

Overview of the Annual Actuarial Report on the Public Pension Plans in Japan Fiscal Year 2022

March 22, 2024

Pension Actuarial Subcommittee of the Social Security Council

0. The annual actuarial report on the public pension plans in Japan Fiscal Year 2022

- The “Annual Actuarial Report on the Public Pension Plans in Japan” is a compilation of the results of cross-plan analyses and assessment of the financial status of Japan’s public pension plans each fiscal year from a professional perspective, based on the reports from each pension plan and implementing organization.
- This report clarifies trends in actual performance, compares it with actuarial valuation, and summarizes the financial status of entire Employees' Pension Insurance (EPI), including Mutual Aid Associations, etc.

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 - Section 1 Significance and methodology of comparison with actuarial valuation
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Reports and hearings for FY2022 report

- 98th Pension Actuarial Subcommittee**
(Held on December 25, 2023)
 - Employees' Pension Insurance (Category-1)
 - National/Basic Pension Plans
- 99th Pension Actuarial Subcommittee**
(Held on January 11, 2024)
 - National Public Officers Mutual Aid Associations
 - Local Public Officers Mutual Aid Associations
 - Private School Teachers/Employees Mutual Aid Association

(*) This overview contains excerpts from Chapters 2 and 3 of the annual report. In addition, at the beginning of the overview, it contains reference materials a to d as basic information when reading the report.

a. Pension Actuarial Subcommittee of the Social Security Council

Pension Actuarial Subcommittee of the Social Security Council

- The Pension Actuarial Subcommittee, established in the Social Security Council, is tasked by the cabinet decision to promote the integration of the public pension plans (2001) and review of the stability and fairness of employees' pension plans. This takes place when financial reviews and actuarial valuations are conducted in conjunction with the collection of reports on the financial status of each plan every fiscal year.
- Following the integration of employees' pension plans in October of 2015, the results of actuarial valuation and reports on the settlement of accounts for each fiscal year are requested and discussed from the perspective of ensuring plan stability.

Cabinet decision on “promotion of the integration of public pension plans (2001)”

It is requested that the Social Security Council establish a subcommittee comprising persons with expertise and experience in the field of pension actuarial science, who will be required to report annually to ensure the stability and fairness of employees' pension plans and provide verification at the time of actuarial valuation.

Actuarial Valuation

Conducted by each public pension plans or each implementing organization

Settlement of accounts each year

Hearing on results and methods

Confirmation of the result of actuarial valuation, how the basic data for projections are processed, and projection methods.

Peer Review of the Actuarial Valuation of Public Pension Plans

Analysis and verification of basic data for projections and projection methods.
Verification of the method to analyze the results of estimates.
Analysis and verification of Actuarial Valuation from the perspective of stability of the plans.
Recommendations for future Actuarial Valuations.

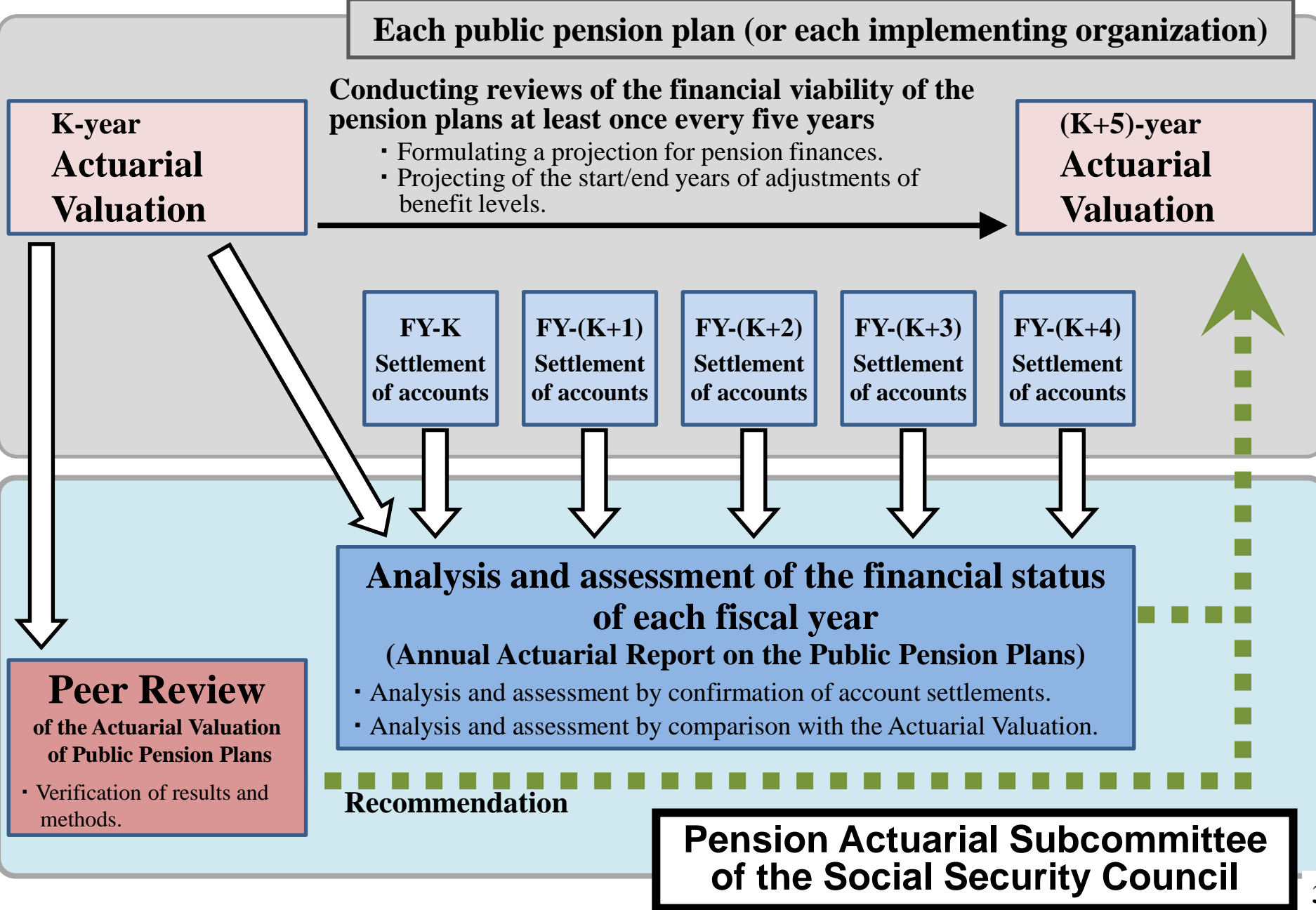
Hearing on settlement of accounts

Confirmation of the settlement of accounts.
Comparison with the Actuarial Valuation.

Annual Actuarial Report on the Public Pension Plans

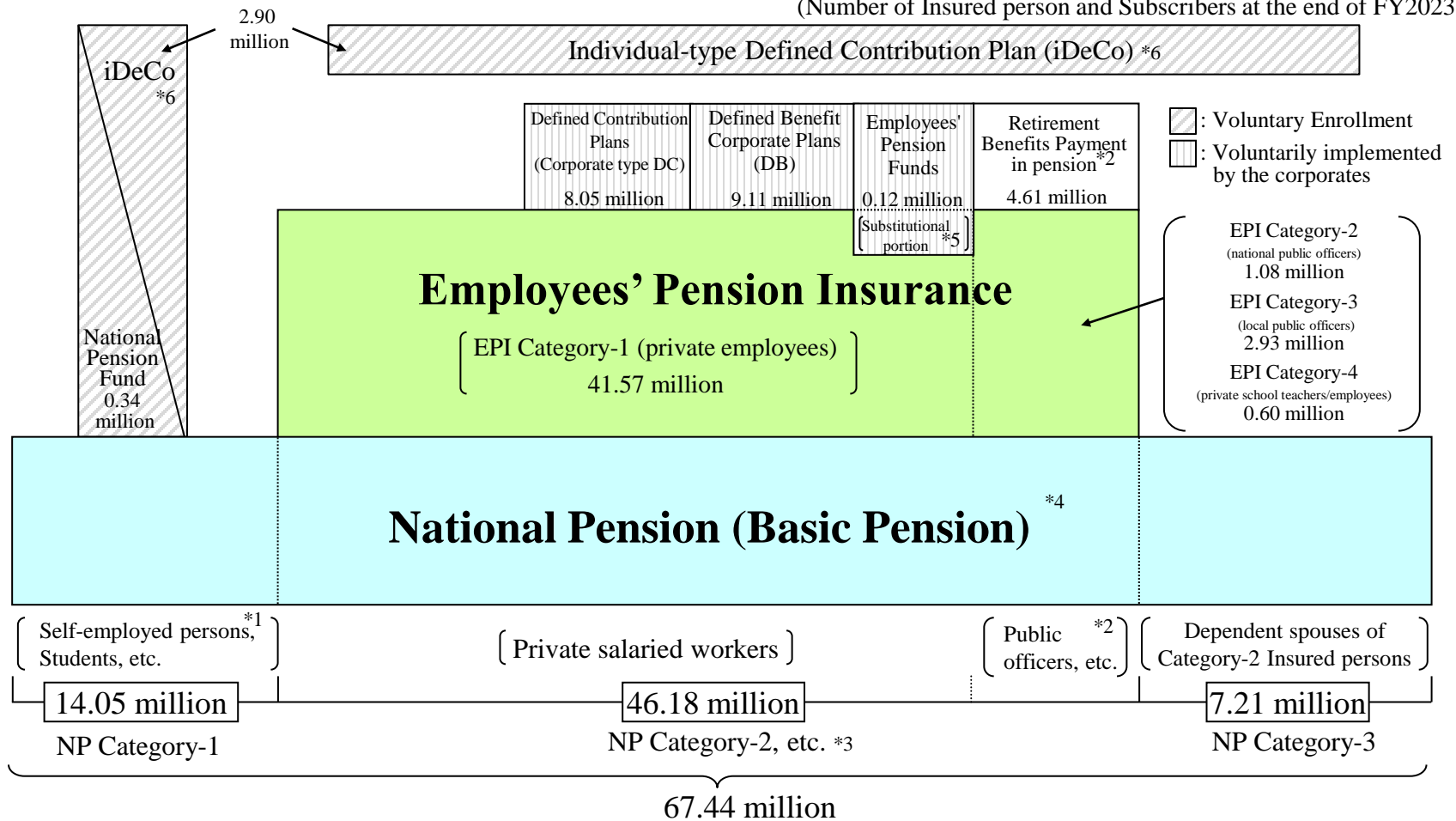
Cross-plan analysis and assessment of the financial status of Japan's public pension plans and implementing organizations from a professional perspective. Analysis and assessment of EPI as a whole and each pension plan through the comparison with Actuarial Valuation, by clarifying trends in actual performance and its background.

b. Role of the Pension Actuarial Subcommittee of the Social Security Council



c. Scheme of Pension Plans

(Number of Insured person and Subscribers at the end of FY2023)



*1 According to 'the Survey on the Insured of National Pension (2020),' among the NP Category-1 insured persons as of March 31, 2020, 32.6% were in part-time or temporary employment, 31.2% were unemployed, 19.4% were self-employed, 7.5% were family employees, and 6.3% were in permanent employment. However, it should be noted that this survey is carried out before the expansion of the application of EPI to part-time workers, which is in effect in October 2022. According to the same survey, students accounted for 21.1% of the total number of the NP Category-1 insured persons.

