

## Chapter 2

# THE ECONOMIES OF JAPAN AND KANSAI: A RETROSPECTIVE AND OUTLOOK

FY 2022 was a year in which the virtuous cycle between prices and wages attracted attention, as the effects of the yen's depreciation and soaring import prices, which had been conspicuous since the summer of 2021, were greatly reflected in domestic corporate prices and consumer prices with a time lag from the beginning of FY 2022. The speed of change was significant for firms and households that had been accustomed to low or zero inflation. In an environment where nominal wages did not grow, the rapid increase in consumer prices caused real wages to fall, suppressing household consumption. Firms faced the problem of soaring import prices, which squeezed their earnings and were passed on to domestic prices<sup>1)</sup>. In this fiscal year, we focus on the mechanisms behind these large changes.

Section 2 presents a retrospective and current status of the Japanese and Kansai economies in FY 2022 in the first half, and their respective economic outlooks (forecasts) for FY 2023-2024 in the second half. Section 3 describes the impact of high prices on Kansai households.

### Section 1

## VIRTUOUS CYCLE MECHANISM OF PRICES AND WAGES

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### 1. Introduction

Section 1 outlines the mechanism of the virtuous cycle and examines in detail the points at which this virtuous cycle is established. Subsection 1.2 outlines the basic framework of the virtuous cycle, Subsection 1.3 discusses the mechanism of price increases, and Subsection 1.4 examines the mechanism of wage

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1) For this point, refer to the description in Chapter 3, Section 2.

increases. Subsection 1.5 introduces the factors that cause consumption to increase, Subsection 1.6 examines in detail the increase in labor productivity, and Subsection 1.7 describes the increase in capital equipment, which is closely related to labor productivity. Subsection 1.8 builds on the discussion in Section 1 and summarizes the key points regarding the mechanism by which the virtuous cycle between prices and wages is realized.

## 2. Basis of virtuous cycle mechanism

It is essential that aggregate supply and demand have balanced growth for the macroeconomy to expand steadily and sustainably. It is also important that household consumption, the largest demand item, grows steadily. The basic factors that determine consumption are current and future income, and wages, which represent the base of the income level.

What factors cause wages to fluctuate? The key is that prices must rise in line with sustained economic growth, and that firms' sales and compensation of employees must continue to increase. These mechanisms can be summarized as follows.

Step ①: Prices rise due to an increase in aggregate demand based on consumption.

Step ②: Wages rise as sales and profits increase with rising prices.

Step ③: Income increases through higher wages.

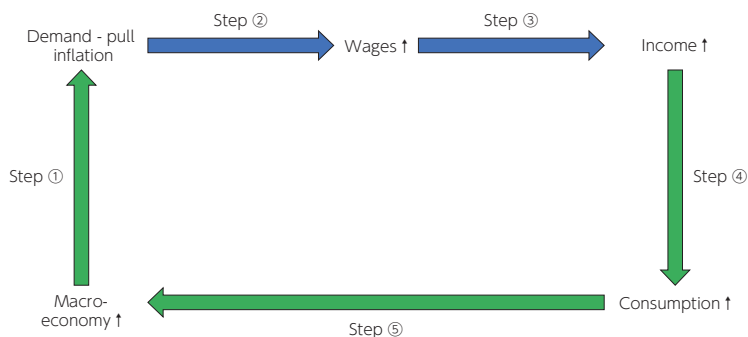
Step ④: Consumption increases as income increases.

Step ⑤: The economy continues to boom due to increased consumption.

A virtuous cycle is created in the macroeconomy by repeating the mechanism from Step ① to Step ②. The mechanism of this virtuous cycle can be expressed as shown in Figure 2-1-1. The key elements in this mechanism are the increase in prices in Step ① and the increase in wages in Step ②. The phrase “virtuous cycle of prices and wages” was created in response to this circumstance<sup>2)</sup>.

Figure 2-1-1 is the basic form of the virtuous cycle mechanism. However, in the real economy, this mechanism needs to be modified. By carefully examining these modifications, the problems facing the Japanese economy now should be able to be emphasized. In the following, we will discuss these issues using

2) If we focus on Step ⑤ and Step ③ in Figure 2-1-1, it is called a “virtuous cycle of growth and distribution.” If we focus on Step ⑤ and the wage increase in Step ②, it is called a “virtuous cycle of wage hikes and growth” (Nihon Keizai Shimbun (2023a)). In both cases, the mechanism shown in Figure 2-1-1 is used as the basis for the terminology.



**Figure 2-1-1** Virtuous Cycle Mechanism of Prices and Wages (Basic Form)

Source: Prepared by the author

various data<sup>3)</sup>.

### 3. Mechanism of price increase

First, we examine the mechanism of price increases in Step ①.

Figure 2-1-2 shows the rate of change in the CPI (Consumer Index, excluding fresh food and energy (Core-core CPI)) from January 2000 to April 2023<sup>4)</sup>.

From 2000 to 2012, consumer prices generally trended downward, with the exception of some years, and a deflationary trend continued.<sup>5)</sup> Since 2013, the price inflation rate has generally remained positive, indicating an inflationary trend. As of April 2023, the composite index has increased by 3.5% and the core-core index by 4.1%.

The main mechanisms by which prices rise are summarized here.

