

Outline of 2024 Actuarial Valuation, Reform Options, and Pension Distribution Projections

Section 1 The role of actuarial valuation of the National Pension and the Employees' Pension Insurance

Section 2 2024 Actuarial Valuation

Section 3 Financial Implications of the Reform Options

Section 4 Projection of individual pension amount distribution

Section 1

The role of actuarial valuation of the National Pension and the Employees' Pension Insurance

1. Functions and structure of Japan's social security pension system

(1) The significance of social security pensions

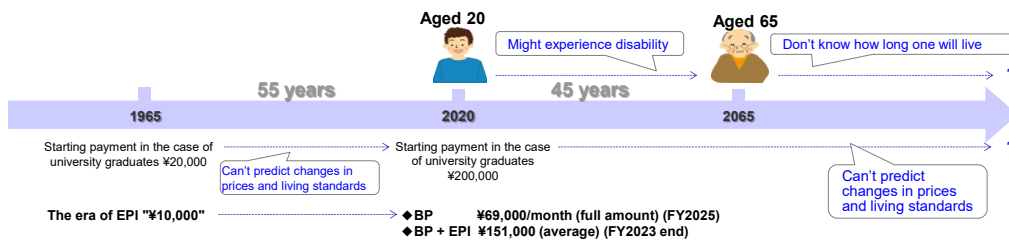
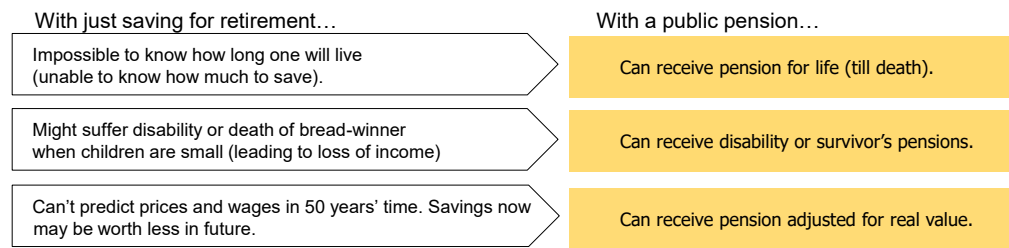
1) Provisions against various risks during life

Social security pensions offer protection against various risks encountered during life (Figure 1-1). One needs to prepare for post-retirement life while working but it is impossible to anticipate how long one will live or what prices and living standards will be like after retirement in the future. The social security pension system provides a life-long pension that allows individuals to receive a pension for as long as they live. By index-linking benefits to prices and wages, the system also ensures that pensions retain their real value even if prices and wages change.

The social security pension system also provides disability and survivor's pensions in case people experience disability or death when they have young children to support.

The social security pension system thus offers insurance functions that personal savings cannot provide. By serving as a system of mutual support by society as a whole, the social security pension system protects society's members against various risks that they may face as individuals during the life course.

Figure 1-1 Significance of social security pensions (1)



[Comparison of prices then and now]

Item	1965	→	2020		
Chicken	100g		¥71.8	¥128	1.8 times
Milk	1 bottle		¥20	¥133	6.7 times
Noodle	1 bowl		¥53.7	¥677	12.6 times
Curry and rice	1 plate		¥105	¥714	6.8 times
Coffee	1 cup		¥71.5	¥512	7.2 times
Movie	1 time		¥236	¥1,834	7.8 times
Notebook	1 notebook		¥30	¥162	5.4 times

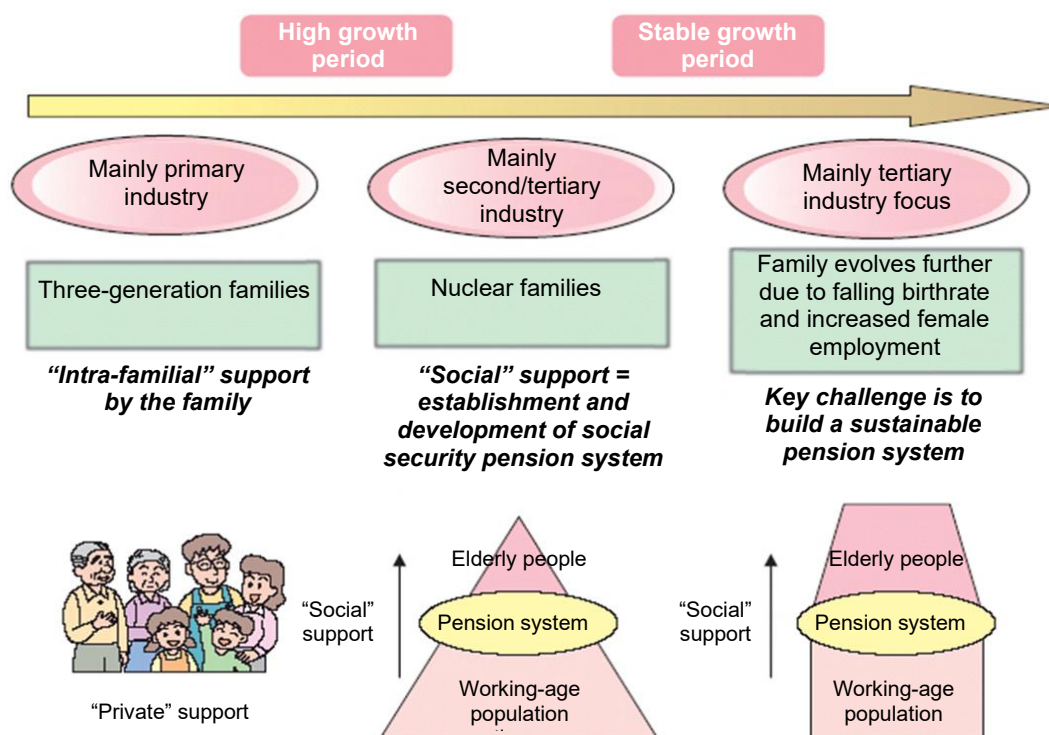
(Source: Retail Price Survey)

2) Social support for elderly people by society as a whole

Japan's social security pension system dates back to the establishment in 1942 of the Workers' Pension Insurance scheme, the forerunner of today's Employees' Pension Insurance (EPI). Universal pension coverage was achieved in 1961 with the establishment of the National Pension (NP), a contributory scheme. Benefits were subsequently improved as the economy grew to create an adequate pension system.

Before the social security pension system was established and while it was maturing, supporting elderly parents was primarily the responsibility of the family. However, Japan's changing industrial structure, growing urbanization, and the trend of nuclear families made it unfeasible for people to rely on "private" support from their children and families in old age as in the past, and "social" support provided by society as a whole for its older members became essential. The social security pension system provides such a system of social support for older people (Figure 1-2).

Figure 1-2 Significance of social security pensions (2)



3) Equalizing the burden of support for the elderly

Social support serves to equalize the burden of support for elderly people of working-age irrespective of their family structure. With life expectancy at birth increasing, it is no longer unusual for retired parents to live to see their own children retire and become pensioners. If the only recourse in such cases were private support, grandchildren would end up having to support not only their parents but also their grandparents, and the burden would be particularly onerous in the case of an only child. Conversely, elderly people whose children have unfortunately died would face difficult circumstances if their primary recourse were private support.

This type of private support carries risks, such as an uneven distribution of the burden of supporting the elderly, and the absence of people to look after them. By providing a system of social support, social security

pensions serve as a means by which society as a whole can provide mutual support for its members and guard against the weaknesses of private support.

(2) Functions of social security pensions

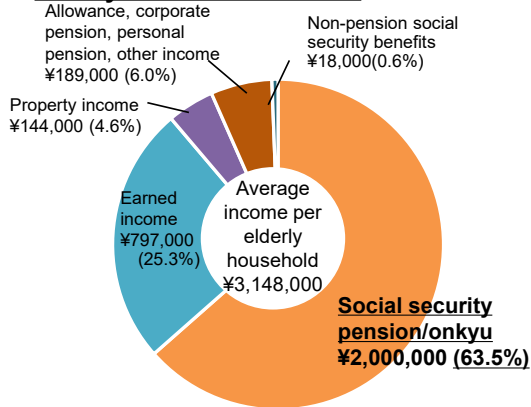
At present, social security and *onkyu** pension benefits account for 60% of the income of elderly households, and these benefits are the sole source of income for 40% of elderly households. One third of total Japanese population receives social security pensions and the total amount of pension benefit exceeds 50 trillion yen. This accounts for approximately 14% of national income and pensions make up 20% of household consumption in some regions (Figure 1-3).

The social security pension system thus plays an extremely important role in financing old age, and also sustaining the economy of Japan.

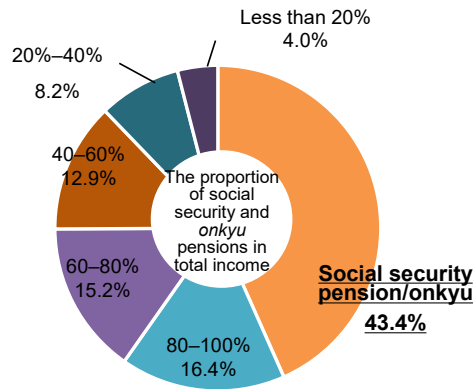
Note: Here, *onkyu* means the non-contributory superannuation system for civil servants and military persons, which used to exist until 1959. Its retirement and survivor beneficiaries still exist though the number is decreasing.

Figure 1-3 Functions of social security pensions

Pensions account for about 60% of elderly household income

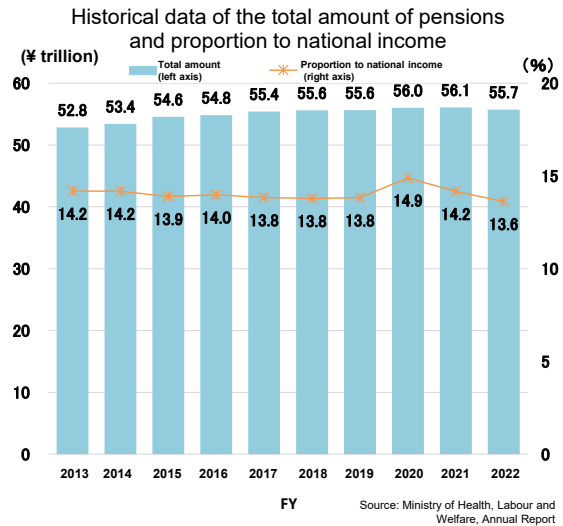
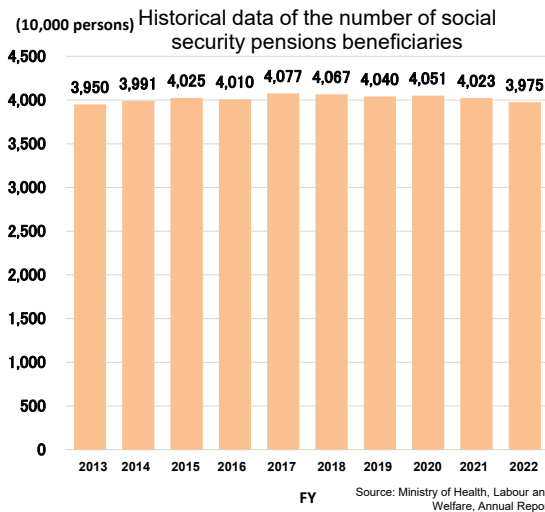


Approximately 40% of elderly households live solely on pension income



(Note) Due to rounding, the percentages in both pie charts may not add up to 100%.

Source: Ministry of Health, Labour and Welfare, 2024 Comprehensive Survey of Living Conditions



Role in supporting local economies (pensions account for 20% of household consumption in some regions)
(7 prefectures with highest ratios relative to prefectural income)

Prefecture (Ageing rate)	Percentage of total pension amount	
	% relative to prefectural income	% relative to household final consumption expenditure
Tottori (32.7 %)	18.7%	22.6%
Nara (32.1 %)	18.4%	21.0%
Akita (38.1 %)	18.1%	22.3%
Yamaguchi (35.0 %)	17.8%	24.6%
Miyazaki (33.1 %)	17.6%	21.5%
Kochi (35.9 %)	17.4%	21.4%
Ehime (33.6 %)	17.4%	21.7%

Note 1. Aging rates are from Ministry of Internal Affairs and Communications, Population Estimates (as of Oct 1,2021)

Note 2. The ratio to prefectural income and the ratio to household final consumption expenditure: The total pension amount by prefecture divided by either prefectural income or household final consumption expenditure.

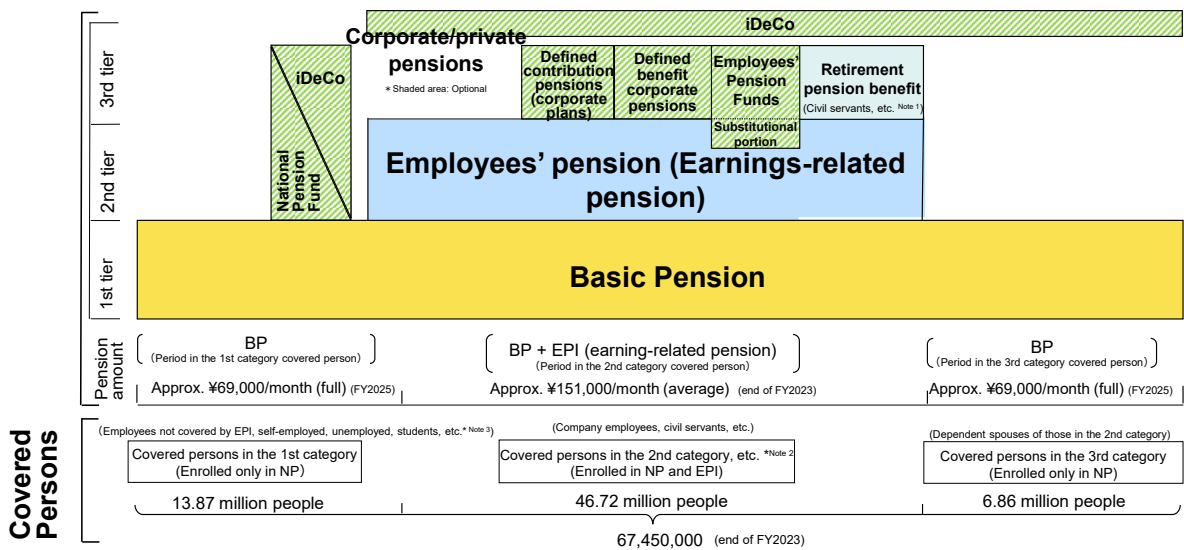
Total pension amount by prefecture: "Annual Report on Employees' Pension Insurance and National Pension" (FY2021), Ministry of Health, Labour and Welfare

Prefectural income and household final consumption expenditure: Cabinet Office "Prefectural Economic Accounts" (FY2021)

(3) System structure

Under Japan’s social security pension system, all people of working age are covered under NP and receive a basic pension in old age. Private-sector employees and civil servants under EPI are also insured under the National Pension and receive earnings-related pensions as a supplement to the Basic Pension. In addition to these public pensions, individuals and corporations can choose to enroll in private pension plans, such as corporate pensions (Figure 1-4). Government and private school employees were previously enrolled in mutual aid association (MAA) plans, but MAA plans were unified with EPI in October 2015.

Figure 1-4 Structure of pension plans in Japan



Notes:

- The unification of MAA pensions with EPI was implemented on 1 October 2015, and government and private school employees came to be covered by EPI. The added occupational portion of MAA pensions was discontinued and new retirement pension plans were established respectively for national government employees, local government employees and private school employees. For the period enrolled in MAA pensions until September 2015, the added occupational portion of MAA pensions corresponding to the period will be paid even after October 2015.
- “Covered persons in the 2nd category, etc.” refers to employee pension insured persons (including persons covered in the 2nd category, and persons aged 65 or older who are beneficiaries of pension on the ground of old age or retirement).
- Limited to those who are not covered in the 3rd category.

2. Social and economic conditions surrounding pension plans

(1) Birthrate decline, population aging, and annual net migration of foreigners

Japan’s total fertility rate had been in a long decline, falling below 2.0 in 1975. After bottoming out at 1.26 in 2005, it began to rise again in recent years to around 1.4. However, it dropped to 1.15 in 2024, the lowest level on record and significantly below the level required to maintain the size of the population in the long term (Figure 1-5).

Life expectancy at birth, on the other hand, has shown an upward trend since World War II, thanks to improvements in public health and advances in medical treatment, but it has leveled off in recent years, standing at 81.09 years for men and 87.13 years for women in 2024 (Figure 1-6).

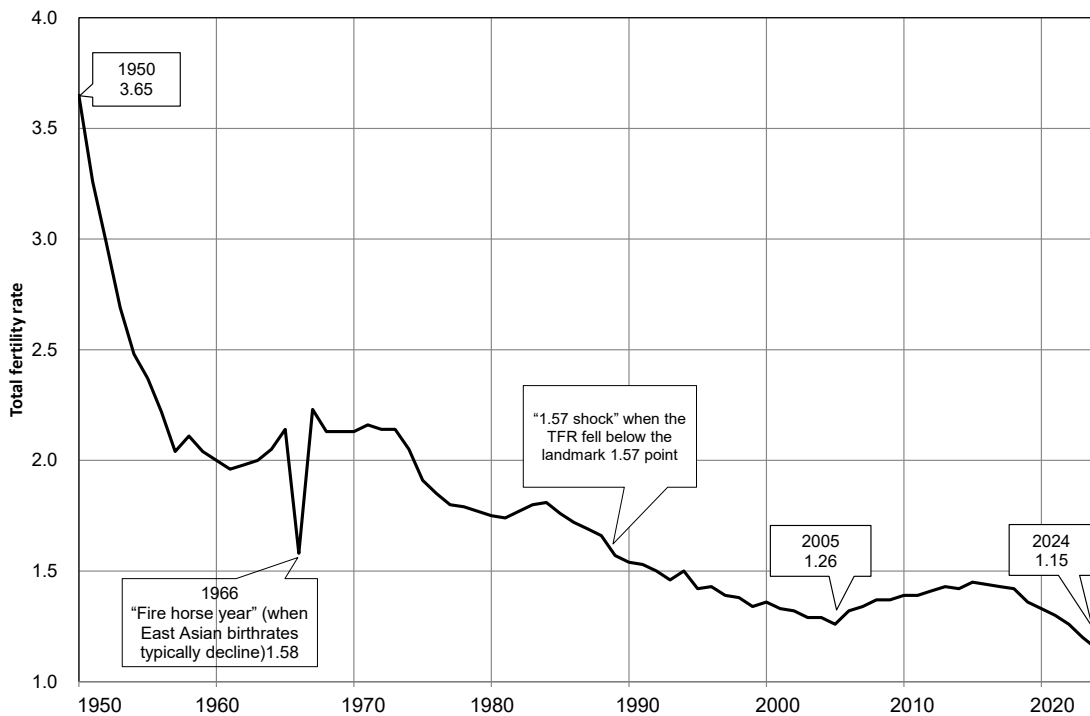
Owing to the long-term low fertility rate and rise in life expectancy at birth, there has been a rapid decline in the number of children and rise in the proportion of elderly in Japan, and the proportion of the population aged 65 or older (i.e., the aging rate) to the total population reached 29.1% in 2023.

The projections in the present actuarial valuation were calculated based on the “Population Projections for Japan (2023 Estimate)” published in April 2023, which are the latest population projections produced based on the results of the 2020 Population Census. According to this medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners), Japan’s total population has entered a long-term decline. It is projected to fall below 120 million in 2031, and drop below 100 million to 99.65 million in 2056, and to 87 million in 2070. In terms of the aging rate, it is projected to reach 33.3% in 2037, meaning one in three people will be aged 65 or older, and it will reach 38.7% in 2070 (Figure 1-7).

The assumed net migration of foreigners in the “Population Projection for Japan (2023 Estimates)” is set on the basis that the average value from 2016 to 2019 (approximately 164,000 people a year) will continue in the future. Looking at recent trends, the actual number has exceeded that assumption every year, except for 2020 and 2021, when the impact of COVID-19 is considered significant (Figure 1-8).

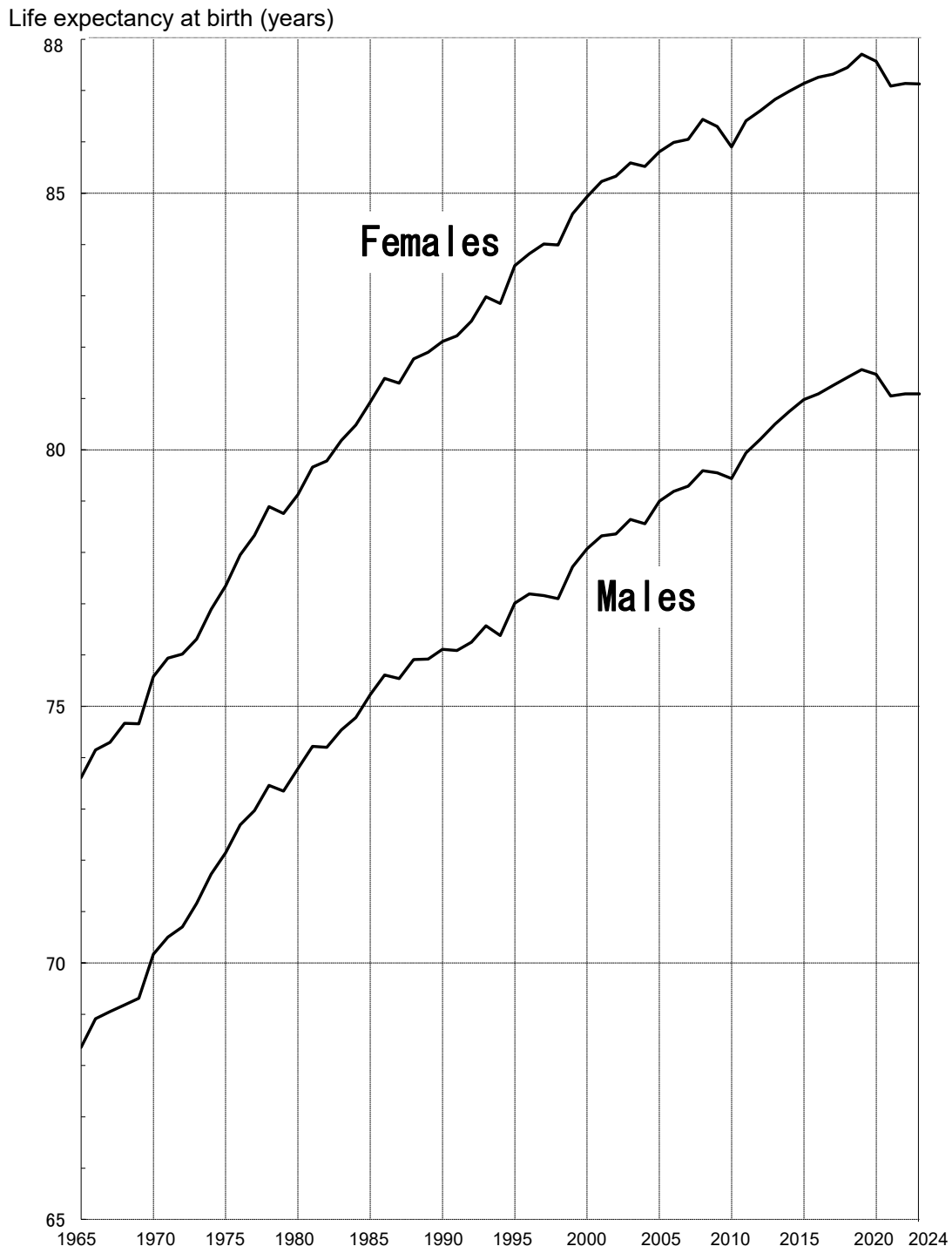
Actuarial valuations of social security pension systems estimate revenues and expenditures over a period of around 100 years taking account of these changes in demographic structure.

Figure 1-5 Trends in the total fertility rate



Source: Ministry of Health, Labour and Welfare, 2024 *Vital Statistics* (confirmed figures)

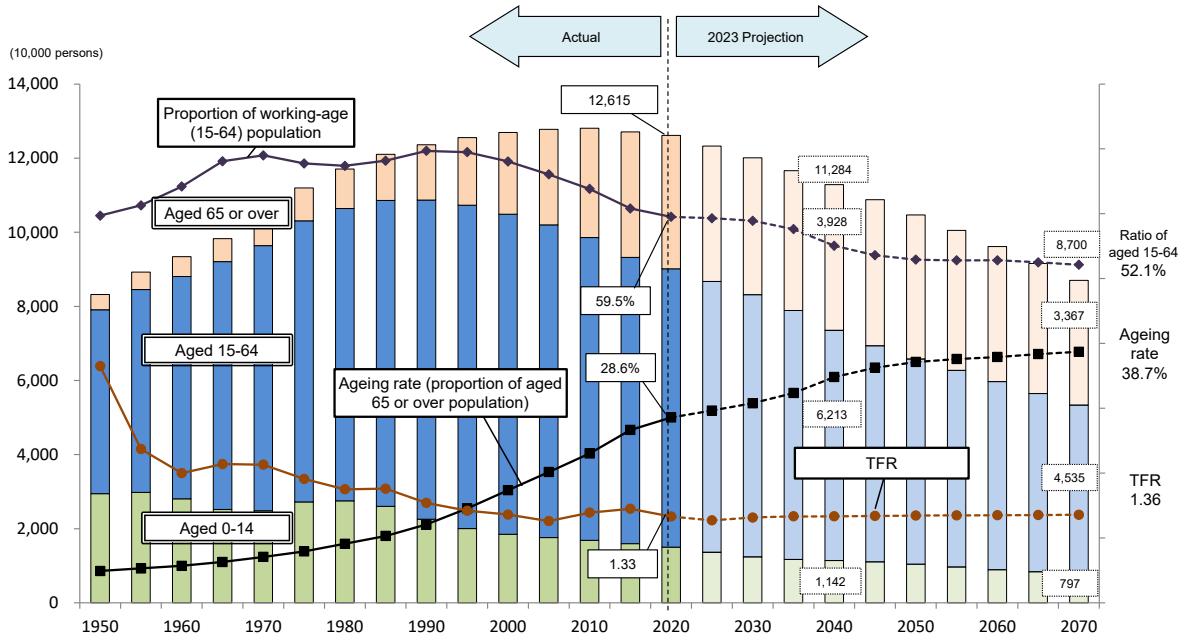
Figure 1-6 Trends in the life expectancy at birth



Source: Ministry of Health, Labour and Welfare, *Abridged Life Tables, 2024*.

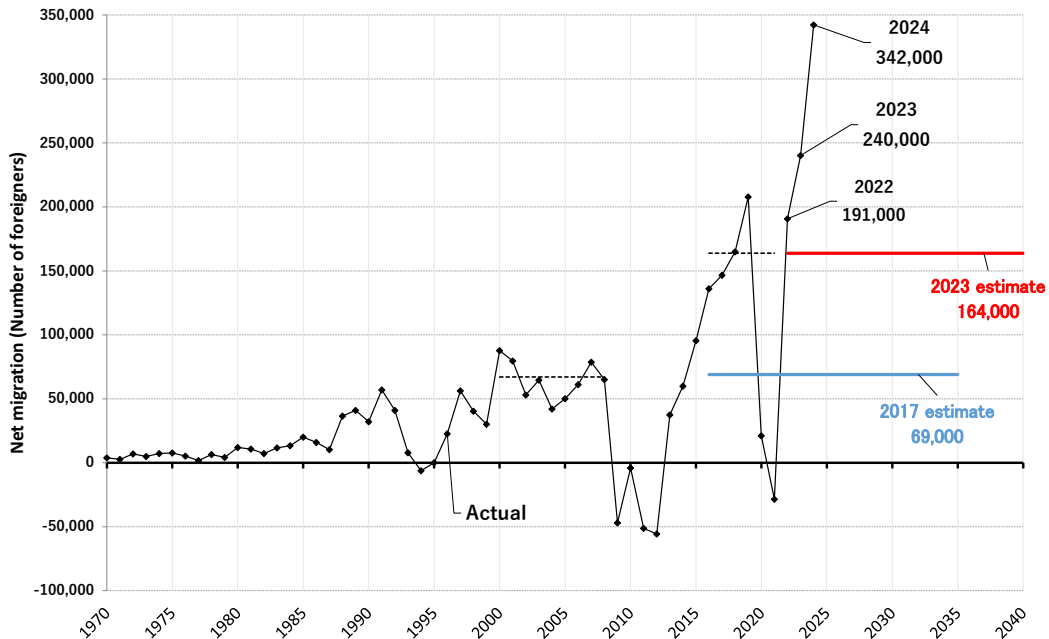
Figure 1-7 Trends in the population by age group

- Medium projection in "Population Projections for Japan" April 2023 -



Source: The populations up to 2020 are from the Population Census from the Ministry of Internal Affairs and Communications. The total fertility rates are from the Ministry of Health, Labour and Welfare's "Vital Statistics," and the figures from 2025 onward are from the "Population Projections for Japan (2023 Estimates)" (medium fertility (medium mortality) projection) from the National Institute of Population and Social Security Research.

Figure 1-8 Trends in the net migration of foreigners



Source: Prepared based on the materials from the Population Subcommittee of the Advisory Council on Social Security (October 31, 2022), and the population as of October 1 of every year in the Population Estimates (Ministry of Internal Affairs and Communications)

*2022 results (October 2021 to September 2022), 2023 results (October 2022 to September 2023), and 2024 results (October 2023 to September 2024) have been added to the graph showing trends in the net migration of foreigners based on the materials from the Population Subcommittee of the Advisory Council on Social Security.

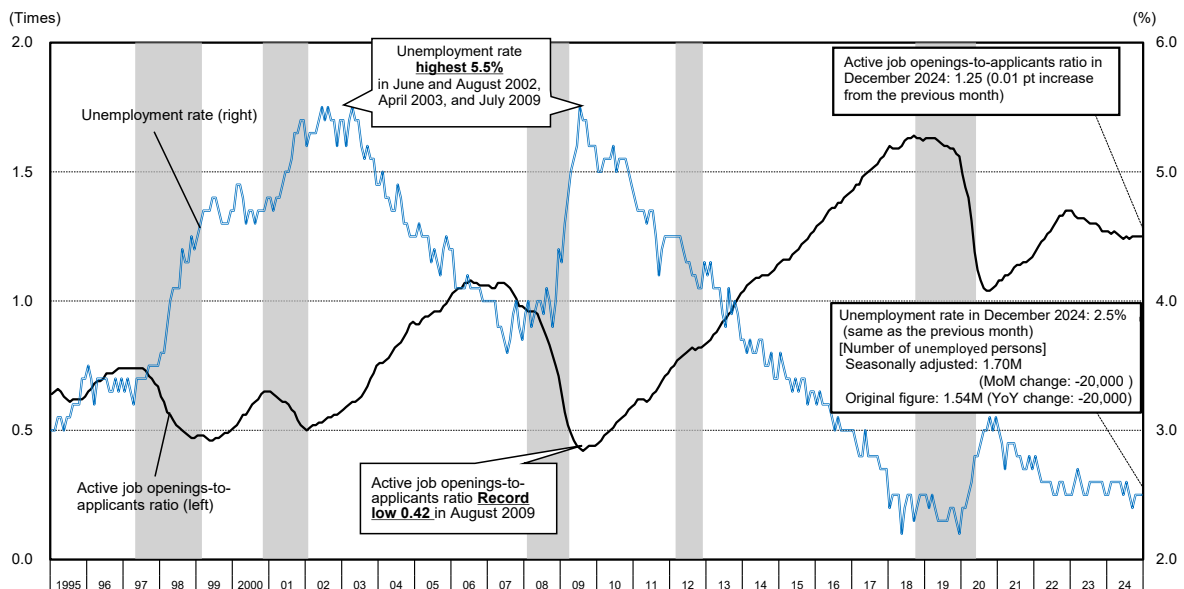
(2) Labor market conditions

Looking at trends in Japan's unemployment rate and active job openings-to-applicants ratio, the unemployment rate peaked in July 2009 and declined until December 2019. Although the first domestic case of COVID-19 was confirmed on January 15, 2020, and measures, such as the state of emergency declaration in May of that year, halted much economic activity, significantly impacting the economy, employment, and people's lives, the rate has returned to its previous low level, as of December 2024. The active job openings-to-applicants ratio has trended upward since bottoming out in August 2009, with it rising to 1.63 times in March 2019. Partly due to the impact of COVID-19, it then declined to 1.04 times around October 2020, but it increased to 1.25 times in December 2024 (Figure 1-9).

