

HIGH PERSONAL SAVING RATE AND CHANGES IN THE CONSUMPTION PATTERN IN POSTWAR JAPAN

TOSHIYUKI MIZOGUCHI

INTRODUCTION¹

THE HIGH RATE of economic growth is the most striking feature of postwar Japan. According to the national accounts statistics, the annual growth rate of the GNE was about 6.6 per cent from 1953 to 1968 on a per capita real term basis.² This high rate of growth has brought on remarkable changes in various aspects of the Japanese economy, as will be discussed in the other papers of this volume.

The same thing is true of household economic behavior. In the same period, the real per capita personal income increased by 400 per cent. (The per capita personal income in 1968 was US\$1,160 in terms of the exchange rate published by the I.M.F.) We should mention here two distinctive changes. First, the rate of personal saving has been rising since 1953, and in recent years it has been nearly 20 per cent. This presents two questions: (1) why the rate of personal saving is high by international standards and (2) how to explain the upward trend of the rate.

Second, the consumption pattern has also changed remarkably. Nurkse pointed out that the demonstration effect on consumption had been weak in Japan and that this was one of the major causes of the high personal saving ratio [20]. However, we cannot accept this without hesitation, because we know that consumption habits have been greatly modernized since the mid-1950s. This change in the consumption pattern has been called a "Consumption Revolution" (*shōhi kakumei*) in Japan. We will consider these two topics in the following sections.

I. UPWARD TREND OF PERSONAL SAVING RATE

There are undoubtedly few who do not agree that the rate of personal saving is surprisingly high in present day Japan among the developed countries. For instance, though the rate has been about 15 per cent in West Germany and 5

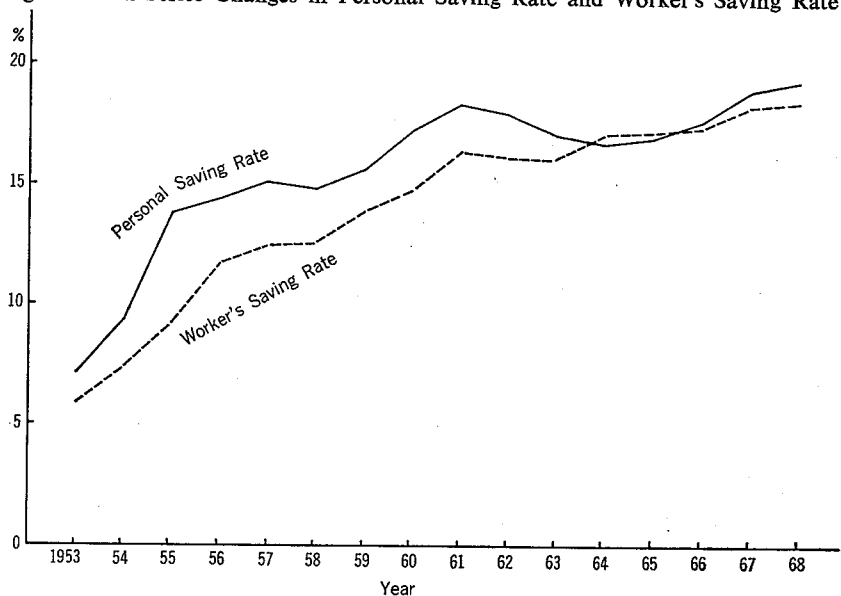
¹ This paper attempts to summarize the interesting topics concerning the personal savings and consumption of the household sector. Because of space limitations a detailed analysis cannot be given. Readers who are deeply interested in this topic should refer to [17], [2], and [23].

² [5, 1970]. The national accounts was revised in 1970 for the period from 1951 to 1968.

per cent in the United Kingdom and the United States, the recent rate in Japan is nearly 20 per cent. However, it should be mentioned that even in postwar Japan, the rate was not too high in the mid-1950s. As is shown in Figure 1, it was only 5 per cent in 1953 according to the national accounts statistics. Therefore an explanation of why such a significant rise in the saving rate has occurred in Japan should be very interesting.³

The writer thinks that various kinds of survey data are very useful in examining this problem. Compared with other countries, a large amount of survey data regarding savings and consumption has been published by the Government of Japan, providing annual figures on the rate of saving for (1) worker's households after 1951, (2) farmer's households after 1950, and (3) other households after 1959.⁴ With this data, we should study carefully the changes in the worker's saving rate over time. This is not only because the number of worker's households is large,⁵ but also because the trend of the ratio is very similar to change in the personal saving ratio (see Figure 1).

Fig. 1. Time-Series Changes in Personal Saving Rate and Worker's Saving Rate



Sources: [5] and [9].

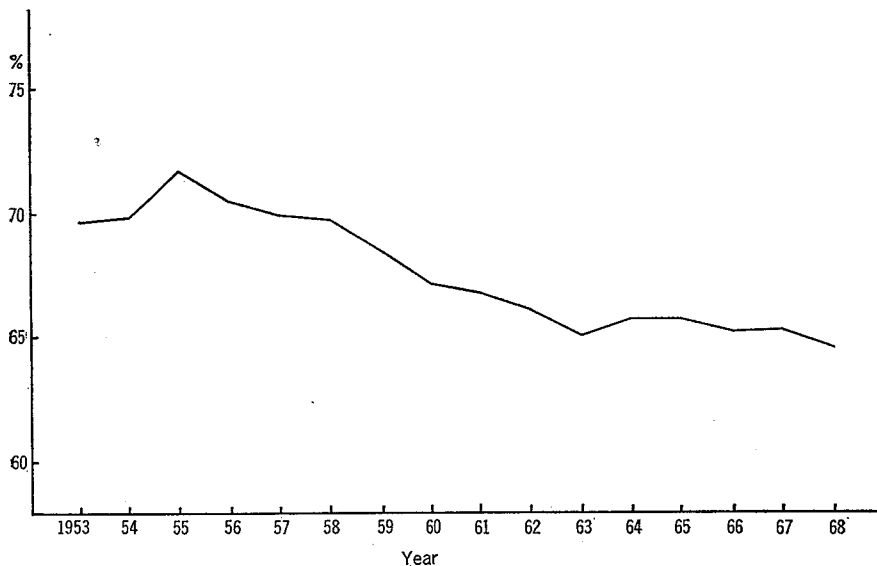
³ In the early stage of the analysis of the consumption function, the saving rate was considered relatively stable over time on a long term basis. This depended on the experience of the United States. However, according to [26], there are some countries where the personal saving rate rose in the 1950s or in the early 1960s. For example, in the United Kingdom, the rate rose from 1 per cent to 6 per cent during this period.