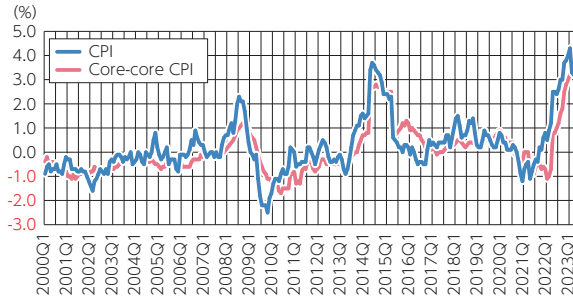
The first is price inflation caused by an increase in demand throughout the economy, which is called “demand-pull inflation.”

The second type of inflation is the rise in prices accompanying the increase in the cost of production by firms, such as the price of raw materials, and is

3) The following summary is based on previous studies of theory and empirical analysis of the various channels that comprise the mechanism, as well as various reports and articles on the state of affairs.

4) The composite index of consumer prices is an index using all items covered by the survey. The composite index excluding fresh food and energy excludes fresh food and energy-related items, which are considered to be subject to extreme fluctuations due to weather and market conditions and is also referred to as the core-core index.

5) The rapid increase in the composite index from the end of 2007 to 2008 (+2.3% (July 2008)) was largely due to the sharp rise in fuel prices during the same period, with the core-core index rising by +1.0% over the same period.



**Figure 2-1-2** Change in Consumer Prices: YoY

Source: National Consumer Price Index, Statistics Bureau, Ministry of Internal Affairs and Communications

called “cost-push inflation.” Since the main cause is the rise in the cost of raw materials, Section 1 will refer to this as “raw material inflation.”

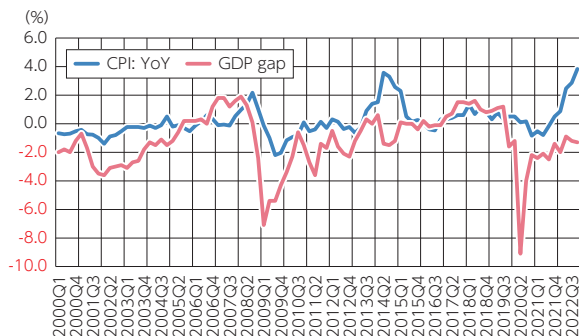
The third type of inflation is a rise in prices accompanying a rise in wages, or labor costs (costs), and is called “cost-push inflation” in the same way as the second mechanism. However, since the rise in wages is the main cause, it will be referred to as “wage inflation” in Section 1.

The fourth is a mechanism whereby higher expectations of future price increases held by households and firms (usually referred to as “inflation expectations”) cause actual prices to rise<sup>6</sup>.

For the virtuous cycle between prices and wages to be sustained, the key point is whether or not price hikes due to demand-pull inflation, the process in Step ① of Figure 2-1-1, will occur. Figure 2-1-3 depicts the relationship between the overall macroeconomic activity (indicated by the GDP gap) and the rate of price inflation<sup>7</sup>.

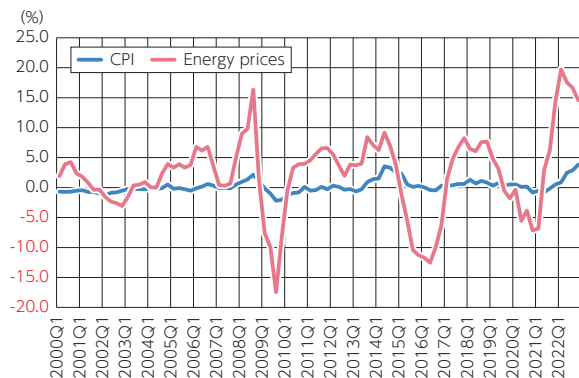
There appears to be a moderately positive correlation between the GDP gap and the rate of price increases. Although the price inflation rate has been rising rapidly since 2021, the GDP gap has been negative, and it is difficult to say that the current price increases are primarily the result of the overall level of economic activity. As shown in Figure 2-1-4, this is largely due to soaring energy prices, especially for mineral fuels, and there are strong signs of raw

- 6) When households and firms have higher inflation expectations and anticipate that the prices of goods they intend to purchase in the future will rise, they will bring forward consumption and investment, resulting in a rise in current prices. This mechanism stimulates demand through a fall in the real interest rate (= nominal interest rate - expected inflation rate).
- 7) The GDP gap is the degree of divergence between overall macroeconomic demand (aggregate demand) and potentially achievable supply (called potential supply or potential GDP) and is published periodically by the Cabinet Office.



**Figure 2-1-3** GDP Gap and Consumer Price Inflation: YoY Transfers

Source: National Consumer Price Index, Statistics Bureau, Ministry of Internal Affairs and Communications; Monthly Economic Report, Cabinet Office



**Figure 2-1-4** Changes in Consumer Prices and Energy Price Increases: YoY

Source: National Consumer Price Index, Statistics Bureau, Ministry of Internal Affairs and Communications

material inflation<sup>8)</sup>.

## 4. Mechanism of wage increase

As we pointed out, the current rise in prices is primarily due to the surge in energy prices, rather than being driven by a booming economy as a whole.

8) Cabinet Office (2023) uses regression analysis to break down the price inflation factors shown in the main text into factors to determine the extent to which they affect the actual price inflation rate.

Next, let's look at [Figure 2-1-1](#), Step 2: Mechanism of wage increase. The factors that cause wages to rise can be summarized as follows.

Factor (1): This is a case in which labor supply (households providing labor to earn income) and labor demand (firms hiring labor) do not match, resulting in a tight labor market and higher wages.

Factor (2): This is the case where prices rise as the economy booms (occurrence of demand-pull inflation) and wages, which are payments to workers, rise as firms' sales and profits increase.

