

## A model lifetime and its applications to evaluate pension systems

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### Abstract

Social security pension reforms have been conducted in developed countries due to the population aging and economic maturing since mid-1990s. To select better pension systems, it is indispensable to compare several reform options with current systems.

When corporate pensions are changed, individual members and beneficiaries are usually provided illustrations showing before and after impacts. In the case of social security reform, the macroeconomic balance of contributions and benefits are usually the focus of discussion; impacts on individual members and beneficiaries are seldom discussed, partly because of their numbers.

In this paper, a model lifetime including income, expenditure and saving is drawn up on the basis of Japanese statistics. Using this model, the impact of social security pension systems on the elderly is discussed. It would be possible to extract the impact of pension systems themselves by using the same lifetime model.

Keywords: pension reform, model lifetime

## 1. Introduction

Social security pension reforms have been conducted since the mid-1990s in developed countries. Japanese social security pension systems were reformed in 2000 and 2004. During the process of social security pension reform in Japan, the macroeconomic balance of contribution and benefit was the focus of the discussions. The impact of pension reform on individual members and beneficiaries was only a minor consideration. The importance of the latter has been increasingly recognized, and some individual-based data was publicized in the 2004 Japanese pension reform, including replacement ratios by household income level and the ratio of accumulated pension benefits to accumulated contributions by generation (the inter-generational “money’s worth” issue).

It is a common practice to analyze individual impacts and inform individual members and beneficiaries before corporate pension plan reform is finalized. These practices are not possible for social security pension reforms, because the people impacted are too numerous. But in the discussion of selecting better pension systems, it will become more important to compare several reform options from the viewpoint of individual members and beneficiaries.

It might be better to use “panel data” (sometimes called “longitudinal data”) for individual analysis of pension systems. This data has recently become available in most developed countries. In November 2005<sup>1</sup>, the Japanese government will initiate a panel survey for middle-aged people (those in their 50s and their household members). It will take several years for the panel data to become available for statistical analysis of the Japanese pension systems.

Because of scarcity of available panel data, we will develop a Japanese model lifetime (we call it “NFI Model” hereafter in this paper) on the basis of recent vital statistics, income and expenditure data available, and apply it to study the adequacy of pension benefits and several other issues discussed in pension reform.

## 2. Review of Japanese model lifetime

Several model lifetimes have been developed in Japan for analyzing or explaining social schemes including social security. One of the recent ones developed by the

government (MHLW Model) (MHLW; Ministry of Health, Labour and Welfare) was shown in the 1992 Health and Welfare Annual Report. Using mostly 1991 data, it includes life events such as marriage, births of children, retirements and deaths. Since it is only a life event model, we could not use it for our study.

Usuki and Matsuura (2002) discussed retirement benefit tax reforms using a tax simulation model developed by NLI Research Institute (NLI Model). This model calculates, by yearly period, income (earned, retirement benefits), amount of taxes (income tax, residence tax) and after-tax income for its model lifetime (starting work at 22, marriage, having 2 children, retirement, and the husband's and wife's deaths) and sums the values (discounted or inflated) up to age 60. This model includes economic data, so that we could use it. However it was not well-publicized, so that we could not use it.

### 3. Data

Our model family (number of members and family forming and dissolving process) was set up on the 2000 Population Census data.

The 2004 vital statistical data were used to set up the ages of life (family) events, such as marriage, children's births, and husband's and wife's deaths.

The 1999 National Survey of Family Income and Expenditures was used for estimating income and expenditure in the model.

### 4. Methodology

#### (1) NFI Model lifetime

Real life courses have been getting more and more diversified, any model lifetime might represent only a very small portion of real people's lives. Since our focus is the pension system, we will use a model lifetime for evaluating pension plans.

Although it is not representative of most people we hope it might, nonetheless, be useful. Our model lifetime is for a male beginning at first employment and ending at his wife's death.