Furthermore, looking at employment rates, participation among women and older workers has been increasing in recent years.

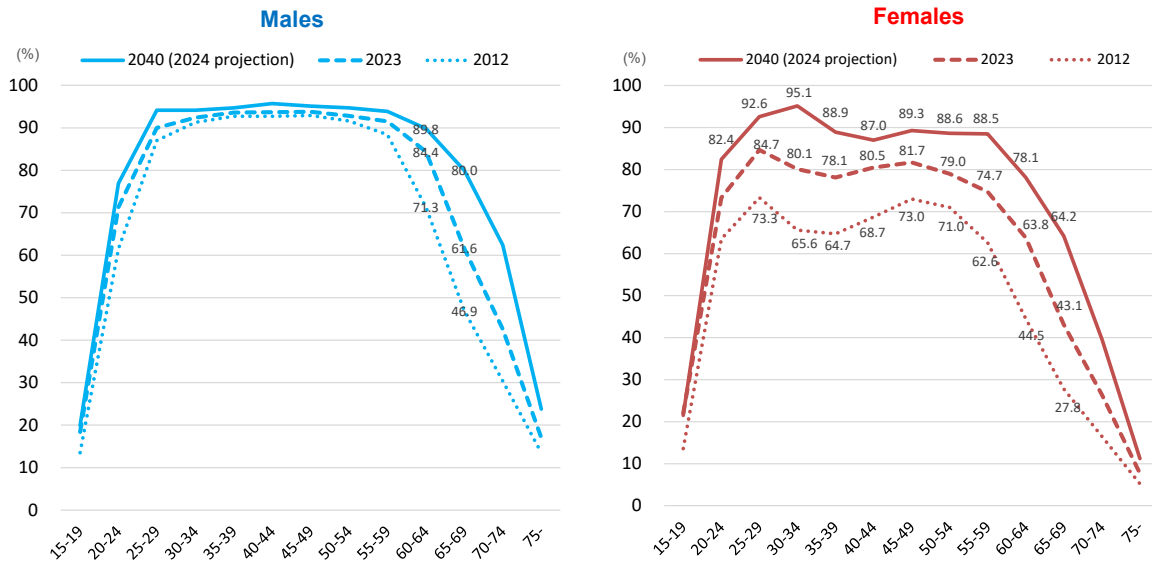
The labor force participation rate for this actuarial valuation was based on the “Projection of Labor Supply and Demand” released in March 2024, which used the basic assumptions of the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners) of the “Population Projection for Japan (2023 Estimates)” (Figure 1-10). This Achieving Growth and Advancing Labor Participation scenario assumes that various economic and employment policies will lead to the market expansion of growth sectors and increased participation of women and older workers in the labor market, with progress in labor participation predicted to continue through 2040.

Figure 1-9 Trends in the unemployment rate and active job openings-to-applicants ratio



- (Note) 1. Prepared based on “Labour Force Survey” (Ministry of Internal Affairs and Communications) and “Employment Referrals for General Workers” (Ministry of Health, Labour and Welfare)
 2. Unemployment rates from March to August 2011 are supplementary estimates calculated by adding the estimated results for Iwate, Miyagi, and Fukushima Prefectures to the results for the rest of the country, which did not include three prefectures.
 3. The shaded areas indicate economic downturn periods of May 1997 to January 1999, November 2000 to January 2002, February 2008 to March 2009, March 2012 to November 2012, and October 2018 to May 2020.

Figure 1-10 Trends in the employment rate by gender and age group



Source: “Labor Force Survey” (2012, 2023) by Ministry of Internal Affairs and Communications. Estimates from “March 2024 Projection of Labor Supply and Demand (Advancing Labour Participation Scenario)” by The Japan Institute for Labour Policy and Training (2040).

(3) Economic conditions

According to the Annual Report on the Japanese Economy and Public Finance for Fiscal Year 2024, released by the Cabinet Office, Japan's economy continues the fundamental trend of gradual recovery, with the corporate sector maintaining solid performance, evidenced by corporate profits reaching record highs and nominal capital investment exceeding 100 trillion yen, the largest ever. However, the economy is said to be at a crossroads, that is, whether or not it will transition to a self-sustaining growth economy led by private demand that is driven by sustained wage increases and active investment, as evidenced by the highest wage increases in 33 years since 1991.

On the other hand, pension finances by their nature ought to be managed from a long-term perspective, and the economic assumptions used for actuarial valuations are determined through a process of objective, expert discussion taking into consideration factors including future declines in the labor force from a long-term perspective. As the economy is uncertain and impossible to forecast with accuracy, multiple assumptions covering several varieties of scenarios are adopted.

To ensure transparency in the process of creating the economic assumptions in this actuarial valuation, as in past actuarial valuations, a public advisory panel consisting of experts in economics and finance called the Expert Committee on the Economic Assumptions in Pension Finances was formed in the Pension Subcommittee of the Advisory Council on Social Security to discuss specific and technical matters. The assumptions were determined based on the findings of the panel.

3. Framework of pension finances introduced by the 2004 pension reforms

The framework of NP and EPI pension finances was changed dramatically by pension reforms introduced in 2004.

Before the 2004 reforms, the necessary revisions were made to NP and EPI once every five years by conducting actuarial valuations. These valuations projected the level of contributions needed to maintain current benefit levels assuming various socioeconomic changes (such as the effects of the declining birthrate), and the necessary revisions were proposed with their financial effects.

Under this arrangement, the relationship between benefits and contributions was repeatedly revised whenever actuarial valuations were performed. Tough revisions were especially repeated when the population ageing advanced more rapidly than anticipated. The actuarial valuations basically showed that the level of future contributions (contribution rates) would be progressively raised, but only the contribution levels for the next five years were provided for by law. This arrangement made it intrinsically essential for legal revisions to be made once every five years.

As the repeated implementation of system reforms meant that no one could tell how future pensions might be affected by future reforms, the 2004 pension reforms introduced a system of automatically balancing benefits and contributions. More specifically, in order to avoid imposing an excessive burden on people of working age in the future, a fixed cap was placed on contributions. Future benefit levels are then automatically adjusted in order to achieve equilibrium between benefits and contributions in the long term within the scope of the financial resources (including use of reserves) that are bound to be limited by this cap (Figure 1-11).

The arrangements introduced by the 2004 pension reforms are explained below.

(1) Fixing of contribution (rate) levels

Under the 2004 pension reforms, the schedules to raise the contribution rates and the caps for contribution rates were laid down in the law and arrangements were put in place for adjusting benefits to the extent permitted by these financial resources (Figure 1-12). The purpose of fixing the future contribution rates was to address serious concerns, especially among younger people, that the future burden might endlessly be increased due to accelerating birthrate decline, life expectancy improvement and population aging.

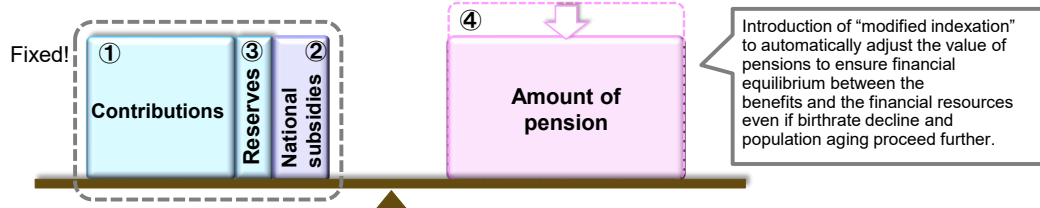
(2) Raising of national subsidy rate for the Basic Pension

A roadmap for raising the national subsidy for the Basic Pension from one third to one half was explicitly laid down in the law under the 2004 reforms. The proportion of national subsidies for the Basic Pension benefits was set at one half in the main provisions of the relevant legislation. As the transitional measure, the rate began to be increased from one third in FY2004.

The rate subsequently reached one half through use of a temporary transfer from special accounts, etc. in FY2009. The process of raising the proportion of national subsidy and of securing permanent financial resources was completed by the enactment of related bills (including a bill to raise the consumption tax rate) in 2012, which were to implement comprehensive reform of social security and tax system.

**Figure 1-11 Financial framework under the 2004 pension reforms
(Arrangements to balance benefits and contributions)**

- The 2004 pension reforms introduced a framework of pension finances designed to ensure future plan sustainability taking into account further birthrate decline and population aging.
- The financial framework has been largely put in place from the aspect of revenue by the completion of raising the contribution rate to the cap along with the increase of the national subsidy rate for Basic Pension to 50%.



(1) Contributions increased with fixed cap

Contribution level fixed from 2017 (The level and raising process are specified in the law.)

- EPI: 18.3% (borne equally by employer and employee) (Before 2017, it was annually raised in September by 0.354% from 13.934% in October 2004)
- NP: ¥17,000 *in 2004 value (Annually increased by ¥280 from April 2005) *Current NP contributions: ¥16,980 (from April 2024)
- * Including an increase of ¥100 due to the exemption from payment during the prenatal and postnatal period.

(2) National subsidy rate for Basic Pension increased to one half

National subsidy rate for Basic Pension benefits was raised from 1/3 to 1/2 from FY 2009 onward.

Consumption tax secured as financial resources under comprehensive reforms to the social security and tax systems in 2012.

(3) Use of reserves

Reserves are earmarked for future generations' benefits by keeping reserves worth around one year of benefits at the end of the financial equilibrium period as a means of ensuring financial robustness over a period of around 100 years.

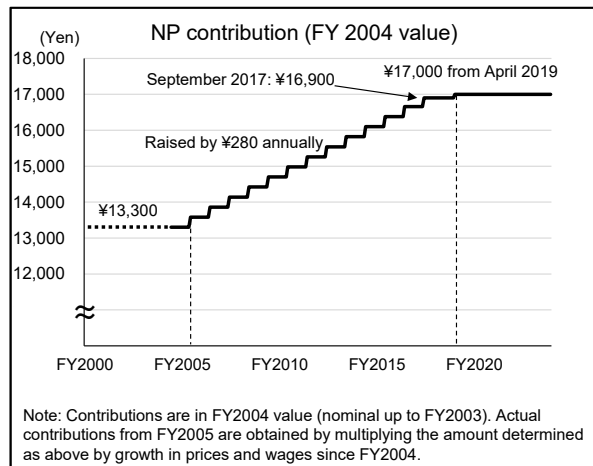
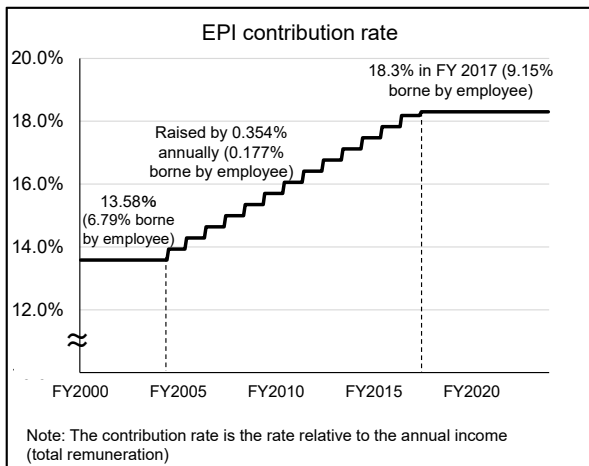
Prerequisites for starting the modified indexation were satisfied at the beginning of FY 2015 by eliminating the overpayment of pensions on the basis of the 2012 reform.

(4) Introduction of mechanism to automatically adjust benefit level within scope of financial resources (modified indexation)

Pension benefit level is adjusted to cope with decline of working-age population and increase of beneficiaries' life expectancy. An indicator of benefit level is defined in the law and if the indicator threatens to go down below 50% before the next actuarial valuation, the government must drastically review the benefits and contributions. The definition of the indicator is explained in section (5) below.

*Replacement ratio: 61.2% (FY2024)
→ 56.9% (FY2039) [Higher economic growth case], 57.6% (FY2037) [Transferring to a sustainable growth-oriented economic stage case], 50.4% (FY2057) [Projection of past 30-year trends case].

Figure 1-12 Fixed contribution rate system



(3) Level of reserves and equilibrium period for pension finances

The 1999 actuarial valuation adopted as the period of financial equilibrium one in perpetuity, which takes into account the entirety of a period stretching from now into the infinite future when we discuss the financial equilibrium of the pension system. However, there was some debate over whether it was appropriate to take into consideration a period that stretched into an infinite future for which we have no data to base on, and the resulting reserve is so massive.

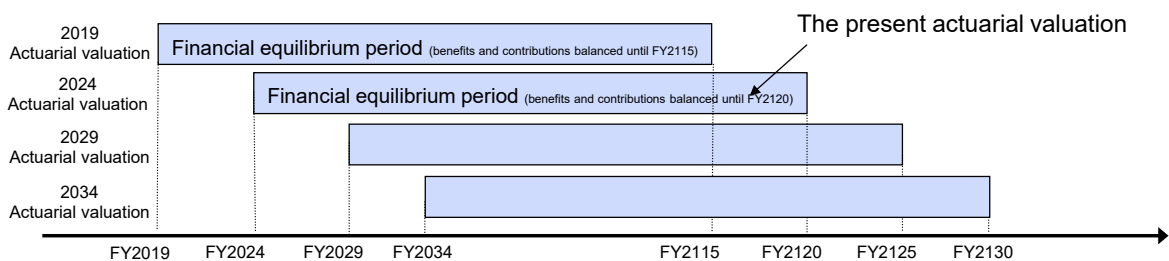
Under the 2004 reforms, therefore, a financial equilibrium period of around 100 years, which covers the period by whose end almost all the generations now already born will cease to receive pension benefits, was adopted. The aim is to balance pension finances during this “finite period of financial equilibrium.” It was also decided to keep a reserve fund at the end of the period whose size is as much as one-year expenditure of pension benefits of the last year of this period.

For the present actuarial valuation, the 95-year period up to FY2120 was adopted for the financial equilibrium period. As Figure 1-13 shows, this period rolls over each time an actuarial valuation is conducted, which means that the period from FY2121 onward is progressively incorporated into and the past period is excluded from the financial equilibrium period during which benefits and contributions are to be balanced.

Figure 1-13 Overview of method adopting the finite period of financial equilibrium

- Target reserve level set to maintain around one year’s worth of benefits in the final year of the financial equilibrium period.
- Financial equilibrium period moves each time an actuarial valuation is periodically conducted (e.g., every five years), and equilibrium between benefits and contributions is always considered for a certain period into the future.

[Movement of financial equilibrium period]



(4) Introduction of modified indexation as a financial automatic balancing mechanism

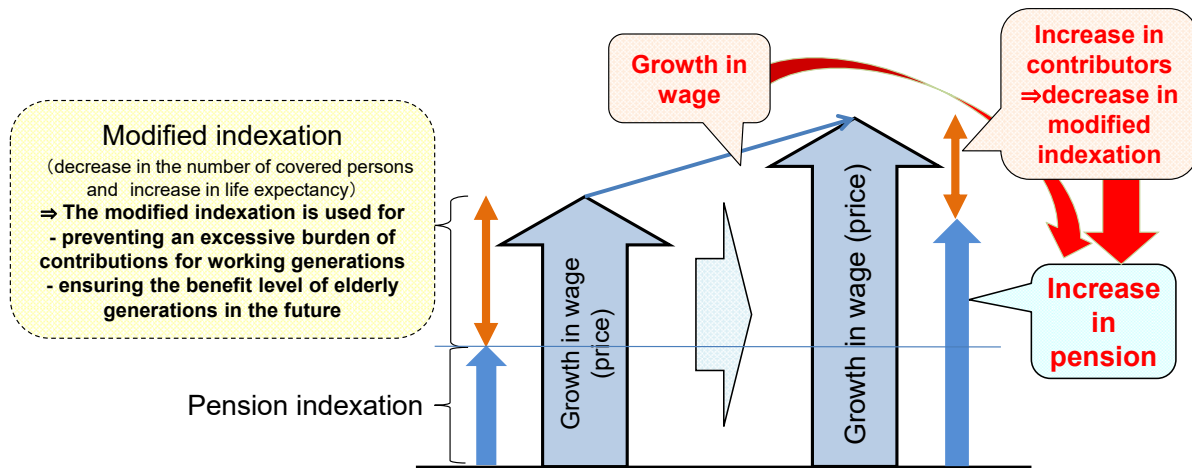
The fixing of contribution levels and national subsidy rate, together with the decision on how to use the reserves, has resulted in the fixed financial resources available for pension benefits. Therefore, pension benefits must be provided within the limits of these fixed financial resources. In order to secure benefits for younger and future generations, the current level of benefits needs to be adjusted. The mechanism for making such adjustments is called modified indexation, which moderates the growth in pensions benefits so that it remains below the growth in wages and prices (Figure 1-14).

It was also decided to perform actuarial valuations at least once every five years to determine the expected termination year of benefit level adjustments, the replacement ratio after the termination, and the financial outlook in accordance with changes in social and economic conditions. Based on the actuarial valuation, benefit level adjustments are to be terminated when they are no longer necessary.

It should be noted that the final year of benefit level adjustments indicated in the present actuarial valuation is an estimate, and may end earlier and a higher benefit level may be secured if socioeconomic conditions pick up. Conversely, if they deteriorate, the adjustment period may need to be extended, resulting in benefit levels falling below the current projection.

There is thus a mechanism in place for automatically balancing pension finances by changing the termination of benefit level adjustments according to future changes in socioeconomic conditions, thereby making the social security pension system a sustainable system that does not need to be frequently and repeatedly revised.

Figure 1-14 Mechanism for automatically adjusting benefit levels



(5) Minimum benefit level

While the 2004 pension reforms introduced a mechanism of automatically adjusting benefit levels, benefits cannot simply be reduced endlessly if the social security pension system is to fulfill its expected role. Therefore, to ensure that benefits do not fall below a certain level, the replacement ratio of the model pension is introduced as a measure of the benefit level, and the minimum benefit level has been set at 50% of this ratio. The model pension is the amount of pension benefits received by a household consisting of a husband who is a worker earning the average wage for 40 years and a wife who is a covered person in the third category for 40 years. The replacement ratio is the ratio of the model pension to the average annual net income (including bonuses) of working generations when the household begins receiving benefits (at the age of 65).

The replacement ratio in FY2024 was 61.2%, but this will be lowered as a result of the automatic adjustments made by modified indexation. Under the present actuarial valuation, future benefit level projections have improved, compared with the previous actuarial valuation, owing to increased labor force participation among women and older people and the strong performance of the reserve investment. Except for the “zero per capita growth” case, which has the lowest economic growth under the medium population scenario, it is projected to maintain a replacement rate of 50% and achieve a financial balance of pension finances over the roughly 100-year period ending in FY2120.

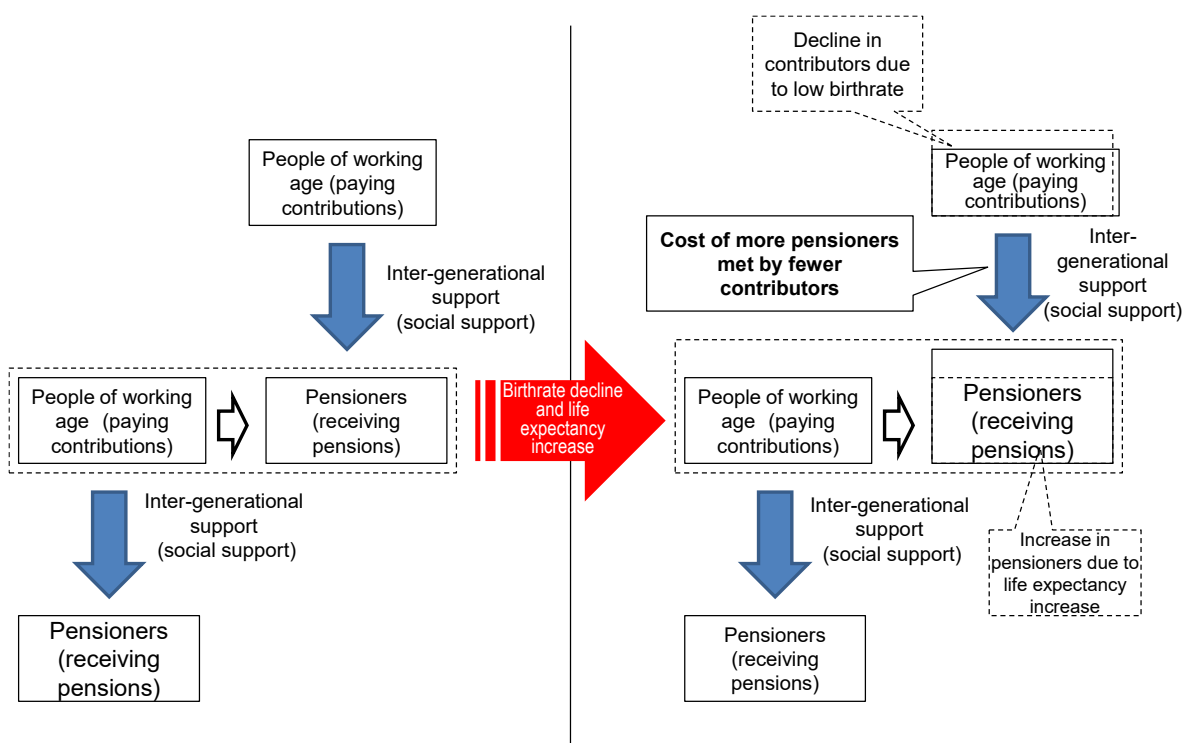
However, if social and economic conditions deteriorate more than anticipated (due, for example, to a greater than expected decline in the birthrate), the replacement ratio may drop below 50% by continuing benefit level adjustments to keep pension finances in balance.

In such a case, when an actuarial valuation indicates that the replacement ratio is expected to fall below 50% at any point within the next five years, a review will be conducted regarding the termination of the benefit level adjustment. Based on the results of that review, measures such as ending the adjustment period or taking other actions will be implemented. At the same time, the appropriate balance between benefits and contributions will also be examined, and any necessary measures will be taken.

4. Role of actuarial valuations

Japan's social security pension system is basically a pay-as-you-go system (which means that expenditures on pensions for the elderly are paid for by people of working age at that time) that is run by maintaining a certain amount of reserves in order to ensure that future pensioners receive a certain level of pension (Figure 1-15).

Figure 1-15 Pay-as-you-go method and birthrate decline/life expectancy increase



With this financing method, as pension benefits will relatively increase due to the relative increase in the elderly population if birthrate decline and life expectancy increase proceed more than initially projected, it will be necessary to either increase the burden on those currently in work or limit the benefits received by pensioners in order to keep pension benefits and contributions in balance.

While modified indexation was thus introduced by the 2004 pension reforms, the degree to which benefit levels have to be adjusted depends on current and future demographic and economic trends, including:

- How far will aging and birthrate decline go?

- To what extent will women and older people enter the labor market and increase the number of contributors to the pension system?
- How much economic growth will be achieved and how much wage growth and investment return from reserves can be expected?

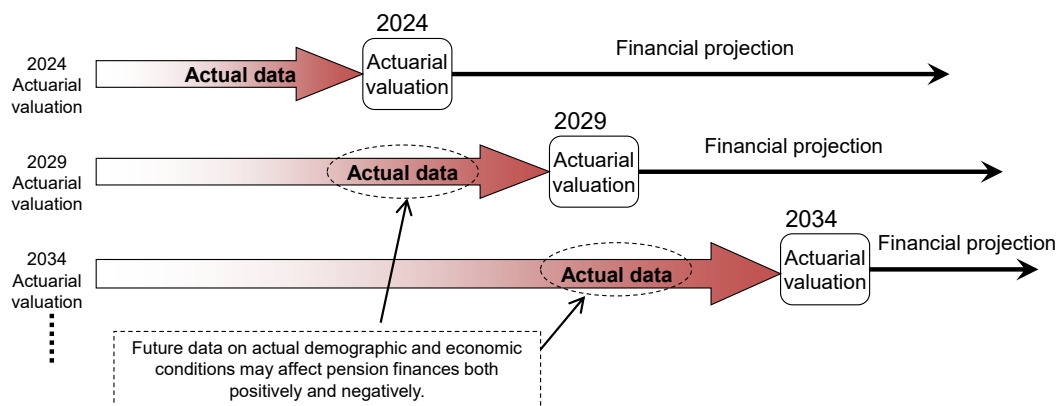
In order to regularly confirm the state of pension finances, therefore, a system of performing “actuarial valuations” at least once every five years was introduced. Under this arrangement, long-term financial revenues and expenditures over a period of around 100 years are projected, and the years in which modified indexation is projected to start and finish are calculated along with benefit levels in order to verify the state of pension finances.

For actuarial valuations, certain assumptions are adopted regarding demographic and economic conditions in the future. The future is uncertain, however, and even when every effort is made to use the best available data when a review is performed, actual and assumed conditions will inevitably diverge.

When actuarial valuations are performed, therefore, these assumptions are revised using fresh data accumulated with the passage of time. Based on these revised assumptions, projections for an around 100-year period are calculated taking as a fresh starting point the actual trajectory (Figure 1-16). The state of pension finances is simultaneously reviewed according to future demographic and economic conditions based on a range of assumptions in order to indicate how benefit levels and other factors may evolve in the future.

It should therefore be borne in mind that the results of actuarial valuations are more like “projections” into the future of pension finances based on currently available demographic, economic, and other data, rather than precise forecasts (including demographic and economic forecasts) of conditions in the future. Thus, it is important that the results are broadly interpreted and the way forward is understood.

Figure 1-16 Overview of actuarial valuations



The differences between actuarial valuations since 2009 and actuarial valuations up to 2004

The “actuarial valuations” performed up to 2004 and those performed since 2009 are similar in that they both provide far-reaching projections of social security pension plan revenues and expenditures, but they have served very different functions.

The function of actuarial valuations up to 2004 was to determine the level of future contributions (contribution rates). Thus once every five years, the level of the burden, i.e., the contributions (contribution rates), required in the future to maintain benefit levels at their current level given changes in population estimates, the future economic outlook, and other factors was calculated. If necessary, the relationship between benefits and contributions was then revised each time that an actuarial valuation was performed. In practice, however, benefit levels as well as contribution levels were revised when these actuarial valuations were performed.

The actuarial valuations performed since 2009, on the other hand, have been entirely different in character from those performed up to 2004. As the level of future contributions (contribution rates) was fixed by law as a result of the 2004 pension reforms, contributions (contribution rates) have not been set since 2009. Instead, one of the main purposes of actuarial valuations since 2009 has been to project the year in which to stop adjusting benefit levels by means of modified indexation, and this is done by projecting revenues and expenditures based on the latest data on social and economic conditions. Actuarial valuations since 2009 have thus aimed to project the extent to which future benefit levels will be adjusted by means of the social security pension system’s current mechanism for automatically adjusting benefits assuming a fixed level of contributions. If it is projected that revenues and expenditures will remain in equilibrium with benefits maintained at a certain level, the actuarial valuation will conclude that the adjustment mechanism under the social security pension system is presently functioning properly, and no particular revisions will be made to benefits or contributions as a result of the review.

If, however, it is found in the review that benefits would be lowered so much that the replacement ratio would fall below 50% within the next five years, then it would be concluded that the mechanism had ceased to function properly and a review would be made concerning whether to terminate benefit level adjustments. Based on the results of such a review, the adjustment would be terminated, the future level of benefits and contributions examined, and the necessary measures implemented.

Thus whereas actuarial valuations up to 2004 revised the level of benefits and contributions from now on and determined in particular the level of future contributions (contribution rates) each time that they were performed, actuarial valuations since 2009 have functioned as regular “inspections” to check whether the level of contributions set by the 2004 reforms and the mechanism for adjusting benefits are functioning properly.

Section 2 2024 Actuarial Valuation

1. Main assumptions of the actuarial valuation

Actuarial valuations are projections of long-term pension finances over a period of approximately 100 years that necessitate certain assumptions about future social and economic conditions.

Given the uncertainty of the future, however, multiple cases with varying parameters have been provided for particularly critical assumptions (the population, labor force, and economy) in light of expert discussions.

(1) Population assumptions

The “Population Projections for Japan” published in April 2023 by the National Institute of Population and Social Security Research (IPSS) was used for the population assumptions. Similar to the previous actuarial valuation, three cases (high, medium, and low projections) were set for the fertility and mortality rates. Furthermore, in this actuarial valuation, three cases were set to provide a range for the net migration of foreigners, which has grown in recent years (Table 2-1).

Table 2-1 Assumptions for population projections for Japan

TFR		Life expectancy at birth		Net migration of foreigner	
2020 (actual)	2070	2020 (actual)	2070	2016-2019 (Mean actual)	~2040 Net migration (constant)
1.33	High: 1.64 Medium: 1.36 Low: 1.13	[Males : 81.58 Females : 87.72]	High (Small increase in life expectancy) [84.56 90.59] Medium [85.89 91.94] Low (Large increase in life expectancy) [87.22 93.27]	164,000	250,000 164,000 69,000
* The ratio to the total population in 2040 remains constant from 2041 onwards.					

(2) Labor force assumptions

The “Projection of Labor Supply and Demand” published in March 2024 by The Japan Institute for Labour Policy and Training (JILPT) was used for the labor force assumptions. Three scenarios were set for economic growth and labor participation in this projection.