⁴ The data which can be used for the analysis of the consumption function are [9] (for worker's households after 1951), [7] (for farmer's households after 1950), and [8] (for non-farm households after 1959).

⁵ According to the writer's calculation, the percentage of households represented by wage and salaried employees was nearly 54 per cent in 1963. This is nearly equal to the percentage in the United States in 1960. See [17, p. 54].

Why has the worker's rate of saving been rising? Various assumptions regarding this topic have been given by many Japanese economists, but this writer thinks that changes in the components of worker's income should be examined as the first step. The income of worker's households is composed of (1) the regular income of household heads, (2) the other income of household heads, and (3) other household income. Needless to say, the income of type (1) is the most important indicator of household consumption planning, because it represents a large percentage of household income and the amount is known in advance. The major source of the second type of income is the bonus and additional payments for overtime work,⁶ and income of the third type comes from the work of other household members, side businesses and transfers. According to Figure 2-a, the percentage of the first type of income has been decreasing and this

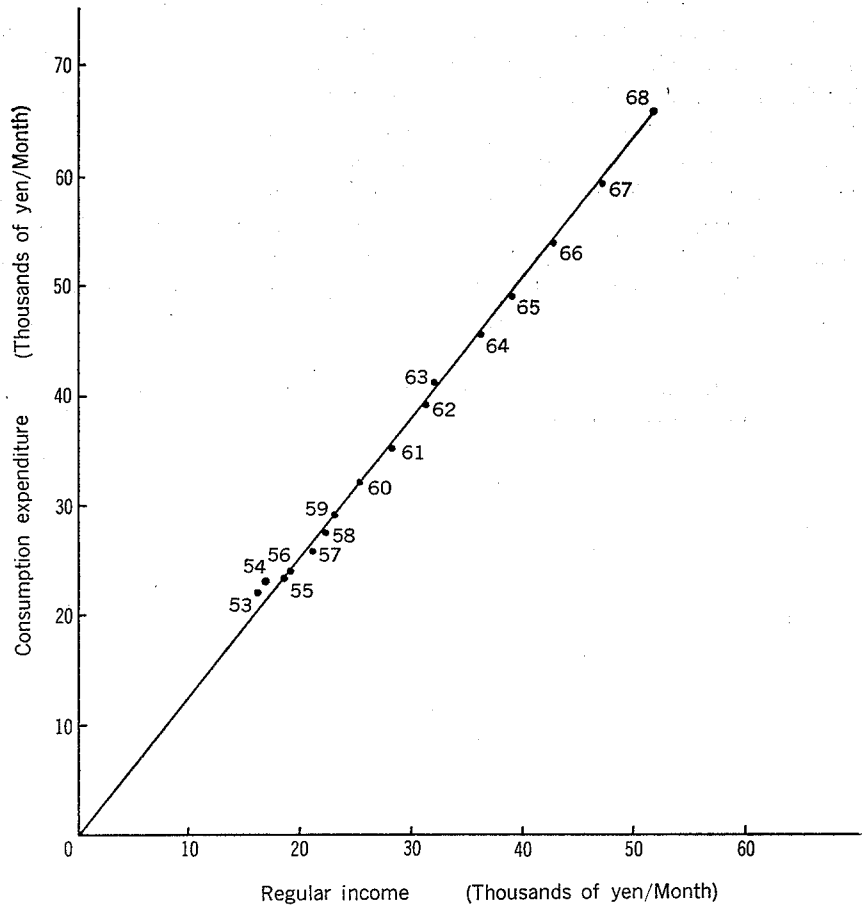
Fig. 2-a. Percentage of Worker's Household Income Represented by Regular Income of Household Head



corresponds to the increase in the saving rate. Further, a more interesting tendency can be found in the relationship between consumption expenditure and the first type of income; i.e., consumption is nearly proportional to the first type of income, as shown in Figure 2-b. This relation can be strictly verified by using time sequences with cross-section data. (See [17, Chapter 5].) In other words, since the consumer makes his consumption plans according to the amount of

⁶ Workers in Japan receive bonus payments at least twice a year and the amounts are relatively large compared to the basic wage. Magota showed that the share of the bonus in the total wage is very large in Japan on international standards. See [16] cited in [17, p. 7].

Fig. 2-b. Relationship between Regular Income of Household Heads and Consumption Expenditure



Source: [9].

regular income of the head of the household, a decrease in this percentage induces an upward trend in the saving rate. Because the ratio of the bonus amount to the basic wage rose rapidly in the 1950s, the worker's saving rate also increased remarkably during this period.

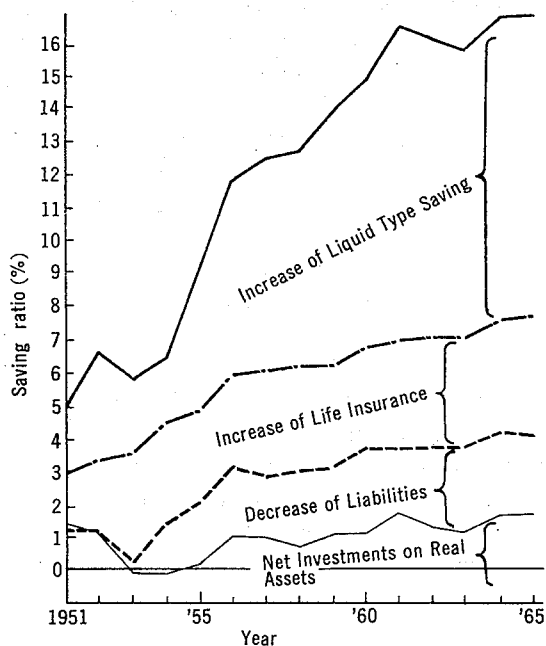
The next problem is to explain why consumption expenditure depends mainly on the regular income of household heads in spite of the fact that it has formed a decreasing percentage of the household income of workers. In the wage system in Japan, workers can usually forecast their future regular income accurately because the basic wage is determined according to length of service. For worker's households, it is therefore very convenient to adopt this type of income as a basic indicator to make their plan for consumption expenditure. It is true that the bonus vs regular income ratio has been rising steadily according to the *average* figures in the family budget surveys, but this is not necessarily true for each individual worker's household. First, this ratio has fluctuated according

to figures classified by the type of industry in which the household head works. This is because the ratio is critically dependent on the firm's profits. Further, the ratio will be different according to the contribution of each worker to the firm. These two factors make the changes in the ratio over time unstable from the standpoint of individual households and the households would hesitate to include bonus income in their indicator for consumption planning.⁷ Because the third type of income is more unstable than the second, we do not need to add any further comments.