*2 In response to the integration of the Employees Pension Schemes, public officers and private school teachers joined EPI from October 1, 2015. Moreover, the portion added according to job category in Mutual Aid Pension was abolished and retirement benefits payment in pension were newly introduced. However, as for the portion for the subscription period of Mutual Aid Pension by September 30, 2015, the portion added according to job category is paid according to subscription period even after October 2015.

*3 NP Category-2 insured person, etc. refers to the insured persons of EPI (including beneficiaries aged 65 years or above of pension benefits for old-age or retirement in addition to NP Category-2 insured person).

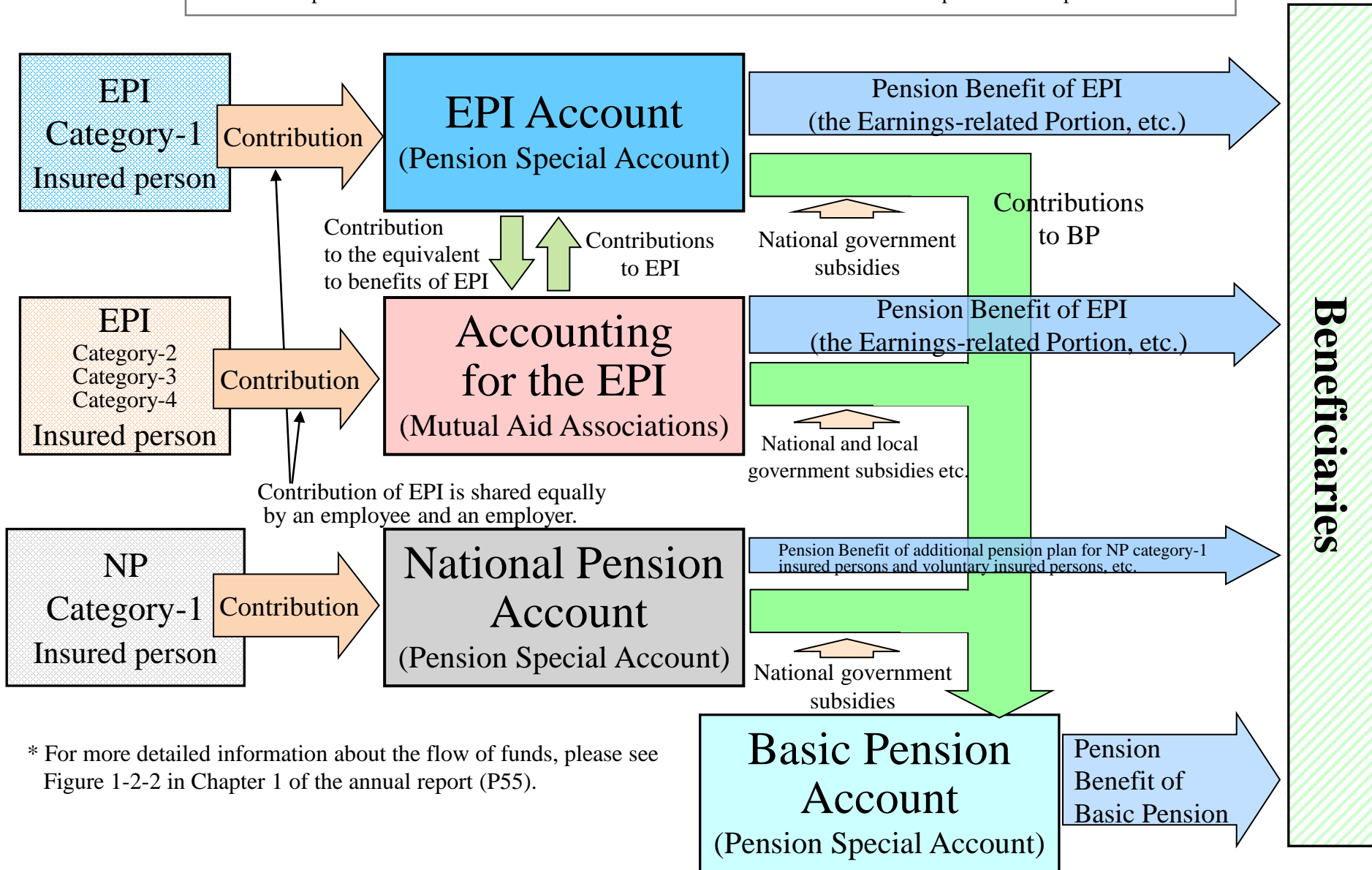
*4 The insured persons of NP or his/her dependents meeting certain requirements could receive the Basic Pension.

*5 The Employees' Pension Fund provides a portion of the Old-Age Employees' Pension (the "substitutional portion" in the figure) on behalf of the government.

*6 As the individual-type defined contribution plan (iDeCo) was expanded to include workers of companies that implement corporate pensions, and public officers and full-time housewives as subscribers in January 2017 so that all insured persons under the age 60 could join the plan as a rule.

d. Flow of funds under the entire Public Pension System

The insured person, depending on his or her insured category, pays contributions to the NP Account, the EPI Account, or the Accounting for the EPI of the Mutual Aid Associations. Beneficiaries receive pension payments from the BP Account for pension benefits of BP and from the account in which contributions were paid for other pension benefits.



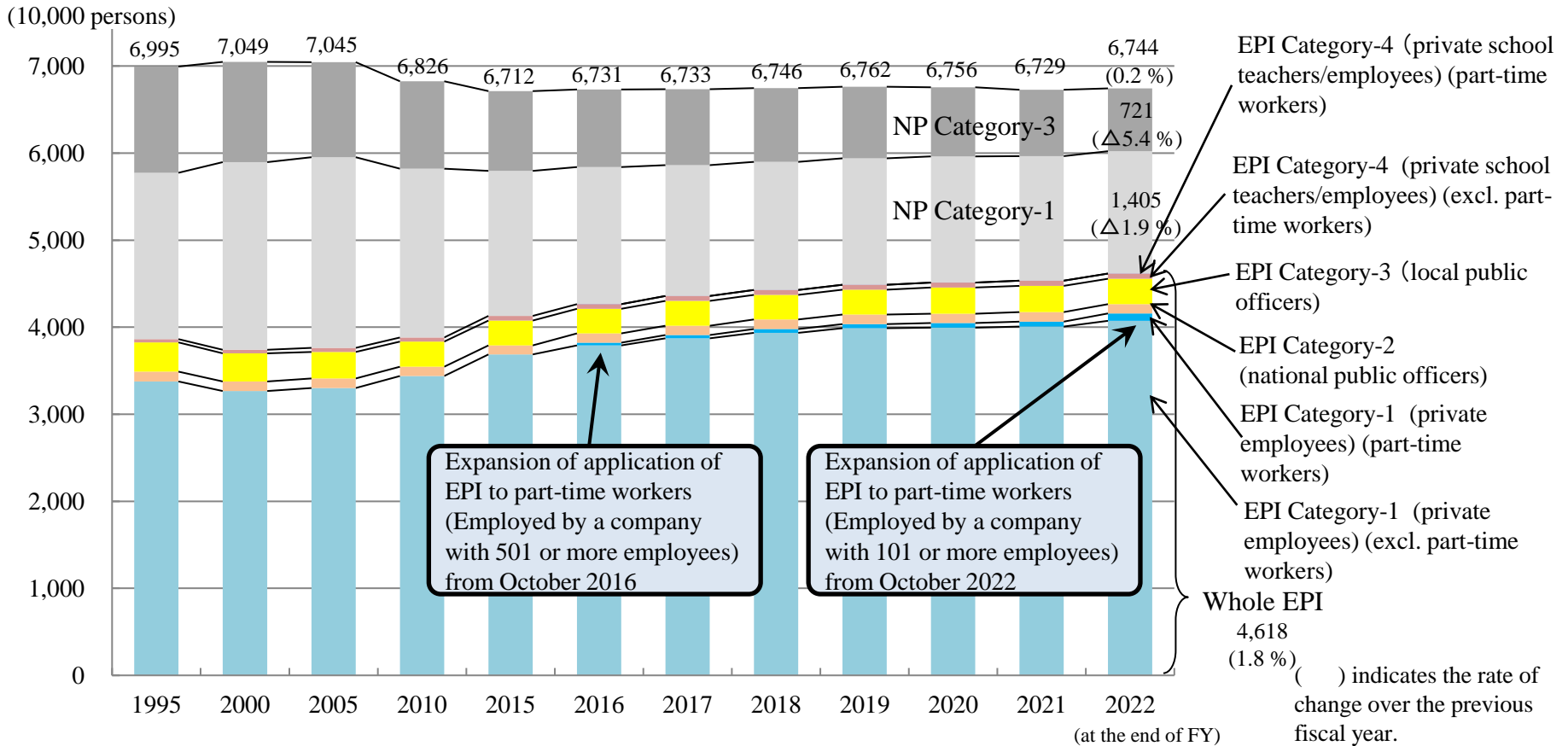
* For more detailed information about the flow of funds, please see Figure 1-2-2 in Chapter 1 of the annual report (P55).