Factor (3): This is a case in which wages, the compensation of workers, increase as a result of an increase in the labor productivity of the company, which is expressed as value added per worker (gross profit).

Factor (4): Real income may decrease due to a sharp rise in prices caused by raw material inflation (see Subsection 2.1 for the process of shifting from raw material inflation to consumer prices). In these conditions, worker demand for wage hikes may intensify and nominal salaries may rise as a result of labor-management negotiations (annual wage negotiations in Japan) between workers (households) and management (firms).

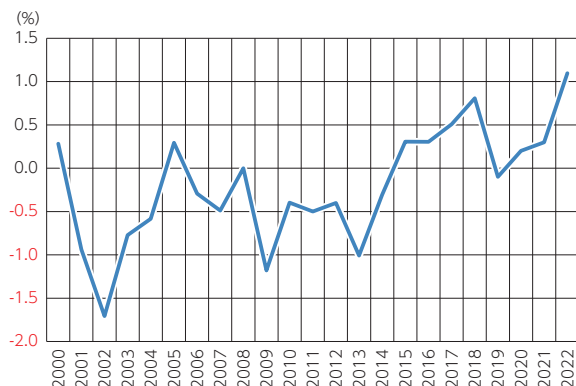
[Figure 2-1-5](#) shows the nominal wage growth rate in Japan<sup>9)</sup>.

Nominal wages have not grown since 2000 and will not turn positive until 2014. However, the growth rate is extremely slow, barely +1.1% in 2022<sup>10)</sup>.

According to the Japanese Trade Union Confederation survey conducted on May 10, the rate of increase in annual wage negotiations in 2023 was +3.67%, the highest since 1993 (+3.90%). Therefore, a relatively high increase in the pre-determined salary is expected in FY 2023. The fact that wages, which have not been rising for a long time, are showing signs of rising is largely due to factor (4) among those discussed above. In other words, households' real incomes have been forced to decline due to raw material inflation caused by high resource

9) The nominal wage growth rate series is YoY for "fixed wages per worker" (total of 5 or more workers).

10) The growth in 2022 is attributable in part to the sample replacement in the Monthly Labor Survey and the benchmark update. Saito (2023) provides a detailed explanation of these statistical characteristics and the current state of wage increases. Various factors have been pointed out to explain the long period of sluggish nominal wage growth in Japan. For example, Okubo et al. (2023) point out: 1) the dual structure of the labor market, 2) wage-setting behavior of firms, and 3) industry-specific factors (especially in the non-manufacturing industry) and employment mobility among industries and firms. In relation to the wage-setting behavior of firms, in Japan, firms may prioritize an increase in the number of employees over a wage increase when earnings increase (Hamada and Adachi (2015)).



**Figure 2-1-5** Nominal Wage Growth: YoY

Source: Ministry of Health, Labour and Welfare, Monthly Labor Survey.

prices and a weak JPY, forcing wages to rise<sup>11)</sup>.

In any case, as shown in Figure 2-1-1, the mechanism (factor (2) of pay hikes) from price hikes to wage raises is unlikely to have developed. The current price hikes are strongly reminiscent of raw material inflation, which means that the precondition for Step ② in Figure 2-1-1 is not yet in place. The key to increasing wages in Japan from a medium- to long-term perspective is to realize the mechanism of factor (3).

Here, the basic form of firm labor productivity is shown in equation (1).

$$\begin{aligned}
 \text{Labor productivity} &= \text{amount of value added by the company} \\
 &\quad / \text{number of employees} \\
 &= \text{gross profit} / \text{number of employees} \\
 &= (\text{Net sales} - \text{Cost of sales}) / \text{Number of employees} \\
 &= (\text{Personnel expenses} + \text{Net operating income} + \text{Other}) \\
 &\quad / \text{Number of employees} \tag{1}
 \end{aligned}$$

Equation (1) indicates that if the ratio of labor costs to gross profit (labor's

11) Factor (1) is also considered to exist as a medium- to long-term factor. Factor (2) and Factor (1) can occur simultaneously because a tight labor market is brought about by a booming economy. However, in Japan, due to the aging of the population and a mismatch of human resources, the labor supply does not meet the labor demand, and the labor shortage is becoming a structural factor, and factor (1) is becoming apparent as a medium- to long-term factor. Genda (2017) comprehensively examines the relationship between labor shortages and wages.

share) does not change significantly, wages, which are labor costs per employee, will increase as labor productivity increases. Therefore, an efficient way to raise salaries in the medium to long term is to increase labor productivity. A more detailed study of the mechanism that raises labor productivity is needed and will be discussed later<sup>12)</sup>.

## 5. Mechanism of consumption increase

Next, we will look at the mechanism of rising consumption, which is essential to understanding how rising wages are correlated with rising prices. (Figure 2-1-1 Steps ③ and ④).

Figure 2-1-6 shows the evolution of real household consumption expenditures (2007=100) from 2007 to 2022 for Japan, the United States, and Germany.

The United States and Germany have shown a steady increase for about 15 years, with the exception of a temporary drop due to the COVID-19 pandemic.