There is another interesting characteristic of the saving behavior of worker's households. [9] contains information on saving by type. The rise in the worker's saving rate can be seen to be closely related to the rise in the liquid type saving ratio in Figure 3. This is very important when we remember that the high rate of personal saving depends on the high ratio of liquid type savings, as will be shown in the next section.

A comment should be given here on the time-series change in regard to the farmer's saving rate. Although the number of farm households has been decreasing in Japan recently, we cannot neglect their position in the analysis of savings. According to [7], the saving rate had fluctuated around a constant level before

Fig. 3. Time-Series Changes in Worker Saving Ratio by Type



Source: [17].

⁷ A detailed analysis of the effect of the bonus on the saving rate can be found in [21, pp. 236-37] and [2, pp. 19-27], in addition to [17].

1961, but it increased afterwards. It is very interesting to find that this rise depends on the rise of the liquid type saving ratio, as in the case of worker's households. Regarding households other than those of workers and farmers, we do not have enough data to study time-series changes before 1959. But some tentative analyses suggested that there is no proof of the existence of an upward trend in the saving rate.

We have pointed out that the rise in the personal saving rate can be explained mainly by the rise in the worker's saving rate. The reader should notice that the price of consumer goods has been constantly rising during this period. For instance, the C.P.I. for urban households rose 55 per cent from 1960 to 1968 and 80 per cent from 1953 to 1968. This is very surprising if we remember the experience of Sweden [24, p. 240]. These factors will be re-examined in the next section.

II. HIGH RATE OF PERSONAL SAVING

The discussion in the previous section was an attempt to explain the upward trend in the personal saving rate, but it is not sufficient to explain the high rate of personal saving itself. For instance, we can prove that the worker's saving rate rises as the percentage of bonus income in household income increases, but we cannot determine in this way the absolute level of the consumption vs regular income ratio. If the ratio had been 1.4 instead of the actual ratio, 1.3, the worker's saving rate in 1968 would have been 10 per cent.

Various hypotheses have been proposed in Japan to explain these facts.⁸ However, we cannot accept some of them because the results of our recent international comparison regarding these factors do not support them. Among the remaining hypotheses, the most promising approach is to relate the high rate of personal saving with the high growth rate of personal income. There are several reasons which support this causal relationship. First, we should remember the life cycle theory of saving behavior. According to this theory, the saving rate depends on the growth rate of income as effected by changes in income expectation. (See, for example, [18] and [14].) Second, habit persistence effects should be pointed out. We know that the level of consumption expenditure is determined not only on the basis of current income but on the consumption level in previous years. If this can be applied in our case, the growth rate of consumption expenditure is lower than that of income, thus inducing a high rate of personal saving.⁹ Third, we can relate the high personal saving ratio with the transaction demand for financial assets. It is not unrealistic to suppose that there would be a desirable ratio of financial assets to income in order to meet the requirements of

⁸ Regarding these studies, see one of the reviews in the following contributions: [17, Chapter 1]; [23, Chapter 2]; or [13].

⁹ There are some papers following this line of argument. For example, see [25]. In Japan, the consumption function of the macro-econometric model is often defined as $C = a + bY + cC(-1)$, where C and Y are the real per capita value of the consumption and income, respectively. With this model, the saving rate rises if the growth rate of income increases.

the household budget. When we compare this ratio for household heads by occupational groups, using the family saving surveys, there do not exist many differences among the developed countries. If the above assumption is acceptable, the household would try to keep the ratio constant. In such a situation we can easily prove that a high level of personal income induces a high personal saving ratio.

The three reasons mentioned above would be sufficient to support the argument that a high rate of income growth induced the high personal saving rate. However, there remains the problem of verifying this empirically by an international comparison of statistical data. According to the growth theory of the neo-classical school, a high rate of capital accumulation makes the economic growth rate high. Even if we can find a high coefficient of correlation between the growth rate of income and the saving ratio, we cannot judge which is the cause and which the effect. Modigliani tried to distinguish these two by using econometric techniques and concluded that the growth rate is usually the cause of the saving rate [18]. His conclusion is backed up by the writer's studies using the survey data. When we compare the worker's saving rate and the growth rate of wages among various countries, we find a significant relation. Because the worker's saving rate is not a dominant factor in determining the rate of capital accumulation, our findings support the same conclusion as Modigliani's. The growth rate of personal income is certainly very high in Japan by international standards, so we find here the major cause of the high personal saving ratio. (See [17], Chapter 2.)

However, another question should be raised in this connection. Is it enough to explain the high personal saving rate in Japan solely by the high growth of personal income? Are there not other subsidiary factors which support the high rate of saving? This question is prompted by the fact that the saving rate seems to be too high, even when the high rate of increase in personal income in Japan is taken into consideration. The writer thinks that at least the following two factors should be mentioned here. The first is the relatively undeveloped situation in consumer finance. It has been pointed out that the high rate of economic growth of the Japanese economy has been maintained by the supply of financial capital from financial institutions to manufacturing industries. In fact, the demand for financial capital by the industrial sector has been very great and the

TABLE I
INTERNATIONAL COMPARISON OF RATIO OF FINANCIAL SURPLUS
TO GNP IN FOUR SECTORS

	Japan	U.S.	Germany	France
Households	9.7	2.4	5.4	4.4
Business corporations	-9.4	-1.5	-7.1	-5.0
Government	-1.0	-0.9	1.9	0.1
Other sectors	0.7	-0.3	-0.2	0.5

Source: [1].

Note: Because of statistical discrepancy, the total of these ratios is not necessarily zero.

liquid type savings of the household sector have been transferred to the industrial sector through financial institutions as is shown in Table I. (This table shows that the supply of financial capital from the household sector is very large in Japan by international standards.) Owing to this characteristic of the Japanese economy, the system of consumer loans has been less developed. In particular, it is very difficult for consumers to get long-term consumer loans if they do not have a certain amount of financial capital. Further, it is well known that the rate of interest for consumer loans is very high. In fact, the amount of consumer loans was only 76,375 million yen in 1965, which was only 0.3 per cent of the personal income.¹⁰ The writer thinks that this explains the unique nature of household saving in Japan. As is shown in Table II, the composition of worker's

TABLE II
COMPARISON OF WORKER'S SAVING RATIOS BY TYPE

	Increases in				Decrease in Liabilities
	Liquid Type Savings ^a	Life Insurance	Real Assets	Consumer Durables	
Belgium, 1961	4.62	0.86	5.92	5.14	1.58
China, 1954/55	0.30	0.92	-0.51	1.02	-0.10
Denmark, 1955	0.81	2.28	2.78	6.49	-0.99
Israel, 1963	1.24 ^b	3.90	15.57	4.93	-7.34
Japan, 1965	8.54 ^c	3.02	0.86 ^d	4.10	4.18
Korea, 1957	0.80	0.14	1.42	1.13	-1.80
Netherlands, 1960	1.62	8.70	4.74	10.57	-3.16
Sweden, 1958	2.80	1.81	6.16	11.14	-3.71
U.S., 1950	-0.80	4.62	6.83	10.24	-5.21

Source: [17, P. 35].