Current situation and trends of insured persons (Excerpt from Chapter 2, Section 1)

1. Trends in the number of insured persons with public pensions
2. Age distribution of insured persons
3. Change in age distribution of insured persons (whole EPI)
4. Change in age distribution of insured persons (part-time workers)
5. Change in age distribution of insured persons (NP Category-1)
6. Change in age distribution of insured persons (NP Category-3)
7. Distribution of EPI insured persons by standard monthly remuneration
8. Change in age distribution of part-time workers before and after the expansion of the application
9. Change in distribution of standard monthly remuneration of part-time workers before and after the expansion of the application

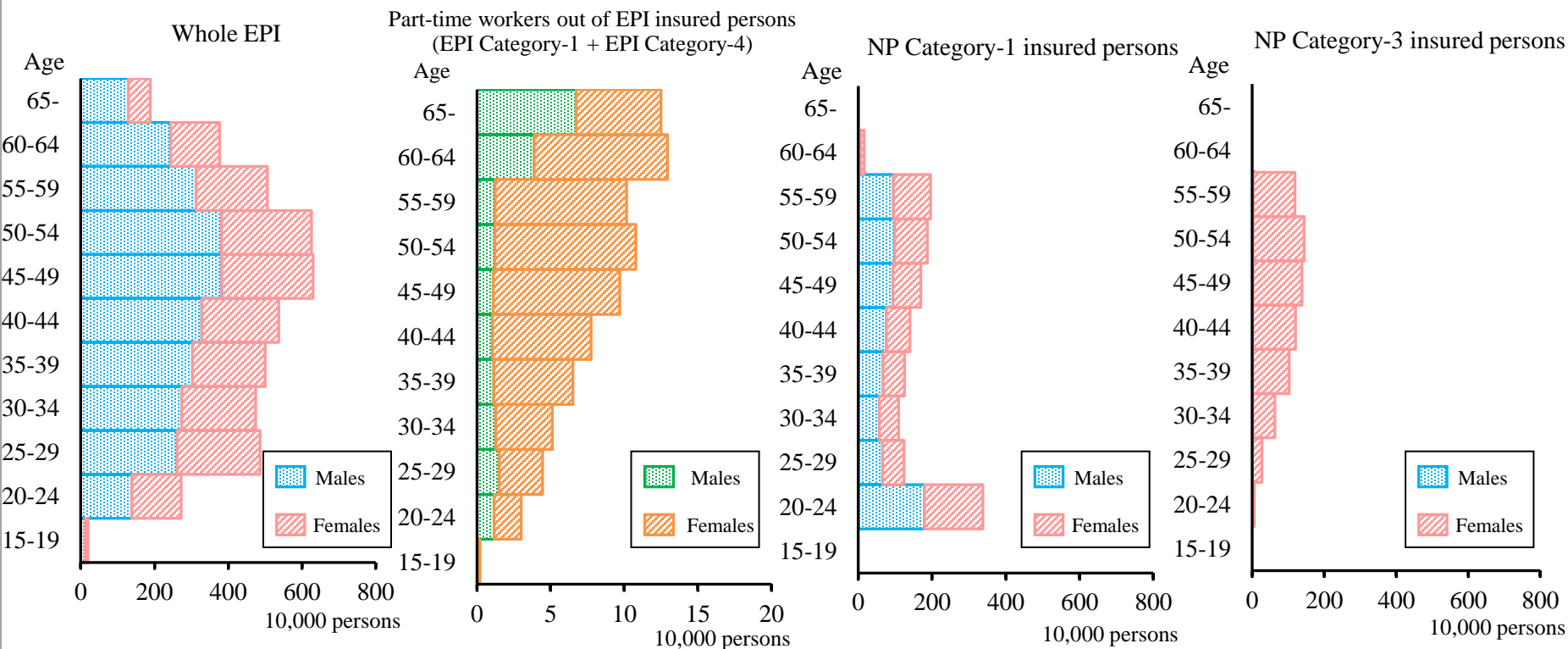
1. Trends in the number of insured persons with public pensions

- In FY2022, the total number of persons insured under the public pension plans increased by 0.2%. While the number of the national pension (NP) Category-1 and Category-3 insured persons decreased. The number of EPI insured persons increased.
- The rate of increase in the number of insured persons for EPI is 1.8%, and the rate increases by 1.3% after part-time workers are excluded. For part-time workers alone, the rate of increase is 44.9% (Males: 40.4%, Females: 46.5%).



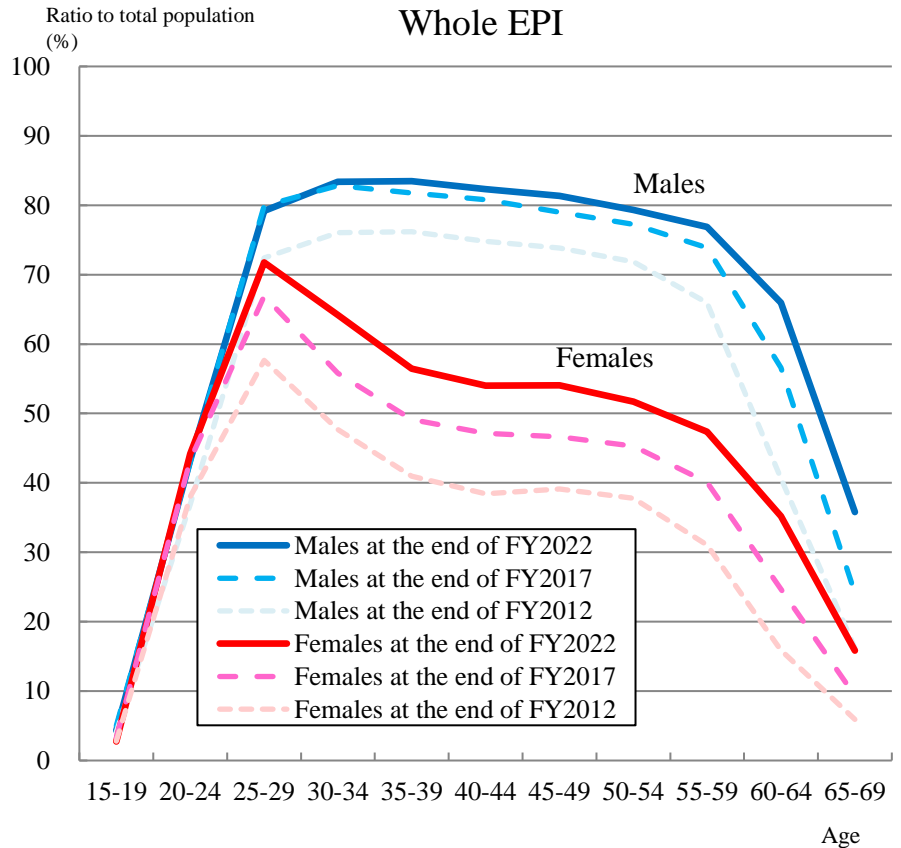
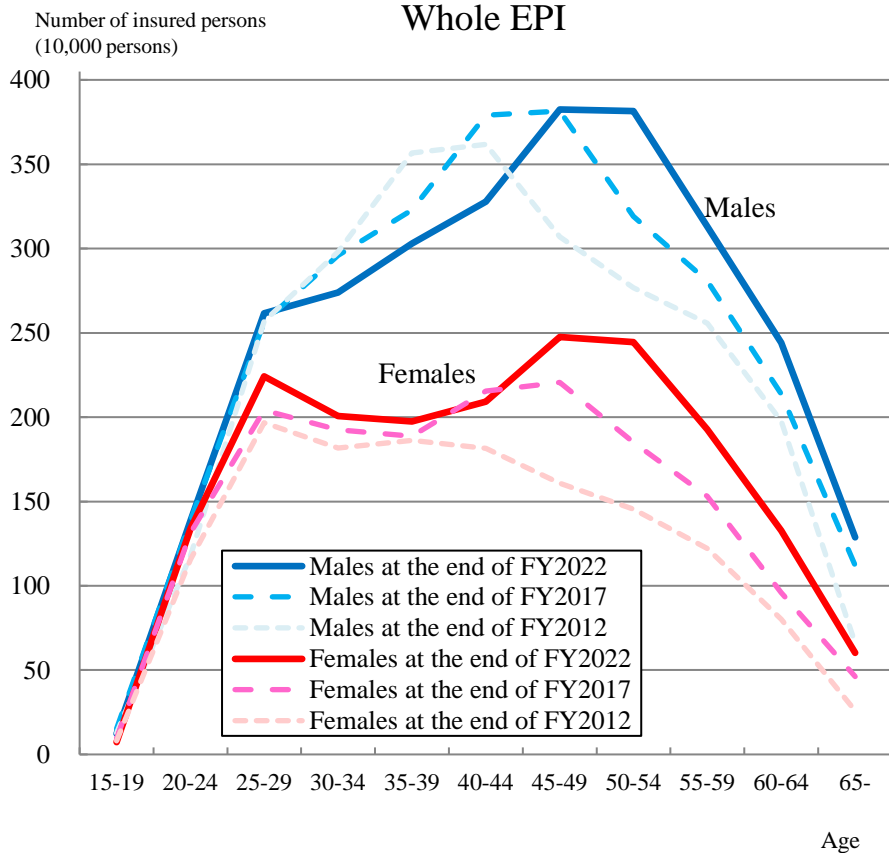
2. Age distribution of insured persons

- The age distribution of the insured persons as of the end of FY2022 shows that the largest proportion of insured persons for the whole EPI is in the 45-49 and the 50-54 age groups. For NP Category-1 insured persons, the 20-24 age group comprises the largest proportion. For NP Category-3 insured persons, the 50-54 age group is the largest.
- Among part-time workers EPI insured persons (comprising 1.8% of all EPI insured persons), most males are over 60, while most females are between 45 and 64.