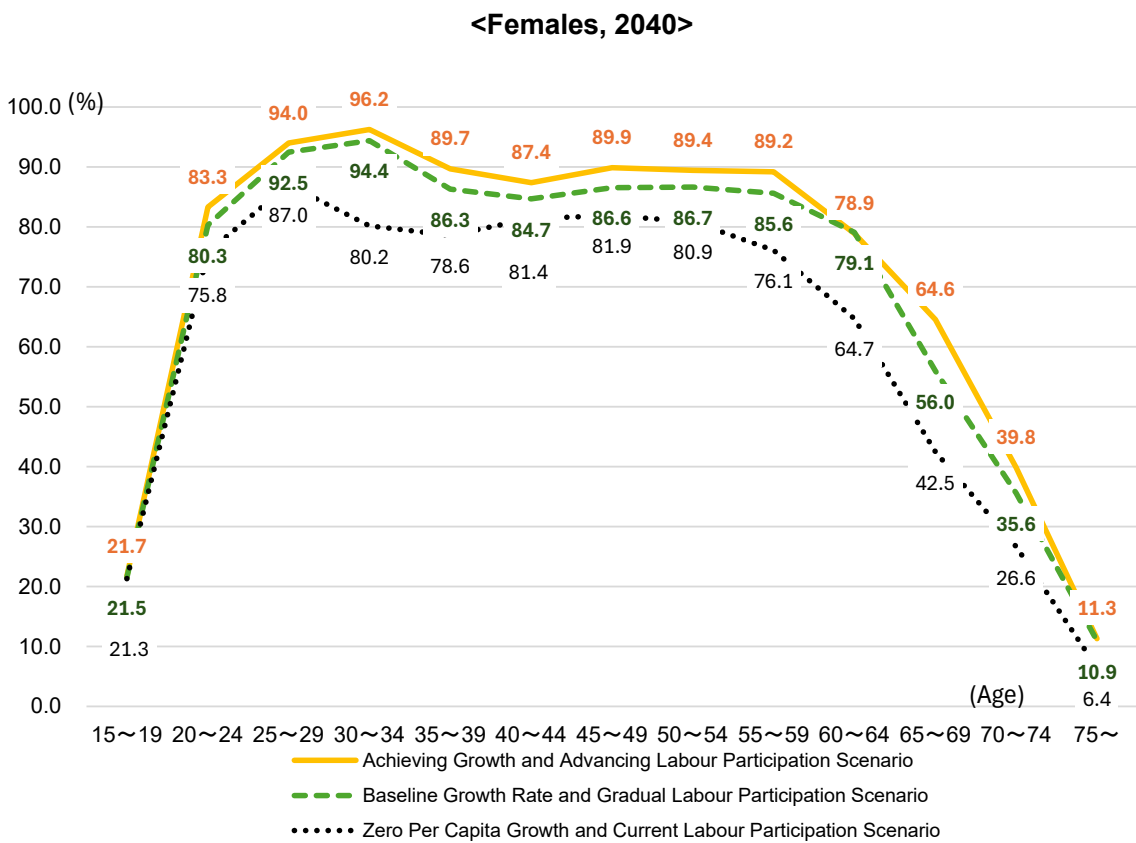
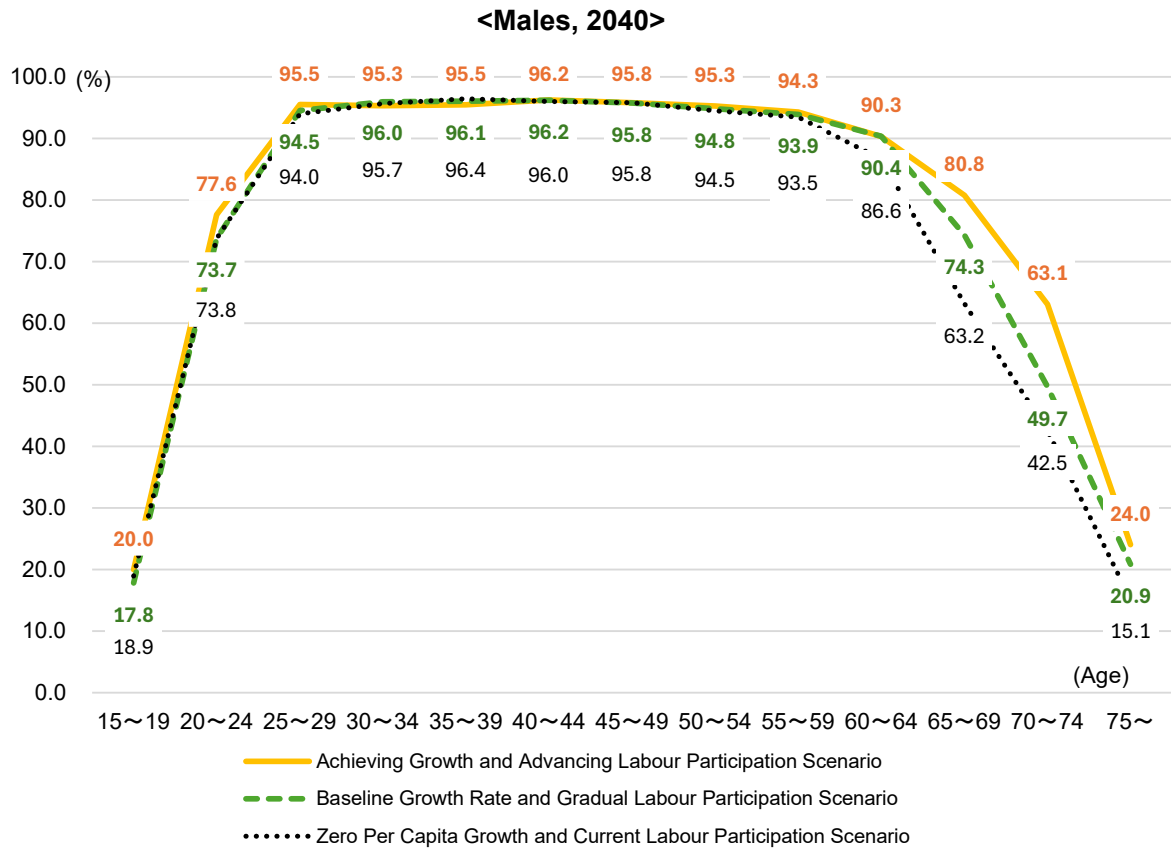
The “Achieving Growth and Advancing Labour Participation Scenario” envisions that by implementing various economic and employment policies, markets in growth sectors will expand, leading to economic growth and increased labor market participation by women, older people, and others. It projects real economic growth of around 2%, based on the Economic Growth Achieved Case from the “Economic and Fiscal Projections for Medium- to Long-Term Analysis” (“Medium- to Long-Term Projections,” January 2024) by the Cabinet Office, and labor force participation and employment rates significantly increase to around 90% for women in their 20s to 50s and over 80% for men in their 60s toward the 2040s.

The "Baseline Growth Rate and Gradual Labour Participation Scenario" assumes that various economic and employment policies will be implemented to a certain extent, leading to moderate progress in economic growth and labor market participation by women, older people, and others. Real economic growth is expected to gradually decline to around 0.4% over the next decade, based on the "Baseline Case" in the Medium- to Long-Term Projections. This scenario anticipates policy effects at about half the level of the "Achieving Growth and Advancing Labour Participation Scenario."

The "Zero Per Capita Growth and Current Labor Participation Scenario" assumes an economic situation where real economic growth per capita is zero (resulting in negative growth for the overall domestic economy), and labor participation remains unchanged from current levels (2022).

The labor force assumptions in the actuarial valuation use the results of projections from these three scenarios. The labor force participation rates by gender and age group for FY2040 under the scenarios in the "Projection of Labor Supply and Demand" are shown in Figure 2-2. Note that the projections for the "Projection of Labor Supply and Demand" only extend to 2040; thereafter, the labor force participation and employment rates by gender (which are further broken down by marital status for women) and age group are assumed to remain constant at the 2040 values.

Figure 2-2 Labor force participation rate assumptions
Projected labor force participation rates



(3) Economic assumptions

To ensure transparency of the process by which the economic assumptions were determined, a public advisory panel consisting of experts in economics and finance (called the “Expert Committee on the Economic Assumptions in Pension Finances”) was formed and met nine times over a period of one and a half years for public discussions. The government decided to select four wide-ranging cases as the long-term economic assumptions based on a report of the panel's findings (published April 12, 2024).

1) Short-term economic assumptions (up to FY2033)

Economic assumptions prior to FY2033 were set in accordance with the "Economic Growth Achieved Case," "Reference Case," and "Baseline Case" scenarios used in the medium- to long-term projections.

The “Economic Growth Achieved Case” scenario assumes that the total factor productivity (TFP) growth rate rises to the average level (around 1.4%) seen before the deflationary period, and real economic growth stabilizes at around 2% over the medium to long term.

The “Reference Case” scenario assumes the TFP growth rate remains at the average over the past 40 years (around 1.1%), and the real economic growth rate reaches the mid-1% range in the late 2020s.

The " Baseline Case" scenario assumes that the TFP growth rate continues at the average level of the most recent business cycle (around 0.5%) going forward, and the real economic growth rate remains around the mid-0% range over the medium to long term.

2) Long-term economic assumptions (from FY2034 onward)

For the long-term economic assumptions from FY2034 onward, four wide-ranging scenarios were adopted, based on the report of findings at the Expert Committee.

Of these, the Higher Economic Growth Case is intended to connect to the Economic Growth Achieved Case, the Transferring to a Sustainable Growth-Oriented Economic Stage Case to the Reference Case, and the Projection of Past 30-Year Trends Case and the Zero Per Capita Growth Case to the Baseline Case in the medium- to long-term projections.

In setting the long-term economic assumptions, the real wage growth rate and the real rate of investment return (spread adjusted for wages), both of which have a significant impact on pension finances, are determined based on macroeconomic projections derived from an economic model employing a Cobb-Douglas production function, which is standard in the field of economic growth theory. Scenarios were established for the growth rate of total factor productivity (TFP), representing productivity improvement from technological innovation, as well as for labor input, and these are used to estimate the real economic growth rate, the labor productivity growth rate, and the rate of profit, etc.

The TFP growth rate was set within the range of 1.4% to 0.2%, based on the assumptions of the long-term projections for the economy, public finance, and social security through to FY2060, which were presented by the Cabinet Office at the Council on Economic and Fiscal Policy, and in consideration of past performance. Where:

- 1.4% in the Higher Economic Growth Case is the average for the period (1980–1999) before deflation.

- 1.1% in the Transferring to a Sustainable Growth-Oriented Economic Stage Case is the average over the past 40 years (1980–2020).
- 0.5% in the Projection of Past 30-year Trends Case is the 80th percentile of the distribution for the past 30 years.
- 0.2% in the Zero Per Capita Growth Case is the lowest value in past performance (Figures 2-3 and 2-4).

Regarding labor participation, the Advancing Labour Participation Scenario is assumed for the following: the Higher Economic Growth Case and Transferring to a Sustainable Growth-Oriented Economic Stage Case, the Gradual Labour Participation Scenario for the Projection of Past 30-year Trends Case, and the Advancing Labour Participation Scenario for the Zero Per Capita Growth Case.

The real economic growth rates calculated based on these assumptions show a wide range, averaging between 1.6% and -0.7% over 30-year period from FY2034 onward.

Figure 2-3 Images of setting TFP growth rates, etc.

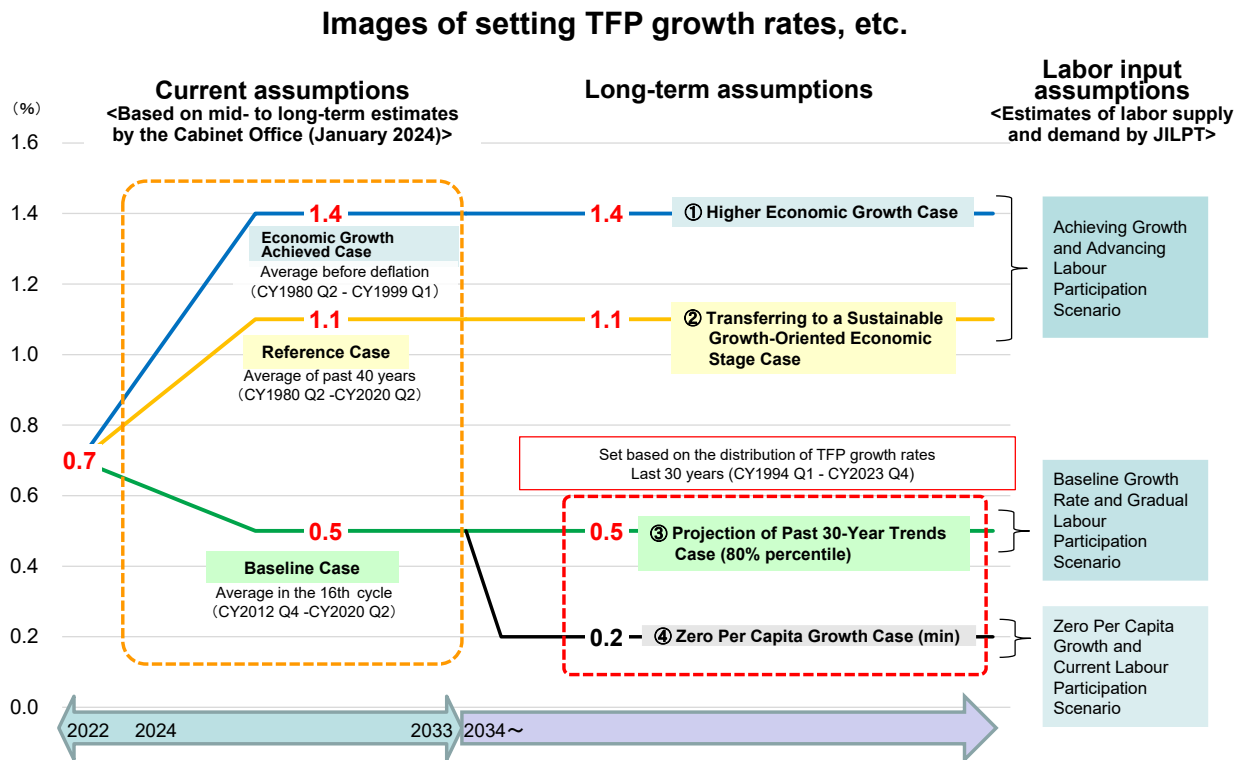
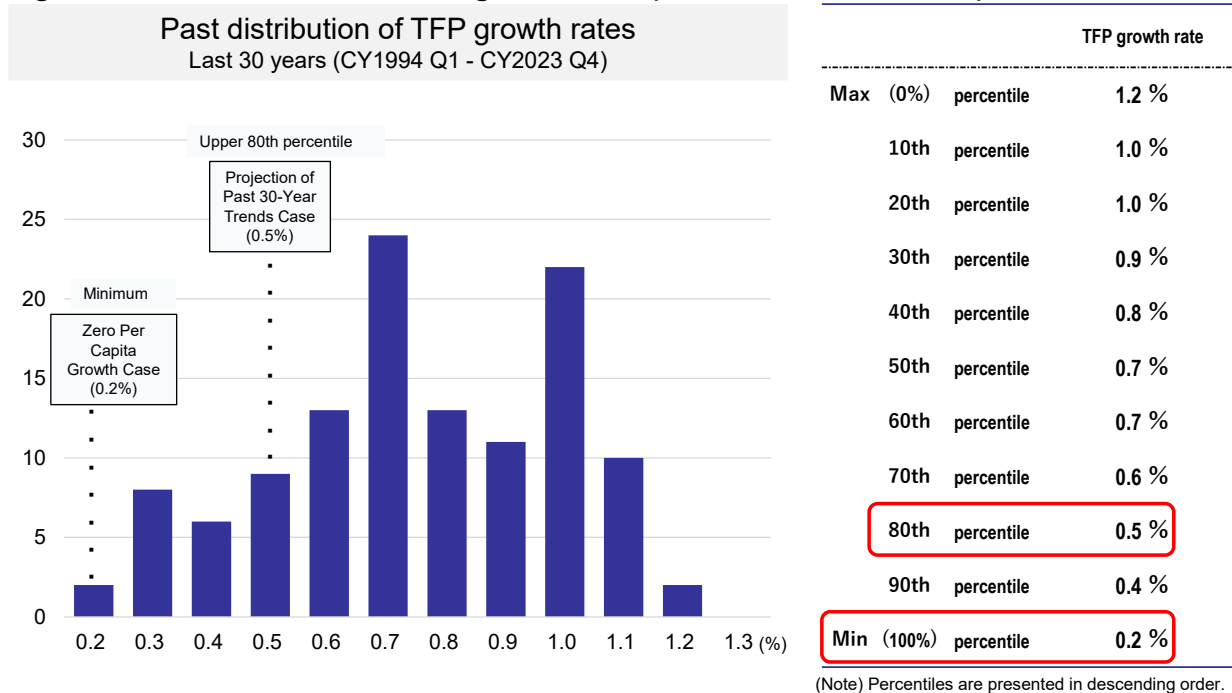


Figure 2-4 Past distribution of TFP growth rates (CY1994 Q1 - CY2023 Q4)



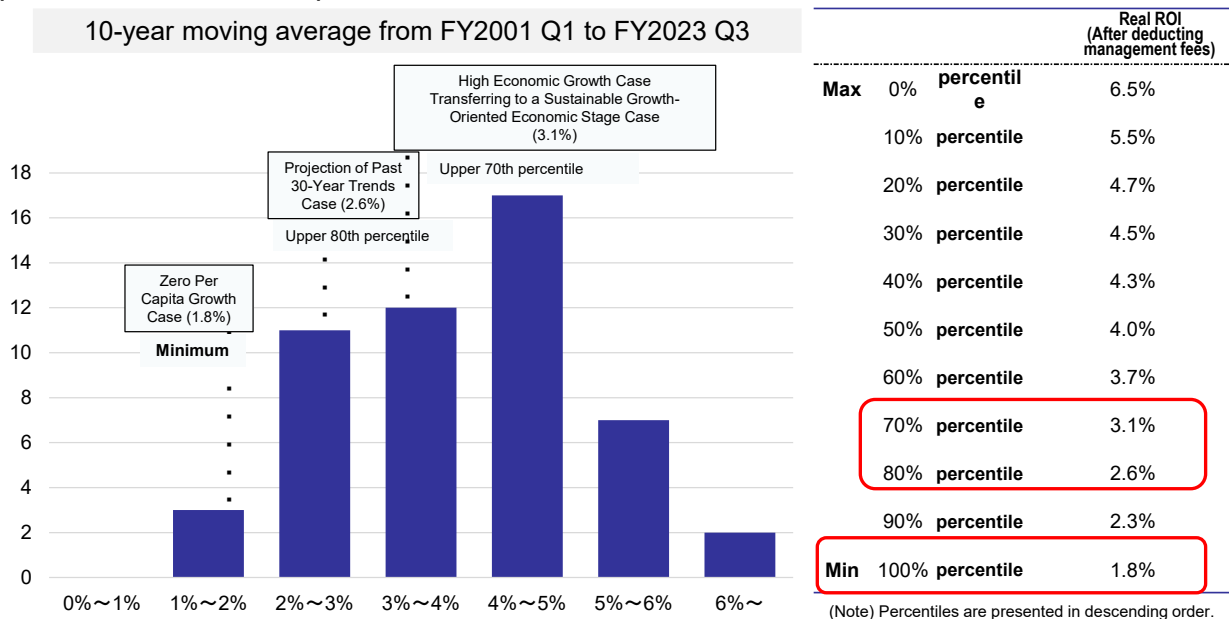
Source: GDP gaps and potential growth rates based on CY2023 Q3 Quarterly Estimates of GDP (The First Preliminary Estimates), Cabinet Office

The real wage growth rate is set in accordance with the labor productivity growth rate, based on the viewpoint that, from a long-term perspective, real wages rise as labor productivity increases.

The real rate of investment return (adjusted for inflation) that is set is based on the investment performance since the establishment of the GPIF, and it incorporates changes in the rate of profit estimated in economic models. In addition, the GPIF performance used is set conservatively at or below the 70th percentile of the 10-year moving average of actual performance since FY2001 (Figure 2-5). The return on investment exceeding the wage growth rate (the spread) is set by subtracting the real wage growth rate from the calculated real rate of return on investment.

The long-term economic assumptions set in this manner are summarized in Table 2-6. Compared to the previous actuarial valuation, the number of cases has been reduced from six to four. However, the TFP growth rate, which serves as the basis for cases set, has been set over a wider range than before, allowing for a broader range of future economic scenarios.

Figure 2-5 Distribution of GPIF's ROI (relative to prices) (10-year moving average) (FY2001 Q1 - FY2023 Q3)



(Note 1) The most recent rate of return on investment represents annualized quarterly return for market investment prior to FY2007, and annualized quarterly returns for the entire asset (before deducting management fees) from FY2008 onwards.

(Note 2) The 10-year moving average is calculated using the geometric mean.

(Note 3) The distribution and percentile values for the most recent data reflect values after deducting a management fee of 0.04%, considering that the maximum fee since FY2012 was 0.04% (FY2020).

(Source) Prepared based on the Annual Report (GPIF) and the quarter-on-quarter change in the quarterly averages of the Consumer Price Index (Ministry of Internal Affairs and Communications).

Table 2-6 Long-term economic assumptions

		Assumed future state of the economy		<Long-term economic assumption>				For ref. (estimates)	
		Labor force participation rate	TFP growth rate	Inflation	Wage growth rate (Real (adjusted for inflation))	ROI		Real economic growth rate	Real economic growth rate per capita
					Real (adjusted for inflation)	Spread (adjusted for wage)			
Higher Economic Growth Case	Tied to economic growth achieved case for mid- to long-term projections	Economic Growth Achieved and Advancing Labour Participation Scenarios	1.4 %	2.0 %	2.0 %	3.4 %	1.4 %	1.6 %	2.3 %
Transferring to a Sustainable Growth-Oriented Economic Stage Case	Tied to reference case for mid- to long-term projections		1.1 %	2.0 %	1.5 %	3.2 %	1.7 %	1.1 %	1.8 %
Projection of Past 30-Year Trends Case	Tied to baseline case for mid- to long-term projections	Baseline Growth Rate and Gradual Labour Participation Scenario	0.5 %	0.8 %	0.5 %	2.2 %	1.7 %	▲ 0.1 %	0.7 %
Zero Per Capita Growth Case		Zero Per Capital Growth and Current Labour Participation Scenario	0.2 %	0.4 %	0.1 %	1.4 %	1.3 %	▲ 0.7 %	0.1 %

(4) Other assumptions

In addition to assumptions on demographics, the labor force, and the economy, the actuarial valuation adopts a number of other assumptions regarding the state of pension plans (such as the beneficiary with survivor ratio, the disability pension incidence rate, and the contribution compliance rate) and other factors based on, among other things, actual data on people covered and recipients. The contribution compliance rate for NP contributions (the final rate including payments of previous year insurance premiums) is set at 85% from FY2026 onward.

2. Future projections of the replacement ratio

(1) Replacement ratio of the social security pension for measuring EPI benefit levels

The replacement ratio of social security pensions used as a benchmark for measuring the benefit level of EPI of the fiscal year is expressed by the ratio of standard EPI pension amount to the average net income of males of working age. The average wage of EPI males, which is used as the denominator, is calculated including male members of MAA plans, and the average net wage of FY2024 was ¥370,000. The newly awarded benefits of the standard model pension calculated on the basis of this wage level come to ¥226,000, which breaks down into ¥134,000 Basic Pension for the couple and ¥92,000 earnings-related pension. The replacement ratio, which is the ratio of this amount to the disposable income of an individual of working age, is 61.2%. This is the replacement ratio of FY2024, and this is what is used as the current benefit level in the present actuarial valuation.

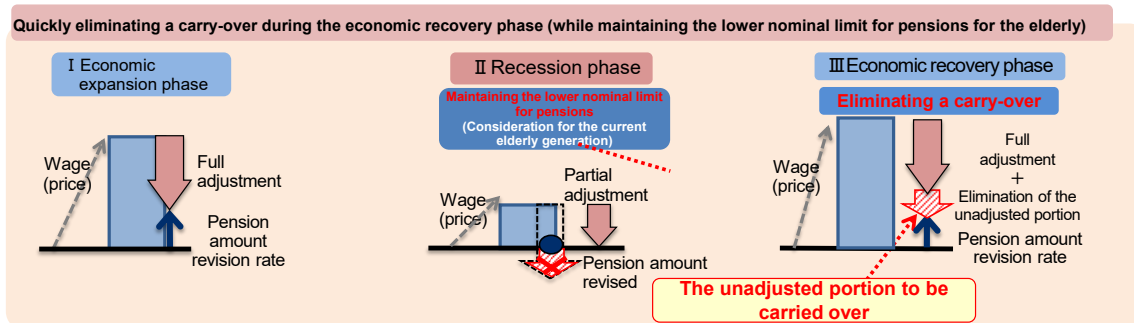
If benefit levels are not adjusted by modified indexation, the replacement ratio will, in principle, remain unchanged. This is because the amount of a newly awarded pension, which serves as the numerator, is index-linked to the rate of growth in the net wage, which serves as the denominator. This means that the denominator and the numerator grow at the same rate.

When modified indexation is applied, the pension amount (the numerator) is kept below the growth of the net wage, so the replacement ratio falls. Before the 2004 Reform Act, under which modified indexation was introduced, a special measure was taken to keep pension amounts unchanged for three years from FY2000 to FY2002, despite the fact that the consumer price index had fallen in the previous year. The increase caused by this special measure was to be eliminated if wages and prices rose, and adjustments by modified indexation would not be made until the increase was eliminated. However, since the 2004 Reform Act, the deflationary economy has prevented the special level from being eliminated. With the 2012 Comprehensive Reform of Social Security and Taxation Systems, it was decided to gradually eliminate the special level over three years, starting in October 2013. As a result, the first modified indexation adjustment was implemented in April 2015. Thus, the modified indexation introduced in the 2004 Reform Act was not implemented until FY2014 due to the deflationary economy, resulting in an increase in the replacement ratio. This increase in the replacement ratio primarily occurred in the Basic Pension because the Basic Pension downward revisions for newly awarded benefits during this period were kept smaller than the decline in wages, the denominator. This is the result of a system in which Basic Pensions for newly awarded benefits are revised based on prices rather than wages in an economic situation where wage declines are greater than price declines.

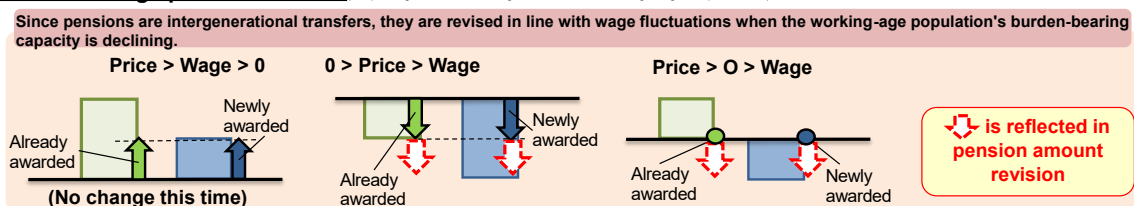
In 2016, the Act Partially Amending the National Pension Act, etc. for the Purpose of Improving the Sustainability of the Social Security Pension System was enacted to enhance the sustainability of the public pension system. This reform strengthened modified indexation by introducing a scheme whereby previously unadjusted portions are included within the range of wage and price increases while maintaining the measure that prevents the nominal amount of pensions from falling below the previous year's level. At the same time, a mechanism was introduced in which pension benefits are adjusted in line with wage fluctuations when wage growth falls below inflation, thereby aligning pension benefits with the contribution capacity of the working generation, who are the financial backbone of the pension system (Figure 2-7).

Figure 2-7 Revision of rules for revising pension amounts

1) Revision of the rules of adjustment by modified indexation (Responding to long-term structural changes, e.g., declining birthrates, increasing average life expectancy)



2) Revision of wage/price indexation (Responding to short-term changes in economic trends, e.g., wage and price trends)

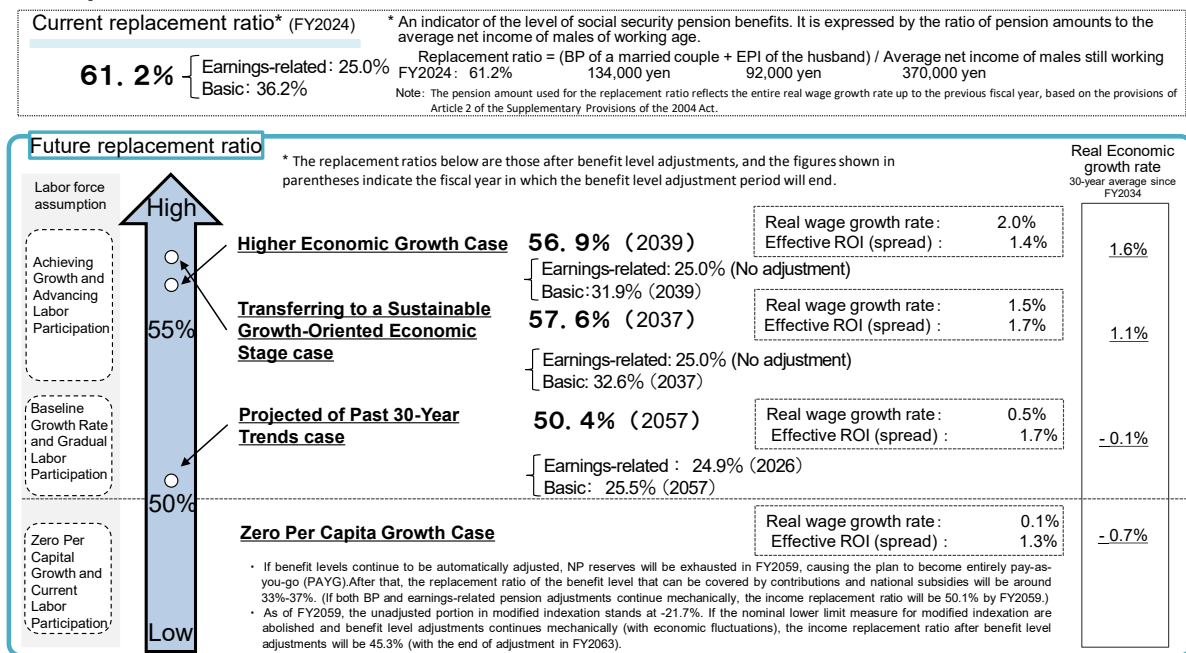


Under these revised rules for revising pension amounts, modified indexation was triggered for benefit level adjustments, resulting in the current replacement ratio (61.2%) in this actuarial valuation, which is 0.5 percentage points lower than the current replacement ratio (61.7%) in the previous actuarial valuation.

(2) Projected replacement ratios based on a wide range of economic assumptions

Benefit level adjustment by modified indexation is to be terminated when pension finances balance over an around 100-year period. However, the replacement ratio at and after termination varies according to future demographic and economic trends. Figure 2-8 below shows what the replacement ratio will be at and after termination of modified indexation under a range of economic assumptions when the medium projections is used for the future population. After the termination of benefit level adjustment, the amount of a newly awarded pension (the numerator) is index-linked to the wage growth rate (the denominator), and so the replacement ratio remains the same.

Figure 2-8 Projections of the ending year of benefit level adjustments and the ultimate replacement ratios



* If the minimum wage reaches ¥1,500 (nationwide weighted average) by the mid-2030s, the replacement ratio for BP will rise further due to the effect of increased EPI coverage for part-time workers. (High Economic Growth Case: +0.4 pp, Transferring to a Sustainable Growth-Oriented Economic Stage Case: +0.4 pp, Projection of Past 30-Year Trends Case: +0.3 pp)

Note 1: The population assumptions used in the calculations are based on the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners).

Note 2: Although the real economic growth rate and real wage growth rate are higher in the Higher Economic Growth Case than in the Transferring to a Sustainable Growth-Oriented Economic Stage Case, the real rate of investment return (spread adjusted for wages) that exceeds wages is low, and consequently, the replacement ratio is lower in the former case than in the latter case. Note that the 2014 actuarial valuation also yielded similar results.

Replacement ratios after modified indexation adjustments significantly exceed 50% in two high economic growth cases, the Higher Economic Growth Case and the Transferring to a Sustainable Growth-Oriented Economic Stage Case, at 56.9% and 57.6%, respectively. Furthermore, even in the Projection of Past 30-Year Trends Case, the ratio is 50.4%, maintaining a level above 50% in future years.

