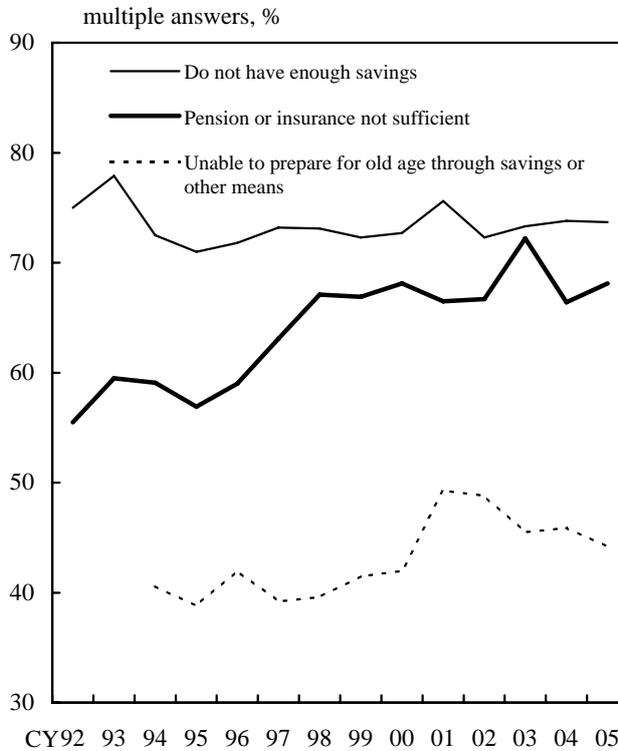
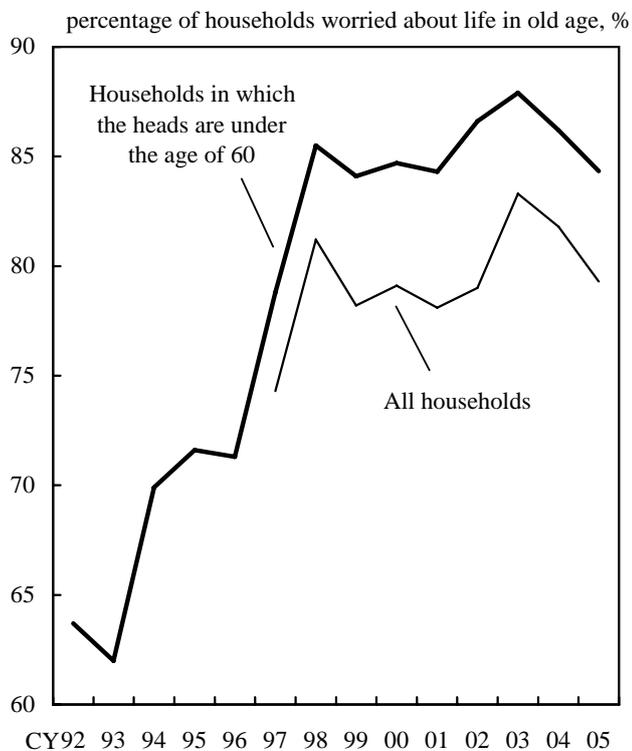
## Households' Anxiety about the Future