3. Change in age distribution of insured persons (whole EPI)

- For the entire group of whole EPI male insured persons, the age group accounting for the largest proportion shifted from 35-44 a decade ago to 40-49 five years ago, followed by 45-54 at the end of FY2022 (as the junior baby-boomer generation aged). For the entire of whole EPI female insured persons, the number increased except for the 15-19 and 40-44 age groups.
- Viewing insured persons as a percentage of the population, the ratio increased except for the young (15-19 and 25-29 age groups for males and the 15-19 age group for females) generation compared with five years before. As evidenced by the increased percentage of insured aged 65-69 from 24.1 to 35.8% for males and 9.3 to 15.8% for females, the employment rate of those aged 65 or over is progressing.

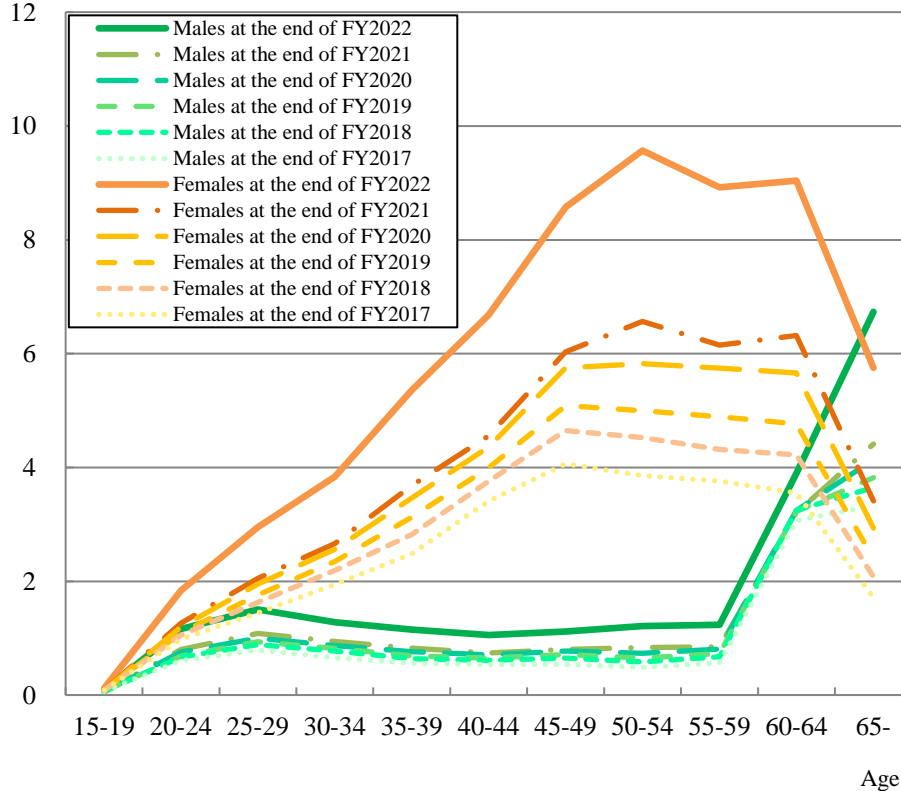


4. Change in age distribution of insured persons (part-time workers)

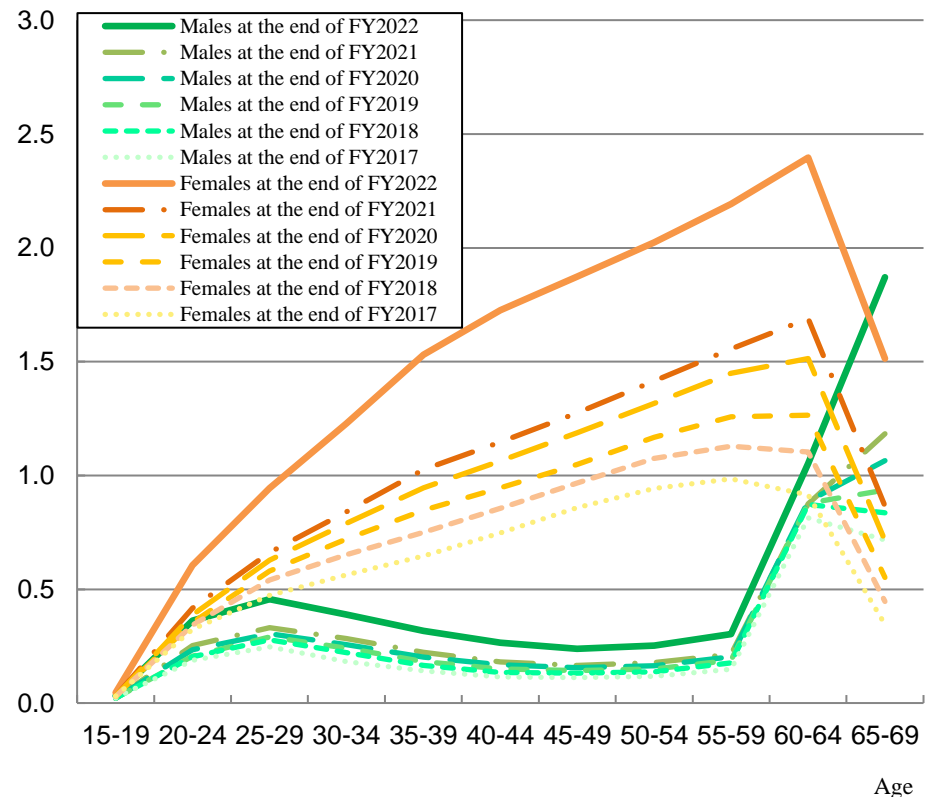
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- For part-time workers (1.8% of the whole EPI), the number of insured persons increased significantly in all age groups from the end of the fiscal year five years ago for both genders due to the expansion of the application of EPI to part-time workers (in effect since October 2022).
- The number of insured persons as a percentage of the population rose in all age groups of both genders compared to the end of the fiscal year five years ago.

Number of insured persons (10,000 persons) Part-time workers in the whole EPI



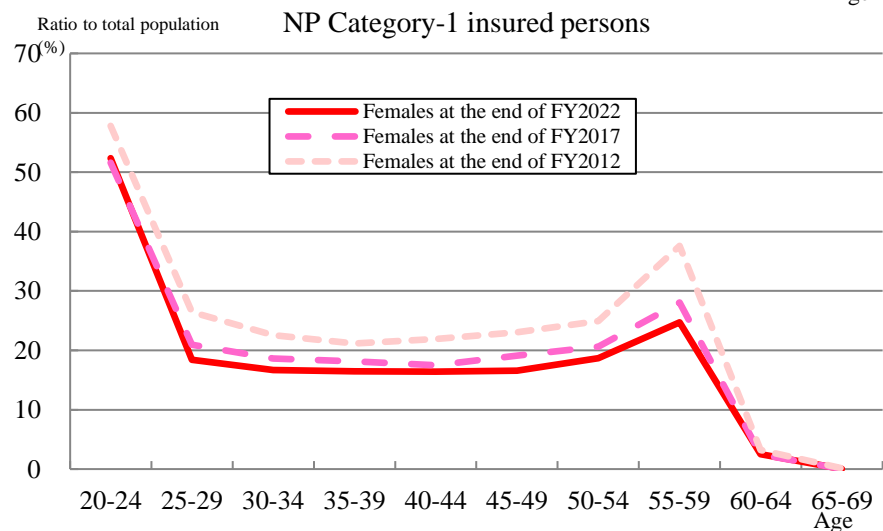
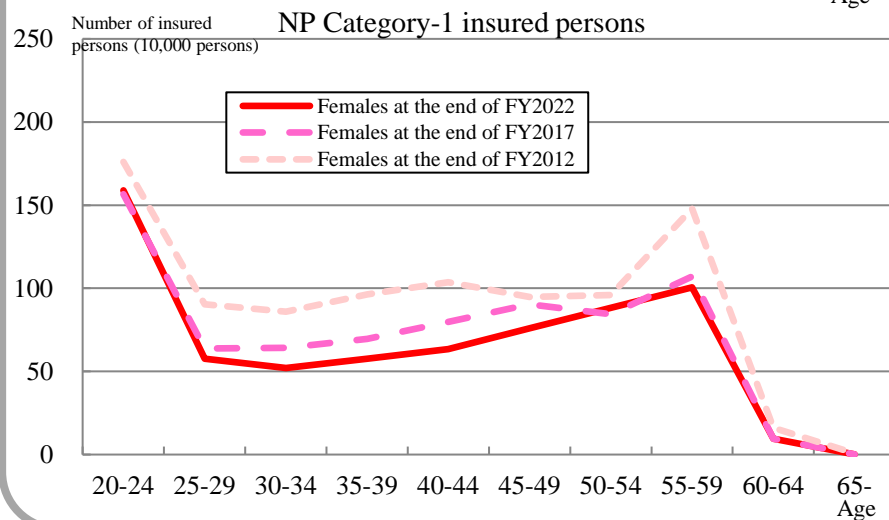
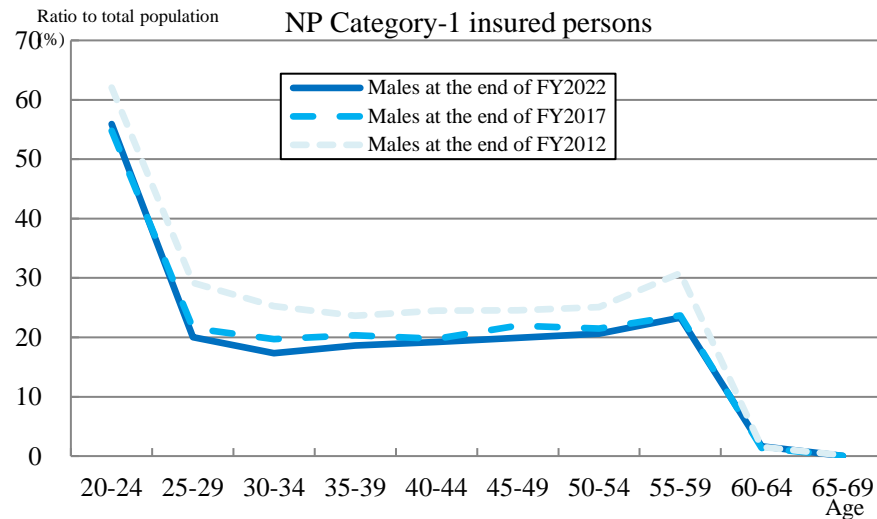
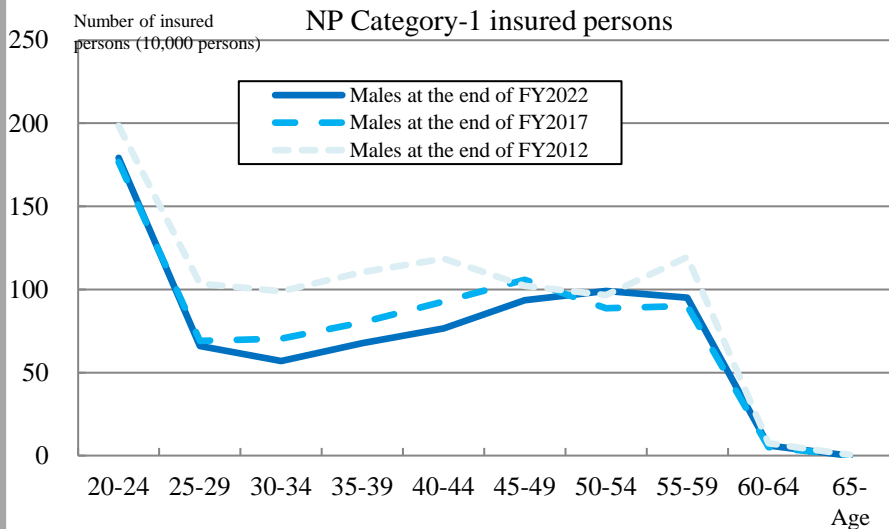
Ratio to total population (%) Part-time workers in the whole EPI