Note: The notes in this table are as follows: ^a including, in principle, increases in cash on hand, ^b excluding the increase in demand deposits, ^c excluding the changes in value of stock and bonds, ^d including the changes of stock and bonds.

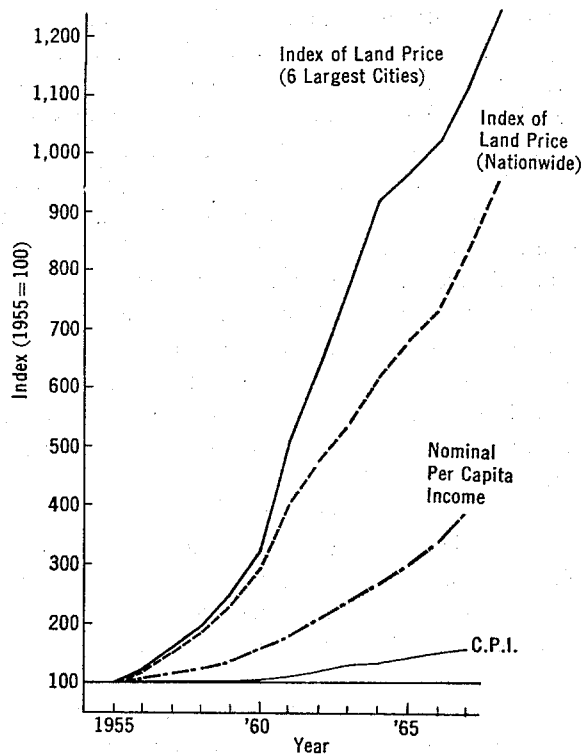
savings is peculiar to Japan. This is because the liquid type saving ratio (i.e., the net increase of financial assets divided by the disposable income) is very high by international standards, while the real investment ratio (i.e., the net increase of land and houses divided by the disposable income) is relatively low in Japanese worker's households. Such a tendency can be found in both farming and non-farming entrepreneur households. This is rather unique when we remember that the situation in regard to residential houses is very bad in Japan compared to other developed countries. For instance, the number of people per room in 1968 was 1.4 in Japan. This is much larger than the figures in Western developed countries; i.e., 0.6 persons in the United Kingdom, 0.7 persons in the United States, 0.8 persons in Sweden, and 1.0 person in both France and West Germany.¹¹

¹⁰ [4, 1969]. For reference, note that the corresponding percentage in the United States was nearly 15 per cent in the late 1960s.

¹¹ [4, 1968]. In addition, the size of rooms is generally smaller in Japan than in Europe and the United States.

It is not surprising that the desire to own a home or to improve one's house is very significant in Japan. But the underdeveloped situation of consumer loans and the rise of land prices make it difficult to purchase new homes. In the usual case, the consumer must have at least 30 per cent of the value of a new home in order to get a consumer loan, even if his income is relatively high. In other words, part of the liquid type savings should be considered as preparation for future investment in a home. However, the rapid rise of land prices has prevented the conversion of these liquid type savings into real investments. As is shown in Figure 4, the price of land has risen surprisingly. The rate of this rise is extremely high even when we consider the high rate of income growth.¹² It is obvious that

Fig. 4. Time-Series Change of Land Price Index as Compared with Indices of Consumer Prices and Nominal Per-Capita Income



Sources: Land price, [4, 1968]; Consumer price, [9, 1966]; and Income, [5, 1966].

¹² Such a rise of land prices derives from two factors. In prewar Japan, the eldest sons lived together with their parents and a large number of these persons remained in the countryside. However, the modernization of living in the postwar period has tended to separate these two generations. Further, the development of industry has concentrated families around the large cities. Recently, it has become one of the most important economic policies for the Government of Japan to slow down the increase of land prices.

the price of a new home is rising much faster than the amount of consumer savings. The only way to obtain a new home is to seek a consumer loan. In recent years, the situation has become a little easier for consumers. The Government of Japan began to supply financial funds to build relatively low-price houses, and large enterprises began to lend money to their employees for the purchase of homes. Some construction companies even arrange bank loans for their customers. In fact, consumer loans for the purchase of homes increased nearly three times from 1965 to 1967. This should be examined carefully because an increase in consumer loans should affect the future trend of the personal saving ratio.¹³

Another important factor is related to the system of social securities. There are some arguments that the high personal saving rate has its origin in the undeveloped situation of social security in Japan. Before examining this factor, two important findings regarding households consisting of elderly people should be mentioned. First, the life cycle pattern of the saving ratio is very unique in Japan. According to the orthodox theory of the life cycle of saving behavior, the saving rate rises from the young to the middle aged, but sharply decreases with the old aged [19]. This has been verified by studies using family budget data in Western developed countries. But in Japan the saving rate is very high in aged households. Some have tried to explain this by the unique type of wage distribution according to the ages of workers [12]. But detailed studies show that the saving rate is high in the case of the old aged even if the wage differentials are adjusted for age differences. Second, the percentage of households occupied by retired people is very small in Japan. This means that aged workers who have retired are engaged in a post-retirement work.

In this respect, we should recall Emi's suggestion concerning the characteristics of social security in Japan [3, Chapter 4]. It is true that the rate of expenditures for social security divided by the national income is lower in Japan than in most European countries. But since the rate in Japan is nearly equal to that in the United States, it is not wise to adopt the above-mentioned hypothesis only on the basis of this rate.¹⁴ However, we should notice that the major part of this expenditure in Japan is made up of expenses for medical insurance, and that the system of pension funds is rather undeveloped. As was mentioned before, it was the custom for the old aged to live together with their eldest son and this covered the lack of a pension fund system. However, this custom has been rapidly vanishing in Japan recently. In the usual case, workers receive a relatively large lump sum payment (*taishoku kin*) on retirement. Because this money is usually saved as a financial asset or is invested in real assets, the saving rate is very high in the case of the old aged. But the successive rise in the standard

¹³ It is obvious that the rate of saving does not change if the real investments are covered by liquid type savings. But in the usual situation, the rise of real investments increases liabilities. In a high growth economy accompanied by a rise in building costs and the price of land, the latter factor would negatively affect the saving rate.