### (1) Views on Life in Old Age (Public Opinion Survey on Household Financial Assets and Liabilities)

<State of Worries about Life in Old Age>

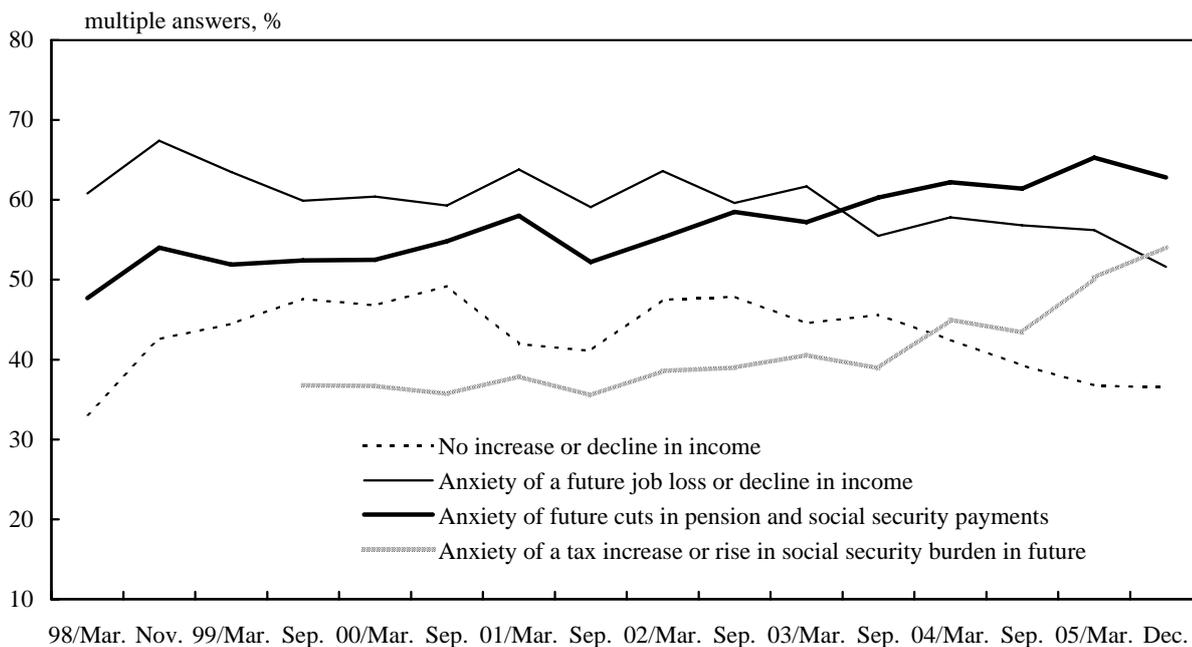
<Reasons for Being Worried about Life in Old Age

(Households in which the heads are under the age of 60)>



Note: Households "worried" are the total of those "very worried" and "somewhat worried."

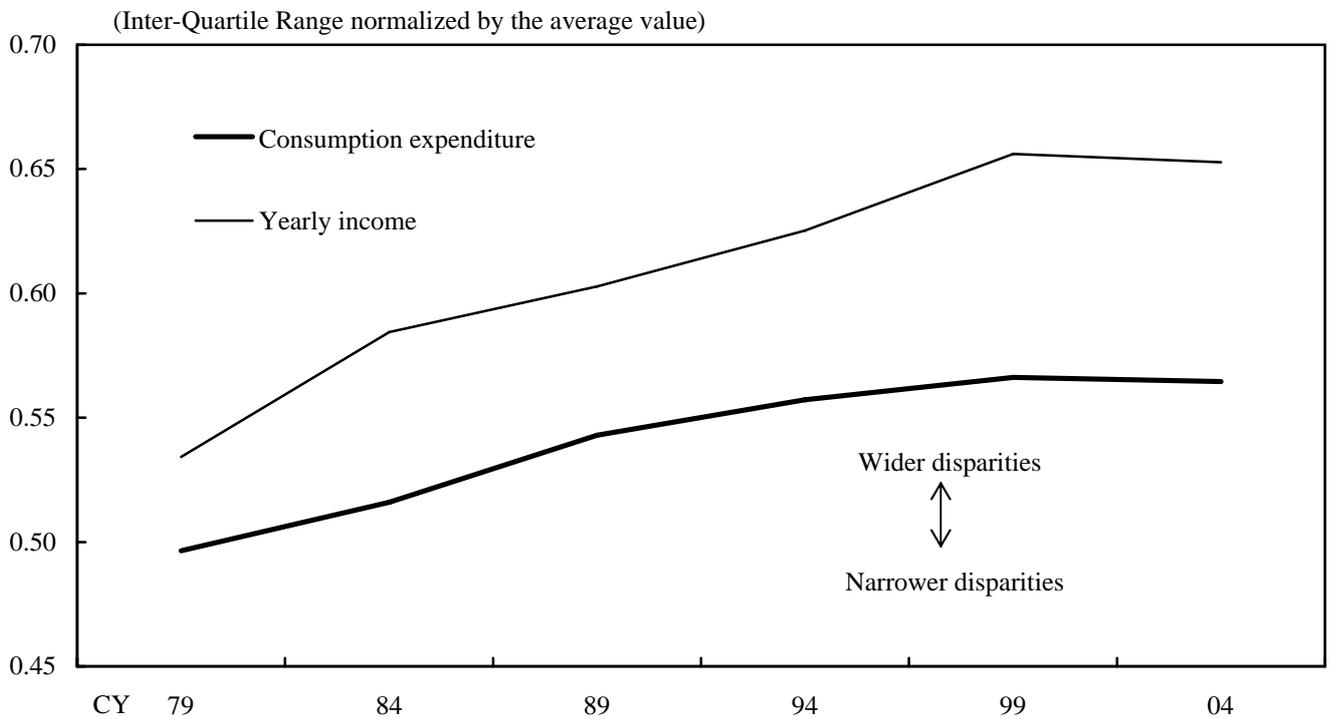
### (2) Reasons for Decreasing Households' Spending (Opinion Survey on the General Public's Mindset and Behavior)