First employment is age 22. Marriage is age 30 to a wife age 28. Births occur the next

year and again three years later. Age retirement occurs at age 62 and he dies at age 83 (based on a life expectancy of 20.57 years at age 62). His wife dies at age of 88, 7 years later (age 60 + 27.74).

The two children graduate colleges and start working at ages 22, when the father is 52 and 54, the mother is 50 and 52, respectively.

They purchase their home at his age 31 using a 30-year mortgage. Educational costs of the children are borne by the parents.

The husband is the only household income earner, and social security benefits are the only income after age retirement.

Original survey data by number of household members and 10-year age groupings were used for income and expenditure. For example, expenditures of a 4-member household within age group 30-39 were used for male age 35.

The 1999 National Survey of Family Income and Expenditure was conducted for a month during Sept.-Nov.<sup>2</sup>, so that the income on the Survey was essentially regular monthly base pay. But as bonuses are usually paid to employees in June and Dec. in Japan, we multiplied household regular income by 1.2<sup>3</sup> to include an allowance for bonus and increased expenditure in accordance with the calculated increase in income<sup>4</sup>.

After generating household income and expenditure by yearly period, the accumulated amount of inflated or discounted values of those amounts are compared on the balance sheet at the age of retirement (pensionable age 62) based on 2005 prices. We used snap shot data for income and expenditure. This could mean the data are already inflated or discounted at the age 62, so that just the accumulation is enough to get the accumulated and discounted amount.

Social systems have been changing in Japan. It is too much complicated to follow those changing phenomena, so that we used the original data as non-living expenses except the pension contribution which reflected the history of its changes.

## 5. Results

(1) NFI Model lifetime

We set up our “One wage earner family’s model lifetime (NFI Model)” as follows.

- a. A man graduates college and starts working in April at age 22 without accumulated saving,
- b. He gets married at age 30 to a woman age 28,
- c. The first baby is born the next year and they purchase their home ( at age 31 ). The second baby is born two years later(at his age 33),
- d. The first child graduates college and becomes self-supporting at age 22 (father’s age 53, mother’s age 51),
- e. The second child graduates college and becomes self-supporting at age 22 (father’s age 55, mother’s age 53),
- f. The man retires from working and starts receiving a pension at age 62.
- g. He dies at age 83 and his wife dies at 88 (see Appendix 1).

Figure1 shows income, expenditure and saving by age on the NFI model (Data are shown in Appendix 2). Results are highly dependent on the price of their house. We have assumed that their house cost 25 million yen<sup>5</sup> financed by a 5 million savings withdrawal and 30-year mortgage of 20 million yen.

Figure 1 Incomes, Expenditures and Savings by Age (NFI Model)