¹⁴ Komiya pointed out that the correlation coefficient was very low between the personal saving ratio and the cost of social securities divided by GNP. See [13].

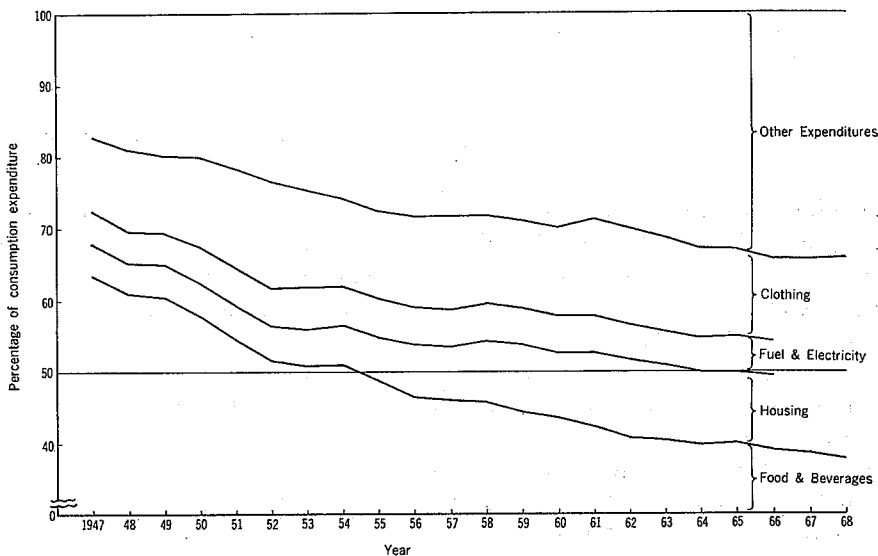
of living along with the rise in consumer prices has made it difficult for the old aged to meet their living expenses, and most retired workers seek a second job. This explains the low percentage of households occupied by retired heads.¹⁵ One of the policy problems of the Government of Japan for the future is the economic protection of these aged people, and such policy will affect the personal saving rate to some extent.

III. CONSUMPTION REVOLUTION

As was mentioned in the introduction of this paper, the rise in real per capita consumption expenditure has been significant. For instance, when we compare the per capita consumption expenditure using the official exchange rate of foreign trade, the level of Japan is only 10 per cent of that of the United States in 1953, but the percentage rose to 30 per cent in 1968. The latter level is nearly equal to that of Italy. We can safely anticipate, by extrapolating the past trend, that the per capita consumption expenditure of Japan will catch up with the level of most European countries within a few years.

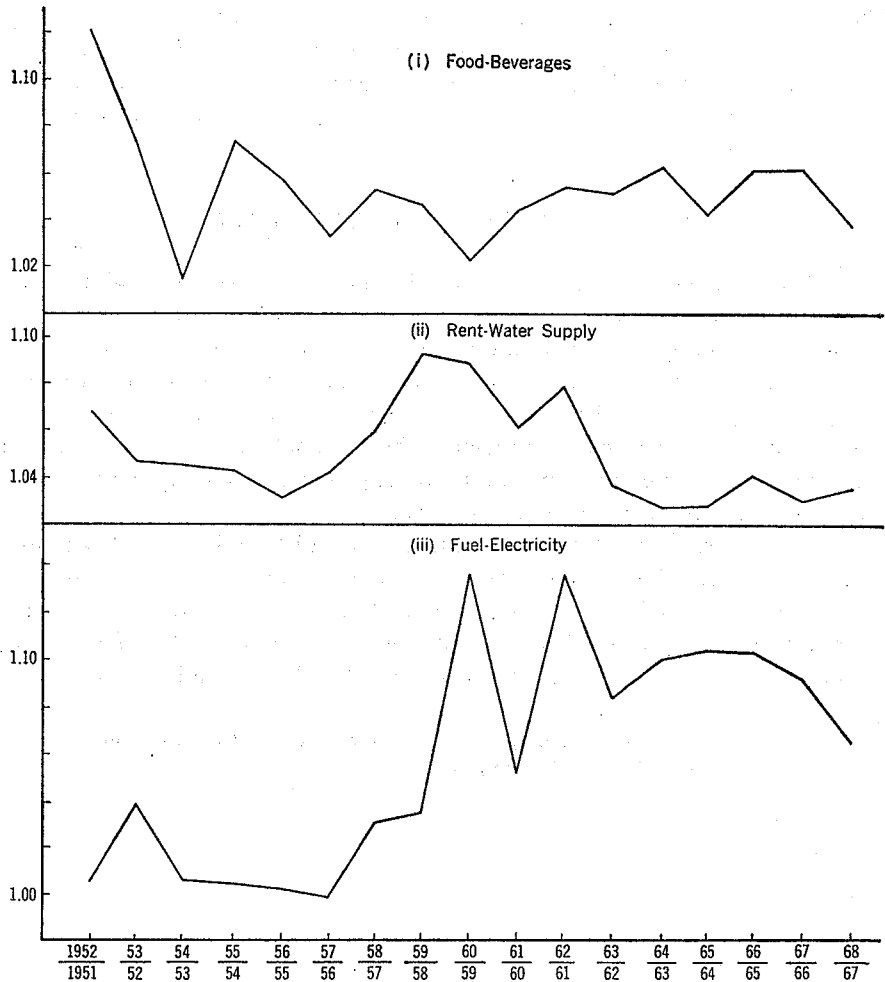
It is also important to notice that the income distribution has been greatly equalized in postwar Japan. Lockwood has pointed out that there was a very large income differential in prewar Japan and that this was one of the causes of the relatively high personal saving ratio in that period [15]. There is some supporting evidence to support the fact that the demonstration effect on the

Fig. 5-a. Time-Series Changes in the Composition of Consumption Expenditure in Urban Households



¹⁵ In addition to the reason given here, we should notice that the percentage of old aged people is relatively high in rural areas, where they engage in agriculture.