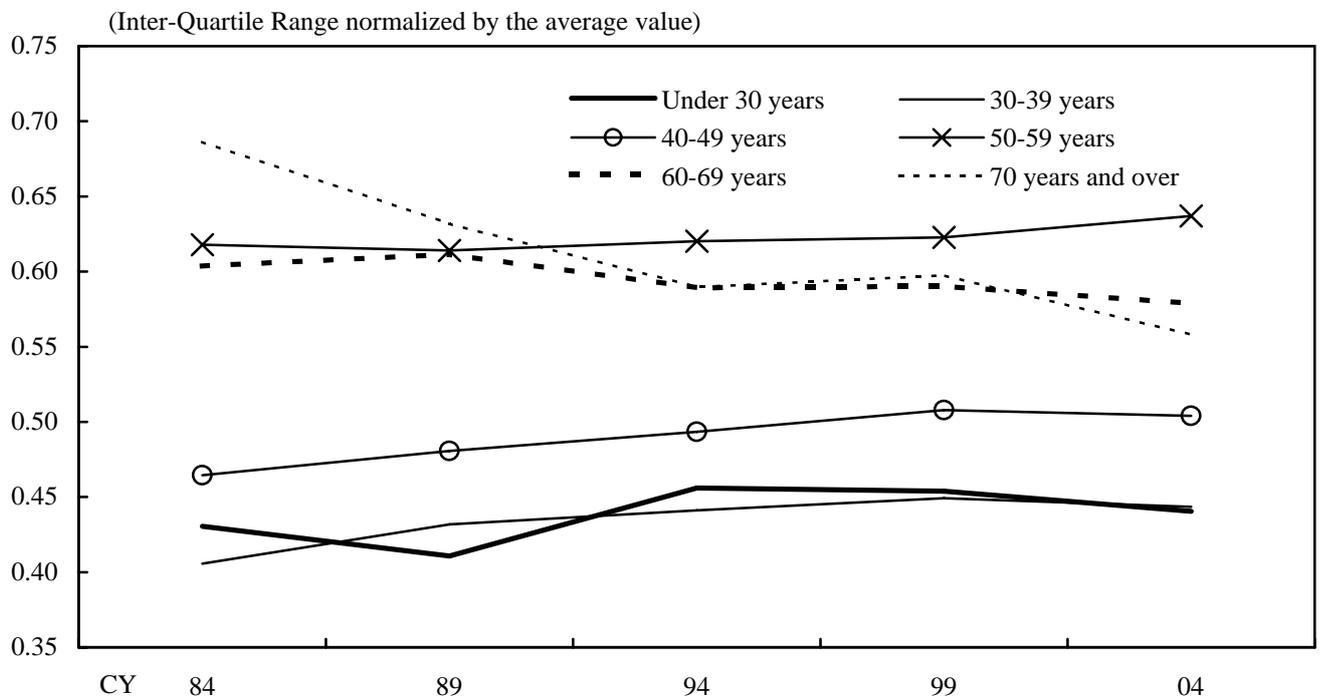
Sources: The Central Council for Financial Services Information, "Public Opinion Survey on Household Financial Assets and Liabilities"; Bank of Japan, "Opinion Survey on the General Public's Mindset and Behavior."