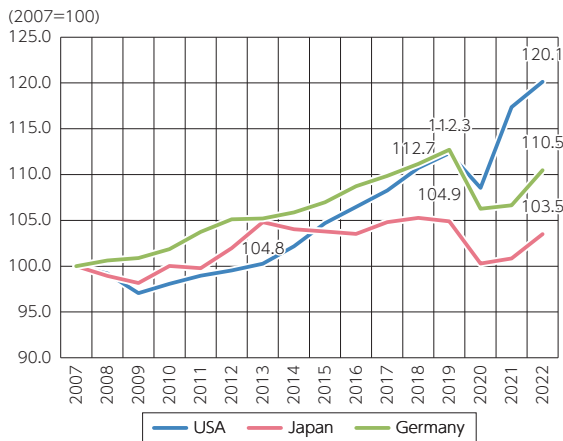


Figure 2-1-6

Real Household Consumption Expenditures

Source: Compiled from OECD

12) In equation (1), there are two ways to increase productivity: 1) increase value added (gross profit) in the numerator, and 2) reduce the number of employees in the denominator. If a drastic reduction in the number of employees is not realistic, the key to increasing productivity may be an increase in value added, or more simply put, the ability of a company to generate more profit. Thus, the expression “higher productivity raises wages” might be more suitably understood as “a marked increase in value-added results in higher productivity and higher wages.” This point was also discussed at the Asia Pacific Institute of Research (2022).



In other words, in 2022, the U.S. and Germany are 120.1 and 110.5, respectively, while Japan's figure is 103.5, which is low.

Disposable income is the main factor influencing household consumption. Figure 2-1-7 depicts changes in real household disposable income (2007=100) for the three countries.

While consumption in the U.S. and Germany has been growing at a steady pace, the rate of growth in Japan has been extremely slow, standing at 108.8 in 2021, an increase of less than 10% over the past 15 years. Thus, it is clear that the fundamental factor behind sluggish consumption in Japan is the slow growth of disposable income or wages.

Consumption behavior depends not only on income in the current period but also on lifetime income that can be earned in the future. For example, when purchasing a car or durable consumer goods, or when spending on education, consumption decisions should be made based on the income profile during the employment period and the expected future income.

Although lifetime income is a variable that cannot be observed, it is possible to create an observable series with econometric technique<sup>13)</sup>.

Figure 2-1-8 shows lifetime earnings in Japan and the U.S. from 2010 to 2021. 2010 lifetime earnings in Japan were approximately 130 million yen, while lifetime earnings in the U.S. were approximately 220 million yen in terms of JPY,

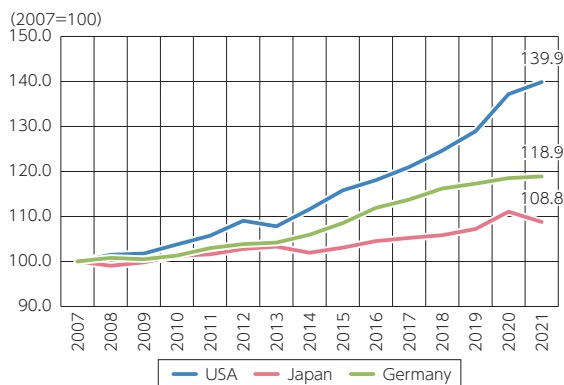


Figure 2-1-7 Real Household Disposable Income

Source: Compiled from OECD

13) The measurement is made possible by specifying a stochastic process of real per capita labor income in each period and assuming rational expectation formation with respect to the expected income profile of households. The details of the measurement are explained in Ogawa (1992) and Matsubayashi (2007).

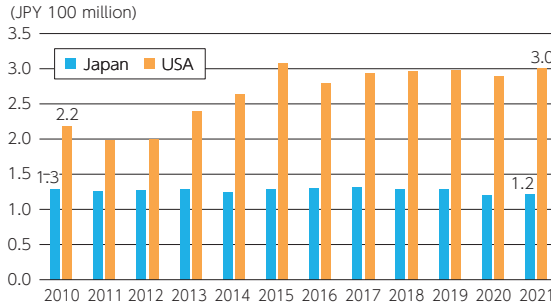


Figure 2-1-8

## Japan-U.S. Comparison of Lifetime Income

Source: Prepared by the author

a difference of approximately 1.7 times. While lifetime earnings in the U.S. have been increasing since then, they have remained stagnant in Japan. As a result, in 2021, the lifetime income in the U.S. will be approximately JPY 300 million, while the lifetime income in Japan will be JPY 120 million, resulting in a gap of more than two times. This is the result of households' expectations for their lifetime income being low because salaries in Japan have not improved significantly.

As outlined above, the main reason for the sluggish household consumption in Japan is the slow growth of income in each period and future income<sup>14</sup>.

## 6. Mechanism of productivity increase

In these conditions, when wage growth is uncertain, a significant boost in consumption cannot be expected. Therefore, we will again carefully examine the possibility of an increase in labor productivity (factor (3), which we have already discussed) as a mechanism for a sustained increase in wages.

(The labor productivity shown in equation (1) can be rewritten as in equation (2).)

$$\text{labor productivity} = \frac{\text{capital equipment}}{\text{Number of Employees}} \times \frac{\text{Net sales}}{\text{capital equipment}} \times \frac{\text{gross profit}}{\text{Net sales}} \quad (2)$$

14) Household consumption, which had fallen sharply due to the COVID-19 shock, showed signs of recovery from early spring to summer of 2022. Based on the discussion in Section 1, if households perceive the price hikes to be prolonged and wage increases to be temporary, they will have pessimistic expectations about their lifetime income, which may lead to a medium- to long-term slump in consumption. A detailed analysis based on the diachronic household behavior theory (life-cycle hypothesis), including these points, has been conducted, for example, by Unayama (2023).