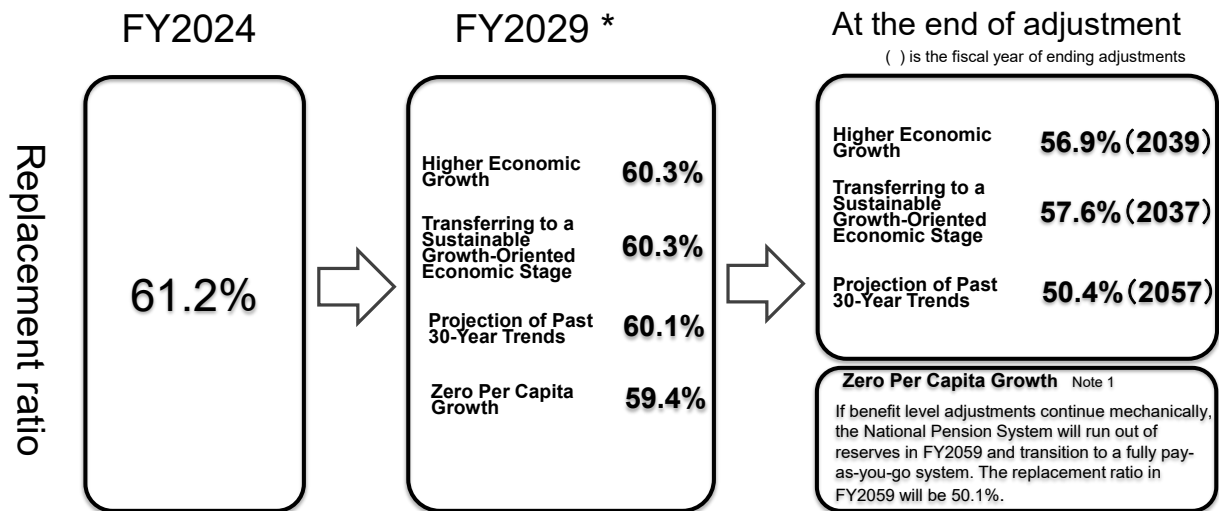
On the other hand, in the Zero Per Capita Growth Case, the NP reserves are projected to be depleted by FY2059, at which point the system would be forced to transition to a fully pay-as-you-go system. Following this, the level that can be covered by contributions and government subsidies alone is expected to be around 37% - 33%. This outcome in the Zero Per Capita Growth Case occurs because modified indexation adjustments do not fully function due to low price and wage growth rates. By FY2059, when the National Pension reserves are exhausted, the unadjusted portion under the modified indexation will reach 21.7%, resulting in benefit levels remaining high and depleting the reserves. Therefore, if the nominal floor measure (a mechanism using modified indexation to prevent benefit level adjustments exceeding wage growth or inflation) is abolished and modified indexation is allowed to function fully, adjustments would conclude in FY2063, and the replacement ratio after the benefit level adjustments would reach 45.3%.

While the supplementary provisions of the 2004 reform act state that “if the replacement ratio is projected to fall below 50% before preparation of the next review of the current budget status and projections report, benefit level adjustment shall be terminated or other measures implemented, and the future shape of benefits

and the cost burden shall be examined and necessary measures implemented,” the present actuarial valuation projects the replacement ratio for FY2029 (five years from now) to be above 50.0% (60.3%-59.4%), so this requirement does not apply (Figure 2-9).

Figure 2-9 Outline of 2024 actuarial valuation results

(Replacement ratios in five years later (FY2029) and after end of adjustments)



- Article 2 of the Supplementary Provisions of the 2004 reforms states that "if the replacement ratio is expected to fall below 50% by the time of the next actuarial valuation, benefit level adjustments must be terminated and approaches to benefits and cost burdens must be reviewed." However, the current projections estimate that the replacement ratio for FY2029, five years from now, will be within the range of 59.4% to 60.3%.

Note 1: In the Zero Per Capita Growth Case, after transitioning to a fully pay-as-you-go system, the benefit level that can be covered by contributions and national subsidies will be a replacement ratio of approximately 37%–33%.

Note 2: The population assumptions used in the calculations are based on the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners).

(3) Projected replacement ratios when demographic and other assumptions are changed

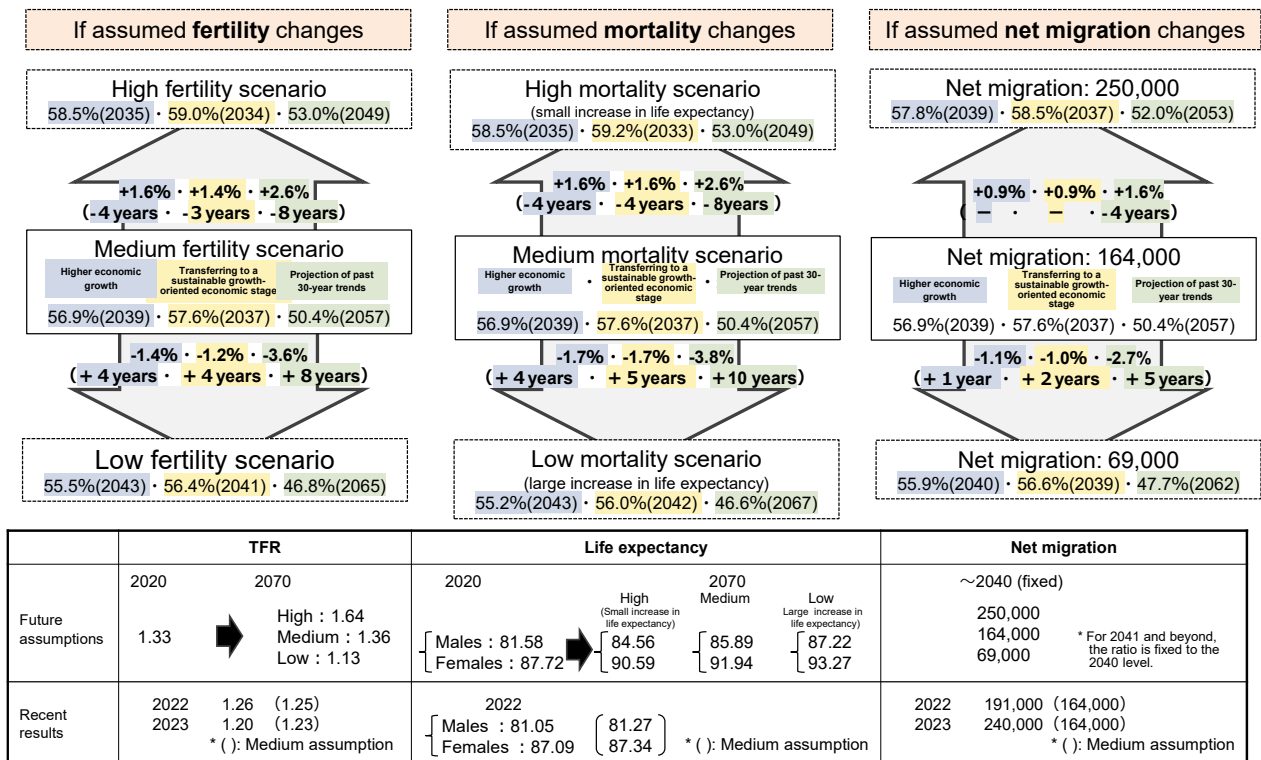
Figure 2-10 illustrates the impact on future replacement ratios when each of the three factors affecting future population (fertility rate, mortality rate, and net migration of foreigners) changes.

The replacement ratio increases when these factors are high and decreases when they are low. However, in the Higher Economic Growth Case and the Transferring to a Sustainable Growth-Oriented Economic Stage Case, which assume real growth of 1% or more, replacement ratios are projected to remain at 55% or more, even if these factors are low. Conversely, in the Projection of Past 30-Year Trends Case, assuming zero real growth, if any factor falls to a low level, the replacement ratio is projected to fall below 50%, reaching the 46–47% range.

The recent figures for these factors show that the fertility rate has fallen below the medium projection, whereas the mortality rate and net migration of foreigners have exceeded the medium projection. In terms of pension finances, the fertility rate is moving in a negative direction, and the mortality rate and net migration of foreigners are moving in a positive direction. Therefore, the impact of population fluctuations must be assessed comprehensively. Furthermore, since pension plans are long-term systems, it is important to closely monitor their trends while discerning long-term tendencies.

Figure 2-10 Impact of changes in population assumptions

* Changes in replacement ratios after benefit level adjustments are shown below. The adjustment end FY is shown in ().



(4) Comparison with projections in the previous actuarial valuation

The projections of the replacement ratio in this actuarial valuation show improvements compared to the previous actuarial valuation. For example, when comparing projected replacement ratios after the completion of modified indexation adjustments in cases with broadly similar real economic growth rates in the current and previous actuarial valuations, increases were seen in both cases as follows (Figure 2-11):

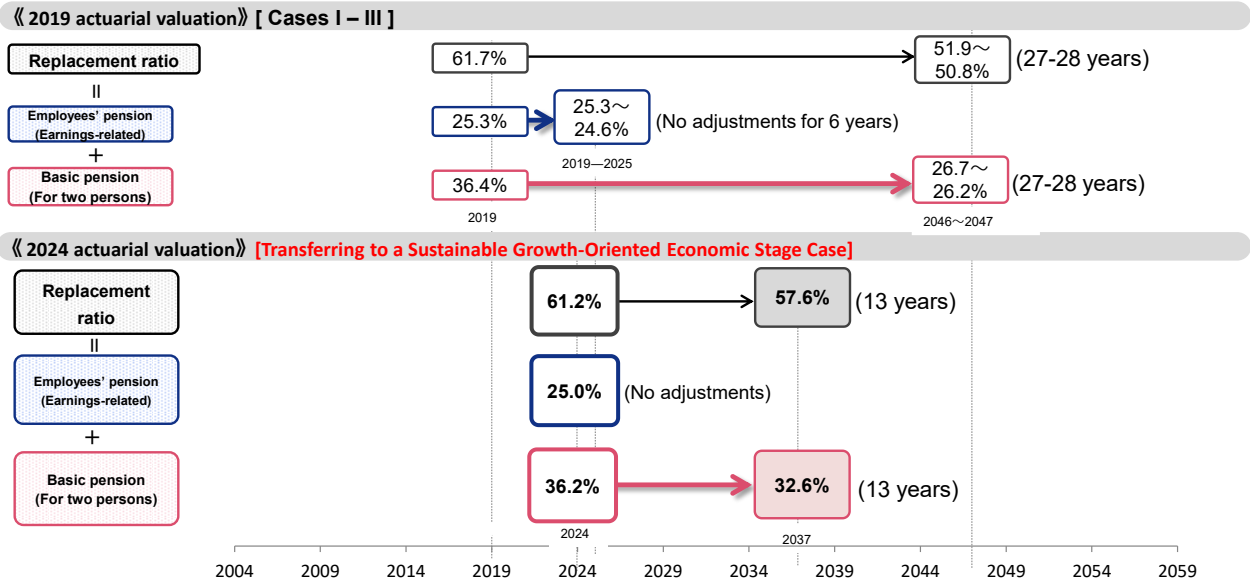
- An increase of five to six percentage points to 57.6% in the Transferring to a Sustainable Growth-Oriented Economic Stage Case (real growth of 1.1%), which assumes continued real growth of around 1%, from 51.9% in the previous Case I (real growth of 0.9%)
- An increase of around six percentage points to 50.4%, even in the Projection of Past 30-Year Trends Case (real growth of -0.1%), from 44.5% in the previous Case V (real growth of 0.0%)

There are two major factors for these improvements in the projected replacement ratios. One is that the labor participation of women and the elderly has progressed beyond expectations, significantly increasing the number of insured individuals paying contributions. The other factor is that the returns on the investment of reserves exceeded expectations, leading to a substantial increase in reserves allocated for future benefits. To quantitatively confirm this, Table 2-12 compares the FY2023 projections from the previous actuarial valuation with the FY2023 projected actual results used in the current actuarial valuation as the latest available data.

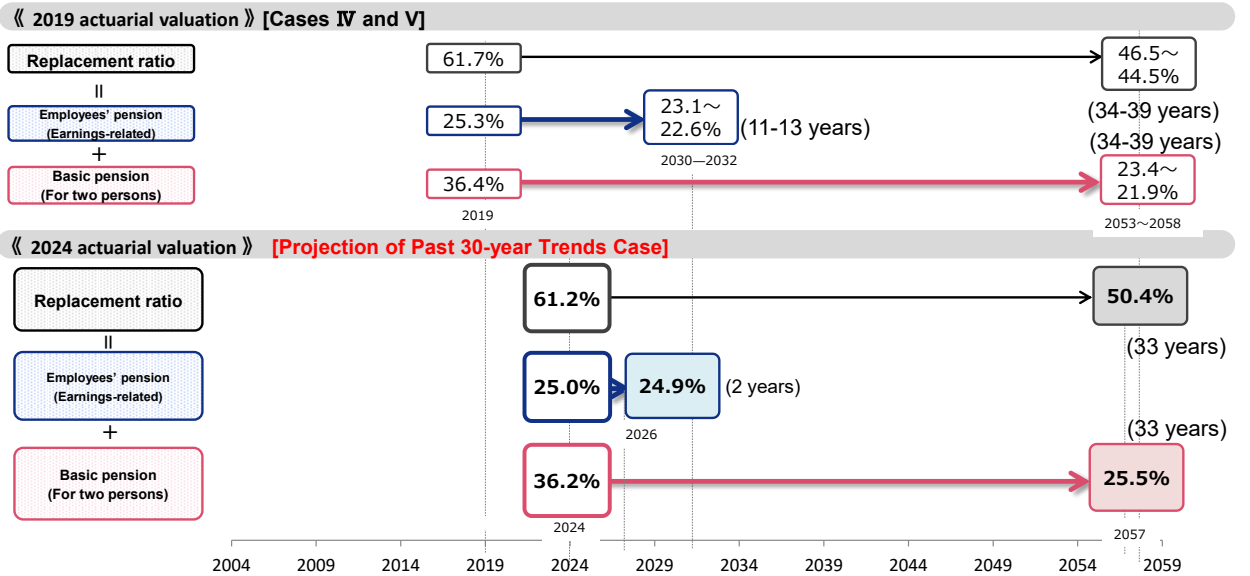
Comparing the number of insured persons, the number of EPI insured persons increased by approximately 2.6 million from the previous projection of 44.25 million to 46.83 million due to progress in the labor participation of women and the elderly, whereas the number of covered persons in the 3rd category decreased by approximately 600,000 from the previous projection of 7.62 million to 7.01 million. As a result, the improved financial situation due to increased contribution income has led to a net balance (excluding investment income) that has shifted from the projected deficit of ¥1.5 trillion in the previous actuarial valuation to an actual surplus of ¥0.3 trillion. Currently, expenditures can be covered solely by contributions and government subsidies without utilizing reserves. Furthermore, due to strong investments, reserves at the end of FY2023 reached ¥291 trillion, exceeding the previous projection of ¥221 trillion by approximately ¥70 trillion. Reflecting these factors in this actuarial valuation has resulted in improvements in replacement ratios compared to the previous assessment.

Figure 2-11 Changes in projections in replacement ratios
(2019 actuarial valuation ⇒ 2024 actuarial valuation)

[Transferring to a Sustainable Growth-Oriented Economic Stage Case]






[Projection of Past 30-year Trends Case]






**Table 2-12 Changes in socioeconomic conditions
(2019 actuarial valuation ⇒ 2024 actuarial valuation)**

<Current Financial Status (FY2023)>

Factor	Socioeconomic change				Impact on actuarial valuation	
Number of insured persons	EPI	Previous projection 44,250,000	⇒	Projected actual 46,830,000	*More contributors Less dependents	Plus 
	3rd category	7,620,000	⇒	7,010,000		
Net balance (excluding Investment income)	EPI+NP:	▲¥1.5 trillion	⇒	¥0.3 trillion	*Exited deficit	Plus 
Reserve balance (fiscal year end)	EPI+NP:	¥221 trillion	⇒	¥291 trillion	*Plus approx. ¥70T	Plus 

(Note) The reserve balance is given by leveling short-term fluctuations in market value.

<Future Assumptions> ••• Revision based on past trends, etc.

Factor	Socioeconomic change				Impact on actuarial valuation	
Population (medium projection) *Population Projections for Japan (April 2023, National Institute of Population and Social Security Research)	TFR assumption (2070)		Previous 1.44	⇒	Current 1.36	Limited
	Net migration assumption		70,000	⇒	160,000 (/year)	
	Projected aging rate		38.4% (2065)	⇒	38.7% (2070)	
Labor force *Projection of Labor Supply and Demand (March 2024, The Japan Institute for Labour Policy and Training)	Advancing Labour Participation Scenario		Gradual Labour Participation Scenario		Plus 	
	Previous (2040)	Current (2040)	Previous (2040)	Current (2040)		
	Employees 60.24M ⇒ 67.34M Employment 60.9% ⇒ 66.4% rate (≥15)		Employees 56.55M ⇒ 63.75M Employment 57.0% ⇒ 62.9% rate (≥15)			
Economy *Expert Committee on the Economic Assumptions in Pension Finances (April 2024, a report on results of discussion)	Previous (Case III)	Current (Transferring to a Sustainable Growth-Oriented Economic Stage Case)	Previous (Case III)	Current (Projection of Past 30-Year Trends Case)	Transferring to a Sustainable Growth-Oriented Economic Stage	Projection of past 30-year trends
	Real wage growth rate [long-term assumption]	1.1% ⇒ 1.5%	1.1% ⇒ 0.5%		Plus 	Minus 
	Effective rate of return on investment(vs wages) [long-term assumption]	1.7% ⇒ 1.7%	1.7% ⇒ 1.7%		-	-

While the projected replacement ratios have improved as described above, compared to the previous actuarial valuation, there are large deviations in the first-tier BP and second-tier earnings-related portion at the last fiscal year of adjustments. This suggests that the prolonged period of adjustments to BP could substantially decrease its level.

For example, in the Transferring to a Sustainable Growth-Oriented Economic Stage Case, adjustments of the earnings-related portion by modified indexation will no longer be necessary after FY2025, but adjustments of BP will continue until FY2037, resulting in adjustments for 13 more years. In the Projection of Past 30-Year Trends Case, adjustments of the earnings-related portion by modified indexation will also end in FY2026, but adjustments of BP will continue until FY2057, resulting in adjustments for 31 more years.

This prolonged adjustment period for BP was also confirmed in the previous actuarial valuation, and the decline in the BP level remains an ongoing issue.

3. Future projections of pension amounts

As the replacement ratio indicates the level of a pension relative to the net wages of people of working age, the real value of a pension will rise when the real value of the wages of people of working age rises (i.e., when wage purchasing power increases and the standard of living rises) even if the replacement ratio remains the same, and purchasing power will increase.

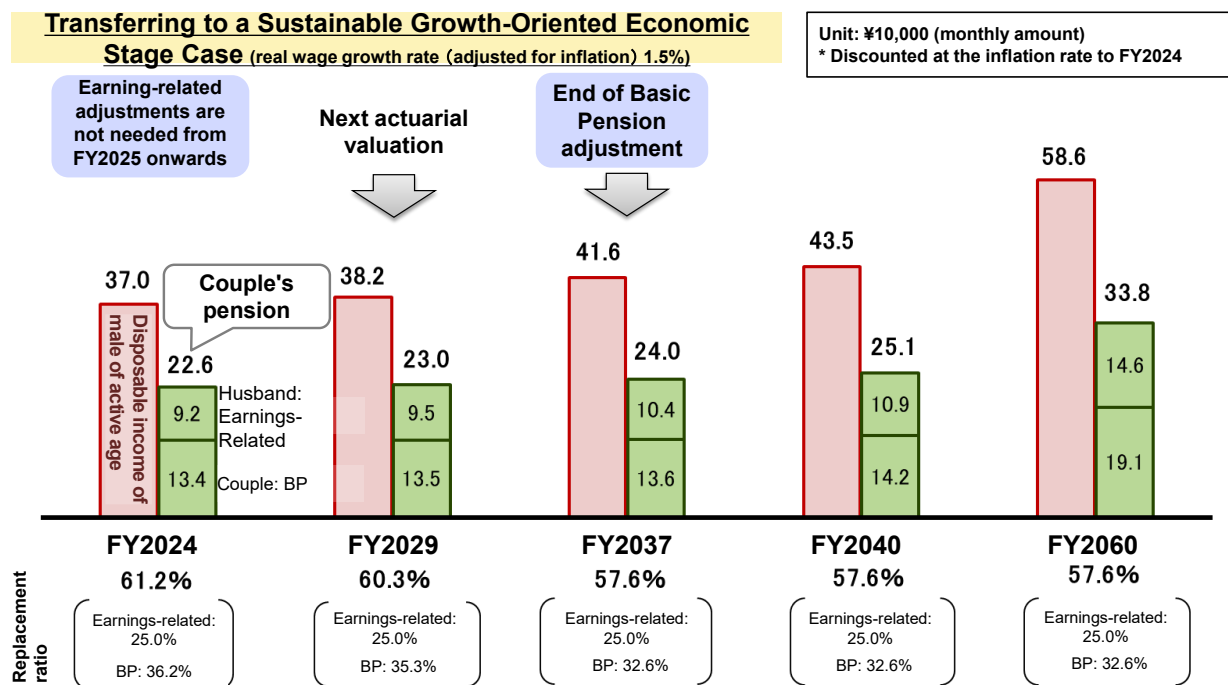
Although the replacement ratio indicating the value of a pension relative to the net wages of people of working age is projected to decline as a result of modified indexation (assuming that there is sufficient real wage growth in the economy), then the real value of a pension in terms of purchasing power will not necessarily decline.

In assessing the level of future pension benefits, therefore, it is important to consider what will happen to the real value of a pension in terms of purchasing power in conjunction with the replacement ratio.

Figures 2-13 and 2-14 show the projected real values in terms of the purchasing power of newly awarded pensions in the Transferring to a Sustainable Growth-Oriented Economic Stage Case and the Projection of Past 30-Year Trends Case, respectively.

The future real value of a pension is calculated by converting the future nominal pension amount to present value based on the inflation rate.

Figure 2-13 Projected pension amounts (2024 actuarial valuation)
Population: Medium fertility and medium mortality, Economy: Transferring to a Sustainable Growth-Oriented Economic Stage Case

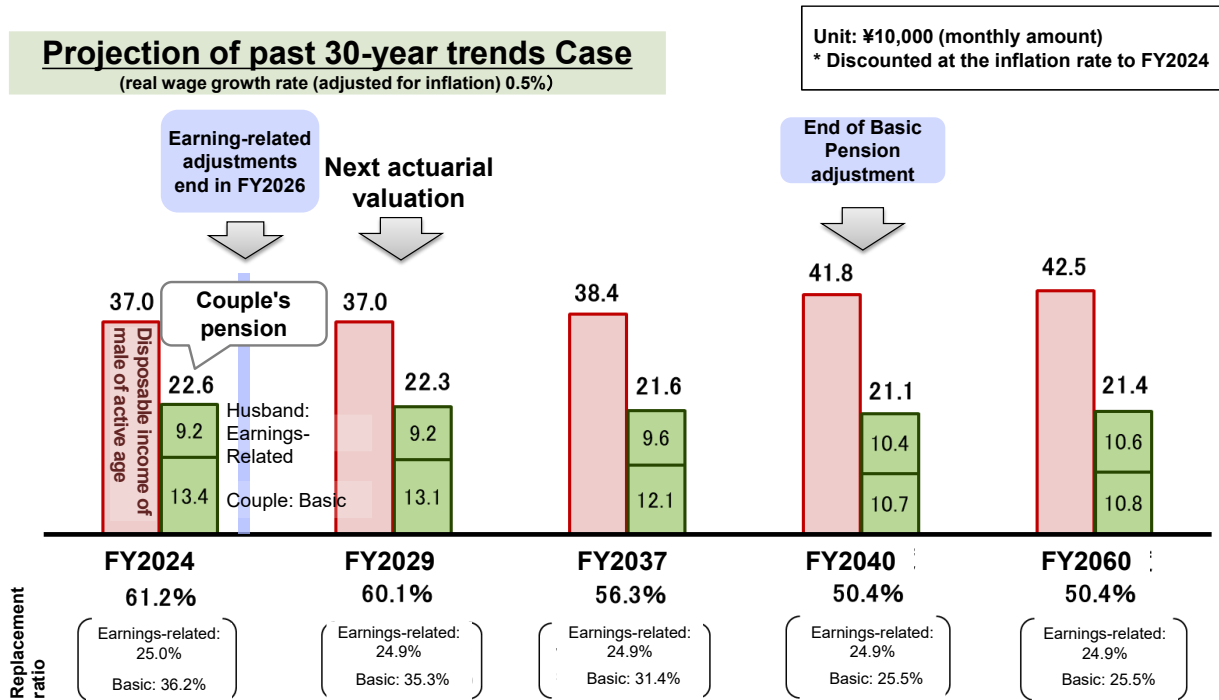


*The chart above shows amounts of newly awarded pensions. The amount of an already awarded pension is revised based on prices. Because of this, if the inflation rate is lower than the nominal wage growth rate, the ratio relative to the income of individuals of active age at such time decreases.

*The pension amount used for the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the Supplementary Provisions of the 2004 Pension Reform Act.

*The population assumptions used in the estimates are based on the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners).

Figure 2-14 Projected pension amounts (2024 actuarial valuation)
Population: Medium fertility and medium mortality, Economy: Projection of Past 30-year Trends Case



*The chart above shows amounts of newly awarded pensions. The amount of an already awarded pension is revised based on prices. Because of this, if the inflation rate is lower than the nominal wage growth rate, the ratio relative to the income of individuals of active age at such time decreases.
 *The pension amount used for the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the Supplementary Provisions of the 2004 Pension Reform Act.
 *The population assumptions used in the estimates are based on the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners).

In the Transferring Sustainable Growth-Oriented Economic Stage Case, the real wage growth rate is high at 1.5%. Consequently, as real wages rise, the real amount of pensions also increases. Looking at the breakdown, the earnings-related portion grows in line with real wage growth because it does not require benefit level adjustments by modified indexation. On the other hand, BP undergoes benefit level adjustments via modified indexation until FY2037, during which its growth is restrained relative to real wages, but the current real value of BP, ¥134,000 for a couple, is projected to increase to ¥136,000 by FY2037 when the adjustments end.

In the Projection of Past 30-Year Trends Case, the real wage growth rate is low at 0.5%, so the real value of pensions is expected to decline during the benefit level adjustment period. The earnings-related portion is expected to rise in line with real wage growth after the benefit level adjustment ends in FY2026, but BP is projected to decline to ¥107,000 for a couple or to ¥53,000 per person by FY2057, when the adjustment ends. In this case, not only does the replacement ratio (which indicates the relative level to wages) decline, but BP also decreases in real terms, which reflects purchasing power. This confirms that the decline in the level of the basic pension, as measured by real pension amounts, remains a significant challenge.

It should be noted that although pension benefits already awarded are, in principle, adjusted in line with price inflation to maintain their purchasing power, inflation indexation is restrained during the period of benefit level adjustments under modified indexation. As a result, the purchasing power of pensions declines under any economic assumption.

4. Projected replacement ratios and pension amounts according to wage level

Whereas EPI contributions, consisting of the first and second tiers, are proportional to wages, BP, which is the first tier, is a flat-rate benefit. Under this arrangement, EPI is inherently income redistributive in effect, and works to the benefit of low-income earners who consequently receive a proportionately higher pension relative to the contributions that they paid in.

Thus, although those on a lower wage receive a lower pension, the replacement ratio, which is relative to the wage level, is higher for low-income earners.

Comparing employees households, if the combined wages of a married couple are the same, the BP is paid for two, and earnings-related portion is calculated at the same wage level. As a result, the total pension amount for the couple is the same, and therefore the replacement ratio is also the same. Likewise, when the wage per person in a married couple is the same as the wage of a single-person household, the pension amount per person and the replacement ratio are the same. This is the structure of the public pension system (Figure 2-15).

Therefore, if the coverage period and the wage level per person in a household are the same, the pension amount and the replacement ratio per person will be the same regardless of the household structure, and there will be no difference based on the household type.

That is to say, when considering an employee household covered by EPI, the pension amount and the replacement ratio, assuming coverage for 40 years, are determined by the wage level. Projections of how the pension amount and the replacement ratio will change according to the household wage level are shown in Figures 2-16 to 2-18.

Figure 2-15 Structure of social security pension contributions and benefits (relationship to household type)

Illustration of social security pension contributions and benefit structure for households on same wage level (per person)

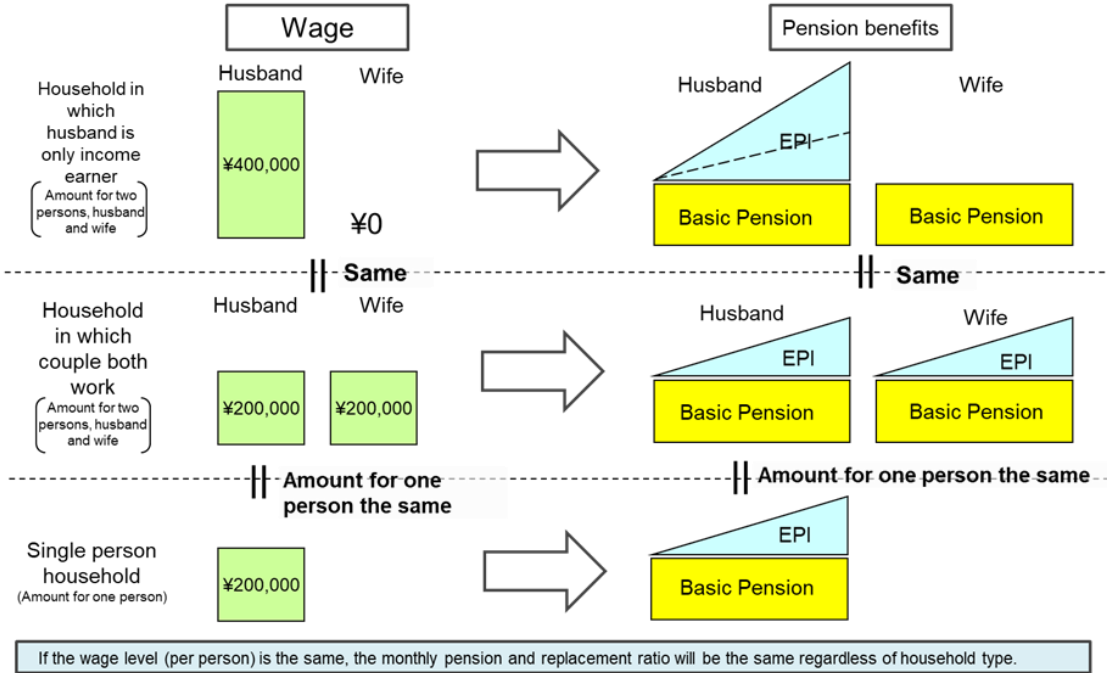


Figure 2-16 Monthly pension amounts by wage level (per person) and replacement ratios during working years) <Current year (FY2024)>

- The monthly pension and the replacement ratio for EPI are determined by the wage level (per person) of the household, regardless of the type of household. Based on this, the chart shows what the monthly pension and replacement ratio would be for wages of 0.5 times, 0.75 times, 1 time, 1.25 times and 1.75 times as much as the model pension wage.
- Since social security pensions have an income redistribution function, the higher the wage level of a household, the higher the monthly pension and the lower the replacement ratio.
- The differences in the replacement ratio and monthly pensions are due to differences in wage levels, not household types, so it is important to focus on wage levels.