## Dispersion of Consumption among Households

### (1) Dispersion of Yearly Income and Consumption Expenditure



### (2) Dispersion of Consumption by Age Group

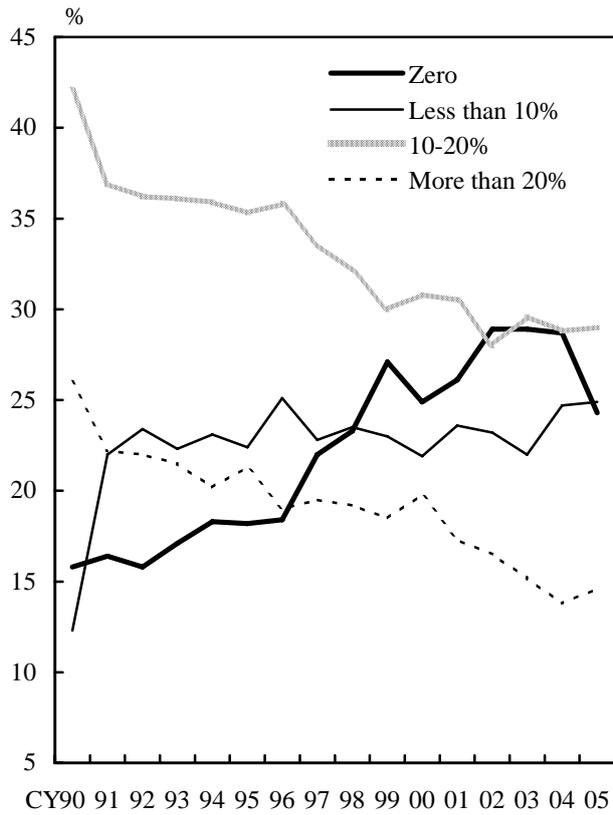


Note: The Inter-Quartile Range is the difference between the first quartile (the value below which 25% of all values in the sample lie) and the third quartile (similarly, the value below which 75% of all values lie), suggesting how samples concentrate around the median. Hence, when the inter-quartile range widens, we can regard it as the expansion of the dispersion of consumption among households. For examining the disparities by time-series and by age group, all figures are normalized by the average value (or by each average value by age group in (2)).

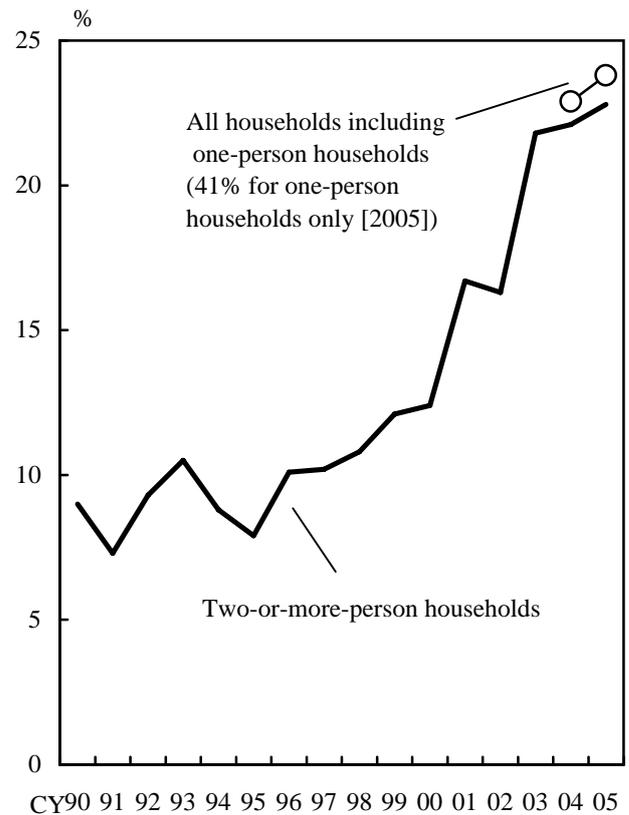
Source: Ministry of Internal Affairs and Communications, "National Survey of Family Income and Expenditure."