The first term on the right-hand side of equation (2) expresses how much production equipment is equipped per employee and is called the “capital equipment ratio.” The higher the capital equipment ratio, the better the capital equipment and the higher the labor productivity. The second term on the right-hand side is the sales per unit of production equipment and is called the “capitalization coefficient.” The higher the capital coefficient, the more efficiently production is carried out, and labor productivity increases<sup>15</sup>. The third term on the right-hand side is the profit to sales ratio, which is called the “return on sales.” The higher the return on sales, the higher the labor productivity.

We will now look at the changes in labor productivity in Japan since 2000, breaking it down into three items<sup>16</sup>.

Labor productivity (Figure 2-1-9) is consistently lower for small and medium-sized firms than for large firms. Although labor productivity of large firms

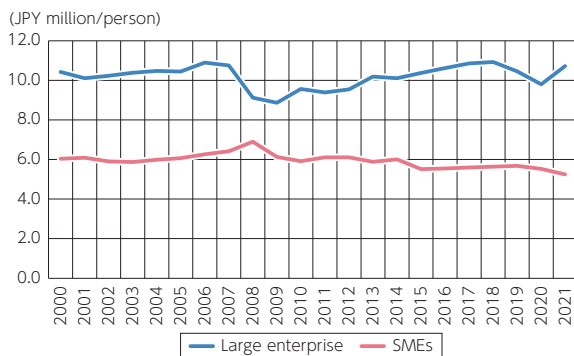


Figure 2-1-9 Labor Productivity

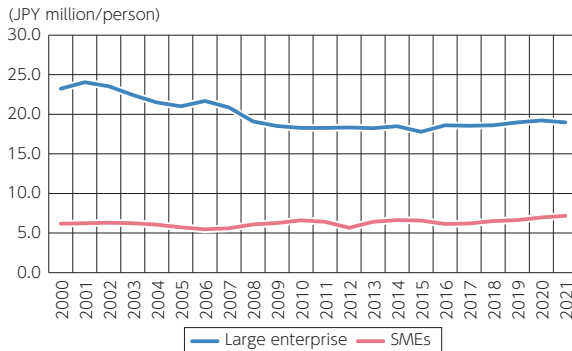
Source: Compiled from “Corporate Statistics,” Ministry of Finance

15) When capital investment is made, the machinery and equipment installed is often accompanied by new technology (referred to as “embodied technology”). Therefore, the capital equipment ratio and capital coefficient increase not only with the size of the capital equipment but also with the quality of the equipment.

16) Based on the “Annual Report of Corporate Statistics of Japan,” each variable is measured as follows: labor productivity = value added / total number of employees; total number of employees = number of employees + number of directors; capital equipment ratio = tangible fixed assets / total number of employees; capital coefficient = net sales / tangible fixed assets; and profit to net sales ratio = value added / net sales. Large firms are classified by capitalization of JPY 100 million or more, while small and medium-sized firms are classified by capitalization of less than JPY 100 million. The Japan Productivity Center (2020) provides a more detailed measurement based on the same method as in this paper. Chapter 6, Section 1 of the white paper provides a detailed analysis of the characteristics of labor productivity in Kansai firms, using a simplified version of equation (2).

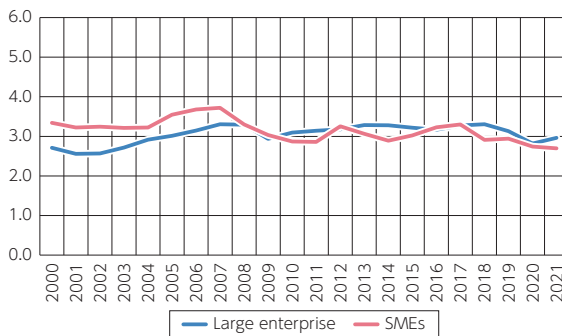
has been on a gradual upward trend since the Lehman shock, it has not reached a level exceeding that of the 2000s. On the other hand, the labor productivity of small and medium-sized firms has been on a downward trend since the 1960s.

Next, the capital equipment ratio (Figure 2-1-10), capital coefficient (Figure 2-1-11), and return on sales (Figure 2-1-12) demonstrate that all of these ratios have either remained almost flat or declined gradually. The decline in the capital equipment ratio is particularly clear for large firms, suggesting that the lack of sufficient accumulation of production equipment has contributed to the sluggishness of labor productivity.



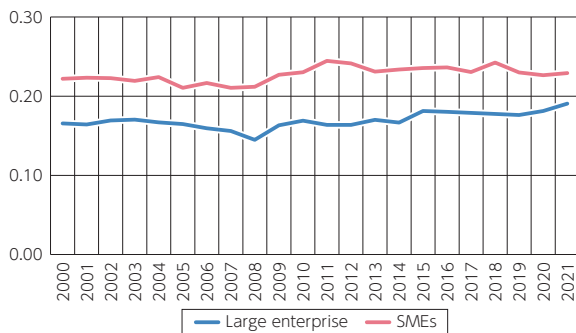
**Figure 2-1-10** Capital Equipment Ratio

Source: Compiled from "Corporate Statistics," Ministry of Finance



**Figure 2-1-11** Capital Coefficients

Source: Compiled from "Corporate Statistics," Ministry of Finance



**Figure 2-1-12** Profit Margin on Sales

Source: Compiled from "Corporate Statistics," Ministry of Finance

## 7. Mechanism of capital equipment increase

Increases in labor productivity are the driving force behind medium- and long-term wage increases, and the key to these increases is an increase in capital equipment.