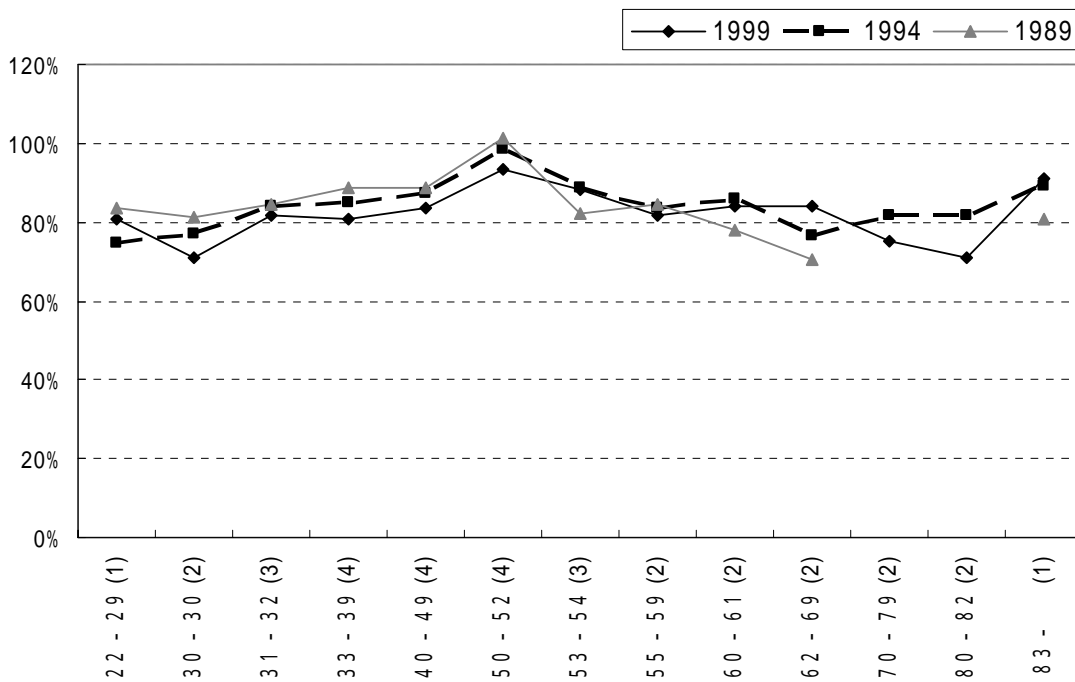


Once income is greater than expenditure, saving accumulates during the working ages

under 62. Expenditure exceed income after the pensionable age of 62 requiring the family to draw down accumulated savings. They bequest 2.7 million yen and the house to their children. In other words, the economic situation of our model lifetime is highly dependent on the price of house as mentioned above. We believe that the maximum they could have afforded would have been 27 million yen.

The model is also highly dependent on the propensities to consume. The data from National Survey of Family Income and Expenditure show rather stable consumption (see Figure 2) as a percentage of income.

Figure 2 Propensities to consume by age group and number of household



Note:1. Numbers of households are mentioned in the parenthesis.

2. The data for 70-79, 80-82 in 1989 are not shown on the figure because of unusual figures due to the small sample numbers.

Source: National Survey of Family Income and Expenditure

(2) Some applications of model lifetime

a. Adequacy of pension benefits

Our model assumes that only social security pension benefits are available as income

after the retirement age of 62. The Japanese government introduced “ Macro economic slides” to the social security pension to make it more sustainable in 2004, which means that a decrease in employed participants and an increase of life expectancy is considered when the cost of living adjustments are applied (-0.9% per annum in the 2004 pension reform discussion). Applying the “Macro economic slides”(-0.9%) to pension benefits after retirement, decreases total pension benefits around 10%, namely from 75.7 million yen to 67.7 million yen.

Table 1 Accumulated Amounts of Income, Expenditure and Saving for the NFI Model Lifetime(million yen)

	<u>Income (b)</u>	<u>Expenditure (e)</u>	<u>Saving (g)</u>
Total	299.0	291.6	7.4
-61	231.2	213.4	17.9
62-	67.7	78.2	-10.5

Total social security pension benefits after retirement of 67.7 million yen is 10.5 million yen less than 78.2 million yen of total expenditure after retirement. Our family thus needs to find another 10.5 million yen during their retired lives in order to manage. But average Japanese people ordinarily have accumulated saving of more than 10 million yen by retirement age. So that the current social security pension benefit level would be enough to maintain the retirement life for the average people, if nothing happened out of hypothesis and the current system for benefit level would keep after their retirement.

The financial situation will improve if the pensionable age increases to age 70. Our model shows some financial advantage but less than we expected. The Final amount of saving increases 3.6 million yen (from 2.7 million to 6.3 million) . One of reasons which generated the above result would be (1) ”70 model” only gets working wages in the ages 60s, though “62 model” gets both pension benefits and working wages, and (2) Working wages are rather low in the ages 60s.

Due to low income and increasing longevity, a serious pension benefit adequacy issue is the single woman household. The Table 2 shows the results of same model lifetime method applied to a single woman under the assumption she purchases a 17 million yen apartment.