Fig. 5-b. Growth of Real Per-Capita Consumption Expenditure

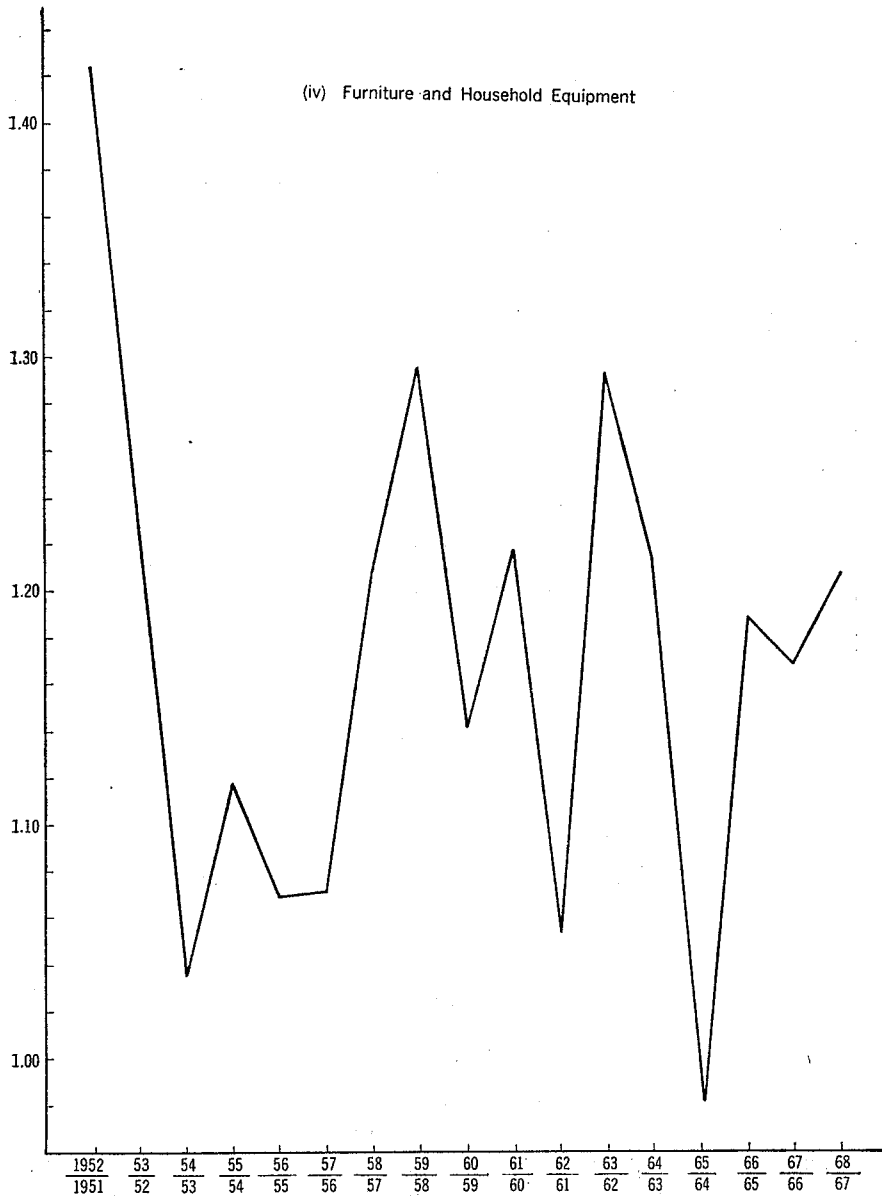


consumption pattern was less significant in prewar Japan. As a result of the destruction during the Second World War, the level of consumption decreased sharply from 1941 to 1946, but the income differential between the urban and the rural sectors and that of the various occupational groups decreased remarkably in this period. This tendency was accelerated by the reform of the land system, the special taxes on property, and the severe inflation. According to international comparisons, the income distribution in Japan belongs to one of the most equalized types.¹⁶

These two factors positively affected the rapid recovery of the real consumption level and the so-called "Consumption Revolution." This writer thinks that the postwar period before 1970 can be divided into five periods in terms of the

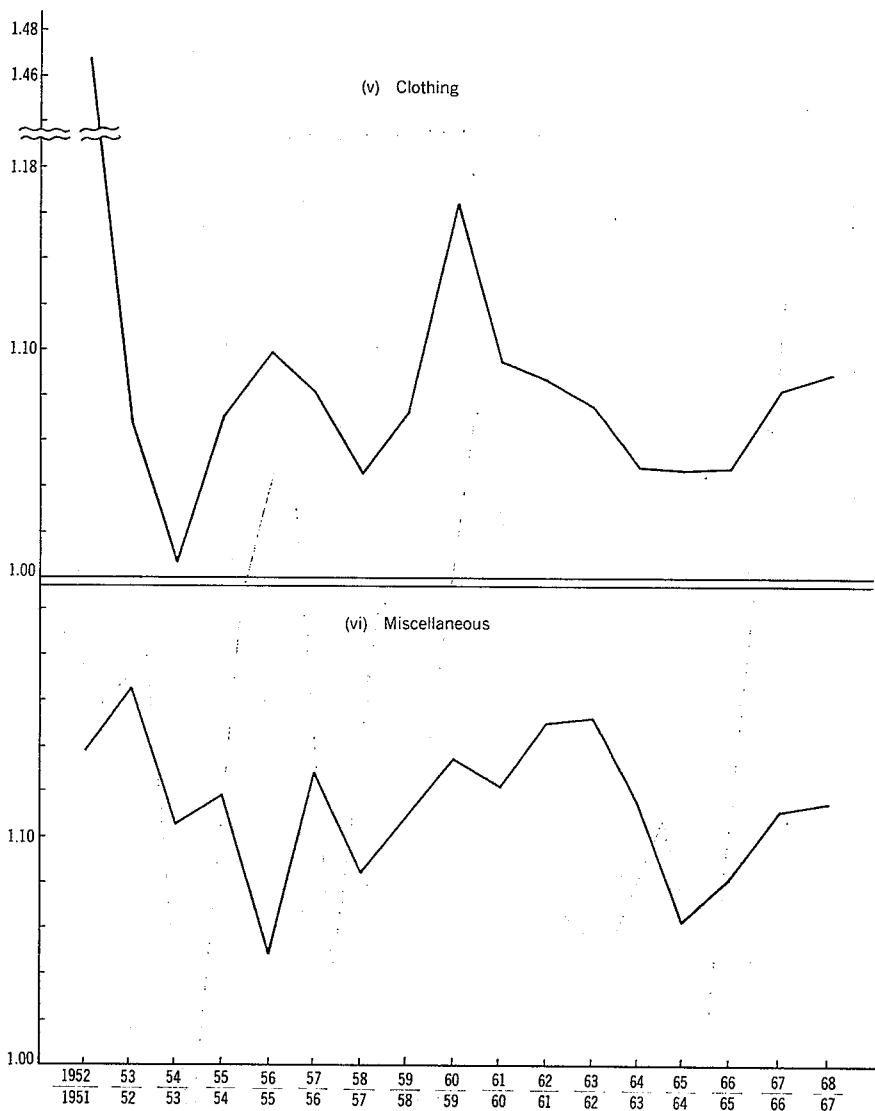
¹⁶ Komiya came to this conclusion on the basis of tax data and the same conclusion was obtained by the writer on the basis of family budget data. See [13] and [17].