## Survey on Savings

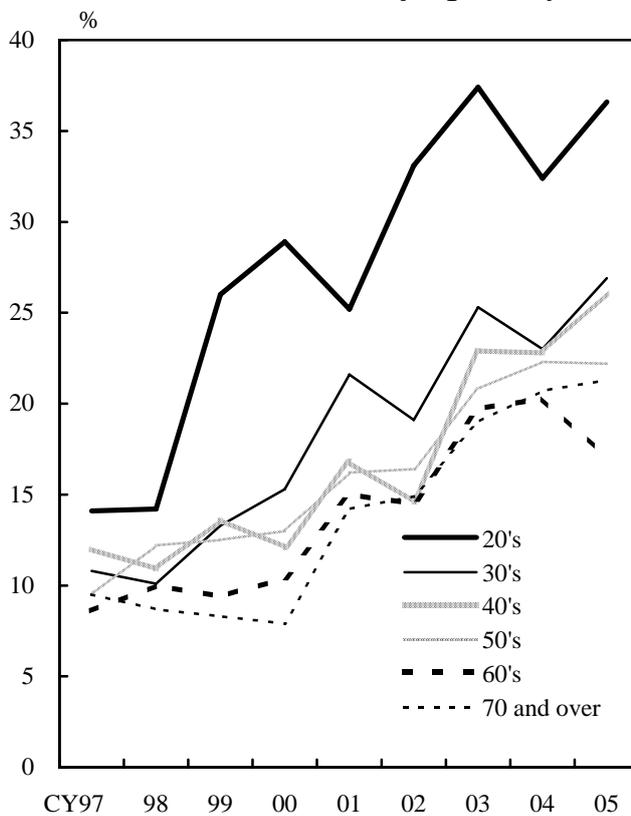
(1) Allocation to Savings from Disposable Income



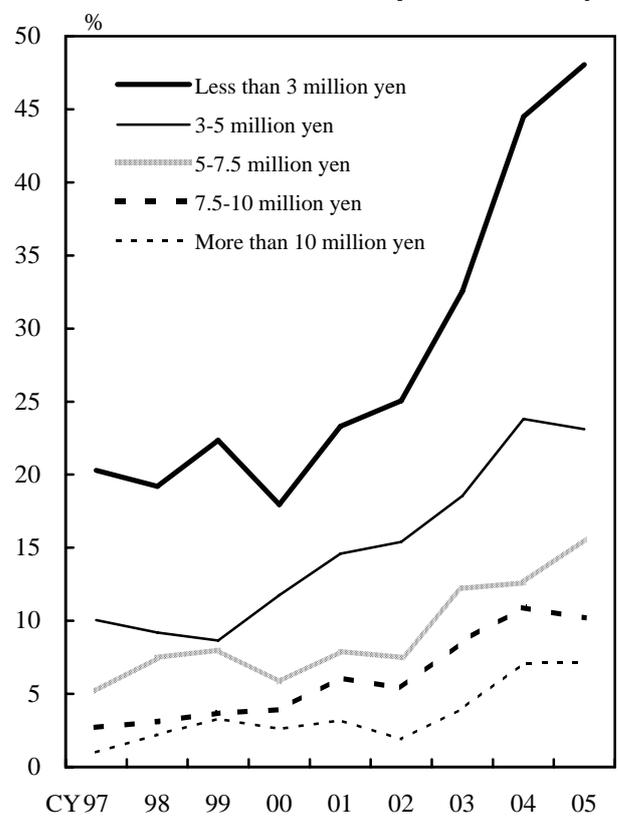
(2) Percentage of Households with No Savings