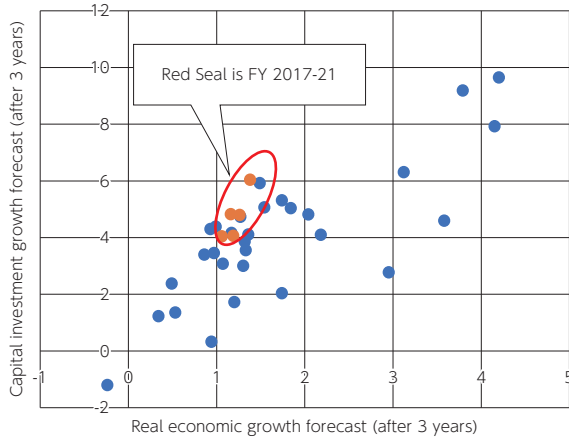
There are many factors that influence capital investment, but the key factor is a company's expected future earnings. If future earnings are expected to increase in the medium to long term, firms will increase capital investment with the intention of enhancing their existing capital facilities. The basis for forecasting future earnings is a long-term forecast of economic growth. Specifically, the forecast of how much the Japanese economy will grow in the next three or five years is important information for capital investment decisions that require large amounts of capital, unlike short-term sales forecasts<sup>17)</sup>.

The Cabinet Office has published a questionnaire in the form of a "Questionnaire Survey on Corporate Behavior" on the medium- to long-term prospects for the economic growth rate of firms<sup>18)</sup>.

Figure 2-1-13 shows the relationship between the real economic growth

17) Keynes (1936) classified expectations, which are the basis of corporate management, into two categories: short-term expectations and long-term expectations. Short-term expectations are those related to sales when production takes place. On the other hand, long-run expectations are expectations of future earnings when a firm purchases and installs new production equipment. The outlook for the growth of the Japanese economy over the next three to five years is a key factor in the formation of firms' long-term expectations. This point is also identified in Ogawa (2021).

18) The survey asked respondents about their outlook for economic growth, as well as the growth rate of capital investment, the number of employees, the ratio of overseas local production, and the profitable JPY rate.



**Figure 2-1-13** Projected real economic growth (3 years) and projected capital investment growth (3 years); unit: %

Source: Cabinet Office. "Questionnaire Survey on Corporate Behavior."

rate forecast from 1983 to 2021 (three years later) and the capital investment growth rate forecast (three years later).

As the figure shows, the higher the medium- to long-term economic growth expectations, the higher the projected growth rate of capital investment<sup>19</sup>. Looking at the past five years (2017-2021), while economic growth expectations are not high, capital investment expectations have risen somewhat.

Here, we discuss some of the key factors in the outlook for economic growth. Household consumption is the largest demand item in terms of total spending. GDP, and the impact of real consumption growth on medium- and long-term economic growth prospects are expected to be extremely large.

To confirm this point, Figure 2-1-14 shows the actual growth rate of household consumption and the projected economic growth rate three years from now. As the figure clearly shows, the economic growth forecast held by firms is strongly related to the actual growth of household consumption. In other words, a medium- to long-term slump in consumption will lower the economic growth forecast held by firms and lead to a slowdown in capital investment growth<sup>20</sup>.

19) This point is also explained in detail in Cabinet Office (2023).

20) The economic growth forecasts held by firms should be affected not only by household consumption but also by various other factors. However, over the medium to long term, trends in household consumption, which accounts for the largest share of total domestic expenditures (i.e. trends in domestic demand), are expected to have a large impact on the economic growth forecasts of firms. This point is also identified in Ogawa (2021).

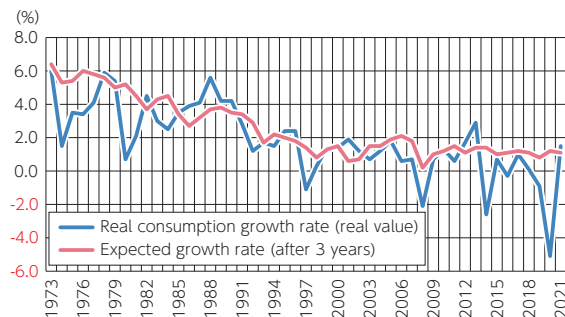


Figure 2-1-14

Real household consumption growth (real value) and real economic growth forecast (3 years)

Source: Cabinet Office, "Questionnaire Survey on Corporate Behavior."

In order to examine Japan's capital investment situation in more detail, a comparison with Germany and Korea follows. Germany and Korea, like Japan, are manufacturing-driven economies, making them suitable for comparison examining trends in capital investment.

Figure 2-1-15 depicts the capital investment rate (ratio of capital investment to capital stock) from 2005 to 2020 based on financial data for individual firms<sup>21)</sup>. The measured values for each year represent the median.

Compared to Germany and Korea, Japan has consistently lower investment rates for both large and small firms over the sample period. While the investment rates in Germany and Korea have been gradually increasing since the late 2000s, the upward trend in Japan has not been as strong<sup>22)</sup>.

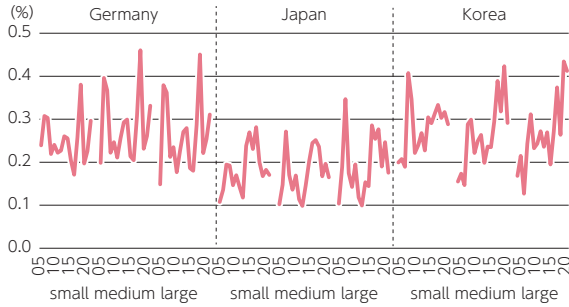
Figure 2-1-16 shows the expected rate of return (Tobin's marginal  $q$  is a proxy variable for the expected rate of return, which is the main factor in capital investment decisions<sup>23)</sup>).