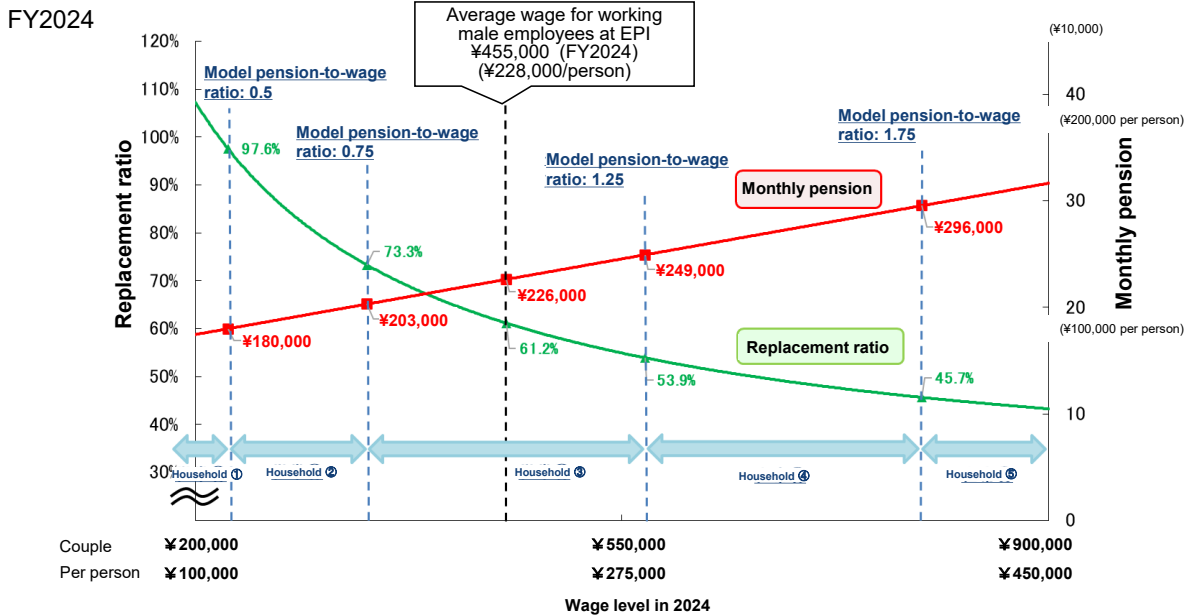
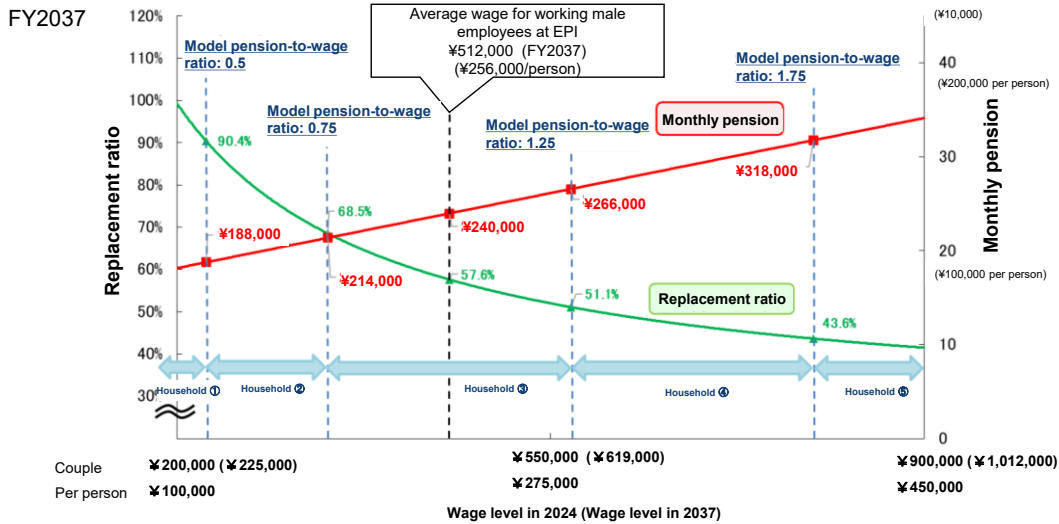


Figure 2-17 Monthly pension amounts by wage level (per person) and replacement ratios during working years
<Transferring to a Sustainable Growth-Oriented Economic Stage Case, FY2037 (population medium projection)>

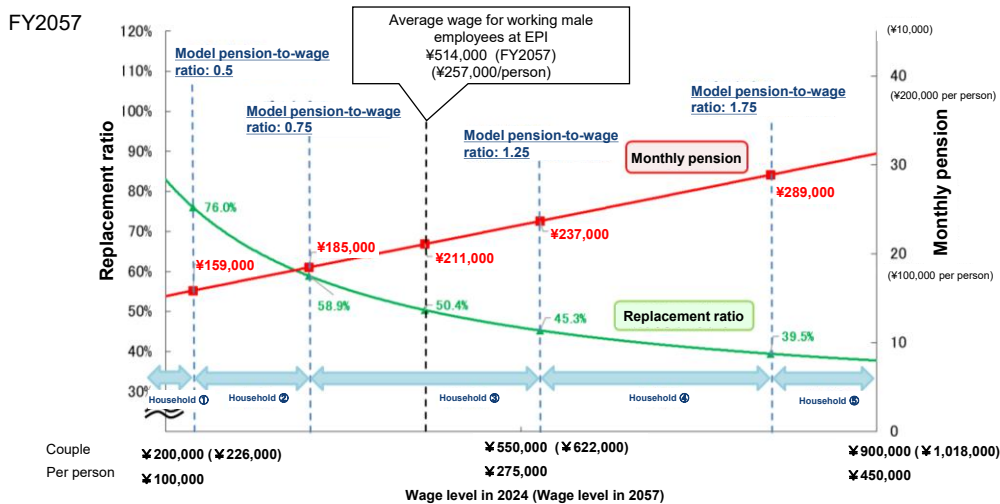
- The monthly pension and the replacement ratio for EPI are determined by the wage level (per person) of the household, regardless of the type of household. Based on this, the chart shows what the monthly pension and replacement ratio would be for wages of 0.5 times, 0.75 times, 1 time, 1.25 times and 1.75 times as much as the model pension wage.
- Since social security pensions have an income redistribution function, the higher the wage level of a household, the higher the monthly pension and the lower the replacement ratio.
- The differences in the replacement ratio and monthly pensions are due to differences in wage levels, not household types, so it is important to focus on wage levels.



Note 1: This is the monthly pension amount (real amount discounted to FY2024 at the inflation rate) for newly awarded beneficiaries after benefit level adjustments by modified indexation is completed, assuming 40 years of participation in EPI.
 Note 2: Wages at the 2037 wage level are real amounts discounted to FY2024 at the inflation rate.
 Note 3: For all wage levels, the replacement ratio is calculated using a disposable income ratio of 0.813.

Figure 2-18 Monthly pension amounts by wage level (per person) and replacement ratio during working years
< Projection of Past 30-Year Trends Case, FY2057 (medium population projection)>

- The monthly pension and the replacement ratio for EPI are determined by the wage level (per person) of the household, regardless of the type of household. Based on this, the chart shows what the monthly pension and replacement ratio would be for wages of 0.5 times, 0.75 times, 1 time, 1.25 times and 1.75 times as much as the model pension wage.
- Since social security pensions have an income redistribution function, the higher the wage level of a household, the higher the monthly pension and the lower the replacement ratio.
- The differences in the replacement ratio and monthly pensions are due to differences in wage levels, not household types, so it is important to focus on wage levels.



Note 1: This is the monthly pension amount (real amount discounted to FY2024 at the inflation rate) for newly awarded beneficiaries after benefit level adjustments by modified indexation is completed, assuming 40 years of participation in EPI.
 Note 2: Wages at the 2057 wage level are real amounts discounted to FY2024 at the inflation rate.
 Note 3: For all wage levels, the replacement ratio is calculated using a disposable income ratio of 0.813.

5. Future projections of pension finances

(1) Projected number of covered persons

The projected number of people covered is critical as it is the basis for calculating future contribution income and pension benefits. The number of people covered is estimated within a margin based on population and labor force projections, taking into account factors including changes in the proportion of persons in employment to working persons and the distribution of working hours of part-time workers.

Tables 2-19 to 2-21 show the projected number of people based on the medium projection for population (medium fertility, medium mortality, and annual net migration of 164,000 foreigners). Among these, the projection under the Advancing Labour Participation Scenario (Table 2-19) shows that the number of people covered by public pensions, which stands at 67.4 million in FY2024, will continue to decline alongside the shrinking working-age population, and it is projected to fall below 60 million to 59.4 million in FY2040 and below 50 million to 47.9 million by FY2060. Under other scenarios, it is expected to be lower than this scenario.

The benefit level is adjusted by modified indexation based on a rate (rate (2) shown in the table below) obtained by adding a fixed rate (0.3%), which reflects increases in life expectancy, etc., to the rate of decrease in the number of covered persons under social security pension plans (average year-on-year rate of decrease (annual average) over the period from four fiscal years ago till the fiscal year before last).

**Table 2-19 Projected number of covered persons under social security pension plans
(2024 actuarial valuation)**

Population: Medium projection, Labor: Advancing Labor Participation Scenario

FY	Total	1st category	EPI			3rd category			Decrease rate of total (1)	(1) + 0.3% (2)
			Subtotal	Type 1 EPI	Type 2-4 EPI	Subtotal	Type 1 EPI	Type 2-4 EPI		
	millions	millions	millions	millions	millions	millions	millions	millions	%	%
2024	67.4	13.3	47.4	42.8	4.6	6.7	6.0	0.7	-0.1	-0.4
2025	67.1	12.8	47.7	43.2	4.6	6.5	5.8	0.6	-0.1	-0.4
2026	66.8	12.5	48.0	43.4	4.6	6.3	5.7	0.6	0.0	-0.3
2027	66.5	12.2	48.2	43.7	4.5	6.1	5.5	0.6	-0.2	-0.5
2028	66.1	11.9	48.4	43.9	4.5	5.9	5.3	0.6	-0.4	-0.7
2029	65.8	11.6	48.6	44.1	4.5	5.6	5.1	0.6	-0.4	-0.7
2030	65.4	11.3	48.7	44.2	4.5	5.4	4.9	0.5	-0.5	-0.8
2035	62.7	9.9	48.4	44.1	4.3	4.4	4.0	0.5	-0.8	-1.1
2040	59.4	8.6	47.1	43.0	4.1	3.7	3.3	0.4	-1.0	-1.3
2050	52.5	7.7	41.4	37.6	3.8	3.4	3.0	0.4	-1.2	-1.5
2060	47.9	7.1	37.7	34.2	3.5	3.0	2.7	0.3	-0.9	-1.2
2070	43.1	6.3	34.1	30.9	3.2	2.7	2.4	0.3	-1.1	-1.4
2080	38.0	5.5	30.1	27.2	2.9	2.4	2.1	0.3	-1.3	-1.6
2090	34.0	5.0	26.8	24.2	2.6	2.2	1.9	0.2	-1.1	-1.4
2100	30.5	4.5	24.1	21.8	2.3	1.9	1.7	0.2	-1.1	-1.4
2110	26.9	3.9	21.3	19.3	2.0	1.7	1.5	0.2	-1.3	-1.6
2120	23.9	3.5	18.8	17.0	1.8	1.5	1.3	0.2	-1.2	-1.5

Notes: 1. Numbers of covered persons are fiscal year averages.

2. Decrease rate of total (1) is the (annual) average rate of decline from the previous year of three years between four fiscal years previously and two fiscal years previously. The modified indexation adjusts the benefit level based on the rate in (2).

**Table 2-20 Projected number of covered persons under social security pension plans (2024 actuarial valuation)
Population: Medium projection, Labor: Gradual Labor Participation Scenario**

FY	Total	1st category	EPI			3rd category			Decrease rate of total (1)	(1) + 0.3% (2)
			Subtotal	Type 1 EPI	Type 2-4 EPI	Subtotal	Type 1 EPI	Type 2-4 EPI		
	millions	millions	millions	millions	millions	millions	millions	millions	%	%
2024	67.4	13.3	47.3	42.7	4.6	6.7	6.0	0.7	-0.1	-0.4
2025	67.0	12.9	47.6	43.1	4.6	6.5	5.9	0.7	-0.1	-0.4
2026	66.7	12.6	47.8	43.2	4.6	6.4	5.7	0.6	0.0	-0.3
2027	66.4	12.4	47.8	43.3	4.5	6.2	5.5	0.6	-0.2	-0.5
2028	66.0	12.2	47.8	43.3	4.5	6.0	5.4	0.6	-0.4	-0.7
2029	65.6	12.0	47.9	43.4	4.5	5.7	5.2	0.6	-0.5	-0.8
2030	65.2	11.8	47.8	43.3	4.5	5.5	5.0	0.6	-0.5	-0.8
2035	62.2	10.9	46.6	42.3	4.3	4.7	4.3	0.5	-0.9	-1.2
2040	58.7	9.9	44.6	40.4	4.1	4.2	3.8	0.5	-1.1	-1.4
2050	51.9	8.8	39.2	35.4	3.8	3.8	3.4	0.4	-1.1	-1.4
2060	47.3	8.1	35.7	32.2	3.5	3.5	3.1	0.4	-0.9	-1.2
2070	42.5	7.2	32.2	29.1	3.2	3.1	2.7	0.3	-1.1	-1.4
2080	37.5	6.3	28.5	25.6	2.9	2.7	2.4	0.3	-1.3	-1.6
2090	33.6	5.7	25.3	22.8	2.6	2.5	2.2	0.3	-1.1	-1.4
2100	30.1	5.1	22.8	20.5	2.3	2.2	1.9	0.3	-1.1	-1.4
2110	26.5	4.5	20.1	18.1	2.0	1.9	1.7	0.2	-1.3	-1.6
2120	23.6	4.0	17.8	16.0	1.8	1.7	1.5	0.2	-1.2	-1.5

Notes: 1. Numbers of covered persons are fiscal year averages.

2. Decrease rate of total (1) is the (annual) average rate of decline from the previous year of three years between four fiscal years previously and two fiscal years previously. The modified indexation adjusts the benefit level based on the rate in (2).

**Table 2-21 Projected number of covered persons under social security pension plans (2024 actuarial valuation)
Population: Medium projection, Labor: Current Labor Participation Scenario**

FY	Total	1st category	EPI			3rd category			Decrease rate of total (1)	(1) + 0.3% (2)
			Subtotal	Type 1 EPI	Type 2-4 EPI	Subtotal	Type 1 EPI	Type 2-4 EPI		
	millions	millions	millions	millions	millions	millions	millions	millions	%	%
2024	67.3	13.4	47.2	42.6	4.6	6.8	6.1	0.7	-0.1	-0.4
2025	66.9	13.0	47.2	42.7	4.6	6.6	6.0	0.7	-0.1	-0.4
2026	66.5	12.9	47.0	42.5	4.6	6.6	5.9	0.7	-0.1	-0.4
2027	66.1	12.8	46.8	42.2	4.5	6.5	5.9	0.7	-0.3	-0.6
2028	65.6	12.7	46.4	41.9	4.5	6.4	5.8	0.6	-0.5	-0.8
2029	65.0	12.7	46.1	41.6	4.5	6.3	5.7	0.6	-0.6	-0.9
2030	64.5	12.6	45.7	41.2	4.5	6.2	5.6	0.6	-0.7	-1.0
2035	61.0	12.2	43.1	38.8	4.3	5.7	5.1	0.6	-1.0	-1.3
2040	57.2	11.4	40.5	36.3	4.1	5.4	4.8	0.6	-1.2	-1.5
2050	50.7	10.2	35.7	31.8	3.8	4.9	4.4	0.5	-1.1	-1.4
2060	46.3	9.4	32.5	29.0	3.5	4.4	3.9	0.5	-0.9	-1.2
2070	41.5	8.3	29.2	26.1	3.2	3.9	3.5	0.5	-1.1	-1.4
2080	36.6	7.3	25.8	23.0	2.9	3.5	3.1	0.4	-1.3	-1.6
2090	32.8	6.6	23.0	20.5	2.6	3.2	2.8	0.4	-1.0	-1.3
2100	29.4	5.9	20.7	18.4	2.3	2.8	2.5	0.3	-1.1	-1.4
2110	25.9	5.2	18.3	16.2	2.0	2.5	2.2	0.3	-1.3	-1.6
2120	23.0	4.6	16.2	14.4	1.8	2.2	2.0	0.3	-1.1	-1.4

Notes: 1. Numbers of covered persons are fiscal year averages.

2. Decrease rate of total (1) is the (annual) average rate of decline from the previous year of three years between four fiscal years previously and two fiscal years previously.

(2) Projections of EPI and NP finances

The actuarial valuation provides projections for the state of revenues, expenditures, and reserves each fiscal year over a period of around 100 years. The present actuarial valuation covers projections up to FY2120 and adjusted benefit levels by modified indexation so that reserves at the beginning of FY2120 equal one year's expenditures in FY2120.

Tables 2-22 through 2-25 present the financial projections for EPI and NP under the medium population projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners) and the economic assumptions of either the Transferring to a Sustainable Growth-Oriented Economic Stage Case or the Projection of Past 30-Year Trends Case.

In the Transferring to a Sustainable Growth-Oriented Economic Stage Case, the projected reserve ratio, which indicates how many years of expenditures the reserves cover, is expected to rise steadily for EPI. Conversely, for NP, the ratio is projected to increase until around FY2040 and then gradually decline thereafter. This indicates that reserves are being utilized to cover benefits, ensuring a certain level of benefits can be maintained after the 2040s, when the population aged 65 and over peaks and the aging society with fewer children progresses further.

Similarly, in the Projection of Past 30-Year Trends Case, the projected reserve ratio is on an upward trend until around FY2060 for EPI and around FY2030 for NP, followed by a gradual decline thereafter. Compared to the Transferring to a Sustainable Growth-Oriented Economic Stage Case, the decline in the reserve ratio begins earlier, but the underlying structure remains the same, that is, utilizing reserves to fund benefits in the future as the population ages and birth rates decline.

Table 2-22 Financial projections for EPI (2024 actuarial valuation)
Population: Medium projection, Economy: Transferring to a Sustainable Growth-Oriented Economic Stage Case

FY	Total income (1)				Total expenditure (2)			Balance ((1) - (2))	Reserve at end of fiscal year (F)	(F) (in FY2024 value)	Reserve ratio	Replacement ratio		
	Contribution	Investment return	National subsidy		Transfer to Basic Pension	Earnings-related portion						Basic	Earnings-related	
	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion		%	%	%
2024	68.4	41.6	15.2	11.5	52.8	22.5	30.0	15.6	292.5	292.5	5.2	61.2	36.2	25.0
2025	69.3	42.9	14.5	11.8	54.2	23.3	30.7	15.1	307.5	298.3	5.4	61.1	36.1	25.0
2026	71.3	44.2	15.0	12.1	55.0	23.7	31.0	16.3	323.8	307.1	5.6	60.9	36.0	25.0
2027	73.6	45.6	15.8	12.3	56.3	24.2	31.8	17.4	341.2	319.5	5.8	60.8	35.8	25.0
2028	76.1	46.9	16.6	12.6	57.6	24.8	32.6	18.5	359.7	330.9	5.9	60.5	35.5	25.0
2029	78.7	48.3	17.5	12.8	59.2	25.4	33.5	19.5	379.2	340.6	6.1	60.3	35.3	25.0
2030	81.3	49.7	18.5	13.1	60.7	26.0	34.4	20.6	399.8	349.4	6.2	60.0	35.0	25.0
2035	97.2	56.5	26.1	14.6	69.3	29.1	39.9	27.9	522.5	395.9	7.1	58.4	33.4	25.0
2040	116.2	65.0	34.0	17.2	82.6	34.3	47.9	33.6	680.2	439.4	7.8	57.6	32.6	25.0
2050	159.6	81.9	54.4	23.3	112.9	46.6	65.9	46.7	1083.2	494.6	9.2	57.6	32.6	25.0
2060	220.0	105.5	83.4	31.1	152.3	62.1	89.8	67.7	1660.4	535.9	10.5	57.6	32.6	25.0
2070	300.0	134.1	124.7	41.2	205.2	82.3	122.4	94.8	2479.2	565.6	11.6	57.6	32.6	25.0
2080	404.0	167.6	182.2	54.2	273.4	108.3	164.6	130.6	3617.2	583.4	12.8	57.6	32.6	25.0
2090	544.5	212.2	263.2	69.1	351.6	138.2	212.9	192.9	5227.1	595.9	14.3	57.6	32.6	25.0
2100	743.9	269.2	387.1	87.6	447.1	175.2	271.4	296.8	7694.9	620.1	16.5	57.6	32.6	25.0
2110	1024.7	336.3	577.0	111.4	568.7	222.8	345.3	456.1	11477.2	653.7	19.4	57.6	32.6	25.0
2120	1435.7	422.7	872.6	140.4	716.7	280.9	435.2	719.0	17371.1	699.4	23.2	57.6	32.6	25.0

Long-term economic assumptions		
Inflation rate		2.0%
Wage growth rate (real adjusted for inflation)		1.5%
ROI	Real (adjusted for inflation)	3.2%
	Spread (adjusted for wages)	1.7%
Economic growth rate (real) 20-30 years from FY2034		1.1% (1.8%)
*Figures in () are real economic growth rates per capita		
Replacement ratio (after end of benefit level adjustment)		Last year of benefit level adjustment
Replacement ratio	57.6%	2037
Basic	25.0%	No adjustment
Earnings-related	32.6%	2037
Contribution rate for EPI		18.3%
Monthly contribution for NP (FY2004 value)		¥17,000

Notes: 1. Financial projections for EPI refer to the financial projections for EPI as a whole including the substitutional part of surviving Employees' Pension Funds

2. "FY2024 value" was calculated by converting to prices in FY2024 by the wage growth rate.

3. The "reserve ratio" is the ratio of the reserve at the end of the preceding fiscal year to total expenditure in the current fiscal year.

- Earnings-related pension benefits include the voluntary benefits under EPI (fixed amount, supplement, additional payment).
- The pension amount used to calculate the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the supplementary provisions of 2004 Pension Reform Act.

Table 2-23 Financial projections for NP (2024 actuarial valuation)
Population: Medium projection, Economy: Transferring to a Sustainable Growth-Oriented Economic Stage Case

FY	Total income (1)				Total expenditure (2)			Balance ((1) - (2))	Reserve at end of fiscal year (F)	(F) (in FY2024 value)	Reserve ratio	Replacement ratio		
	Contribution	Investment return	National subsidy		Transfer to Basic Pension	Earnings-related portion						Basic	Earnings-related	
	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion		%	%	%
2024	4.0	1.3	0.7	2.0	3.6	3.5	0.4	14.1	14.1	3.8	61.2	36.2	25.0	
2025	4.0	1.3	0.7	2.0	3.6	3.5	0.4	14.5	14.0	3.9	61.1	36.1	25.0	
2026	4.0	1.3	0.7	2.0	3.6	3.5	0.4	14.8	14.1	4.0	60.9	36.0	25.0	
2027	4.0	1.2	0.7	2.0	3.6	3.5	0.4	15.2	14.2	4.1	60.8	35.8	25.0	
2028	4.0	1.2	0.7	2.1	3.7	3.5	0.4	15.6	14.3	4.2	60.5	35.5	25.0	
2029	4.1	1.2	0.7	2.1	3.7	3.6	0.4	16.0	14.4	4.2	60.3	35.3	25.0	
2030	4.1	1.2	0.8	2.1	3.7	3.6	0.4	16.4	14.3	4.3	60.0	35.0	25.0	
2035	4.5	1.2	1.0	2.3	3.9	3.8	0.6	18.8	14.2	4.7	58.4	33.4	25.0	
2040	5.0	1.2	1.1	2.6	4.3	4.2	0.6	21.8	14.1	4.9	57.6	32.6	25.0	
2050	6.9	1.5	1.5	3.9	6.1	6.0	0.8	28.9	13.2	4.6	57.6	32.6	25.0	
2060	9.3	2.0	1.9	5.4	8.4	8.3	0.9	37.1	12.0	4.3	57.6	32.6	25.0	
2070	12.1	2.5	2.3	7.2	11.2	11.1	0.9	46.1	10.5	4.1	57.6	32.6	25.0	
2080	15.2	3.0	2.8	9.3	14.5	14.4	0.8	54.7	8.8	3.7	57.6	32.6	25.0	
2090	19.0	3.9	3.1	11.9	18.5	18.4	0.5	61.0	7.0	3.3	57.6	32.6	25.0	
2100	23.3	4.9	3.3	14.9	23.3	23.2	-0.0	63.9	5.2	2.7	57.6	32.6	25.0	
2110	28.2	6.1	3.0	18.9	29.4	29.3	-1.3	57.7	3.3	2.0	57.6	32.6	25.0	
2120	33.7	7.8	1.8	23.9	37.2	37.1	-3.5	33.7	1.4	1.0	57.6	32.6	25.0	

Long-term economic assumptions		
Inflation rate	2.0%	
Wage growth rate (real adjusted for inflation)	1.5%	
ROI	Real (adjusted for inflation)	3.2%
	Spread (adjusted for wages)	1.7%
Economic growth rate (real) 20-30 years from FY2034	1.1% (1.8%)	

*Figures in () are real economic growth rates per capita

Replacement ratio	Replacement ratio (after end of benefit level adjustment)	Last year of benefit level adjustment
Replacement ratio	57.6%	2037
Basic	25.0%	No adjustment
Earnings-related	32.6%	2037

Contribution rate for EPI	18.3%
Monthly contribution for NP (FY2004 value)	¥17,000

- Notes: 1. The actual amount of contributions is revised based on the inflation and wage growth since the 2004 Reform Act, and the amount of contributions in FY2024 was 16,980 yen per month.
- "FY2024 value" was calculated by converting to prices in FY2024 by the wage growth rate.
 - The "reserve ratio" is the ratio of the reserve at the end of the preceding fiscal year to total expenditure in the current fiscal year.
 - The pension amount used to calculate the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the supplementary provisions of the 2004 Pension Reform Act.

Table 2-24 Financial projections for EPI (2024 actuarial valuation)
Population: Medium projection, Economy: Projection of Past 30-year Trends Case

FY	Total income (1)				Total expenditure (2)			Balance ((1) - (2))	Reserve at end of fiscal year (F)	(F) (in FY2024 value)	Reserve ratio	Replacement ratio		
	Contribution	Investment return	National subsidy		Transfer to Basic Pension	Earnings-related portion						Basic	Earnings-related	
	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion	JPY in trillion		%	%	%
2024	66.7	41.6	13.5	11.5	52.8	22.5	30.0	13.9	290.7	290.7	5.2	61.2	36.2	25.0
2025	65.9	42.6	11.5	11.8	54.1	23.2	30.6	11.8	302.5	293.4	5.4	61.0	36.1	24.9
2026	65.6	43.2	10.4	12.0	54.7	23.6	30.8	10.9	313.5	297.3	5.5	60.8	36.0	24.9
2027	65.6	43.7	9.8	12.1	55.4	23.8	31.3	10.2	323.6	304.2	5.7	60.7	35.8	24.9
2028	66.0	44.0	9.8	12.2	56.0	24.1	31.7	10.0	333.6	311.2	5.8	60.4	35.5	24.9
2029	66.7	44.3	10.1	12.3	56.8	24.3	32.2	10.0	343.5	317.8	5.9	60.1	35.3	24.9
2030	67.4	44.6	10.4	12.4	57.4	24.5	32.6	10.0	353.5	324.5	6.0	59.9	35.0	24.9
2035	69.8	45.2	11.8	12.8	61.0	25.4	35.3	8.8	400.9	351.0	6.4	58.3	33.4	24.9
2040	72.4	46.0	12.9	13.5	66.0	26.9	38.8	6.4	438.2	362.5	6.5	56.3	31.4	24.9
2050	74.6	46.7	14.3	13.6	71.0	27.2	43.5	3.6	483.6	351.4	6.8	52.5	27.6	24.9
2060	77.1	48.4	15.3	13.4	74.1	26.8	47.1	3.0	517.5	330.3	6.9	50.4	25.5	24.9
2070	79.1	49.5	15.8	13.8	78.8	27.6	51.0	0.3	533.1	298.9	6.8	50.4	25.5	24.9
2080	79.5	49.7	15.4	14.4	83.4	28.8	54.4	-3.9	514.7	253.6	6.2	50.4	25.5	24.9
2090	79.1	50.7	13.6	14.7	86.0	29.5	56.3	-7.0	455.4	197.1	5.4	50.4	25.5	24.9
2100	77.9	51.7	11.2	15.0	87.7	30.0	57.5	-9.8	372.2	141.5	4.4	50.4	25.5	24.9
2110	74.9	52.0	7.6	15.3	89.6	30.6	58.8	-14.7	248.7	83.1	2.9	50.4	25.5	24.9
2120	70.6	52.6	2.4	15.6	91.0	31.1	59.7	-20.4	70.6	20.7	1.0	50.4	25.5	24.9

Long-term economic assumptions		
Inflation rate	0.8%	
Wage growth rate (real adjusted for inflation)	0.5%	
ROI	Real (adjusted for inflation)	2.2%
	Spread (adjusted for wages)	1.7%
Economic growth rate (real) 20-30 years from FY2034	-0.1% (0.7%)	

*Figures in () are real economic growth rates per capita

Replacement ratio	Replacement ratio (after end of benefit level adjustment)	Last year of benefit level adjustment
Replacement ratio	50.4%	2057
Basic	24.9%	2026
Earnings-related	25.5%	2057

Contribution rate for EPI	18.3%
Monthly contribution for NP (FY2004 value)	¥17,000

- Notes: 1. Financial projections for EPI refer to the financial projections for EPI as a whole including the substitutional part of surviving Employees' Pension Funds

2. "FY2024 value" was calculated by converting to prices in FY2024 by the wage growth rate.
3. The "reserve ratio" is the ratio of the reserve at the end of the preceding fiscal year to total expenditure in the current fiscal year.
4. Earnings-related pension benefits include the voluntary benefits under EPI (fixed amount, supplement, additional payment).
5. The pension amount used to calculate the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the supplementary provisions of the 2004 Pension Reform Act.

Table 2-25 Financial projections for NP (2024 actuarial valuation)

Population: Medium projection, Economy: Projection of Past 30-year Trends Case

FY	Total income (1)				Total expenditure (2)		Balance ((1) - (2))	Reserve at end of fiscal year (F)	(F) (in FY2024 value)	Reserve ratio	Replacement ratio		
	Contribution	Investment return	National subsidy	Transfer to Basic Pension	JPY in trillion	JPY in trillion					Basic	Earnings- related	
2024	3.9	1.3	0.7	2.0	3.6	3.5	0.3	14.0	14.0	3.8	61.2	36.2	25.0
2025	3.8	1.3	0.5	2.0	3.6	3.5	0.2	14.2	13.8	3.9	61.0	36.1	24.9
2026	3.8	1.3	0.5	2.0	3.6	3.5	0.2	14.4	13.6	3.9	60.8	36.0	24.9
2027	3.8	1.3	0.4	2.0	3.7	3.5	0.1	14.5	13.6	3.9	60.7	35.8	24.9
2028	3.8	1.3	0.4	2.1	3.7	3.6	0.1	14.6	13.6	3.9	60.4	35.5	24.9
2029	3.8	1.2	0.4	2.1	3.7	3.6	0.1	14.7	13.6	3.9	60.1	35.3	24.9
2030	3.8	1.2	0.4	2.1	3.7	3.6	0.1	14.8	13.5	4.0	59.9	35.0	24.9
2035	3.9	1.2	0.4	2.2	3.9	3.8	0.0	14.9	13.1	3.9	58.3	33.4	24.9
2040	4.0	1.1	0.4	2.4	4.0	3.9	-0.1	14.8	12.2	3.7	56.3	31.4	24.9
2050	4.1	1.1	0.4	2.6	4.2	4.1	-0.1	14.1	10.3	3.4	52.5	27.6	24.9
2060	4.3	1.2	0.4	2.6	4.3	4.2	0.0	14.0	9.0	3.3	50.4	25.5	24.9
2070	4.4	1.2	0.4	2.8	4.4	4.4	-0.0	13.9	7.8	3.1	50.4	25.5	24.9
2080	4.5	1.2	0.4	2.9	4.6	4.5	-0.1	13.4	6.6	2.9	50.4	25.5	24.9
2090	4.6	1.2	0.4	2.9	4.7	4.7	-0.1	12.2	5.3	2.6	50.4	25.5	24.9
2100	4.6	1.3	0.3	3.0	4.8	4.7	-0.2	10.5	4.0	2.2	50.4	25.5	24.9
2110	4.6	1.3	0.2	3.0	4.9	4.8	-0.3	8.1	2.7	1.7	50.4	25.5	24.9
2120	4.6	1.3	0.1	3.1	5.0	4.9	-0.4	4.6	1.3	1.0	50.4	25.5	24.9

Long-term economic assumptions		
Inflation rate	0.8%	
Wage growth rate (real adjusted for inflation)	0.5%	
ROI	Real (adjusted for inflation)	2.2%
	Spread (adjusted for wages)	1.7%
Economic growth rate (real) 20-30 years from FY2034	-0.1% (0.7%)	
*Figures in () are real economic growth rates per capita		

Replacement ratio	Replacement ratio (after end of benefit level adjustment)	Last year of benefit level adjustment
50.4%		2057
Basic	24.9%	2026
Earnings-related	25.5%	2057

Contribution rate for EPI	18.3%
Monthly contribution for NP (FY2004 value)	¥17,000

Notes: 1. The actual amount of contributions is revised based on the inflation and wage growth since the 2004 reforms, and the amount of contributions in FY2024 was 16,980 yen per month.