Table 2 Accumulated Amounts of Income, Expenditure and Saving for a Single Woman (million yen)

	<u>Income</u>	<u>Expenditure</u>	<u>Saving</u>
Total	189.0	196.0	-7.0
-59	146.3	141.2	5.1
60-	42.6	54.7	-12.1

The current pension benefit level cannot support the single woman's retirement. Her money runs out at age 64. She needs to keep working or she must find other sources.

## 6. Technical Discussion

### a. Modeling lifetime

We would like our model to represent as many typical Japanese households as possible. The 2000 population census data showed that the number of members in households were diversified; one member 27.6%, two 25.1%, three 18.8%, four 16.9% and 11.5% for five or more. We selected four member as a model household because it has been thought to be typical and is generally used as typical when showing the impact of social systems (tax reform, for example). It is apparent, however, that it does not show the situation of the majority of Japan. Therefore an analysis on the basis of actual panel data would be very important, but it is not available, as mentioned before.

One might suggest the assumption that the wife has not been working throughout her life is impractical. While probably true, our model assuming she doesn't work has the advantage of simplicity.

Another consideration would be whether a model lifetime should be constructed on the basis of current vital statistics or should it be set up on the basis of actual occurrences? The 2004 vital statistics shows that the first marriage ages were 29.6 for males and 27.8 for females on the average. But they were 27 and 24 respectively for age group of retirement (age 62 in 2004). Economic factors as income and expenditure are more troublesome because their values are completely different over time. One hundred dollars is not the same as \$100 twenty years ago. To use actual

data might be better when using individual panel data, but the model constructed based on the cross-sectional data at the time would be easier to handle and more useful because it does not need to take into account the economic value differences due to time differences. This implies that we can get an accumulated amount of income or expenditure merely by adding up original figures without considering salary or consumer price increases.

A similar issue is the social schemes which apply for the analysis. They have changed at least once every decade. Social systems have rapidly been changing in Japan including pension and tax systems. Which social systems should we assume, before or after the reform? We assumed the social system at the 2005 situation, and compared it with the other figure.

Table 3 shows the comparison of some life events among NFI Model lifetime and the other models mentioned above. This comparison reflects the time when the models were constructed. One exception is the assumed age of death. The MHLW model used the life expectancy at birth, but The NIL model and NFI Model used life expectancy at the retirement age.

Table 3 Male's Ages When Some Life Events Occur

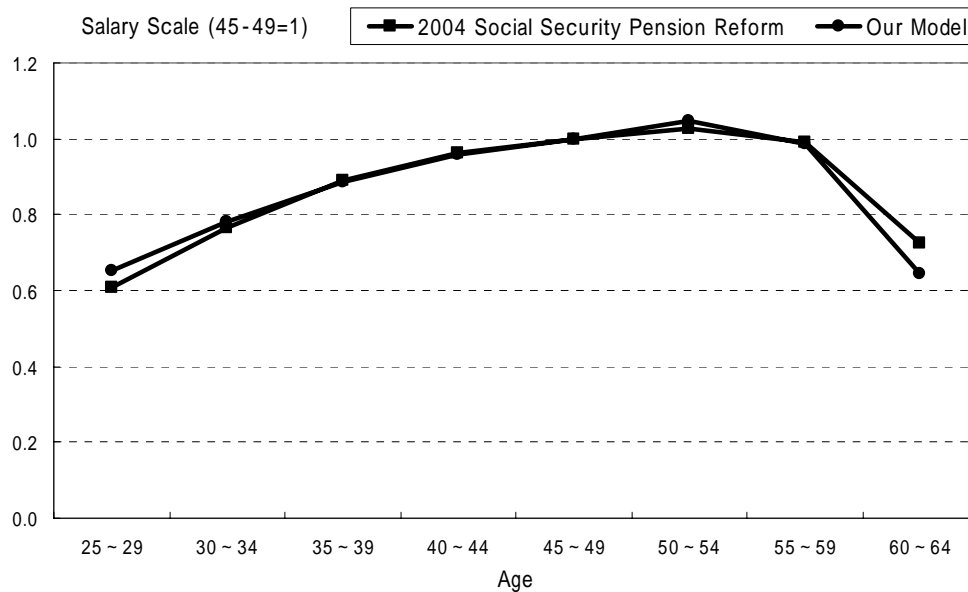
		<u>NFI</u>	<u>MHLW*</u>	<u>NIL</u>
Marriage	Male (Female)	30 (28)	28(26)	29(27)
Birth of 1 <sup>st</sup> child		31	30	30
Retirement		62	65	60
Death	Male (Female)	83(88)	77(83)	81(87)

\* Figures are rounded for the comparison.