(3) Percentage of Households with No Savings by Age Group



(4) Percentage of Households with No Savings by Income Group

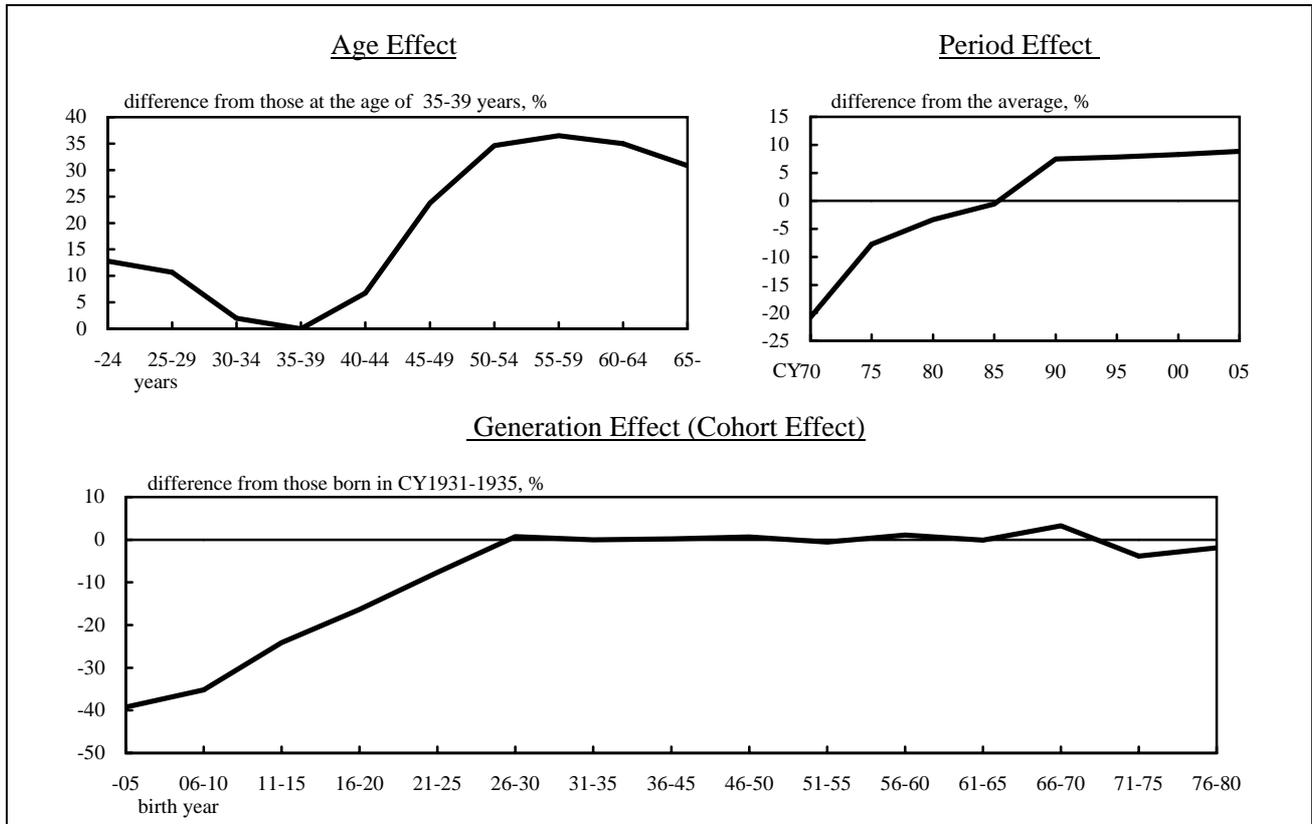


Note: The definition of "savings" in this survey does not include savings for business purposes or direct salary deposits, account transfer payments and other items that only remain in accounts temporarily.

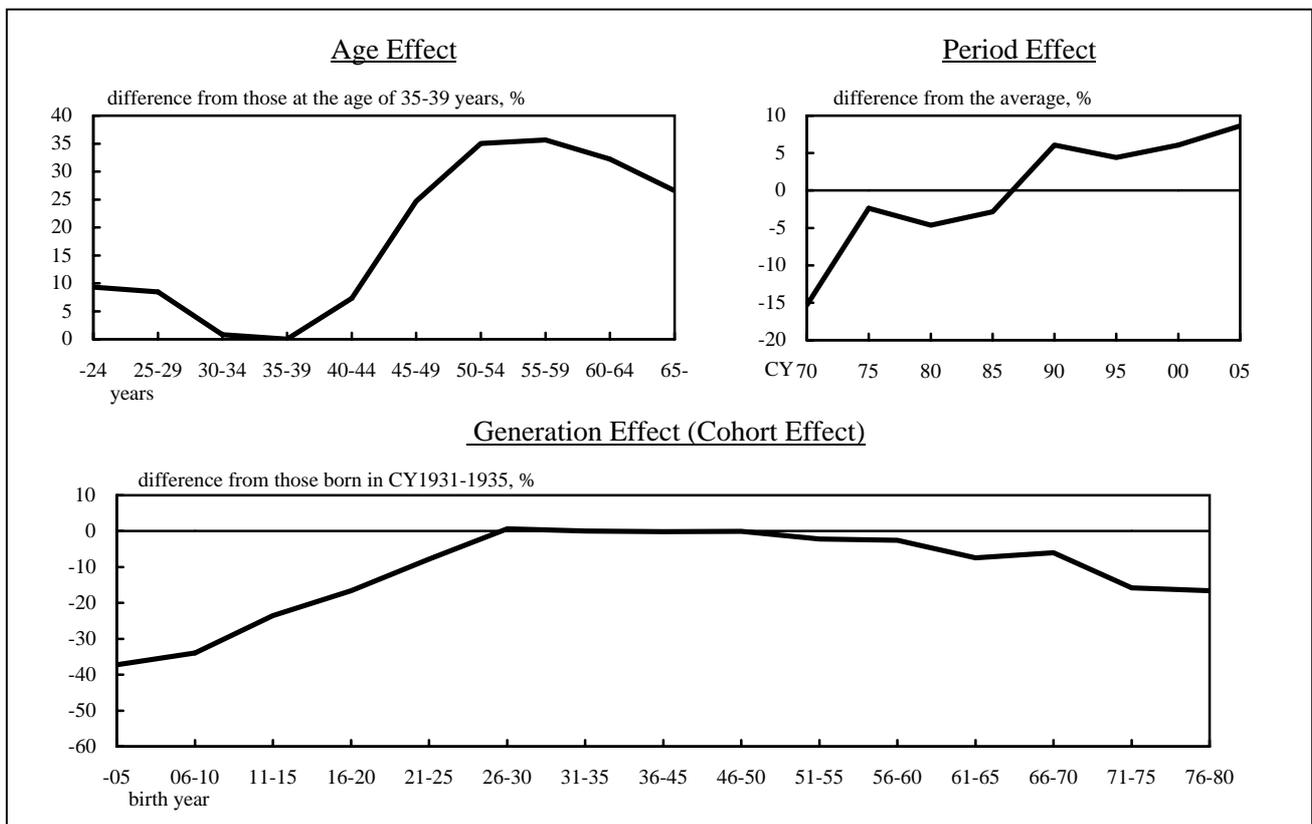
Source: The Central Council for Financial Services Information, "Public Opinion Survey on Household Financial Assets and Liabilities."