2. "FY2024 value" was calculated by converting to prices in FY2024 by the wage growth rate.
3. The "reserve ratio" is the ratio of the reserve at the end of the preceding fiscal year to total expenditure in the current fiscal year.
4. The pension amount used to calculate the replacement ratio reflects all real wage growth rates up to the previous fiscal year, in accordance with Article 2 of the supplementary provisions of the 2004 Pension Reform Act.

3) Projected finances for the Basic Pension

Basic Pension benefits are financed by transfer payments from NP and EPI each fiscal year. These transfer payments are allocated proportionately according to the number of reference people on which calculation of transfer payments to the Basic Pension is based, and as a rule half is funded by national subsidy.

Tables 2-26 and 2-27 present the financial projection for BP and the projected number of people on which the calculation of contributions to BP is based under the medium projection for population (medium fertility, medium mortality, and annual net migration of 164,000 foreigners) and the economic assumptions of either the Transferring to a Sustainable Growth-Oriented Economic Stage Case or the Projection of Past 30-Year Trends Case.

While BP benefit costs will rise alongside the increase in BP beneficiaries in the 2040s, when the population aged 65 and over reaches its peak, the number of people on which the calculation of contributions

to BP is based decreases due to the decline in the population aged 20 to 59. Consequently, the unit transfer payment (FY2004 value), i.e., the contribution amount per person on which the calculation of contributions to BP is based, is expected to rise in all cases. After that, in the Transferring to a Sustainable Growth-Oriented Economic Stage Case, the unit transfer payment is projected to continue rising due to the ongoing progression of the declining birthrate and aging population, but in the Projection of Past 30-Year Trends Case, it is expected to decline temporarily in the 2050s and then rise again. This is because benefit adjustments through modified indexation will end in FY2037 in the Transferring to a Sustainable Growth-Oriented Economic Stage Case, whereas they will continue until FY2057 in the Projection of Past 30-Year Trends Case.

The contribution equivalent amount in the unit transfer payment (FY2004 value) ultimately rises to approximately ¥28,000 in the Transferring to a Sustainable Growth-Oriented Economic Stage Case and approximately ¥23,000 in the Projection of Past 30-Year Trends Case. This is significantly higher than the ¥17,000 upper limit of contributions to NP. This difference reflects the portion where NP utilizes reserves to secure benefit levels, demonstrating that reserves play a certain role.

**Table 2-26 Financial projections for BP and the projected number of persons on which the calculation of contributions to BP is based (2024 actuarial valuation)
Population: Medium projection, Economy: Transferring to a Sustainable Growth-Oriented Economic Stage Case**

FY	① Basic Pension benefits	② Basic Pension national subsidies	③ Amount subject to contribution calculation		④ Number of people subject to contribution calculation	⑤ Unit of contribution (monthly amount) (3×④)÷12		⑥ Contribution equivalent (monthly amount) (⑤×①-national subsidy rate)	
			JPY in trillion			JPY	JPY		
2024	26.0	13.2	25.6	(25.6)	54.2	(39,316)	(19,658)		
2025	26.7	13.6	26.2	(25.5)	53.9	(39,384)	(19,692)		
2026	27.2	13.8	26.7	(25.4)	53.7	(39,368)	(19,684)		
2027	27.7	14.1	27.2	(25.5)	53.3	(39,860)	(19,930)		
2028	28.3	14.4	27.8	(25.6)	52.8	(40,387)	(20,193)		
2029	28.9	14.7	28.4	(25.5)	52.2	(40,697)	(20,348)		
2030	29.6	15.1	29.0	(25.3)	51.6	(40,914)	(20,457)		
2035	32.9	16.8	32.1	(24.4)	48.1	(42,241)	(21,120)		
2040	38.5	19.8	37.5	(24.2)	45.4	(44,536)	(22,268)		
2050	52.6	27.2	51.0	(23.3)	40.9	(47,443)	(23,722)		
2060	70.4	36.4	68.0	(22.0)	37.1	(49,324)	(24,662)		
2070	93.4	48.3	90.1	(20.6)	33.1	(51,825)	(25,913)		
2080	122.7	63.5	118.4	(19.1)	29.1	(54,677)	(27,338)		
2090	156.6	81.0	151.3	(17.3)	26.3	(54,593)	(27,297)		
2100	198.4	102.5	191.7	(15.5)	23.4	(55,095)	(27,547)		
2110	252.1	130.3	243.6	(13.9)	20.6	(56,096)	(28,048)		
2120	318.0	164.3	307.3	(12.4)	18.4	(55,944)	(27,972)		

Long-term economic assumptions			
Inflation rate	2.0%		
Wage growth rate (real adjusted for inflation)	1.5%		
ROI	Real (adjusted for inflation)	3.2%	
	Spread (adjusted for wages)	1.7%	
Economic growth rate (real)	1.1%		
20-30 years from FY2034	-1.80%		

Replacement ratio (after end of benefit level adjustment)	Last year of benefit level adjustment	
		57.6%
Basic	25.0%	No adjustment
Earnings-related	32.6%	2037

FY	Number of covered people subject to contribution calculation							
	Total	1st category	Employees in EPI & MAAs			MAAs		
			2nd category	3rd category	EPI	2nd category	3rd category	
	millions	millions	millions	millions	millions	millions	millions	millions
2024	54.2	6.4	41.1	6.7	36.9	6.0	4.2	0.7
2025	53.9	6.1	41.3	6.5	37.1	5.8	4.2	0.6
2026	53.7	6.0	41.4	6.3	37.2	5.7	4.2	0.6
2027	53.3	5.9	41.4	6.1	37.2	5.5	4.2	0.6
2028	52.8	5.7	41.2	5.9	37.1	5.3	4.2	0.6
2029	52.2	5.5	41.1	5.6	36.9	5.1	4.1	0.6
2030	51.6	5.3	40.9	5.4	36.8	4.9	4.1	0.5
2035	48.1	4.5	39.1	4.4	35.1	4.0	4.0	0.5
2040	45.4	3.9	37.8	3.7	34.0	3.3	3.8	0.4
2050	40.9	3.5	34.1	3.4	30.5	3.0	3.5	0.4
2060	37.1	3.2	30.9	3.0	27.6	2.7	3.2	0.3
2070	33.1	2.8	27.5	2.7	24.6	2.4	2.9	0.3
2080	29.1	2.5	24.3	2.4	21.6	2.1	2.6	0.3
2090	26.3	2.3	21.9	2.2	19.6	1.9	2.3	0.2
2100	23.4	2.0	19.5	1.9	17.4	1.7	2.1	0.2
2110	20.6	1.8	17.2	1.7	15.3	1.5	1.9	0.2
2120	18.4	1.6	15.3	1.5	13.7	1.3	1.7	0.2

Notes: 1. The amount of national subsidy ② includes the local government subsidy for the Basic Pension transfer payment.

2. Contribution equivalent ⑥ corresponds to the contribution that would be required if Basic Pension benefits (excluding the amount corresponding to the national subsidy) were to be financed on an entirely PAYG basis.

3. In the case of NP, the contribution level from FY2017 is fixed at ¥16,900 (FY2004 value) and financial equilibrium is achieved over an around 100-year period based on a PAYG approach incorporating the maintenance and use of reserves. The contribution equivalent, etc., is therefore shown in FY2004 value in parentheses (). In addition, the contribution exemption system for the period before and after childbirth for the first category of covered persons came into effect in April 2019, so the contribution equivalent will increase by 100 yen in FY2004 value from FY2019. For this reason, in FY2019 the NP contribution provided for in Article 87, paragraph 3 of the National Pension Act was ¥17,000 per month in FY2004 value, and the actual contribution was revised in accordance with the inflation rate and wage growth following the 2004 Reform Act, and so came to ¥16,980 per month.

Table 2-27 Financial projections for BP and the projected number of persons on which the calculation of contributions to BP is based (2024 actuarial valuation)

Population: Medium projection, Economy: Projection of Past 30-Year Trends Case

Long-term economic assumptions	
Inflation rate	0.8%
Wage growth rate (real adjusted for inflation)	0.5%
ROI	Real (adjusted for inflation) 2.2%
	Spread (adjusted for wages) 1.7%
Economic growth rate (real)	-0.1%
20-30 years from FY2034	-0.70%

	Replacement ratio (after end of benefit level adjustment)	Last year of benefit level adjustment
Replacement ratio	50.4%	2057
Basic	24.9%	2026
Earnings-related	25.5%	2057

FY	①	②	③	④	⑤	⑥
	Basic Pension benefits	Basic Pension national subsidies	Amount subject to contribution calculation (FY2004 value)	Number of people subject to contribution calculation	Unit of contribution (monthly amount) (③÷④)×12 (FY2004 value)	Contribution equivalent (monthly amount) (⑤×⑥)÷(1+nominal subsidy rate) (FY2004 value)
	JPY in trillion	JPY in trillion	JPY in trillion	millions	JPY	JPY
2024	26.0	13.2	25.6 (25.6)	54.2	(39,319)	(19,660)
2025	26.7	13.6	26.2 (25.5)	53.9	(39,399)	(19,699)
2026	27.1	13.8	26.6 (25.3)	53.6	(39,274)	(19,637)
2027	27.4	13.9	26.9 (25.3)	53.2	(39,590)	(19,795)
2028	27.6	14.1	27.1 (25.3)	52.7	(40,052)	(20,026)
2029	27.9	14.2	27.3 (25.3)	52.1	(40,482)	(20,241)
2030	28.1	14.3	27.5 (25.3)	51.4	(40,953)	(20,476)
2035	29.2	14.9	28.5 (25.0)	47.7	(43,656)	(21,828)
2040	30.9	15.8	30.0 (24.9)	44.9	(46,127)	(23,064)
2050	31.4	16.2	30.4 (22.1)	40.5	(45,437)	(22,718)
2060	31.0	16.0	29.9 (19.1)	36.8	(43,296)	(21,648)
2070	32.0	16.6	30.8 (17.3)	32.8	(43,988)	(21,994)
2080	33.3	17.2	32.1 (15.8)	28.9	(45,660)	(22,830)
2090	34.1	17.7	32.9 (14.3)	26.1	(45,509)	(22,754)
2100	34.7	18.0	33.5 (12.7)	23.2	(45,807)	(22,904)
2110	35.4	18.3	34.2 (11.4)	20.4	(46,559)	(23,280)
2120	36.0	18.7	34.7 (10.2)	18.3	(46,522)	(23,261)

FY	Number of people subject to contribution calculation							
	Total	Employees in EPI & MAAs			EPI		MAAs	
		1st category	2nd category	3rd category	2nd category	3rd category	2nd category	3rd category
	millions	millions	millions	millions	millions	millions	millions	millions
2024	54.2	6.4	41.1	6.7	36.9	6.0	4.2	0.7
2025	53.9	6.2	41.2	6.5	37.0	5.9	4.2	0.7
2026	53.6	6.1	41.2	6.4	37.0	5.7	4.2	0.6
2027	53.2	6.0	41.1	6.2	36.9	5.5	4.2	0.6
2028	52.7	5.9	40.8	6.0	36.6	5.4	4.2	0.6
2029	52.1	5.8	40.5	5.7	36.4	5.2	4.1	0.6
2030	51.4	5.7	40.2	5.5	36.1	5.0	4.1	0.6
2035	47.7	5.2	37.8	4.7	33.8	4.3	4.0	0.5
2040	44.9	4.7	36.1	4.2	32.3	3.8	3.8	0.5
2050	40.5	4.2	32.5	3.8	29.0	3.4	3.5	0.4
2060	36.8	3.9	29.4	3.5	26.2	3.1	3.2	0.4
2070	32.8	3.4	26.3	3.1	23.4	2.7	2.9	0.3
2080	28.9	3.0	23.1	2.7	20.5	2.4	2.6	0.3
2090	26.1	2.7	20.9	2.5	18.5	2.2	2.3	0.3
2100	23.2	2.4	18.6	2.2	16.5	1.9	2.1	0.3
2110	20.4	2.1	16.4	1.9	14.5	1.7	1.9	0.2
2120	18.3	1.9	14.6	1.7	13.0	1.5	1.7	0.2

Notes: 1. The amount of national subsidy ② includes the local government subsidy for the Basic Pension transfer payment.

2. Contribution equivalent ⑥ corresponds to the contribution that would be required if Basic Pension benefits (excluding the amount corresponding to the national subsidy) were to be financed on an entirely PAYG basis.

3. In the case of NP, the contribution level from FY2017 is fixed at ¥16,900 (FY2004 value) and financial equilibrium is achieved over an around 100-year period based on a PAYG approach incorporating the maintenance and use of reserves. The contribution equivalent, etc., is therefore shown in FY2004 value in parentheses (). In addition, the contribution exemption system for the period before and after childbirth for the first category of covered persons came into effect in April 2019, so the contribution equivalent will increase by 100 yen in FY2004 value from FY2019. For this reason, in FY2019 the NP contribution provided for in Article 87, paragraph 3 of the National Pension Act was ¥17,000 per month in FY2004 value, and the actual contribution was revised in accordance with the inflation rate and wage growth following the 2004 Reform Act, and so came to ¥16,980 per month.

Section 3

Financial Implications of the Reform Options

In the actuarial valuation, the financial implications of the reform options that assume certain system reforms are implemented, in addition to the usual projections that are based on the current system, specifically as shown below.

- Option 1: Further expansion of employee pension plan coverage
- Option 2: Benefit increase due to the extension of contribution payment period for BP
- Option 3: Synchronizing automatic financial balancing periods for benefit adjustments
- Option 4: Review of criteria for suspending benefits under the old-age pension system for active employees
- Option 5: Review of the rules for setting the highest standardized monthly remuneration grade

Furthermore, regarding the modified indexation adjustment mechanism, which has been addressed at the Pension Subcommittee of the Advisory Council on Social Security, projections are also implemented to examine the effects of abolishing the nominal floor measure (referential estimations).

Financial implications of these reform options are intended to provide underlying data for varied discussions of issues concerning the pension system reform, but it should be noted that they are not assumed to be reflected in the system as they are.

1. Option 1: Further expansion of employee pension plan coverage

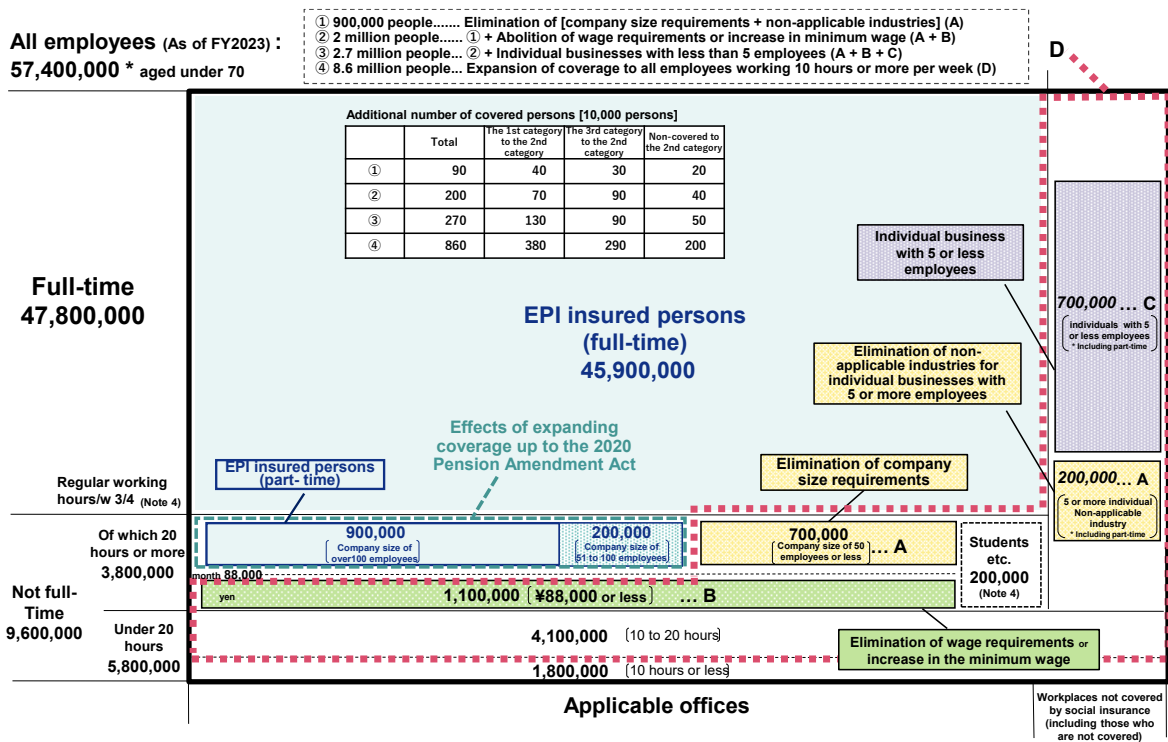
(1) Assumptions

Employee pension plan coverage has been expanded to part-time workers in October 2016 (for part-time workers who meet the following requirements: i) 20 or more working hours per week, ii) a monthly wage of 88,000 yen or more, iii) an expected period of service of one year or more, iv) non-students, and v) working at companies with 501 or more employees), and in April 2017 (expanded coverage applies to part-time workers in a company with 500 or fewer employees based on the labor-management agreement on a company-by-company basis (applicable to the national and local governments regardless of the size)). Furthermore, in October 2022, with the enforcement of the Act Partially Amending the National Pension Act, etc. for the Purpose of Strengthening the Functions of the Pension System (Act No. 40 of 2020, hereinafter referred to as the "2020 Pension Amendment Act"), the coverage was expanded to part-time workers working at companies with 101 or more employees, which was further expanded to part-time workers working at companies with 51 or more employees in October 2024 in accordance with the abolition of the employment period requirement for part-time workers in October 2022.

The number of part-time workers was approximately 900,000 by the end of FY2023, and it is estimated that approximately 200,000 part-time workers will be newly covered by the expansion of coverage in October 2024. Four reform options are estimated starting from October 2027 (Figure 3-1):

- 1) The company size requirement for employee pension plans is abolished, and non-applicable industries for individual businesses with five or more employees are eliminated (approximately 900,000 persons covered).
- 2) In addition to 1), abolishing the wage requirement for part-time workers or achieving equivalent effects by raising the minimum wage (approximately 2 million persons covered)
- 3) In addition to 2), coverage is expanded to individual businesses with fewer than 5 employees (approximately 2.7 million persons covered).
- 4) Applied to all employees with scheduled working time of 10 hours or more per week (approximately 8.6 million persons covered)

Figure 3-1 The additional number of covered persons by further expanding employee pension plan coverage



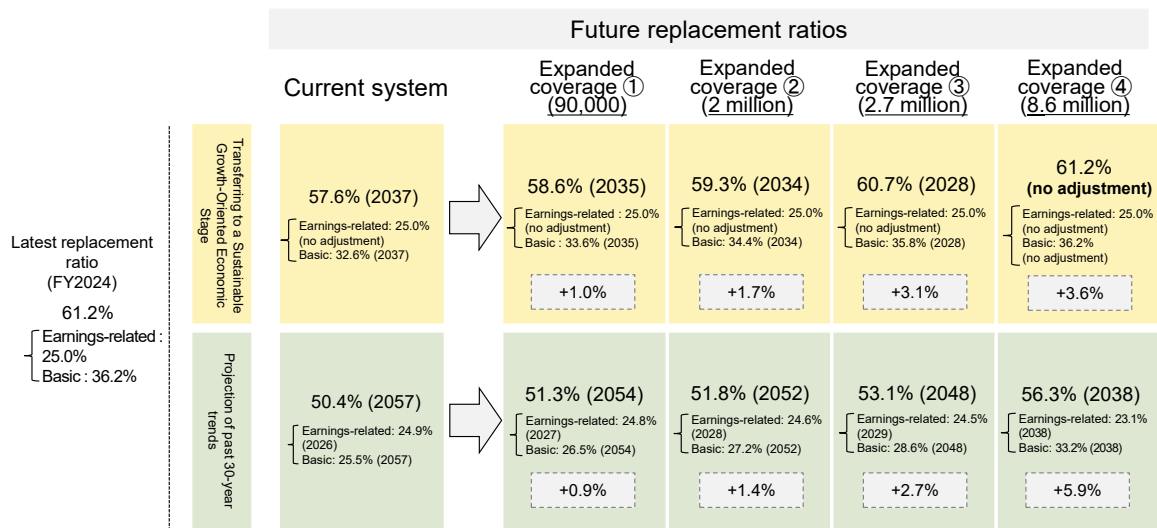
(2) Estimated results

Estimates of how much sooner benefit level adjustment would be concluded and to what extent future benefit levels would rise by further expanding the coverage of employee pension plans are shown in Figure 3-2.

The assumptions were based on the medium projection of population (medium fertility, medium mortality and annual net migration of 164,000 foreigners) and two economic cases (Transferring to a Sustainable Growth-Oriented Economic Stage Case and the Projection of Past 30-Year Trends Case).

Figure 3-2 Estimated results for further expansion of employee pension plan coverage

- 1) If the corporate size requirement for employee security plans is abolished and non-applicable industries for individual enterprises with five or more employees are eliminated: **An increase of approx. 900,000**
 2) In addition to 1), abolishing the wage requirement for part-time workers or achieving equivalent effects by raising the minimum wage: **An increase of approx. 2 million**
 3) In addition to 2), if coverage is expanded to individual enterprises with fewer than five employees: **An increase of approx. 2.7 million**
 4) If coverage is expanded to all employees with scheduled working hours exceeding 10 hours per week: **An increase of approx. 8.6 million**
 - For the sake of convenience, estimates are calculated based on the assumption that further expansion of coverage is implemented in October 2027.



Note 1: These are replacement ratios after the benefit level adjustment is completed. The figure in parentheses is the fiscal year of ending benefit level adjustments.

Note 2: Assumptions are based on the medium projection of population (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

Compared to the current system, the replacement ratio will improve by 0.9–1.0 percentage points in the case of the expanded coverage in 1), by 1.4–1.7 percentage points in the case of the expanded coverage in 2), by 2.7–3.1 percentage points in the case of the expanded coverage in 3), and by 3.6–5.9 percentage points in the case of the expanded coverage in 4). Looking at the ending year of the modified indexation adjustment, the more people who are covered as a result of the expansion of coverage, the earlier the ending year of the BP adjustment tends to be. The breakdown shows that in all cases the replacement ratio for the BP portion has improved, whereas the earnings-related portion remained flat or declined slightly.

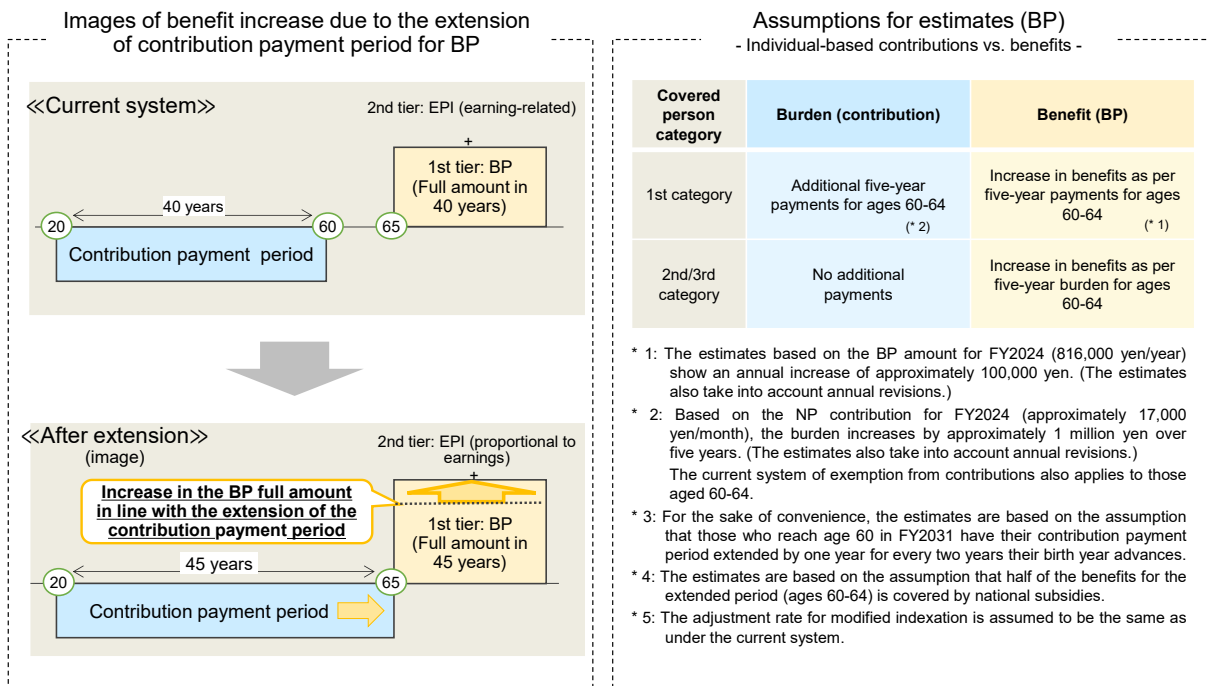
2. Option 2: Benefit increase due to the extension of contribution payment period for BP

(1) Assumptions

When the National Pension scheme was established in 1961, the enrollment age was set from 20 to 60 years old, and it has remained unchanged for over 60 years. During this period, socioeconomic conditions have significantly changed, including increased life expectancy and rising employment rates among those in their early 60s. Taking into account the extension of healthy life expectancy and the progress in elderly employment, extending the contribution payment period for BP is considered a natural and effective means to ensure improvement in the benefit level of BP. Therefore, the estimates assume a system where the contribution payment period for BP is extended from the current 40 years (ages 20 to 59) to 45 years (ages 20 to 64), and the BP benefit is increased in proportion to the extended contribution payment period for BP (Figure 3-3).

Figure 3-3 Images and assumptions of benefit increase due to the extension of contribution payment period for BP

○ If the BP contribution payment period is extended from the current 40 years (ages 20 to 59) to 45 years (ages 20 to 64), the benefit will be increased accordingly, thereby enhancing the BP, which is a benefit common to all insured persons.



(2) Estimated results

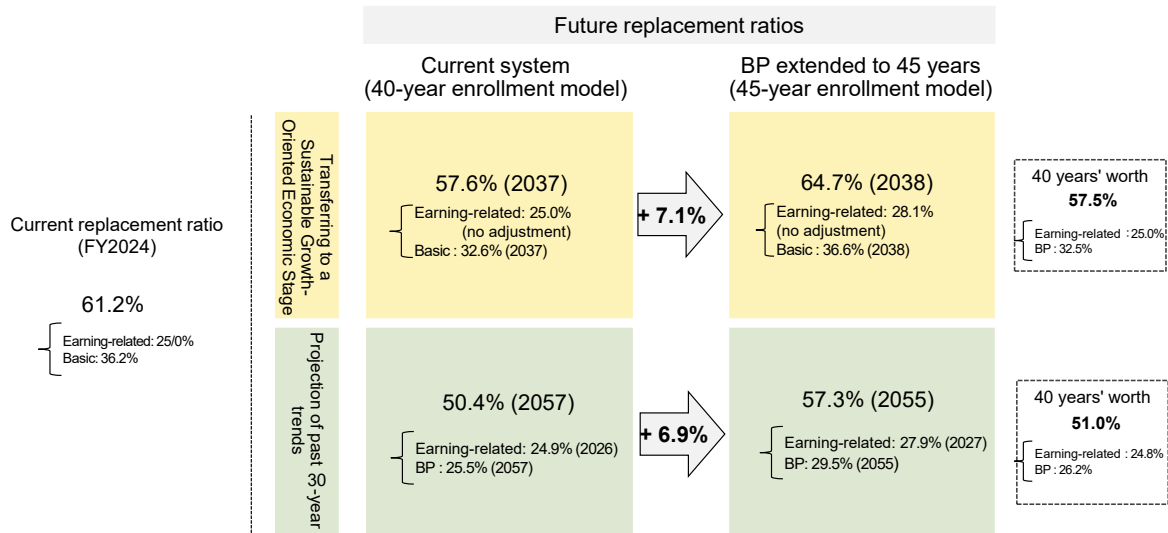
Figure 3-4 shows how much earlier the year of termination for benefit level adjustments would occur and how much future benefit levels would increase if the contribution payment period for BP were extended and benefits were increased. Similar to the further expansion of employee pension plan coverage, the population assumptions are based on the medium projection (medium fertility and medium mortality) and the economic assumptions on the "Transferring to a Sustainable Growth-Oriented Economic Stage Case" and the "Projection of Past 30-Year Trends Case."

In both cases, the replacement ratio increases by approximately 7 percentage points, resulting in a significant improvement in benefit levels. This is because extending the contribution payment period for BP from 40 to 45 years increases the model pension amount by a factor of 45/40, leading to a corresponding increase in benefit levels by roughly the same factor. When the contribution payment period for BP is extended from 40 to 45 years, benefit levels are expected to increase accordingly, but this change has both positive effects (such as increased contribution income) and negative effects (such as higher future benefit payments). As a result, there is no significant change in the year in which benefit adjustments end, and when benefit levels are evaluated for 40 years, the difference is not substantial.

Figure 3-4 Estimated results of benefit increase due to the extension of contribution payment period for BP

○ If the BP contribution payment period is extended from the current 40 years (ages 20 to 59) to 45 years (ages 20 to 64), and the BP benefit increases in proportion to the extension of the contribution payment period:

- For ease of calculation, the estimates are based on the assumption that those who turn 60 years old in 2031 will have their contribution payment period extended by one year for every two years their birth year advances.
- The estimates are based on the assumption that half of the benefits for the extended period (ages 60-64) is covered by national subsidies.
- The adjustment rate for modified indexation is assumed to be the same as under the current system.



Note 1: These are the replacement ratios after the benefit level adjustment is completed. The figure in parentheses is the fiscal year of ending adjustments.

Note 2: The population assumptions used in the estimates are based on the medium projection (medium fertility, medium mortality, and annual net immigration of 164,000 foreigners).

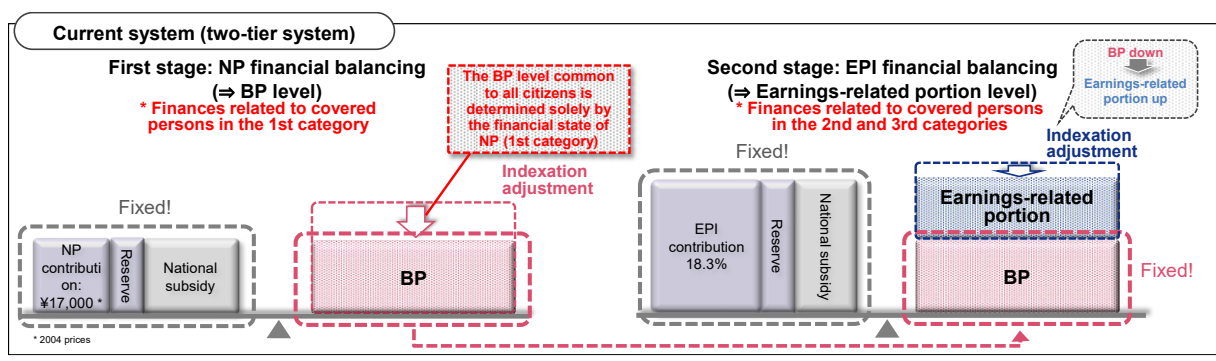
Note 3: Under the current system, when the EPI enrollment period is 45 years from age 20 to age 64, the benefit level of only the earnings-related portion increases by a factor of 45/40 from 40 years of enrollment.