5. Change in age distribution of insured persons (NP Category-1)

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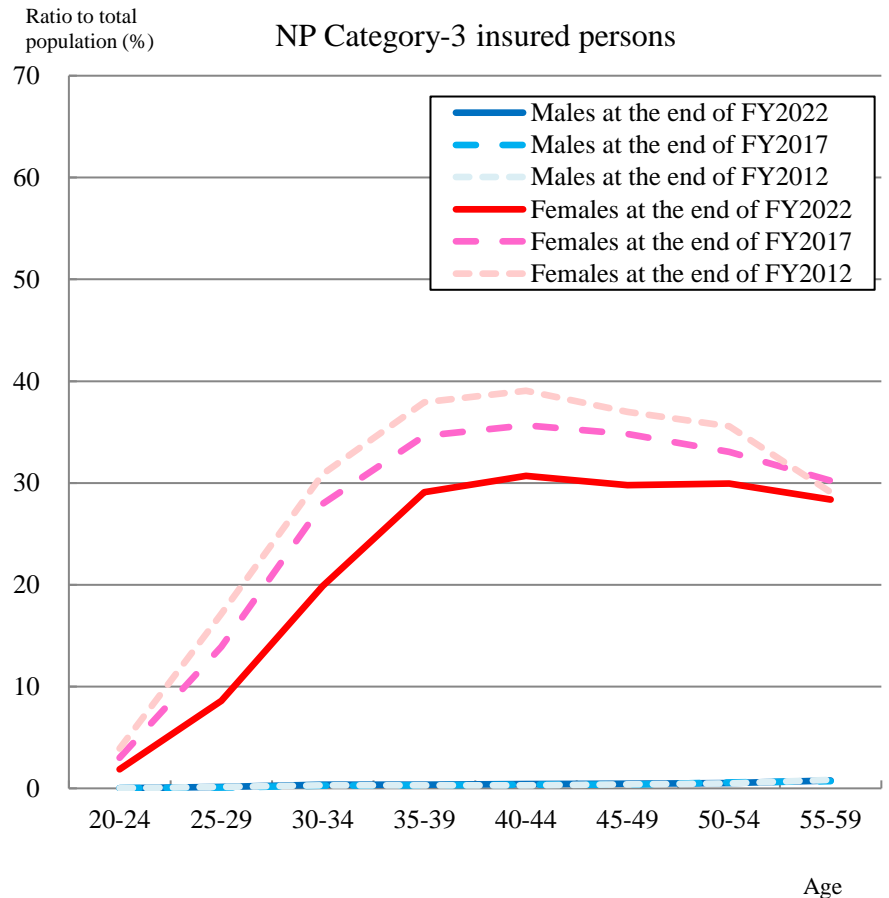
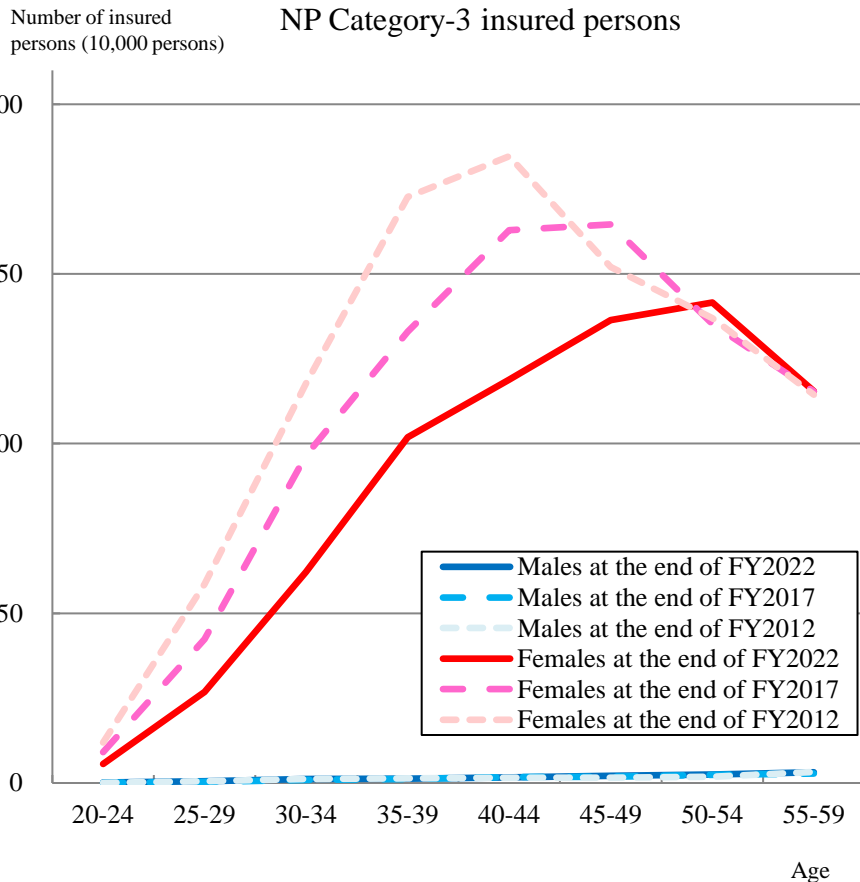
- For NP Category-1 insured persons, the total number of insured persons declined for both genders, except for the shift in the junior baby-boomer generation.
- The number of insured persons as a percentage of the population fell compared to the end of the fiscal year five years ago, except for the 20-24 and 60-64 age groups for both genders.



6. Change in age distribution of insured persons (NP Category-3)

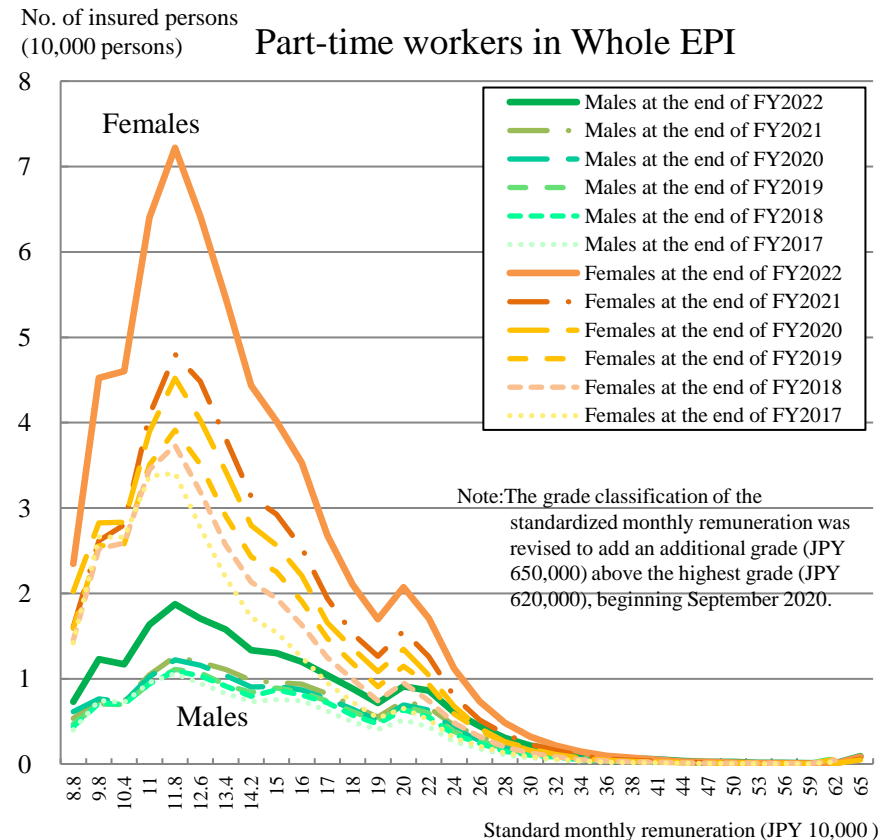
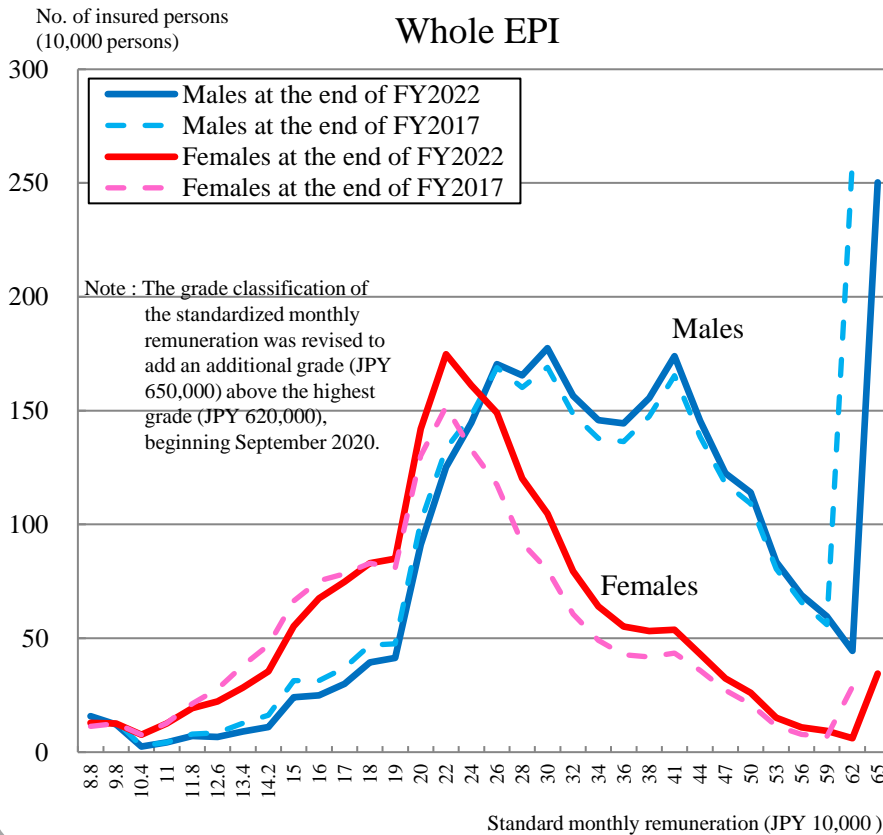
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- For female NP Category-3 insured persons, the under-49-year-old group has declined significantly.
- A view of the number of insured persons as a percentage of the population reveals no significant change in the number of males from five years ago, while the number of females declined in all age groups.