Fig. 5-b. (Continued)



consumption pattern. In 1945, real consumption was very low and people felt it difficult to meet the minimum requirements of nutrition. According to [11], the percentage of food expenditure in total consumption expenditure was above 60 per cent on the average in urban households in Japan from 1946 to 1949. This was the first stage of the recovery. The following five or six years, 1950-55,

Fig. 5-b. (Continued)



Sources: [9, Fig. a], and [5, 1970].

can be called the second stage of the recovery of the consumption level. In this period, the supply of clothing and small-scale consumer durables increased each year and urban households recovered from the lack of these things which had accumulated since 1941. It is interesting that the worker's saving rate began to increase during this period. Even in this recovery process, we can find the origin of the consumption revolution. In the prewar period, the main source of calories for the Japanese people came from cereals. To the extent that the consumption pattern follows this type, the real expenditure for food stops increasing at a

relatively low level. In fact, the income elasticity for food expenditure was very low in prewar Japan. According to Shinohara's estimate, the income elasticity was nearly zero in the 1930s [22]. However, food consumption habits were greatly westernized in the early 1950s. It is said that the distribution of Western-type food through the aid of the U.S. Occupation Forces in 1946 and 1947 influenced food consumption habits. A remarkable change in clothing expenses also occurred. In prewar Japan, a relatively large portion of clothing expenditure went for Japanese style dresses,¹⁷ but the pattern was considerably westernized in the early 1950s, when decreases in the relative price of clothing material made it easier to purchase Western dresses. However, we should notice that the equalization of income distribution was the most important factor in this tendency.

The third period, beginning in the mid-1950s, was a golden time for sellers of electric machines for household use. In the mid-1950s, Japanese merchant made vigorous efforts to release wives from heavy household work. For instance, the purchase of electric washing machines, electric rice cookers, and vacuum cleaners was very remarkable. This was said to be the result of the democratization of Japanese families. Afterwards, there appeared demands for durables making home living more comfortable, i.e., for TV sets, refrigerators, electric fans, tape recorders, and various kinds of musical instruments. The reader can understand the striking speed of the spread of these products by referring to the graph for TV sets in Figure 6. Regarding these durables, per capita possession is high by international standards in present-day Japan.¹⁸ But it should also be mentioned that expenditures for furniture were not too large in this period, because the amount of space in Japanese houses was generally small.

The so-called "Leisure Boom" is the most indicative feature of the fourth period, the mid-1960s. In this period, expenditures for recreation and entertainment or for education increased rapidly.¹⁹ It is very interesting to note that the personal saving ratio was nearly constant at this time. We assume that this was the first experience for Japanese people to spend their money for luxury purposes, because they had worked and saved to catch up to the European level of living since the Meiji period.

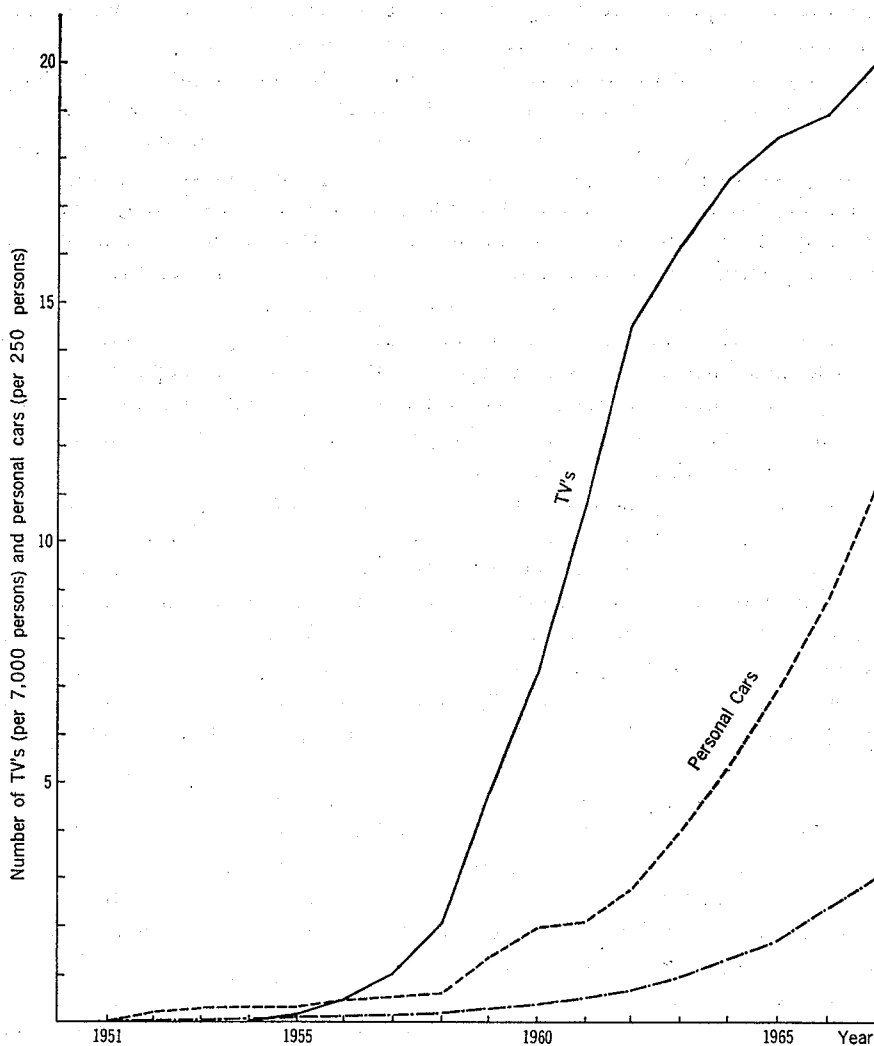
As was mentioned earlier, the level of personal income in Japan rose to that

¹⁷ In prewar Japan, the Japanese style dress was produced from purchased clothes by hand by family members. Therefore, the relative price of style dresses was lower than that of Western style dresses if we exclude the special high-quality Japanese style dress. This is the major reason why both style dresses coexisted in the prewar period. Such a tendency was especially remarkable in the rural sector.