#### b. Income, expenditure and saving for NFI Model lifetime

Economical data is available on households by the age group of householder. We selected data on the "1999 National Survey of Family Income and Expenditure", because they are rather identical with the salary scale used for the 2004 Social Security Pension Reform Actuarial Valuation (see Figure 3) and the Survey is the only large national survey providing details on both income and expenditure.

Figure 3: Salary Scale in Japan



Sources:

Ministry of Health, Labour and Welfare "2004 actuarial valuation on Employees' Pension Insurance and National Pension": Remuneration

Statistics Bureau, Ministry of Internal Affairs and Telecommunications "1999 National Survey of Family Income and Expenditure": Male householder

When presenting data by age and number in household, the “1999 National Survey of Family Income and Expenditure” usually presents data by five-year age groups or ten-year age groups. Though it might be possible to interpolate by age, we used original data as presented. It would be sufficiently accurate for this study, we thought, and we did not prefer many estimates based on the limited data.

Several practical problems, of course, occurred using the data, including a singularity where income and expenditures went from a single male age 29 to a married couple at the husband’s age of 30. We also ignored withdrawal of saving at younger ages, expenditures for specific events such as for the wedding ceremony (in Japan, as opposed to some other cultures, this is sometimes an expense of the couple), and there was no hospitalization costs. We don’t think that a more elaborate model would have added much to our results, but we think a more sophisticated study would be useful once panel data become available.

## 7. Discussion on the implications of the results and Conclusions

A model lifetime showing income, expenditures and saving was developed on the basis of Japanese statistics, and the impact of social security pension systems on the elderly was studied. The model is discussed in this paper. We suggest the following conclusions from this study.

(a) If the current social security pension benefit level keeps on going, it is enough for the average person to live a retired life and save some money (though not much) and to leave his house as an inheritance. This would suggest that the Japanese social security pension benefit level is good enough on the average, and that the effort should be focused on the people outside of the average, say low income earners or elderly widows.

(b) The current social security benefit level is not enough for a single female. She needs additional retirement income sources.

(c) Financial balance should show improvement if the pensionable age were increased to 70. This implies that the financial improvement of social security pension plans may be obtainable without deteriorating quality of life if the employment opportunities are provided to people in need.

(d) Even though the current social security pension benefit level is enough for the average person at the moment, it might not be enough for younger generations because it was planned to have a decreasing benefit level and an increasing contribution level. Our calculations show that, the total accumulated benefits minus contributions come to 50.0 million yen for the age of 62 (ratio of accumulated benefits to accumulated contributions is 3.8), 38.3 million yen for age 42 (ratio 3.0), and 35.5 million yen for age 22 (ratio 2.7). The inter-generational equity issue (money's worth issue) appeared in our model calculations too.

(e) Our model calculations also show that the savings will be 2.7 million yen at retirement of the breadwinner for a family whose income earner is age 62 in 2005. For age 42, savings will be 0.9 million yen and for age 22 the money will run out before his death (at age 80). Therefore additional retirement income sources including corporate pensions are indispensable.

(f) The NFI model is also applied to the social security pension systems in some

countries<sup>6</sup>. The following table shows the results, but they are provisional and further investigation should be necessary including income and expenditure profiles in those countries.