7. Distribution of EPI insured persons by standard monthly remuneration

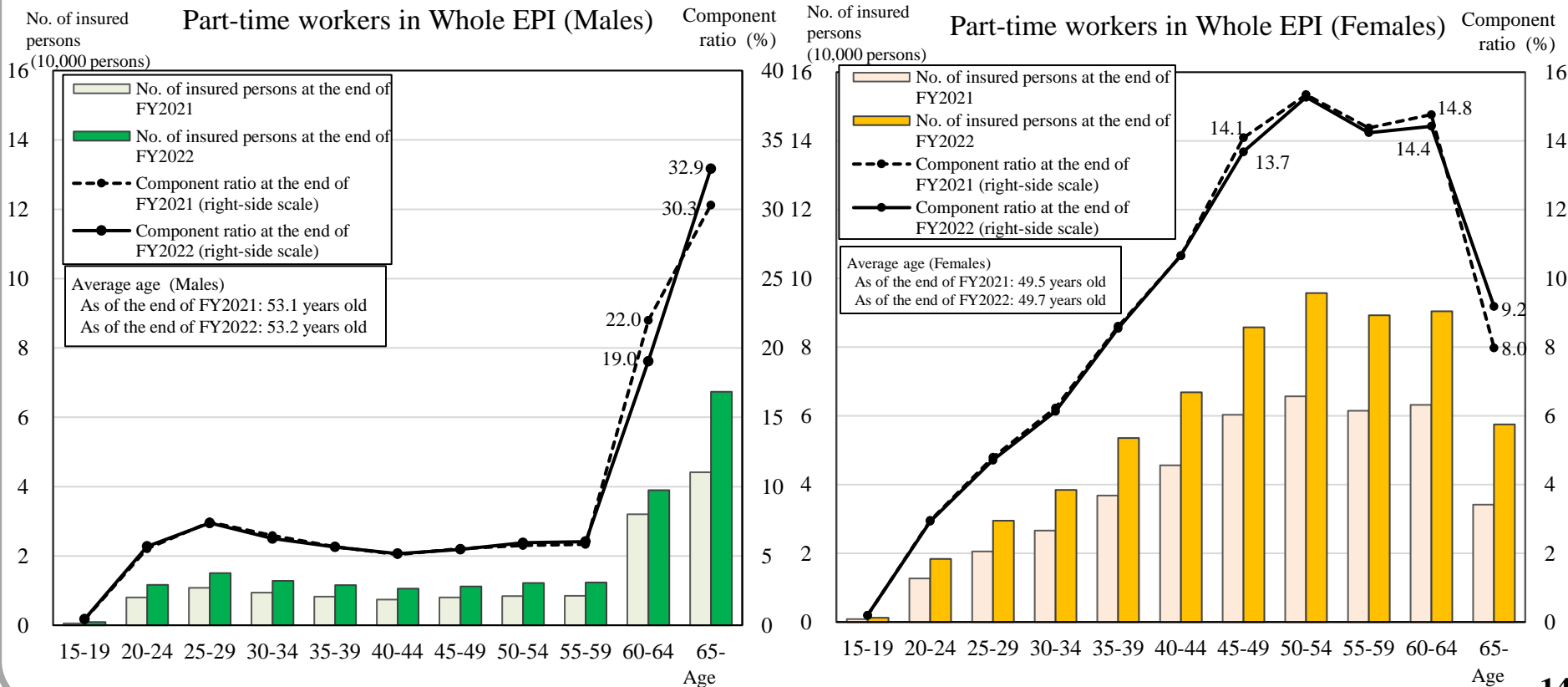
- The largest standard monthly remuneration of whole EPI received by male insured persons is JPY 650 thousand and the distribution of insured persons peaks at JPY 260-300 thousand and JPY 410 thousand, respectively. The distribution peaks at JPY 220 thousand for whole EPI female insureds. Compared to the distribution five years ago, the number of insured persons increased for male insured persons, except in the JPY 98-240 thousand categories. The number of insured persons increased for female insured persons, except in the JPY 110-170 thousand categories.
- The distribution of part-time workers in the whole EPI insured persons peaks at JPY 118 thousand for both genders. Compared to the distribution five years ago, the number of insured persons increased in all categories for both genders due to the significant rise of the total number of the insureds due to the expansion of the application of EPI to part-time workers, which went into effect in October 2022.



8. Change in age distribution of part-time workers before and after the expansion of the application

- For a better grasp of situations before and after the expansion of the application of EPI to part-time workers (in effect since October 2022), we compared data from the end of FY2022 and the end of FY2021.
- The number of part-time workers at the end of FY2022 increased for both genders in all age groups compared to the end of FY2021.
- A look at the component ratio reveals a shift toward older in the age distributions of both genders.

Change in age distribution of part-time workers (the end of FY2021 → the end of FY2022)

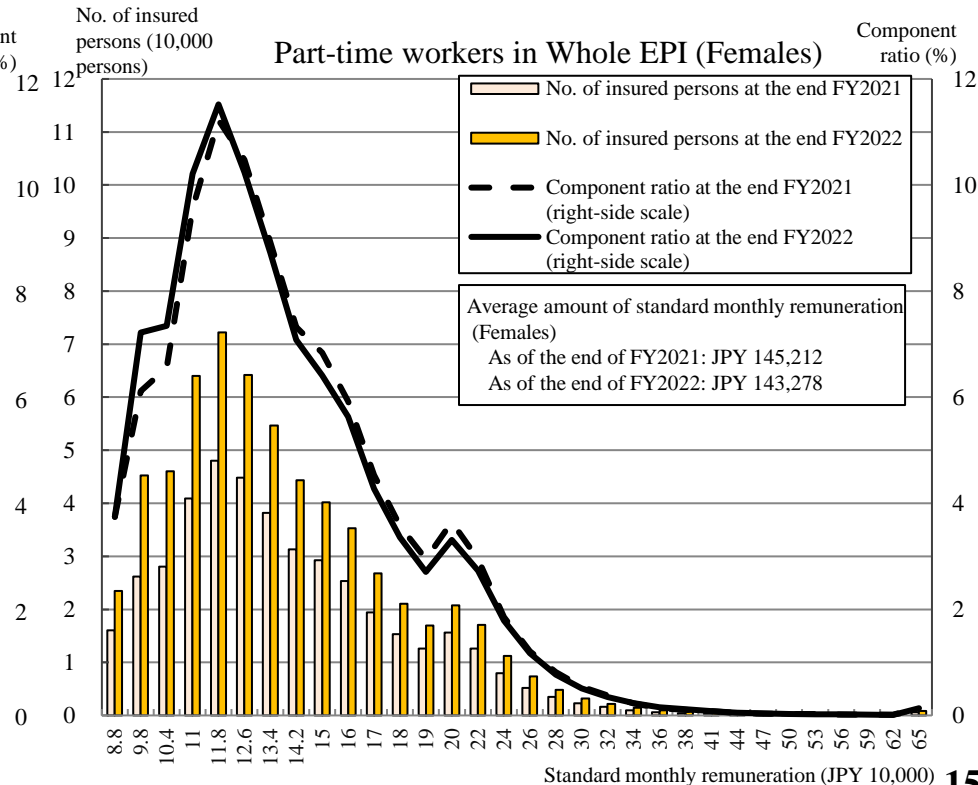
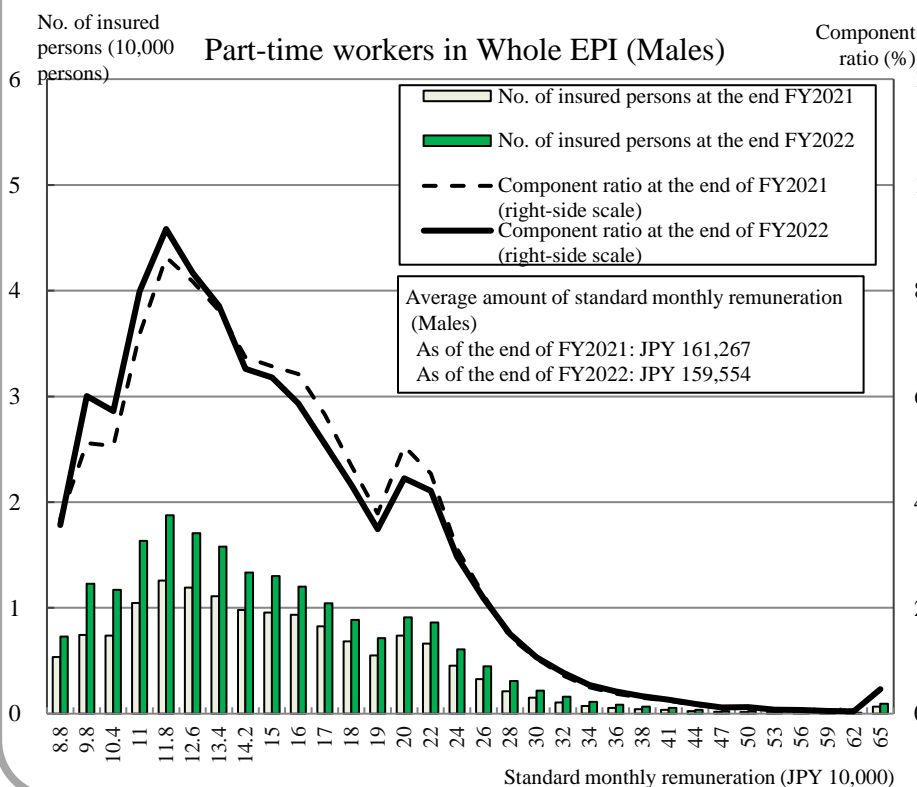