## Cohort Analysis of Real Consumption

### (1) Real Consumption per Household Member



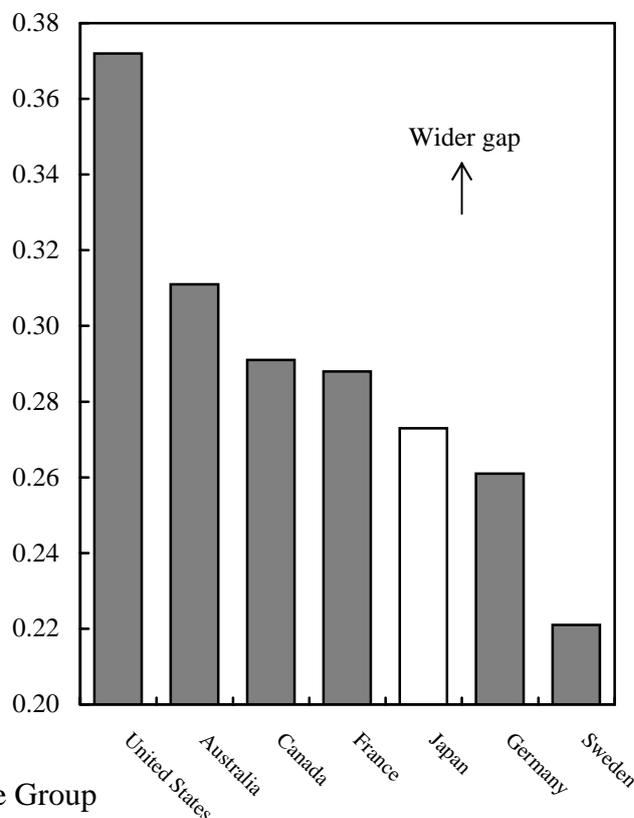
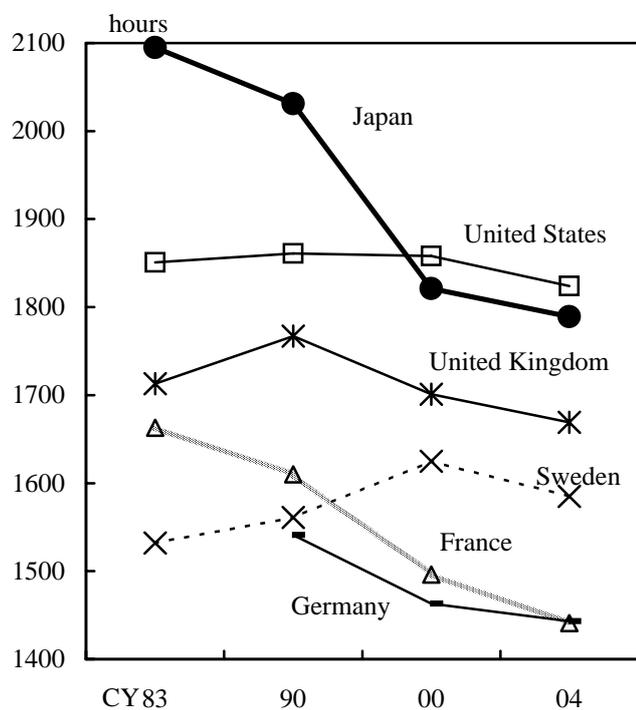
### (2) Real Consumption per Household Member (excluding Housing, Fuel, Light and Water Charges)