Table4: Total Contributions and Benefits in Selected Countries (Thousand Yen)

	Japan-1	Japan-2	U.S.	U.K.	Germany	France
Total Contribution (a)	17,035	21,819	14,784	25,572	23,249	15,857
Total Benefit ( b )	62,258	56,804	29,197	35,484	40,721	83,060
(b)/(a)	3.7	2.6	2.0	1.4	1.8	5.2
Contribution rate (Employee)	14.288%	18.3%	12.4%	12.8%	19.5%	16.45%
	7.144%	9.15%	6.2%	11.0%	9.75%	6.65%

Note: Japan-1 indicates the current pensionable age(62) cohort, andJapan-2 indicates the cohort born in 2005.

The table shows the Japanese social security pension is rather generous for the aged 62 compared with other countries except France, but will gradually become less generous and will reach closer to other countries.

(g) Definite conclusions should not be generated based on rough models, but we would like to try the more elaborate data analysis based on the panel data when it becomes available in the near future.

## 8. Acknowledgement

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## 10. Appendices

Appendix1. Figure3: Model Lifetime-Life events

	Male (Husband)	Female(Wife)
Age of starting work after graduating university	22.0	
Marriage	30.0	28.0
Birth of 1st child, and purchase of a residence	31.0	29.0
Birth of 2nd child	33.0	31.0
Self supporting of 1st child	53.0	51.0
Self supporting of 2nd child	55.0	53.0
Retirement *(Pensionable age)	62.0	60.0
Husband's death	83.0	
Wife's death		88.0

\* After retirement, he never works.

(age)