¹⁸ Blumental pointed out that the per capita possession of TV sets in Japan is greater than that in most European countries. See [2, p. 73]. According to the calculation of NHK (Japan Broadcasting Corporation), the number of TV sets divided by the number of the households in Japan is the second largest among developed countries. Although there are no comprehensive data for international comparison of possession of other machines, the number per household seems to be relatively high when we compare the figures of the survey data. Regarding the Japanese figure, see [11].

¹⁹ The former tendency can be verified by referring to [6]. According to this survey, the frequency of trips per household member increased sharply during this period.

Fig. 6. Possession of TV Sets and Personal Cars



Source: [10].

of Italy in the late 1960s. In this sense, the consumption pattern would approach the form found in Western developed countries. However, there remained two problems. The first is the late start of the spread of personal cars. When we compare the per capita possession of personal cars among developed countries, the level of Japan is very low even considering the income level. The prices of domestic personal cars were very high and foreign cars were not imported because of the excessive import duty in the early 1960s. However, a sharp decline in these prices made it possible to popularize car ownership, as is shown in Figure 6. Although there remain difficulties concerning the undeveloped situation of the system of consumer credit, we can anticipate that the Japanese level of

car possession will catch up to the European level within a few years.²⁰ The other problem is more serious than the first, being closely related to housing conditions. As was mentioned before, expenditure for furniture and household equipment has been low in Japan compared to international standards. This is explained not by the characteristics of Japanese consumer habits but by the small size of Japanese homes. In the previous section, we discussed in detail why the construction of residential houses has been slow. Although circumstances have improved to some extent recently, this is a very important problem to be solved in the 1970s, when the Consumption Revolution will reach its height.

The above discussion shows that the level of consumption in Japan has been rising rapidly and has caught up with the European level of consumption expenditure. An interesting problem is to determine whether the consumption pattern is similar to that in Western developed countries or whether the behavior in Japan is still unique. This can be examined by comparing the composition of consumption expenditure among developed countries. According to the writer's calculation using the international Engel function, the consumption behavior of Japanese people is much more normal than might be expected.²¹ But it is also true that there are four major types of consumption expenditure among the twelve categories listed in [26] that are unique. Among these unique characteristics, we have already explained two, i.e., the small expenditure for (1) transportation and communication (which includes expenses for personal cars) and (2) furniture, furnishings, and household equipment. Another characteristic, which the writer cannot explain, concerns the fact that expenditure for personal care and health has been relatively high by international standards in present-day Japan. It can only be suggested that this may be related to the demand for medical services which is accelerated by the medical insurance system, which is very developed in Japan. It has also been maintained that the expenditure for education has been relatively large in Japan since the Meiji period. This is also true in present-day Japan, and it makes the expenditure for miscellaneous services large by international standards. Generally speaking, there is little discrimination by race, status of parents, region of birth, religion, etc., in Japan recently, and the academic background is the most important requirement for access to a good job. Due to these circumstances, the expenditure for education is very large compared to the level of income. The writer thinks that this unique characteristic will remain in the future, even after the three other kinds of unique behavior disappear.

Finally, a few comments should be given here regarding the scarcity of social capital. Owing to the economic growth in Japan, the household consumption

²⁰ We cannot neglect the very bad road situation in Japan in forecasting future figures for car possession. It has been pointed out that the undeveloped condition of roads is one of the barriers to the increase of personal cars. But the construction of roads has been progressing remarkably in Japan recently and this will accelerate the purchase of cars.

²¹ See [17, Chapter 8]. The international Engel function is defined as follows. After the per capita consumption expenditure and the corresponding figures by type are converted into U.S. dollars according to the official exchange rate, the regression equation for the latter on the former is calculated by quadratic approximation. We derive the uniqueness of the consumption expenditure by calculating the deviation from this Engel function.

level has been rising and this has changed the consumption habits of Japanese people into a modern pattern. However, the circumstances of daily life have not improved very much. First, social capital investments have been relatively small compared to investments in production. For instance, most roads in Japan are notoriously bad and this has increased the number of traffic accidents. The area of parks per person in Japan is only 4.1 per cent of that of the United States [4, 1968]. The development of the sewage system as well as the installation of flush toilets has been rather slow. In addition to this, there are public pollution problems in various aspects of the Japanese economy. In other words, although the *flow* consumption level of Japan has increased to European standards, there remain a number of gaps regarding the level of assets such as social capital and private residential housing. It is very important to fill these gaps if the Japanese people want to have a high standard of living, and this should be another of the important aims of the economic policy of the Government of Japan.

IV. FINAL REMARKS

Before concluding this discussion, we should give some suggestions concerning future changes of household consumption behavior in Japan. However, this is very difficult because the Japanese economy itself is now in a period of transition. The most important factor in this transition is changes in the labor market, since the characteristic feature of the past century of surplus labor is now being replaced by a labor shortage situation.

Changes in economic conditions will obviously affect the saving rate as well as consumption behavior. As was shown earlier, the so-called unique characteristics of household consumption behavior can be explained mainly by the high growth rate of personal income. The most important problem, therefore, is whether or not the past trend of economic growth can be extrapolated into the future. Even if we accept such an extrapolation, there are some additional problems. First, the rise of consumer prices should be considered. Because of the shortage of labor, both the prices of farm products and of services have been rising rapidly; and as a result consumer prices have increased significantly. Since the rate of income growth is still high as well, however, the standard of living will continue to follow the past upward trend. But it is very probable that the rise of consumer prices will affect the saving rate if this tendency continues in the future. Further, it should be noted that this rise in consumer prices is being accompanied by a change in price structure. Generally speaking, the price structure is now approaching that found in Western developed countries.²² This factor should be studied carefully in considering the future pattern of consumption expenditure.

Second, we should note that the shortage of labor is now changing the wage system and the pension fund system. In the period of surplus labor, few workers were willing to change their jobs without a very compelling reason. It is not

²² Regarding the review of the comparison of price structures, see [17, Chapter 7].

surprising that the above-mentioned systems were set up without regard for the possibility of labor mobility. Recently, however, it is more common for workers to move from one firm to another. This will gradually change the above-mentioned systems. Since household consumption behavior depends on these systems, the shortage of labor is affecting the characteristics of consumer behavior.

In addition to the effects of real income, we should consider changes in consumer attitudes. Broadly speaking, the Japanese people have tried to raise their utility by increasing real consumption expenditures. However, their main interest has begun to be concentrated on the conditions of daily life. In regard to personal affairs, they are trying to improve their home. Further, they are interested in increasing their net worth in order to ensure a comfortable life in the future. They will, of course, also demand that the Government of Japan increase the amount of social capital. Such changes of attitude will of course decrease the amount of financial capital flowing from households to enterprise. It is therefore very important to study these things in order to predict the growth rate of the Japanese economy itself.

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