3. Option 3: Synchronizing automatic financial balancing periods for benefit adjustments

(1) Assumptions

Under the financial framework introduced in the 2004 reforms, the end year of modified indexation for benefit level adjustments is determined in two stages. Specifically, the BP benefit level adjustments are continued until the finances of NP, related to the persons covered in the first category, are balanced in the first stage, and with that BP level taken as given, the benefit level of the earnings-related portion of EPI is adjusted until the finances are balanced in the second stage (Figure 3-5).

Figure 3-5 How to determine the end year of modified indexation adjustments (current)



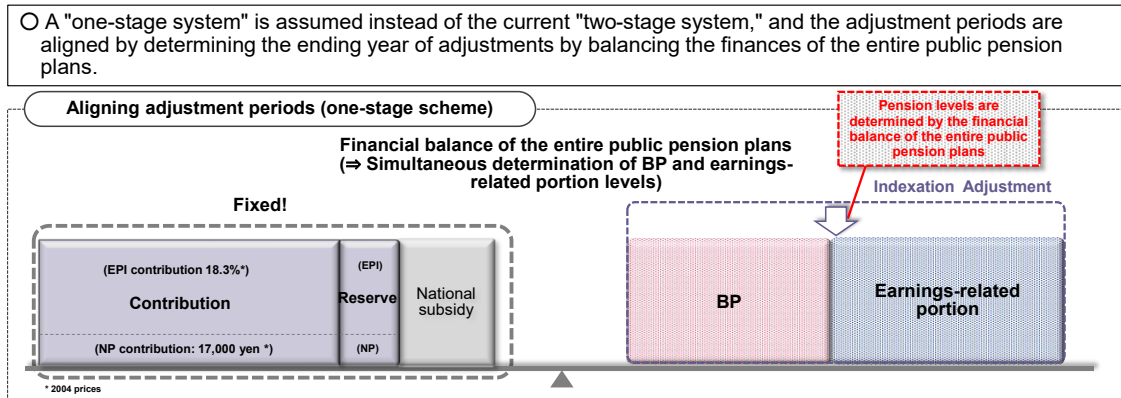
Under this system, if the NP finances deteriorate and the BP benefit level declines, fewer financial resources are needed to fund the first-tier BP in the second stage, and the extent of benefit adjustment for the second-tier earnings-proportional portion is reduced, leading to an increase in the benefit level of the earnings-related portion.

In this system, during the deflationary economy, the period for BP benefit level adjustments via modified indexation was prolonged due to the nominal floor measure on pension amounts. One of the reasons for this is that BP is a fixed benefit, so even if wage levels fell in a deflationary economy, the BP structure prevented a reduction in the benefit amount, as seen in the benefit level of the second-tier earnings-proportional portion. The prolonged BP benefit adjustments mean that in the future, pension amounts, including those for EPI recipients, will decrease, and the income redistribution function will also decline, resulting in a greater decline in pension amounts for those in lower-income brackets.

Given this background, estimates were conducted for changes in the method of determining the ending year of benefit level adjustments via modified indexation to the financial balance of the entire public pension plans so that the periods of modified indexation adjustments for BP and the earnings-related portion can be aligned, thereby bringing an early termination to modified indexation adjustments of BP (Figure 3-6).

There were no specific assumptions regarding the revision of the BP contribution mechanism required for synchronizing the adjustment periods of the BP and the earnings-related portion via modified indexation. However, as long as the assumptions of synchronizing the adjustment periods persist, the impact on benefits and burdens will be the same regardless of how the contribution system is revised if the adjustment periods for modified indexation are synchronized.

Figure 3-6 How to determine the end year of modified indexation adjustments (assumptions)

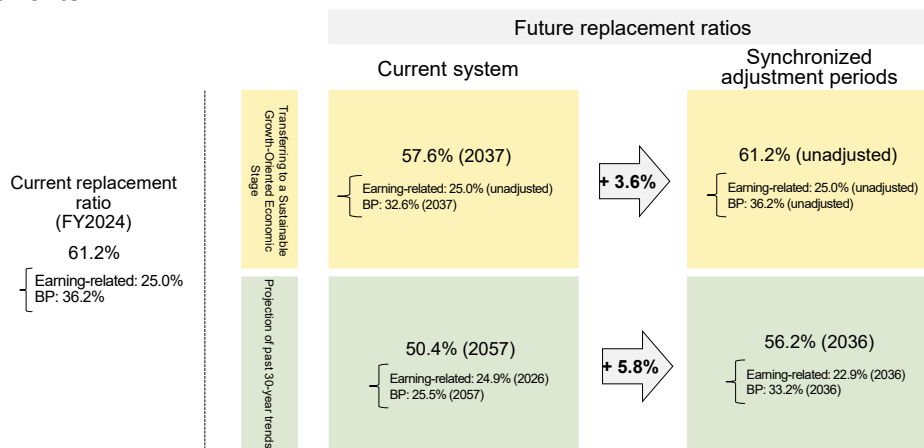


(2) Estimated results

Figure 3-7 shows the estimates of how much earlier benefit level adjustments will be terminated and how much the future benefit level will increase if the modified indexation adjustment periods are synchronized. As with the further expansion of employee pension plan coverage, the population assumptions are based on the medium projection (medium fertility and medium mortality). The "Transferring to a Sustainable Growth-Oriented Economic Stage Case" and the "Projection of Past 30-Year Trends Case" are used for economic assumptions.

Estimates show that the replacement ratio increased by 3.6 to 5.8 percentage points, resulting in a significant improvement in benefit levels. Especially, in the Projection of Past 30-Year Trends Case, the end of modified indexation was shortened by 21 years, from FY2057 to FY2036, and the post-termination replacement ratio rose to 56.2% from the current 50.4%. Looking at the breakdown, the replacement ratio for the earnings-related portion fell by 2.0 percentage points from the current system, whereas that for BP rose by 7.7 percentage points, resulting in a significant increase overall. This is because half of BP is funded by national subsidies, making the increase in benefit levels of BP greater than the decrease in the benefit levels of the earnings-related portion.

Figure 3-7 Estimated results for synchronizing automatic financial balancing period for benefit adjustments



Note 1: These are replacement ratios after the benefit level adjustment is completed. The figure in parentheses is the fiscal year of ending benefit level adjustments.

Note 2: Assumptions are based on the medium projection of population (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

4. Option 4: Review of criteria for suspending benefits under the old-age pension system for active employees

(1) Assumptions

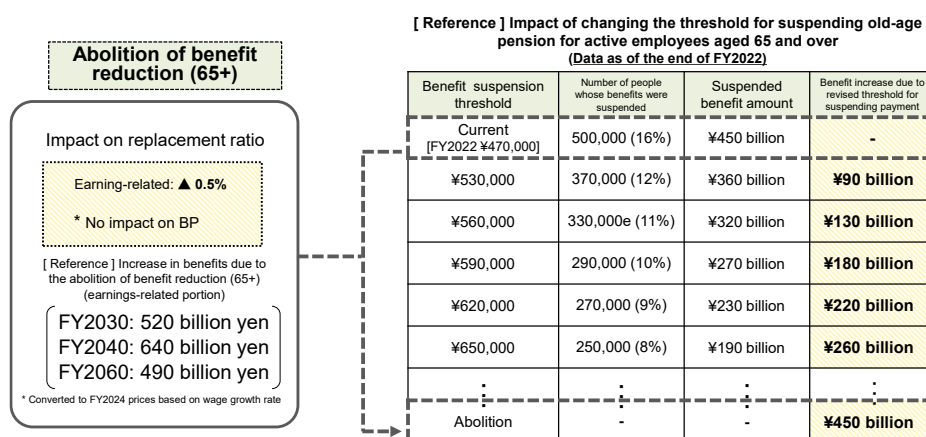
According to the 2000 reforms, a system that suspends part or all benefits to old-age EPI beneficiaries (for long-term contributors) aged 65 or older who are employed and earn a certain wage or more (the old-age pension system for active employees) was introduced. An estimate of what would happen if this system were abolished was conducted.

(2) Results of estimates

It is expected that if the old-age pension system for active employees aged 65 and over is abolished, the earnings-related portion of benefits increases by approximately 450 billion yen in FY2022, and the future replacement ratio falls by about 0.5 percentage points in the Projection of Past 30-Year Trends Case, resulting in an increase in benefits for working pension recipients and a decline in the benefit level of future recipients. In addition, because the suspension of payments under the old-age pension system for active employees applies to the voluntary benefits under EPI, the impact on the relevant replacement ratio is limited only to the earnings-related portion (Figure 3-8).

In the Transferring to a Sustainable Growth-Oriented Economic Stage Case, as the benefit level adjustments will not be projected for the earnings-related portion under the current system, the impact on the replacement ratio cannot be measured, but there seems to be a similar effect in terms of the impact on pension finances.

Figure 3-8 Estimated results for reviewing criteria for suspending benefits under the old-age pension system for active employees



Note 1: This shows the impact on the replacement ratio in the Projection of Past 30-Year Trends Case (the population assumptions are based on the medium projection (medium fertility, medium mortality, and annual net migration of 164,000 foreigners)) after the benefit level adjustments have been terminated

The replacement ratio (earnings-related) after benefit level adjustments in the Projection of Past 30-Year Trends Case: [Current] 24.9% (FY2026) → [Abolition of benefit reduction (65+)] 24.4% (FY2029)

The impact on the replacement ratio cannot be measured in the Transferring to a Sustainable Growth-Oriented Economic Stage Case, because adjustments of the earnings-related portion are not likely to be conducted under the current system.

Note 2: The number in parentheses for the number of people whose payments have been suspended in the table on the right indicates the share of employed old-age pension beneficiaries aged 65 and over (3.08 million people).

Note 3: Those who were only insured by the 2nd to 4th EPI coverage are not included in the number of people whose benefits have been suspended in the table on the right, but included in the amount of benefits suspended.

5. Option 5: Review of the rules for setting the highest standardized monthly remuneration grade

(1) Assumptions

If at the end of each fiscal year the amount equivalent to twice the average standardized monthly remuneration grade of all covered persons exceeds the highest standardized monthly remuneration grade and this state is deemed likely to continue, a new highest grade may be added by government ordinance. In fact, based on this revised rule, the highest standardized monthly remuneration grade was raised to 650,000 yen in 2020. The proportion of covered persons who fall under this highest grade for EPI is approximately 6% as of FY2022. The highest grade was then divided into the following three for estimates:

- 1) 750,000 yen (equivalent to 4% of the highest grade individuals)
- 2) 830,000 yen (equivalent to 3% of the highest grade individuals)
- 3) 980,000 yen (equivalent to 2% of the highest grade individuals)

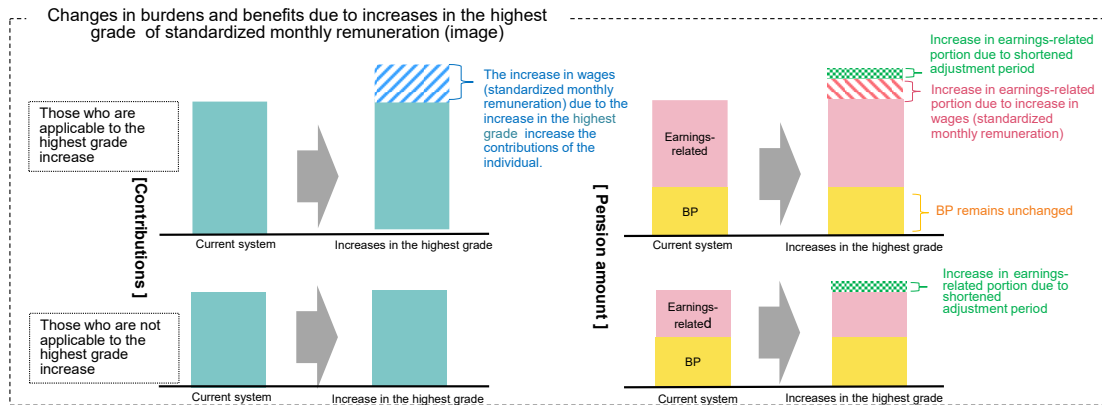
(2) Estimated results

If the highest standardized monthly remuneration grade is raised, the earnings-related portion of those who fall under the new highest grade increases, and contribution income also increases, which typically increases the investment return of reserves until increases in contribution income are reflected in benefits. This results in an increase in the future benefit level for all EPI recipients (Figure 3-9).

Specifically, if the proportion of individuals whose standardized monthly remuneration reaches the highest grade is equivalent to (1) 4%, their share of contributions increases by 9,000 yen per month, whereas their future benefits in the earnings-related portion increase by 61,000 yen per year if they maintain their grade for 10 years. In addition, this makes the replacement ratio increase by 0.2 percentage points for the entire benefit level in the Projection of Past 30-Year Trends Case with the population assumption of low fertility. If the proportion of individuals whose standardized monthly remuneration reaches the highest grade is equivalent to (2) 3% or (3) 2%, the replacement ratio increases by 0.4 or 0.5 percentage points, respectively (Figure 3-10).

In cases such as the Projection of Past 30-Year Trends Case with assumptions of medium fertility or the Transferring to a Sustainable Growth-Oriented Economic Stage Case, as it is expected that the benefit level adjustments for the earnings-related portion are not conducted (or end earlier) under the current system, the impact on the replacement ratio cannot be measured, but there seems to be a similar effect in terms of the impact on pension finances.

Figure 3-9 Changes in contribution burdens and benefits due to the increase in the highest standardized monthly remuneration grade



Changes in burdens and benefits due to the increase in the highest grade of standardized monthly remuneration

Enrollment period	Highest standardized monthly remuneration grade					
	¥750,000		¥830,000		¥980,000	
	Contribution (share of Individual)	Employees' old-age pensions	Contribution (share of Individual)	Employees' old-age pensions	Contribution (share of Individual)	Employees' old-age pensions
10 years	¥9,000/month increase	¥61,000/year increase (for life)	¥16,000 /month increase	¥110,000/year increase (for life)	¥30,000/month increase	¥201,000/year increase (for life)
20 years		¥122,000/ year increase (for life)		¥219,000/year increase (for life)		¥402,000/year increase (for life)

Note 1: The amounts of contributions (individual share) and employees' old-age pensions are estimated by assuming that the respective highest grades of standardized monthly remuneration are applied throughout the contribution payment period, and calculating the difference from the case in which the current highest grade of 650,000 yen for standardized monthly remuneration is applied.

Note 2: The amount of the employees' old-age pensions is estimated based on the pension amount for FY2024. (In reality, the pension amount is revised every fiscal year.)

Figure 3-10 Estimated results for the revision of the highest standardized monthly remuneration grade

The standardized monthly remuneration cap	Number of capped individuals (Note 1) * () indicates the proportion of capped individuals	Increase in contribution income (Note 2) * () indicates employer's share	Impact on replacement ratio (Note 3)	<Reference> (Note 4) Old-age EPI benefit increase for capped individuals * Example of a case where the revised standardized monthly remuneration cap applies for 10 years
Current ¥650,000	2,590,000 (6.2%)	-	-	
Revision ① ¥750,000	1,680,000 (4.0%)	¥430 billion (¥215 billion)	Earning-relate: +0.2% * No impact on BP	¥61,000 / year (lifetime)
Revision ② ¥830,000	1,230,000 (3.0%)	¥660 billion (¥330 billion)	Earning-relate: +0.4% * No impact on BP	¥110,000 / year (lifetime)
Revision ③ ¥980,000	830,000 (2.0%)	¥970 billion (¥485 billion)	Earning-relate: +0.5% * No impact on BP	¥201,000 / year (lifetime)

Note 1: The number of individuals whose standardized monthly remuneration reached the highest grade was estimated by apportioning 2.59 million individuals (type 1 EPI only) in the current highest grade (650,000 yen) as of the end of FY2022, based on the distribution of the number of insured persons by standardized monthly remuneration grade for health insurance and seamen's insurance, according to the "Survey on the Actual Situation of Insured Persons of Health Insurance and Seamen's Insurance (October 2022)." () indicates the share of individuals in the highest grade to the entire insured persons.

Note 2: The increase in contribution income represents one full fiscal year, and estimated based on data as of the end of FY2022.

Note 3: The impact on the replacement ratio (earnings-related) indicates the impact on the replacement ratio after the completion of benefit level adjustments in the Projection of Past 30-Year Trends Case (population assumptions are based on the low fertility, medium mortality, and annual net migration of 164,000 foreigners).*() indicate the fiscal year of ending adjustments.

[Current] 23.9% (FY2031) → [Review of the highest grade ①: 750,000 yen] 24.2% (FY2030), [Review of the highest grade ②: 830,000 yen] 24.3% (FY2030), [Review of the highest grade ③: 980,000 yen] 24.5% (FY2029)

In the Transferring to a Sustainable Growth-Oriented Economic Stage Case and the Projection of Past 30-Year Trends Case (medium fertility, medium mortality, and annual net migration of 164,000 foreigners), it is not possible to measure the impact on the replacement ratio because no adjustment to the earnings-related portion is expected (or the adjustment period is short) under the current system.

Note 4: The number of individuals in the revised highest standardized monthly remuneration grade was estimated based on the pension amount for FY2024.

6. Referential estimation

(1) Assumptions

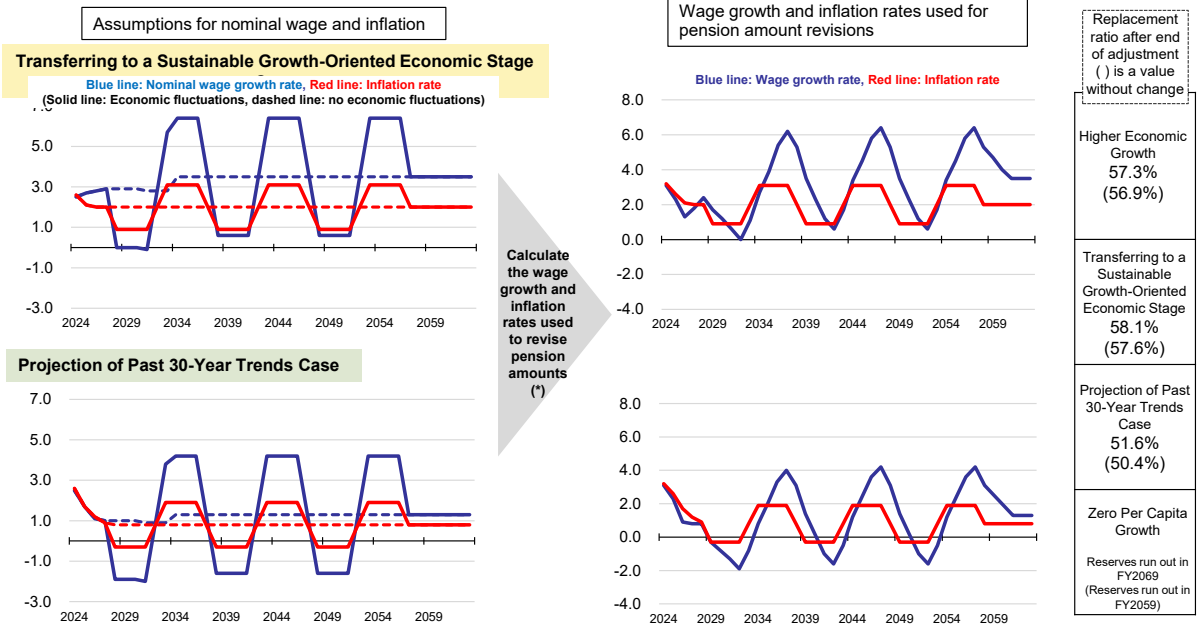
Regarding the modified indexation, since a measure was taken to limit benefit adjustments to the extent that the nominal pension amount was maintained (the nominal floor measure), subsequent applications of the modified indexation were inevitably affected by the deflationary economy.

In the referential estimation of the financial implications of the reform options in this actuarial valuation, the impact of the absence of the nominal floor measure was estimated. Also, the effect of a carryover mechanism that reflects the unadjusted portion of modified indexation adjustments to the pension amount in the next fiscal year was estimated. It is one of the pension amount revision rules that was established according to the Pension Reform Act of 2016. Of these, the estimate of the effect of the carryover is different from other estimates in that it measures the effect of a system that has already been incorporated, whereas others assume certain system reforms.

The economic assumptions in the referential estimation are based on economic fluctuations in order to assess their effects (Figure 3-11).

Figure 3-11 Assumptions of nominal wage growth and inflation rates with possible economic fluctuations

- Economic fluctuations are set up by adding cyclical variations in prices and wages to the economic assumptions of the 2024 Actuarial Valuation (10-year cycle, ± 1.1% inflation, and ± 2.9% nominal wage growth).
 - Due to economic fluctuations, the modified indexation does not fully work, and the effect of the modified indexation carryover mechanism in the Pension Reform Act of 2016 comes into play.
- (Note) Economic fluctuations are assumed to occur over a 30-year period (three cycles) from FY2028 to FY 2057.

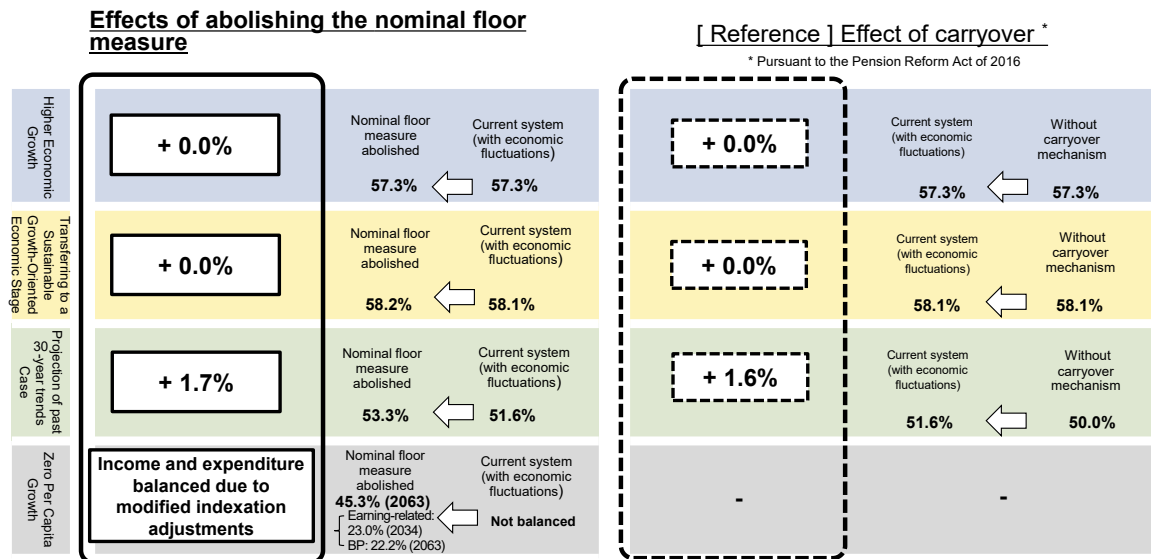


* How to calculate wage growth rate used for pension revision: "Real wage increase rate from 2 to 4 years ago (average of 3 fiscal years)" x "Price increase rate of the previous year"

(2) Estimated results

Eliminating the nominal floor measure has a positive effect on the replacement ratio, with the results showing a particularly large effect in the Projection of Past 30-Year Trends Case and the Zero Per Capita Growth Case when economic growth is low. Furthermore, in the Projection of Past 30-Year Trends Case in which there is an unadjusted portion of the modified indexation, the replacement ratio improves due to the carryover mechanism, and the results reaffirm the significance of the revision in the Pension Reform Act of 2016 (Figure 3-12).

Figure 3-12 Effects of revising the modified indexation adjustment mechanism



Note 1: These are the replacement ratios after the benefit level adjustment is terminated. The figure in parentheses is the fiscal year of ending benefit level adjustments.

Note 2: The population assumptions used in the estimates are based on the medium projection (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

Section 4 Projection of individual pension amount distribution

1. Overview of the projection of pension amount distribution

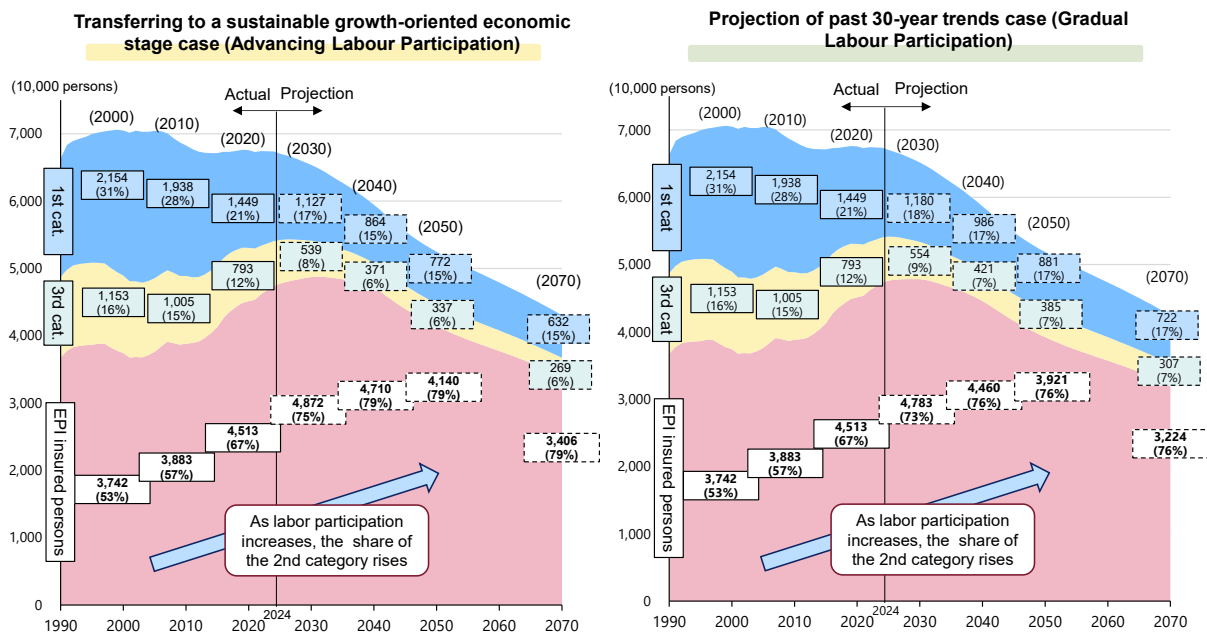
(1) Significance of the projection of pension amount distribution

In this actuarial valuation, the "projection of pension amount distribution" (the "distribution projection") for estimating pension amounts on an individual basis was published for the first time. It showed how the average and distribution of pension amounts at the start of receiving pension benefits at the age of 65 change by generation.

In previous actuarial valuations, future pension benefit levels were estimated based on a "model pension." However, the model pension assumes identical enrollment periods in the EPI for all generations (husbands: 40 years and wives: 0 years). This made it difficult to fully assess the impact of increased labor participation by women and the elderly on future pension levels.

In recent years, however, labor participation among women and the elderly has significantly increased, and the number of EPI insured persons continues to grow. The proportion of EPI insured persons to those covered by all public pensions has risen from 53% in 2000 to just under 70% recently. Projecting this trend further into the future, it is expected to rise to 79% under the Advancing Labor Participation Scenario and 76% under the Baseline Growth Rate and Gradual Labor Participation Scenario by 2040 (Figure 4-1).

Figure 4-1 Actual and projected number of insured persons (2024 Actuarial Valuation)



(Note) The number of insured persons is the average for the fiscal year, but the actual figures are those at the end of the fiscal year.

The distribution projection that is based on the above fact confirmed that younger generations tend to have a longer enrollment period for EPI and more substantial pensions. This trend is particularly pronounced among women.

This effect could not be confirmed in estimates based on model pensions, and the distribution projection can be said to be the first to confirm this effect with concrete figures.

(2) Methodology for pension amount distribution projections

1) Basic data and projection targets

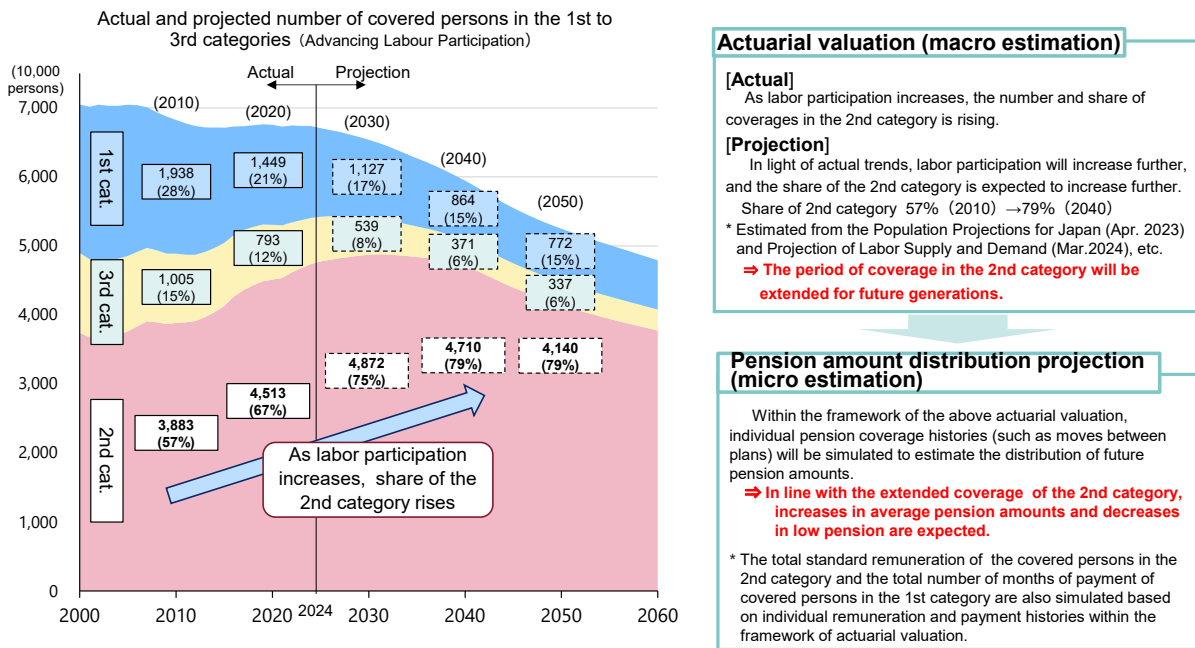
The base data for the distribution projection is the records for individually insured persons (one-fifth of the sample) as of the end of FY2021. The data shows the total insured periods of covered person in the first, second, and/or third categories, including the mutual aid period. The availability of data on such consolidated coverage periods enabled the implementation of the distribution projection for the first time.

The projection targets are individuals aged between 20 and 65 in FY2024, and they are used for estimating the amount of old-age pension that individuals are eligible to receive when they reach the age of 65. This is the pension amount awarded at the age of 65 when they do not choose “advanced” or “deferred” payment, and it does not include additional pension benefits. In other words, if an individual continues working after the age of 65 and remains covered by EPI or defers the start of receiving benefits, the actual pension amount increases even more than in the distribution projections.

2) Ensuring consistency with macro estimation

The distribution projection is estimated in coordination with the actuarial valuation (macro estimation) to ensure consistency. Taking the number of insured persons as an example, the proportion of covered persons in the second category to those insured in all public pension plans has been increasing in recent years and is expected to rise further in the future. The actuarial valuation takes this into account, and it expects the proportion of covered persons in the second category to increase among younger generations. The distribution projection is calculated within the framework of this actuarial valuation. Specifically, based on the assumption that the total number of insured persons is determined in the macro estimation, the distribution projection determines who moves between systems, and it simulates individual enrollment histories. Furthermore, the total amount of standardized remuneration and the total number of payment months for covered persons in the first category are also estimated to align with the macro estimation, so the total individual pension amounts simulated in the distribution projection are consistent with the results of the macro estimation in the actuarial valuation (Figure 4-2).