9. Change in distribution of standard monthly remuneration of part-time workers before and after the expansion of the application

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- For a better grasp of situations before and after the expansion of the application of EPI to part-time workers (in effect since October 2022), we compared data from the end of FY2022 and the end of FY2021.
 - The number of part-time workers at the end of FY2022 increased for both genders in all categories compared to the end of FY2021.
 - A look at the component ratio reveals a shift toward lower in the distribution by standard monthly remuneration for both genders (which, on average, decreased by 1.1% for males and 1.3% for females).
- * For part-time workers employed by smaller companies, the number of insured persons increased due to the expansion of the application of EPI to part-time workers, which is in effect in October 2022

Change in distribution of standard monthly remuneration of part-time workers (the end of FY2021 → the end of FY2022)



Current situation and trends of beneficiaries (Excerpt from Chapter 2, Section 2)

10. Trends in the total pension amount for beneficiaries
11. Age distribution of old-age pension beneficiaries for long-term contributors
12. Average monthly old-age pension for long-term contributors excluding occupational additions of MAAs, etc. (estimated)
13. Average monthly pension for old-age pension beneficiaries by age group
14. Number of old-age pension beneficiaries by class of monthly pension amount

10. Trends in the total pension amount for beneficiaries

The pension amounts at the end of FY2022 totaled JPY 57.0 trillion for all public pension plans. Compared to the end of FY2021, the total pension amount of each implementing organization of EPI and that for the NP declined.

* The reason for these changes is due to the pensionable age for the earnings-related portion increasing to 64 years old for male insured persons and MAAs (and other) female insured persons, and the significant decrease in the number of 63-year-old beneficiaries.

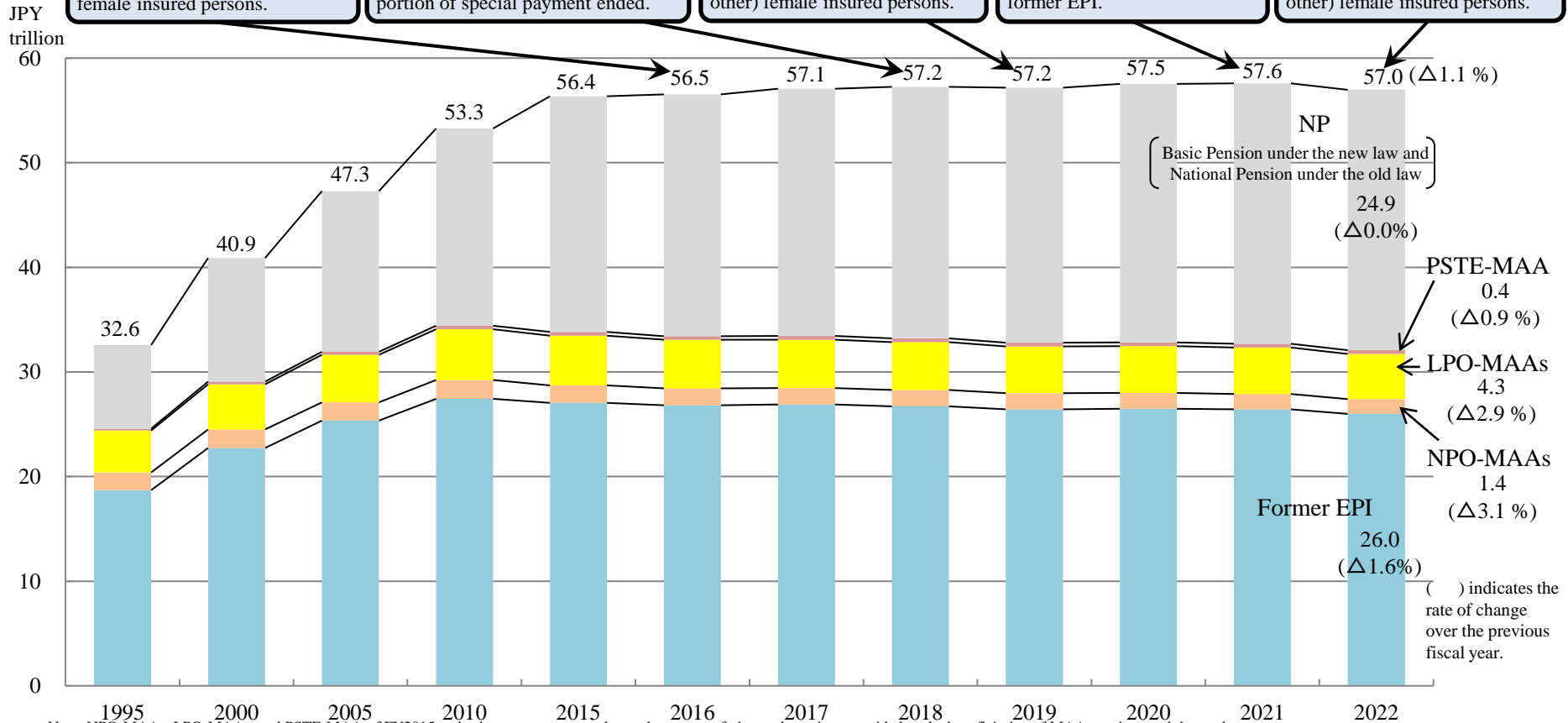
Pensionable age for the earnings-related portion was raised to 62 years old for male insured persons and MAAs (and other) female insured persons.

Pensionable age for the earnings-related portion was raised to 61 years old for female insured persons of the former EPI and the fixed amount portion of special payment ended.

Pensionable age for the earnings-related portion was raised to 63 years old for male insured persons and MAAs (and other) female insured persons.

Pensionable age for the earnings-related portion was raised to 62 years old for female insured persons of the former EPI.

Pensionable age for the earnings-related portion was raised to 64 years old for male insured persons and MAAs (and other) female insured persons.

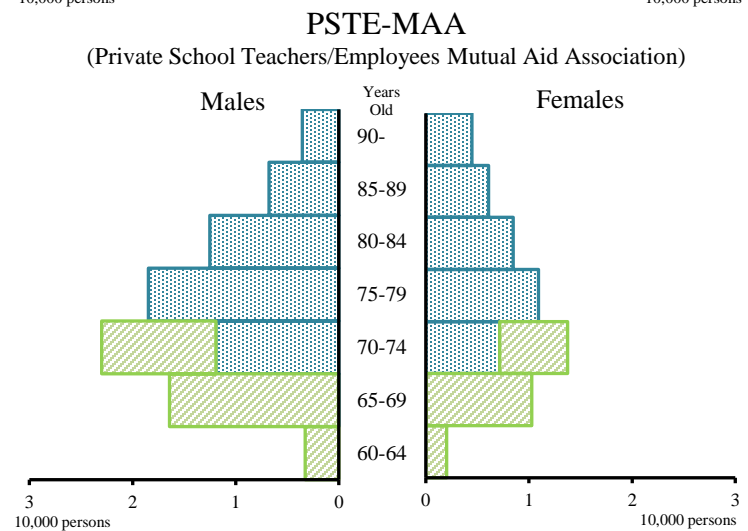
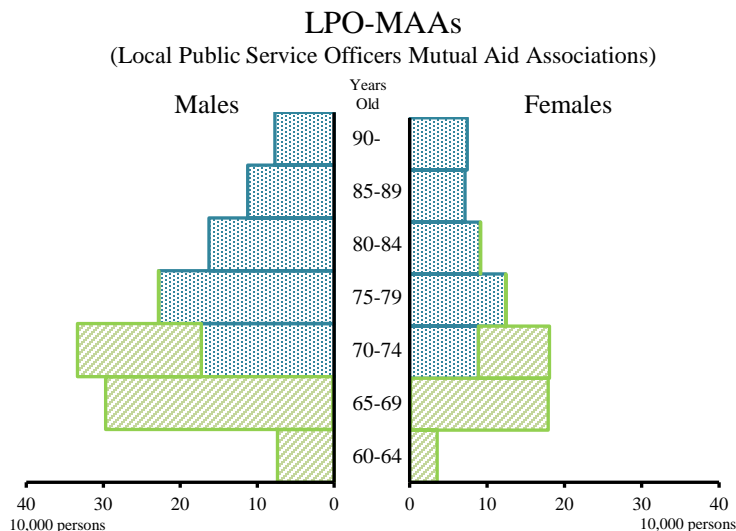
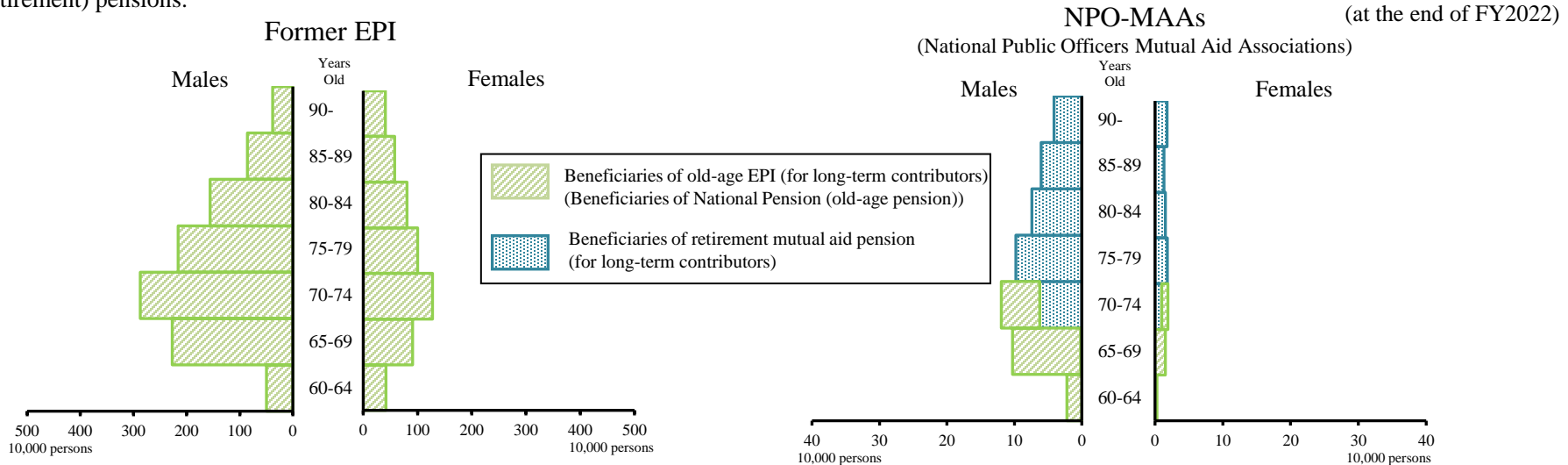