As Figure 2-1-16 shows, the level of marginal  $q$  in Japan is lower than in Germany and Korea, and this characteristic may be reflected in the sluggish

21) The details of the measurement method from Figures 2-1-15 to 2-1-17 are organized in Hagiwara (2023) and Hagiwara and Matsubayashi (2019). The database used for the measurements is based on "Orbis" (global financial data) provided by Bureau van Dijk. Hagiwara and Matsubayashi (2019) also examined the embodied technology process described in footnote 15.

22) The medium- to long-term trends of capital investment in Japan are also discussed in detail in Cabinet Office (2022).

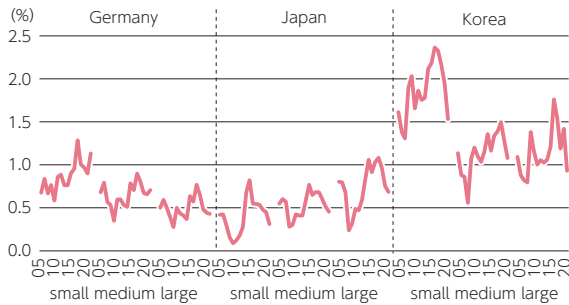
23) Tobin's  $q$  is a variable that contains all the information on the expected rate of return, and is statistically called sufficient statistics. Therefore, the information on the expected growth rate of firms based on the Cabinet Office's questionnaire survey shown above is also considered to be included in Tobin's  $q$ .



**Figure 2-1-15**

**Comparison of capital investment rates between Japan, the U.S., and Germany<sup>24)</sup>**

Source: Compiled from Hagiwara (2023).



**Figure 2-1-16**

**Comparison of Expected Rates of Return between Japan, the U.S. and Germany**

Source: Compiled from Hagiwara (2023).

investment rate in [Figure 2-1-15](#).

[Figure 2-1-17](#) shows the average age of capital equipment, the Vintage Index. The smaller the value of the index, the younger the age of the capital equipment, meaning that the capital equipment is being actively renewed. In general, new technology is embodied in new capital equipment, and a smaller vintage index is desirable from the viewpoint of productivity improvement.

As [Figure 2-1-17](#) shows, Japan’s vintage index is nearly twice as high as those of Germany and Korea, confirming that capital renewal is stagnant. This can be attributed to the stagnation of the investment rate, which is accompanied by a decline in the expected rate of return, as seen in [Figures 2-1-15](#) and [2-1-16](#).

24) “Large,” “medium,” and “small” in Figs. 2-1-15 through 2-1-17 indicate respective firm size.



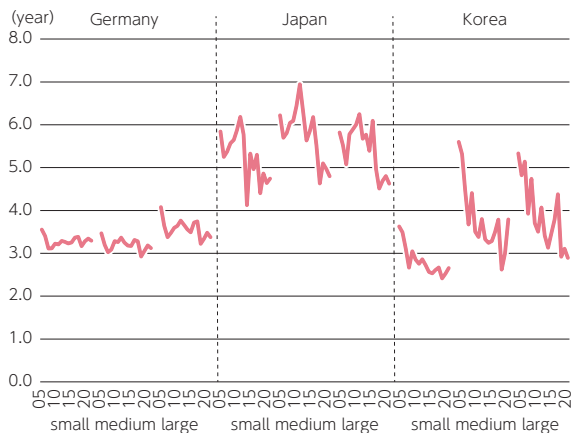


Figure 2-1-17

Comparison of Vintage Indexes between Japan, the U.S., and Germany

Source: Compiled from Hagiwara (2023).

## 8. To realize a virtuous cycle mechanism between prices and wages

In this subsection, we have examined the mechanisms that allow the virtuous cycle between prices and wages to persist.

The model (basic form) of the mechanism shown in Figure 2-1-1 can be modified as shown in Figure 2-1-18 through previous considerations. The three main points are as follows:

First, it is essential to raise prices and boost macroeconomic activity to ensure sustainable growth in salaries. Strong growth in private demand—primarily in the form of household consumption and private capital investment—is necessary for this to occur. Second, an increase in labor productivity is necessary for wages to rise, the key mechanism of which is to increase labor productivity through capital investment.

Third, capital investment not only increases demand in the macroeconomy, but also increases productivity and supply capacity through an increase in production facilities<sup>25</sup>. In other words, it plays an important role in stimulating the economy from both the demand and supply sides.

As shown earlier, in comparison with other countries, Japan's capital equipment growth has lacked momentum. However, supported by the large easing

<sup>25</sup>)The accumulation of not only tangible fixed assets but also intangible fixed assets (software, goodwill, etc.) is important for increasing productivity.

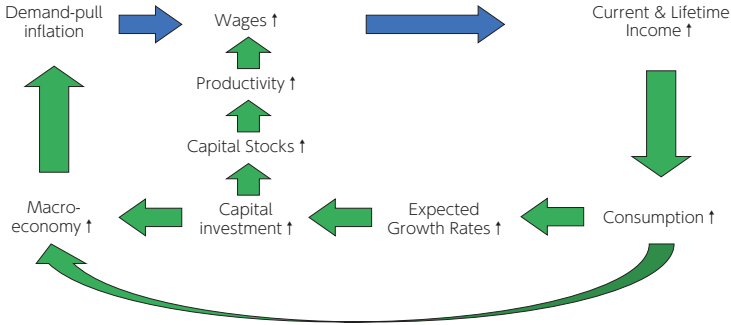


Figure 2-1-18

### Mechanism of the Virtuous Cycle between Prices and Wages (Modified Form)

Source: Prepared by the author

of the financial environment over the past decade, earnings and capital investment have remained strong, especially among large firms<sup>26</sup>). As shown in Figure 2-1-9, labor productivity is rising among large firms. The key to the future is for these improving trends to spread to small and medium-sized enterprises (SMEs), leading to a further increase in capital equipment and productivity in the macroeconomy. Consistently rising household consumption will be the source of strong, robust capital investment.