**Figure 4-2 Simulation method for the projection of individual pension amount distribution
(in coordination with the actuarial valuation)**



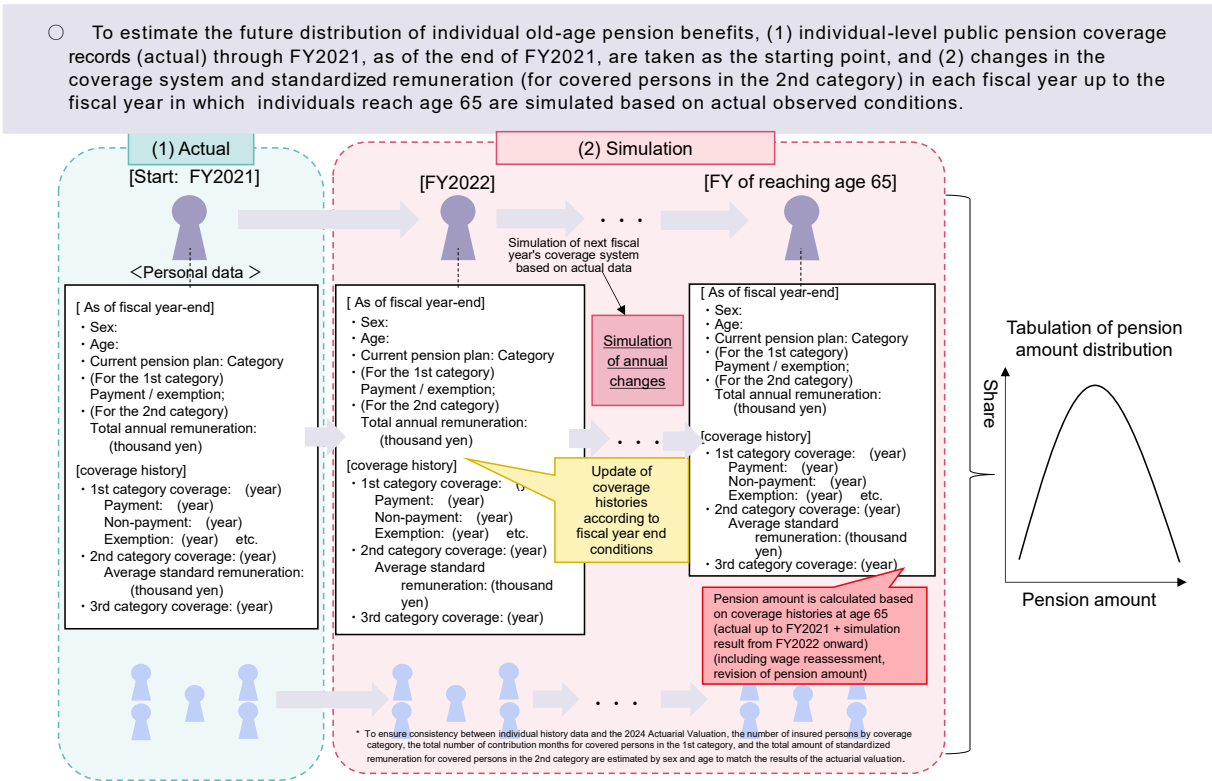
(Note) The number of insured persons is the average for the fiscal year, but the actual figures are those at the end of the fiscal year. The EPI insured persons aged 65 and over are also included in the 2nd category.

3) Simulation method

The starting point for the simulation is the actual data from the individual-based insured persons' records at the end of FY2021. For example, a 50-year-old at this point of time has 30 years of actual data from age 20 to 50, which is utilized in the simulation. Based on this actual data in the coverage record, the remaining 15 years of coverage record up to the age of 65 are simulated and added to the projection for pension amounts at the age of 65. Therefore, two-thirds of the coverage record is estimated from the actual data for a 50-year-old.

The simulation estimates the coverage record one year later by simulating how an individual moves between systems and how his/her earnings change over one year, based on the current year's coverage record. This process is repeated every year. The individual pension amount is then calculated from the coverage record upon reaching the age of 65, and the distribution of these amounts is tabulated (Figure 4-3).

**Figure 4-3 Simulation method for the projection of individual pension amount distribution
(individual coverage records)**

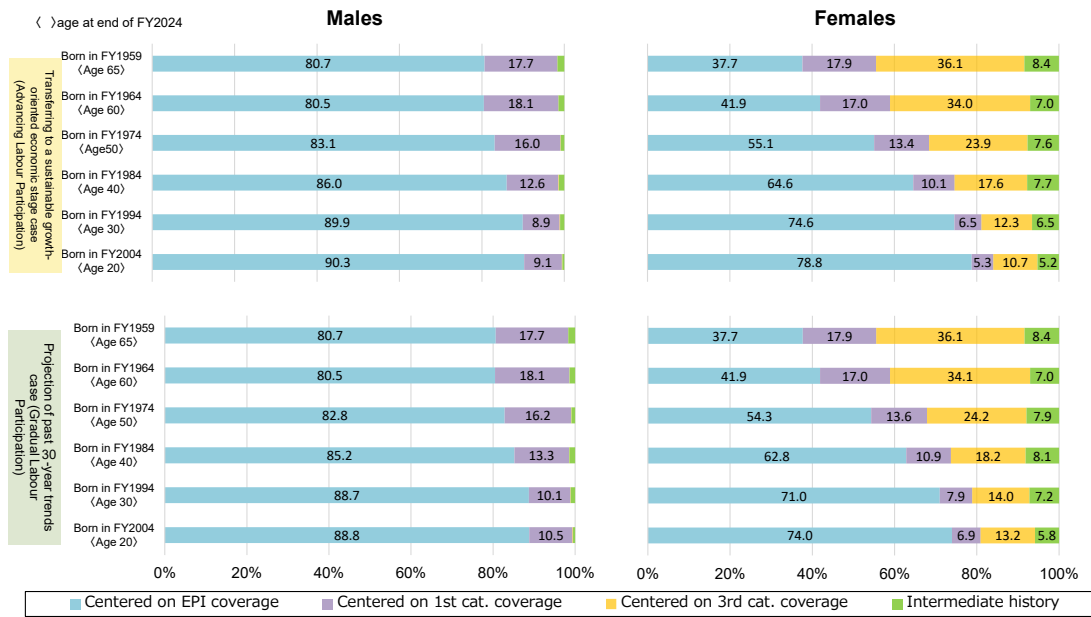


(3) Extension of EPI insured period

The distribution projection makes it possible to estimate for each generation the distribution of coverage histories, such as the pension plans in which individuals are mainly covered during their working years. These insured history types during working years are classified into "centered on the EPI period" (those with 20 or more years of EPI coverage), "centered on the first category period" (those with 20 or more years of the first category coverage), "centered on the third category period" (those with 20 or more years of the third category coverage), and "intermediate history" (those with less than 20 years in any single coverage), and changes over time are examined.

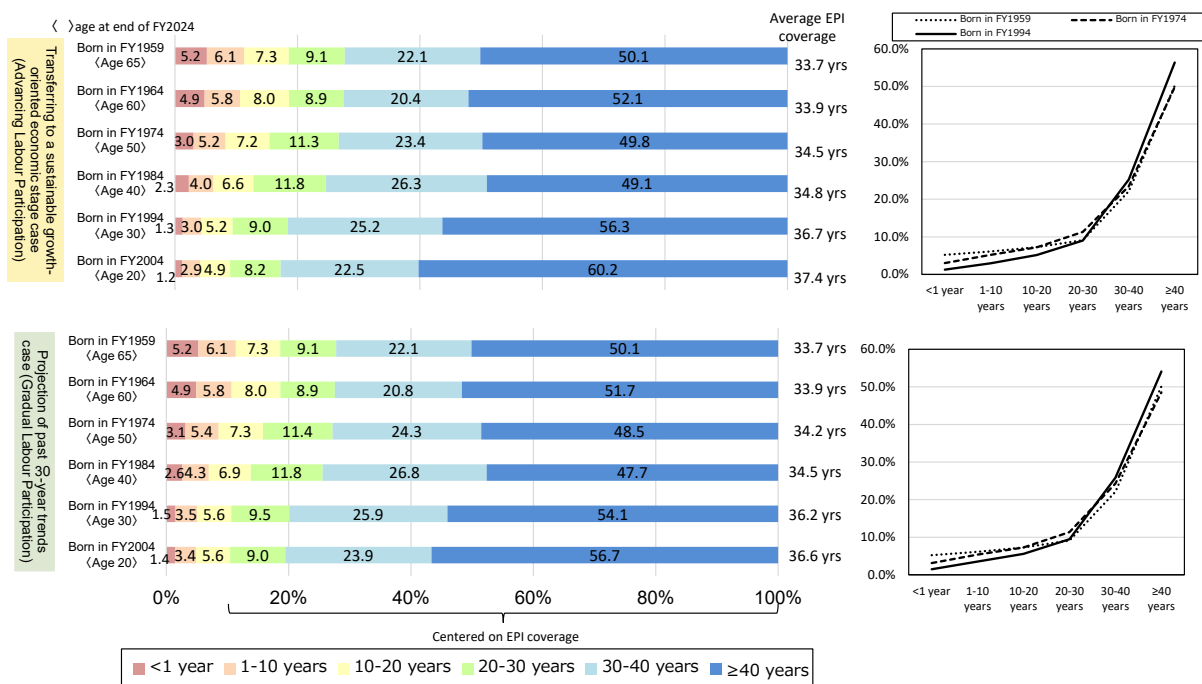
For men, even with the current 65-year-old generation, those centered on the EPI period account for approximately 80%, and this is expected to increase among younger generations. For women, the change is more pronounced. For the current 65-year-old generation, those centered on the EPI period and those centered on the third category period are both roughly equal at just under 40%, but the younger the generation, the more likely it is that those centered on the EPI period will increase, reaching the 70% range for those under 30. Meanwhile, for these generations, those "centered on the third category period" declines to approximately 10%. These changes are expected to improve women's pension and bring the distribution closer to that of men (Figure 4-4).

Figure 4-4 Changes in coverage history types during working years (by gender and birth year)



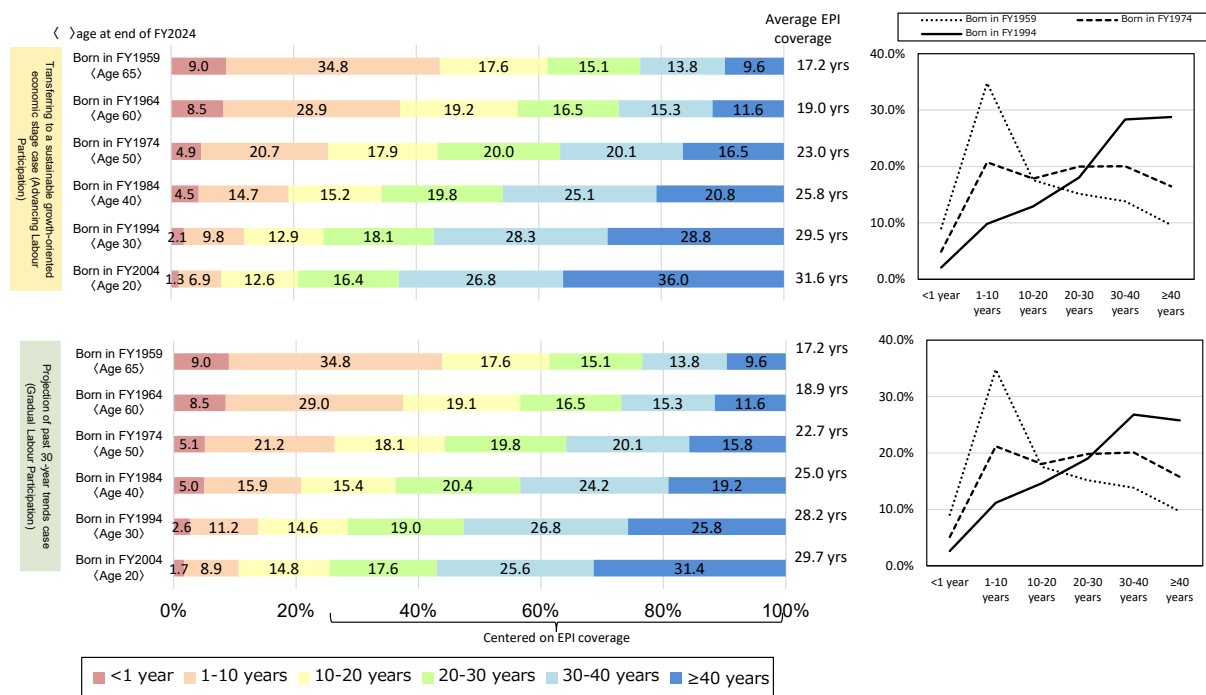
Next, the distribution of insured periods under EPI is confirmed. Many men currently aged 65 have been insured under EPI for 30 years or more, and the number of younger generations with even longer insured periods is expected to increase (Figure 4-5).

Figure 4-5 Changes in the distribution of EPI insured periods (by birth year) - Men -



For women, many in the current 65-year-old generation have been insured under EPI for less than 10 years, but it is expected that the number of women in younger generations who have been insured for 30 years or more will increase (Figure 4-6). As a result, the number of women receiving low pensions decreases, and the number of women receiving relatively high pensions is expected to increase with the younger generations.

Figure 4-6 Changes in the distribution of EPI insured periods (by birth year) - Women -



(4) Average pension amounts and distribution projection

In the distribution projection, pension amounts are estimated at the start of receiving pension benefits at the age of 65, but pension amounts (the real values adjusted for inflation in FY2024) are affected not only by the extension of the EPI insured period but also by increases in real wages and adjustments through modified indexation.

In the Transferring to a Sustainable Growth-Oriented Economic Stage Case, the average pension amount for both men and women is expected to rise in line with increases in real wages because of high real wage growth rate of 1.5%. This indicates that the average pension amount is expected to rise faster than the growth in prices as the positive effects of extending the EPI enrollment period and real wage increases outweigh the negative effects from benefit level adjustments via modified indexation (Figure 4-7).

Comparing the growth of average pension amounts to the model pension and real wage growth, the average for men is roughly on par with the growth in the model pension, whereas the average for women exceeds the growth in the model pension, and it matches or exceeds real wage growth.

Examining the pension distribution reveals that for both men and women, the proportion of low pensions decreases with the younger generations, shifting the distribution peak to the higher side. The effect of reducing low pensions is particularly pronounced for women, with their distribution peak shifting

significantly to the higher side. Looking at the distribution for women currently aged 30, the extension of the EPI insured period has brought their distribution closer to that of men.

In the Projection of Past 30-Year Trends Case, the relatively small real wage growth rate of 0.5% results in comparatively modest pension growth. Average pension amounts decrease slightly for men, whereas they continue to rise for women even during the adjustment period under the modified indexation mechanism. For women, this indicates that even in cases of low real wage growth, the positive effects from extending the EPI insured period and real wage growth outweigh the negative impact of benefit level adjustments under modified indexation (Figure 4-8).

Comparing the growth rate of the average pension amount to that of the model pensions and real wages, the average for men shows growth similar to model pensions, whereas the average for women exceeds the growth of model pensions and shows growth that is similar to real wages.

These results indicate that the negative effects of modified indexation adjustments are offset by the positive effects of extended EPI insured periods and real wage increases. Specifically, pension amounts for women continue to rise even during the adjustment period. This implies that pension increases are expected to outpace inflation.

Figure 4-7 Future Projections of Pension Amounts - Transferring to a Sustainable Growth-Oriented Economic Stage Case -

(2024 Actuarial Valuation: Projection of individual pension amount distribution)

Transferring to a Sustainable Growth-Oriented Economic Stage Case (Real wage growth rate (relative to prices) 1.5%)

The pension amount (real amount discounted to FY2024 at the inflation rate) increases due to real wage growth and an expansion of EPI coverage period as a result of increases in labor participation, and decreases due to the modified indexation adjustments. In the Transferring to a Sustainable Growth-Oriented Economic Stage Case, model pensions and average pension amounts are expected to rise faster than inflation even during the modified indexation adjustments due to the high rate of real wage growth, and low pensions are also expected to decrease.

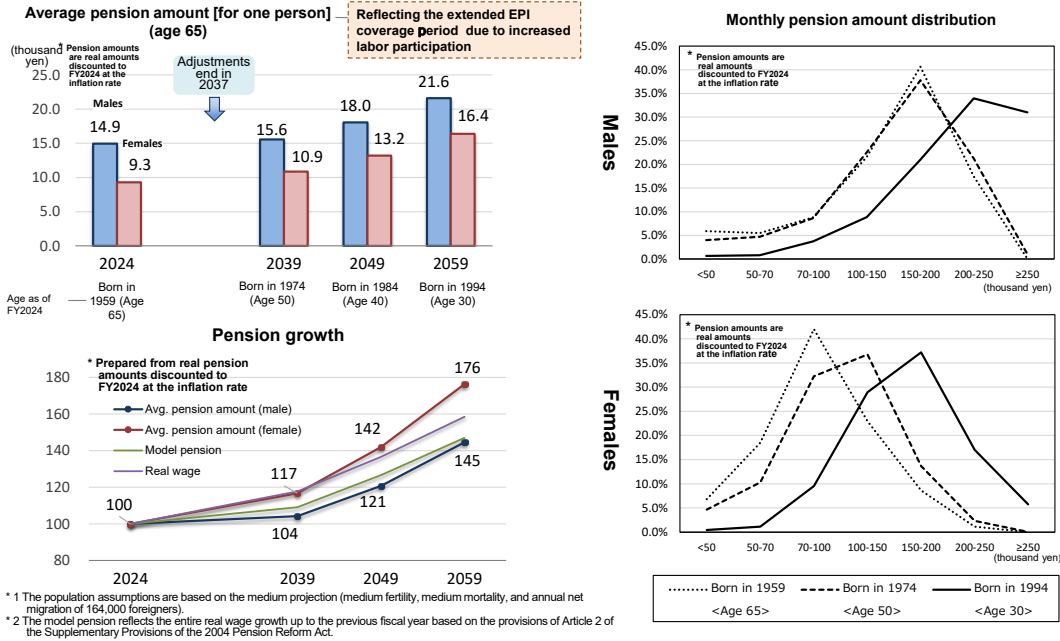


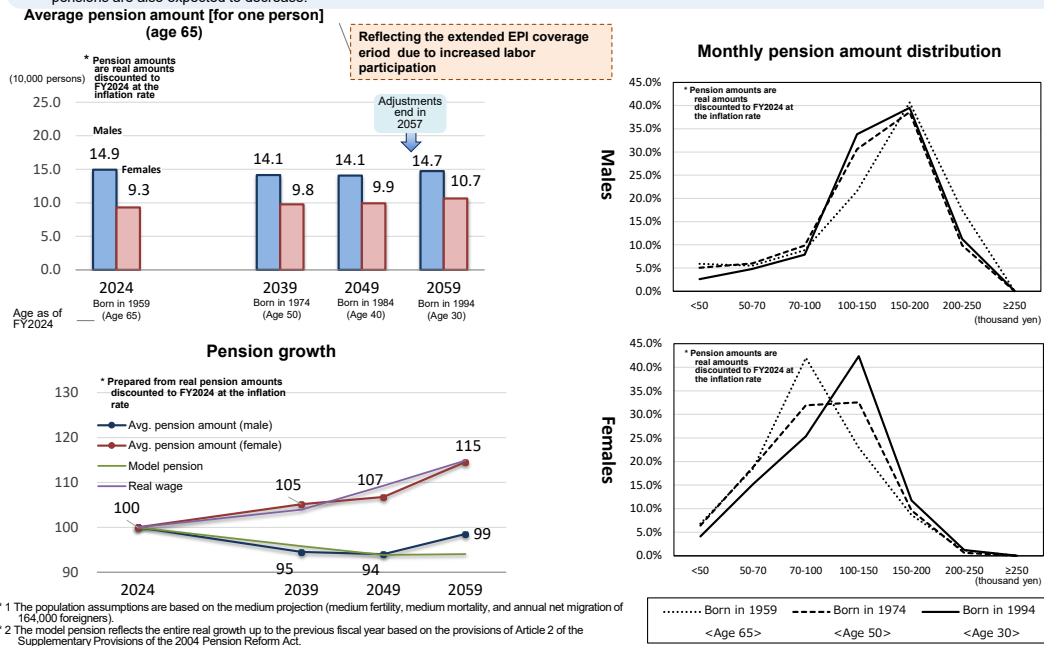
Figure 4-8 Future Projections of Pension Amounts

- Projection of Past 30-Year Trends Case -

(2024 Actuarial Valuation: Projection of individual pension amount distribution)

Projection of Past 30-Year Trends Case (Real wage growth rate (relative to prices) 0.5%)

The pension amount (real amount discounted to FY2024 at the inflation rate) increases due to real wage growth and an expansion of EPI coverage period as a result of increases in labor participation, and decreases due to the modified indexation adjustments. In the Projection of Past 30-Year Trends Case, model pensions (especially for BP) fall short of inflation during the modified indexation adjustments, but average pension amounts for women are expected to increase faster than inflation due to an extension of the EPI coverage period as a result of increases in labor participation, and grow at roughly the same rate as wages. Low pensions are also expected to decrease.



2. Financial implications of reform options for distribution projections

As stated in the previous section, the actuarial valuation includes the financial imprecations of reform options based on certain assumed system reforms. Similarly, distribution projections are estimated under the same assumptions as those of the reform options. In this section, part of the impact of assumed system reforms on average pension amounts and the pension amount distribution is indicated under the assumptions outlined in the previous section.

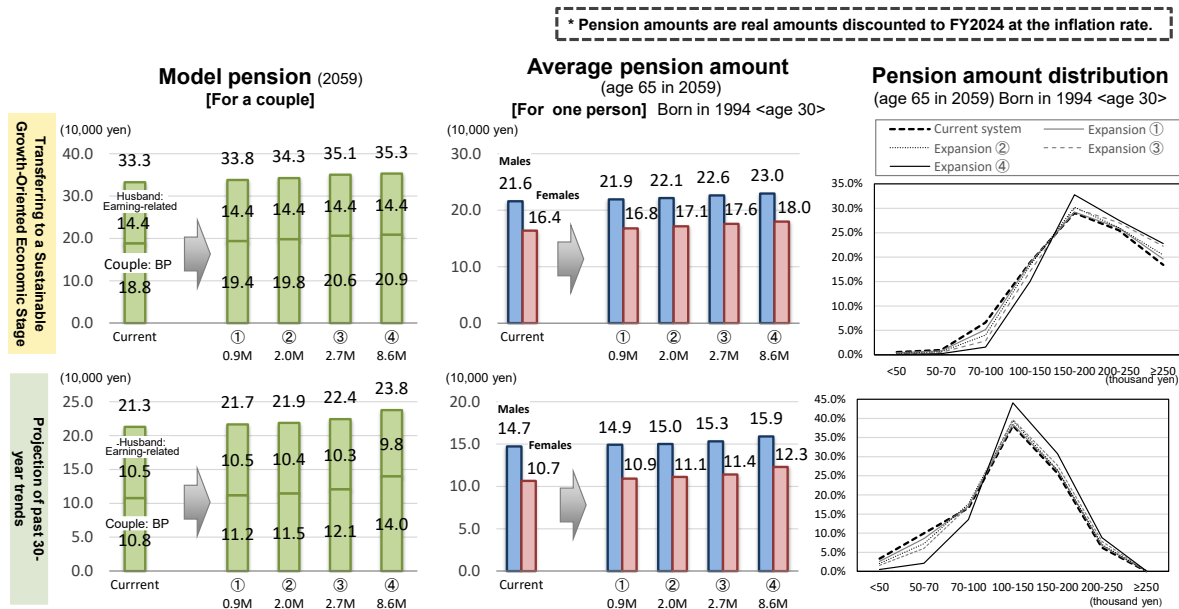
Estimates of three reform options, “further expansion of employee pension plan coverage,” “benefit increase due to the extension of contribution payment period for BP,” and "synchronizing automatic financial balancing periods for benefit adjustments” were conducted in the distribution projections.

(1) Further expansion of employee pension plan coverage

As for the impact of further expansion of employee pension plan coverage on pension amounts, the average pension amount tends to increase for individuals born in 1994 compared to the current system, and the number of those receiving less than ¥100,000 tends to decrease (Figure 4-9). This may stem from increased pension benefits for newly awarded persons under EPI and the rise in the BP level.

Model pension amounts increase as coverage expands. However, examining the breakdown shows that the BP increases while the earnings-related portion decreases. This reflects the same effects on the replacement ratio, that is, the modified indexation adjustment is shortened for BP, and prolonged for the earnings-related portion.

Figure 4-9 Estimated results for further expanding employee pension plan coverage



Note 1: Population assumptions are based on the medium projection (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

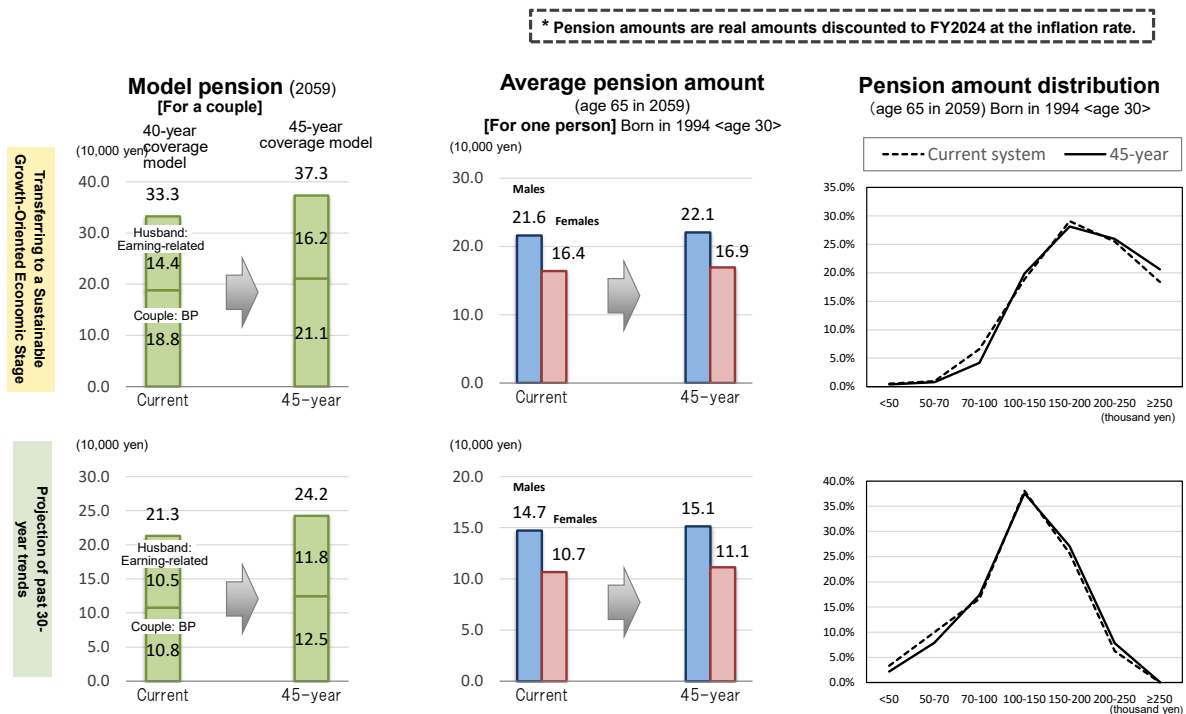
Note 2: <> age as of 2024

(2) Benefit increase due to extension of contribution payment period for BP

As for the impact of benefit increase due to expansion of contribution payment period for BP on pension amounts, benefits for those with relatively low pensions are improving, in line with the rise in the BP level (Figure 4-10).

While the model pension amount generally increased by a factor of 45/40, the increase in the average pension amount is smaller than the model pension amount. This is because the model pensions compare pension amounts for 40 years of contributions versus 45 years of contributions, whereas in the average pension amounts for individuals under EPI and already over the age of 60, BP increases, but the earnings-related portion does not increase.

Figure 4-10 Estimated results for benefit increase due to extension of contribution payment period for BP



Note 1: Population assumptions are based on the medium projection (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

Note 2: < > age as of 2024

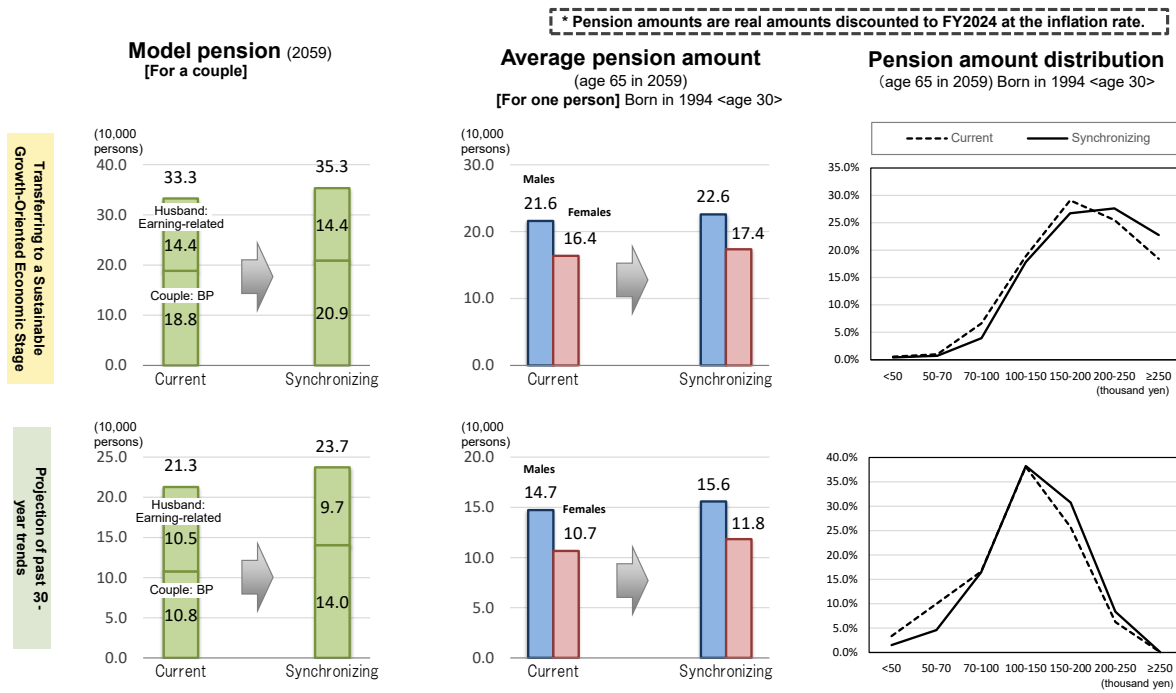
(3) Synchronizing automatic financial balancing periods for benefit adjustments

Regarding the impact of synchronizing automatic financial balancing periods for benefit adjustments, the average pension amount increases, and the proportion of low-pension groups decreases (Figure 4-11).

The model pension amount, like the replacement ratio, shows an increase in BP and a decrease in the earnings-related portion. However, a large increase in BP contributes to increasing the entire pension amount. Furthermore, looking at the average pension amount in the Projection of Past 30-Year Trends Case, the increase in the pension amount is larger for women, whose BP accounts for a relatively higher proportion

of their total pension compared to men. This is because the modified indexation adjustment period for BP is shortened, leading to a greater improvement in the BP benefit level.

**Figure 4-11 Results of estimates for aligning modified indexation adjustment periods
payment period for BP**



Note 1: Population assumptions are based on the medium projection (medium fertility, medium mortality and annual net migration of 164,000 foreigners).

Note 2: < > age as of 2024