## Appendix 2 Model lifetime-Income, expenditure and saving (Thousand yen)

Husband (Wife)	Total Income (a)=(b)+(c)				Total Expenditure (d)=(e)+(f)+(g)							Saving (stock)	
	Income (b)	Receipts other than income (c)		Expenditure (e)	Disbursements other than expenditure (f)		Saving (g)						
		Housing loan	Withdrawal of saving		Living Exp.	Non-Living Exp.					Property purchases		Payments of housing
22	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	726
23	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	1,453
24	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	2,179
25	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	2,906
26	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	3,632
27	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	4,358
28	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	5,085
29	3,800	3,800	0	0	3,800	3,037	2,304	733	0	0	0	726	5,811
30	4,726	4,726	0	0	4,726	3,605	2,297	1,308	0	0	0	935	6,746
31	30,071	5,071	20,000	5,000	30,071	4,109	3,053	1,056	25,000	5,000	-4,207	2,538	2,538
32	5,071	5,071	0	0	5,071	4,109	3,053	1,056	0	0	0	666	2,665
33	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	2,951
34	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	3,280
35	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	3,609
36	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	3,938
37	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	4,268
38	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	4,640
39	5,725	5,725	0	0	5,725	4,581	3,483	1,098	0	0	0	666	5,012
40	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	5,436
41	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	5,861
42	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	6,286
43	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	6,774
44	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	7,263
45	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	7,751
46	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	8,239
47	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	8,794
48	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	9,355
49	7,022	7,022	0	0	7,022	5,801	4,232	1,569	0	0	0	666	9,917
50	7,850	7,850	0	0	7,850	6,986	5,142	1,844	0	0	0	666	10,123
51	7,850	7,850	0	0	7,850	6,986	5,142	1,844	0	0	0	666	10,330
52	7,850	7,850	0	0	7,850	6,986	5,142	1,844	0	0	0	666	10,513
53	7,003	7,003	0	0	7,003	6,025	4,247	1,778	0	0	0	666	10,812
54	7,003	7,003	0	0	7,003	6,025	4,247	1,778	0	0	0	666	11,136
55	5,581	5,581	0	0	5,581	4,643	2,951	1,692	0	0	0	666	11,418
56	5,581	5,581	0	0	5,581	4,643	2,951	1,692	0	0	0	666	11,700
57	5,581	5,581	0	0	5,581	4,643	2,951	1,692	0	0	0	666	11,982
58	5,581	5,581	0	0	5,581	4,643	2,951	1,692	0	0	0	666	12,264
59	5,581	5,581	0	0	5,581	4,643	2,951	1,692	0	0	0	666	12,546
60	5,095	5,095	0	0	5,095	4,096	3,139	958	0	0	0	666	12,956
61	5,130	5,130	0	0	5,130	4,214	3,252	962	0	0	686	211	13,168
62	2,563	2,563	0	0	2,563	3,670	3,468	202	0	0	0	-1,107	12,061
63	2,542	2,542	0	0	2,542	3,669	3,468	200	0	0	0	-1,127	10,934
64	2,520	2,520	0	0	2,520	3,667	3,468	199	0	0	0	-1,147	9,787
65	2,499	2,499	0	0	2,499	3,335	3,178	157	0	0	0	-836	8,951
66	2,478	2,478	0	0	2,478	3,333	3,178	155	0	0	0	-855	8,096
67	2,810	2,810	0	0	2,810	3,271	3,178	93	0	0	0	-461	7,635
68	2,785	2,785	0	0	2,785	3,269	3,178	91	0	0	0	-484	7,150
69	2,760	2,760	0	0	2,760	3,268	3,178	89	0	0	0	-508	6,643
70	2,735	2,735	0	0	2,735	3,131	3,044	88	0	0	0	-396	6,247
71	2,711	2,711	0	0	2,711	3,129	3,044	86	0	0	0	-419	5,829
72	2,686	2,686	0	0	2,686	3,127	3,044	84	0	0	0	-441	5,387
73	2,662	2,662	0	0	2,662	3,126	3,044	82	0	0	0	-464	4,924
74	2,638	2,638	0	0	2,638	3,124	3,044	80	0	0	0	-486	4,438
75	2,614	2,614	0	0	2,614	2,699	2,620	79	0	0	0	-84	4,354
76	2,591	2,591	0	0	2,591	2,697	2,620	77	0	0	0	-106	4,248
77	2,568	2,568	0	0	2,568	2,695	2,620	75	0	0	0	-128	4,120
78	2,544	2,544	0	0	2,544	2,693	2,620	73	0	0	0	-149	3,971
79	2,521	2,521	0	0	2,521	2,692	2,620	72	0	0	0	-170	3,801
80	2,499	2,499	0	0	2,499	2,690	2,620	70	0	0	0	-191	3,610
81	2,476	2,476	0	0	2,476	2,690	2,620	70	0	0	0	-213	3,397
82	2,454	2,454	0	0	2,454	2,690	2,620	70	0	0	0	-235	3,161
83	2,454	2,454	0	0	2,454	2,690	2,620	70	0	0	0	-235	2,926
(82)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,887
(83)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,848
(84)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,809
(85)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,770
(86)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,731
(87)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,692
(88)	1,515	1,515	0	0	1,515	1,554	1,534	20	0	0	0	-39	2,653

## Notes

<sup>1</sup> The Ministry of Health, Labor and Welfare started the panel survey for newly born babies and their families in 2001, and for young people in 2002. They are also starting to conduct the panel survey for retiring people (ages of 50s) in Nov. 2005.