The above summary confirms that a virtuous cycle between prices and wages is nothing more than a mechanism in which the demand side and supply side of the macroeconomy are interlinked and exert a positive influence on each other. With a workforce scarcity and the digital transformation (DX) that comes with advancements in artificial intelligence (AI), capital investment is currently rising in Japan<sup>27</sup>). This situation, coupled with a recovery in consumption following the COVID-19 pandemic, is expected to continue to generate sustained increases in productivity and wages, and to create a virtuous cycle between prices and wages.

Based on the mechanisms outlined in Section 1, more detailed analyses of the Japanese and Kansai economies are presented in the following sections and thereafter.

26) This point can be seen in Figures 2-1-5 and 2-1-12, and in Figures 2-1-15 through 2-1-17.

27) For example, the most recent situation is presented in Nihon Keizai Shimbun (2023b). The current surge in capital investment is mainly based on the abundant cash flow of companies. In the future, however, a sustained increase is expected based on the medium- and long-term factors (expected economic growth and expected earnings) described in Section 1.

## References

- Asia Pacific Institute of Research (2022), “Economic Debate 2022 (Japanese Economy)”
- Cabinet Office (2022), Annual Report on the Japanese Economy and Public Finance 2022, Chapter 3.
- Cabinet Office (2023), “Japanese Economy 2022-2023: Toward Full-Scale Growth under Rising Prices.”
- Genda, Y. (ed.) (2017), “Why Wages Do Not Rise Despite Human Resource Shortages,” (Japanese title: *Hitode Busoku Nanoni Naze Chingin ga Agaranai Noka*), Keio University Press.
- Hagiwara, T. (2023), “Tobin’s Marginal q and Productivity in Japan, Germany and Korea,” (Japanese title: *Tobin no Genkai q to Seisansei ni Kansuru Nichi-Doku-Kan Hikaku*), Journal of National Economy, Vol. 227, No. 1, pp. 1-11.
- Hagiwara, T. and Matsubayashi, Y. (2019), “Capital Accumulation, Vintage, and Productivity: The Japanese Experience,” The Singapore Economic Review, 64(3), pp. 747-771.
- Hamada, K. and Adachi, S. (2015), “The Day the World Envis the Japanese Economy,” (Japanese title: *Sekai ga Nihon Keizai wo Urayamu Hi*), Gentosha.
- Japan Productivity Center (2020), “Report on Factor Analysis of Labor Productivity Trends,” (Japanese title: *Rodo Seisansei no Suii ni Kakawaru Yoin Bunseki no Hokoku*).
- Keynes, J.M. (1936), “The General Theory of Employment, Interest and Money,” Harcourt Brace, London, translated by Shionoya, Y. (1995), Toyo Keizai Shinposha.
- Matsubayashi, Y. (2007), “Validity and Limitations of the Asset Effect: A Reexamination of Japanese and U.S. Consumption Behavior,” (Japanese title: *Shisan Koka no Yukosei to Genkai: Nichibei Shohi Kodo no Saikensho*) National Economic Journal, Vol. 196, No. 3, pp. 17-35.
- Nihon Keizai Shimbun (2023a), “Accelerate Reforms for a Virtuous Cycle of Wage Increases and Growth,” (Japanese title: *Chinage to Seicho no Kojunkan he Kaikaku wo Kasoku Seyo*), Editorial, March 16, 2023.
- Nihon Keizai Shimbun (2023b), “Capital Investment Up to JPY 31 Trillion,” (Japanese title: *Setsubi Toshi Saiko 31 Choen*), June 22, 2023.
- Ogawa, K. (1992), “An Empirical Analysis of Household Behavior in Japan,” (Japanese title: *Waga Kuni ni Okeru Kakei Kodo no Jissho Bunseki*), Financial Review, No.25, pp.112-134.
- Ogawa, K. (2021), “Long-Term Stagnation in the Japanese Economy: The Mechanism Revealed by Empirical Analysis,” (Japanese title: *Nihon Keizai no Choki Teitai: Jissho Bunseki ga Akirakanisuru Mekanizumu*), Nikkei

Publishing Inc.

Okubo, T., Kido, Y., Suita, K., Takatomi, K., Hada, S., Fukunaga, I., Furukawa, K., and Hogen, Y. (2023), “Discussion Paper on Wage Trends in Japan,” (Japanese title: *Waga Kuni no Chingin Doko ni Kansuru Ronten Seiri*), Bank of Japan Working Paper Series 23-J-1.

Saito, T. (2023), “Annual wage negotiations to reach the highest level in 30 years: The future focus will be on the sustainability of wage increases and the pace of service price increases,” (Japanese title: *Shunto Chinageritsu ha 30nen Buri no Kosuijun he -Kongo no Shoten ha Chinage no Jizokusei to Sabisu Kakaku no Josho Pesu-*), Nissay Research Institute, Weekly Economist Letter, 2023-4-14.

Unayama, T. (2023), “Contemporary Japanese Consumption Analysis: The Current State of Life Cycle Theory,” (Japanese title: *Gendai Nihon no Shohi Bunseki: Raifu Saikuru Riron no Genzaichi*), Keio University Press.