Sources: Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Consumer Price Index."

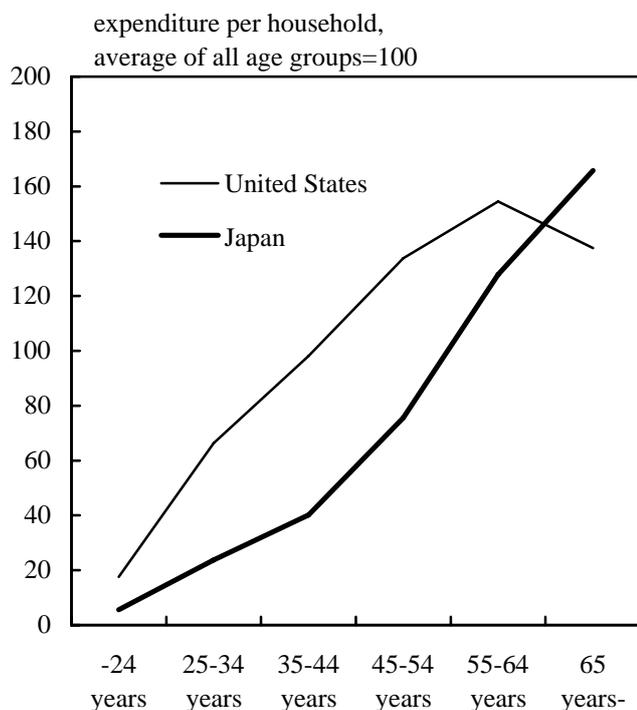
## Influence from the Retirement of Baby Boomers

(1) International Comparison of Annual Hours Worked    (2) International Comparison of Gini Coefficient

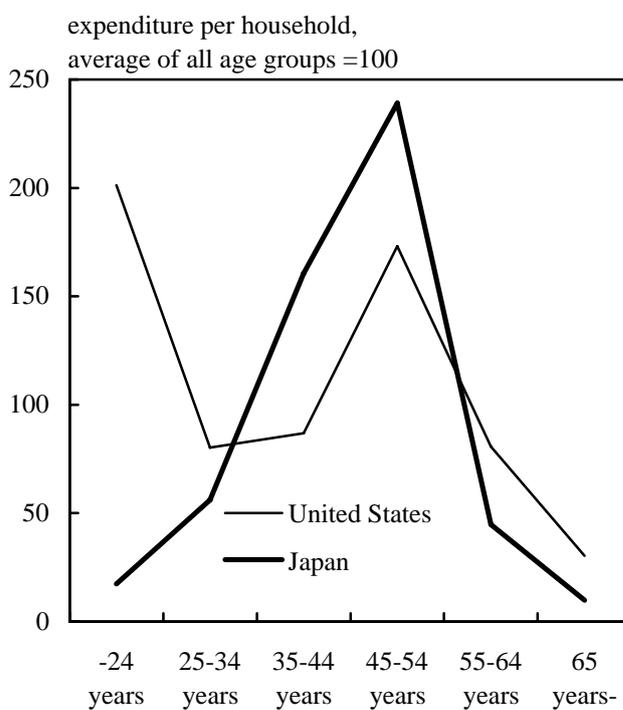


(3) Japan-U.S. Comparison of Consumption by Age Group

a) Expenditures on Repairs



b) Expenditures on Education



Sources: OECD, "Employment Outlook 2005"; Ministry of Internal Affairs and Communications, "Monthly Report on the Family Income and Expenditure Survey," "Topics of National Survey of Family Income and Expenditure"; Bureau of Labor Statistics, "Consumer Expenditure Survey."