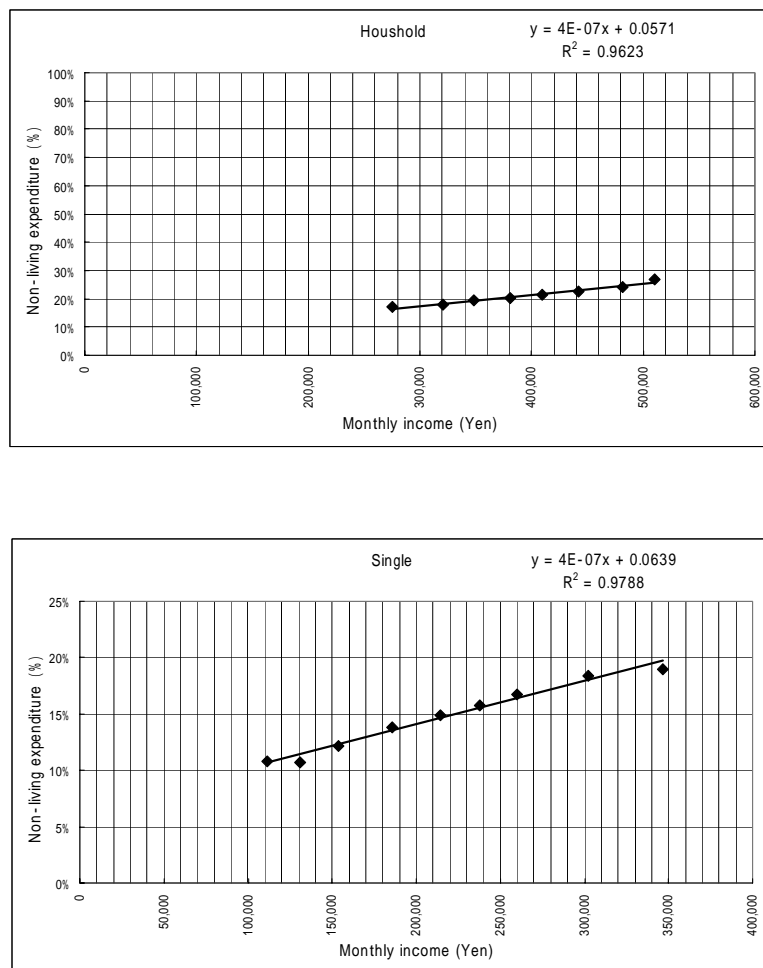
<sup>2</sup> For single household the 1999 National Survey of Family Income and Expenditure was conducted in Oct. and Nov. and presented as an average monthly data.

<sup>3</sup> Bonus payments were respectively 2.44, 2.34, 2.33 months payments in 1998, 1999 and 2000 (Monthly Labor Survey, Ministry of Health, Labor and Welfare ).

<sup>4</sup> (1)The propensity to consume for bonus payment we used for the model is 0.472 on the basis of Yano Direct Survey, Yano Research Institute.

(2)The propensity to non-living expenditure generally increases as the income level increases. (see Figures below ).

Figure Propensity Rate to Non-living Expenditure by Income



Source: "1999 National Survey of Family Income and Expenditure", Statistics Bureau, Ministry of Internal Affairs and Communications

<sup>5</sup> Twenty five million yen is less than the average cost for purchasing a house. The maximum house price which model family can afford is 27 million yen.

Table Prices of Detached Houses and Apartment Rooms

	<u>Detached House</u>	<u>Apartment Room</u>
Japan	36.3 million yen	33.2 million yen
Tokyo	41.9	36.2
Osaka	38.4	30.4
Nagoya	35.6	28.9
Other Places	30.1	24.5

Source: “ Life Plan Information Book “, Life Insurance Culture Center, Aug. 2003

<sup>6</sup> The calculations for foreign countries were made as follows. Here, Japan-1 and other countries indicate current pensionable age cohorts, 62 for Japan and 65 for other countries. Japan-2 indicates the cohort born in 2005.

1. An employee starts working at 22years old and starts getting pension benefits at 65 except Japan-1. The pensionable age assumes 62 in Japan-1. He dies at 83 and his wife dies at 88. In Japan-2, the living longer is assumed, namely 85 for husband and 91 for wife.

2. Contribution rate is fixed as of October 2005.

3. Pension benefits are sum of old age pensions, dependents' supplements and survivor benefits. Benefits are calculated by the benefit formulae in each countries.

<u>Country</u>	<u>Contribution rate*</u>	<u>Monthly Benefit**</u>	<u>Exchange rate</u>
Japan-1	7.144%	243.9.	
Japan-2*	9.15%	183.3	
U.S.	6.2%	93.6	1 dollar = 110 yen
U.K.	11.0%	123.9	1 pound = 200 yen
Germany	9.75%	148.5	1 euro = 135 yen
France	6.65%	305.8	1 euro = 135 yen

Note:\* Contribution by employee only

\*\* The amount of monthly benefit in thousand yen at the pensionable age