Note: NPO-MAAs, LPO-MAAs, and PSSTE-MAA of FY2015 and subsequent years are the total amounts of the total pensions provided to the beneficiaries of MAA pensions and the total pensions provided to the beneficiaries of EPI before the integration of the employee's pension schemes. (at the end of FY)

11. Age distribution of old-age pension beneficiaries for long-term contributors

- In all schemes, the number of beneficiaries in the 70-74 age group is the largest for both genders.
- NPO-MAAs are characterized by the paucity of female beneficiaries and the number of female beneficiaries in each over-65 age group remaining relatively unchanged.

*“Beneficiaries of old-age pension for long-term contributors” mean those having met the eligibility criteria of 25 years among the beneficiaries of old-age (retirement) pensions.



12. Average monthly old-age pension for long-term contributors excluding occupational additions of MAAs, etc. (estimated)

Since mutual aid pensions, such as the pensions provided by MAAs, include occupational additions, the pension actuarial subcommittee estimated the pension amount of the portion equivalent to EPI pension excluding these additions. The average monthly whole EPI was JPY 149 thousand; JPY 167 thousand for male beneficiaries and 113 thousand for female beneficiaries.

The reason for the difference in the monthly pension amounts among the implementing organizations is that, for males, the standard remuneration amount, the benchmark for calculating the pension, is deemed to be higher in MAAs, etc., and the age of beneficiaries in MAAs, etc., is higher than that of the former EPI, despite the fact the average contribution period in the former EPI exceeds that of NPO-MAAs and PSTE-MAA.

(at the end of FY2022)

Classification	Former EPI	NPO-MAAs	LPO-MAAs	PSTE-MAA	Whole EPI
Average monthly amount of pension (including the amount of the Old-Age Basic Pension)	JPY	JPY	JPY	JPY	JPY
Total	143,973	173,008	176,585	176,639	148,716
Males	163,875	176,348	182,931	192,180	166,543
Females	104,878	156,137	165,816	153,332	113,449
Female-to-male ratio ("males"=100)	64.0	88.5	90.6	79.8	68.1

Note 1: The amounts of retirement mutual aid pension for long-term contributors for NPO-MAAs, LPO-MAAs and PSTE-MAA excluding the occupational addition are estimates.
 Note 2: For NPO-MAAs, LPO-MAAs and PSTE-MAA, the average for beneficiaries of retirement mutual aid pension for long-term contributors and beneficiaries of old-age EPI for long-term contributors.

Regarding females, the difference in the standard remuneration amount (the basis for calculating the pension), the average contribution period in MAAs etc., which is considerably longer than that of the former EPI and the age of beneficiaries in NPO-MAAs and PSTE-MAA, which exceeds that of the former EPI, seem to be having an impact.

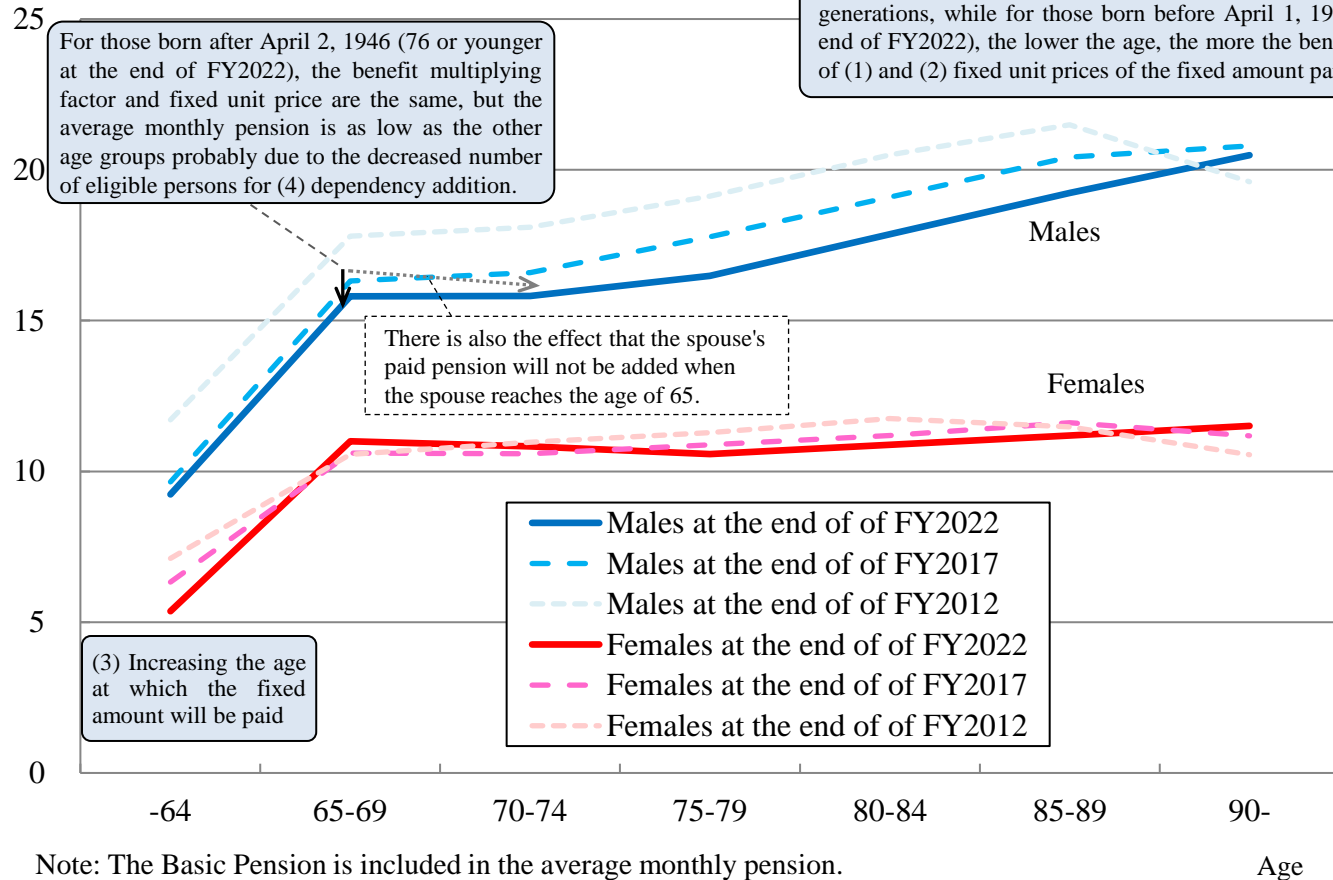
13. Average monthly pension for old-age pension beneficiaries by age group

The average monthly pension amount for the former EPI has been declining as the average length of contribution has been prolonged for all beneficiaries. The main reasons are the following:

- (1) Decline in benefit multiplying factors of the earnings-related portion, (2) decline in unit price of fixed amount portion, (3) increase in the pensionable age for the fixed amount portion, (4) decline in number of persons eligible for dependency addition, (5) pension revision rate*, and (6) elimination of "special level" overpayment (negative revision of pension amounts).
- * Since FY 2012, the revision rates were negative in FY 2012, FY 2017, FY 2021 and FY 2022, in addition to (6).

Average monthly amount of pension
(JPY 10,000)

Former EPI



The average pension enrollment period has been increasing for younger generations, while for those born before April 1, 1946 (77 or older at the end of FY2022), the lower the age, the more the benefit multiplying factor of (1) and (2) fixed unit prices of the fixed amount part have been reduced.

For those born after April 2, 1946 (76 or younger at the end of FY2022), the benefit multiplying factor and fixed unit price are the same, but the average monthly pension is as low as the other age groups probably due to the decreased number of eligible persons for (4) dependency addition.

There is also the effect that the spouse's paid pension will not be added when the spouse reaches the age of 65.

(3) Increasing the age at which the fixed amount will be paid

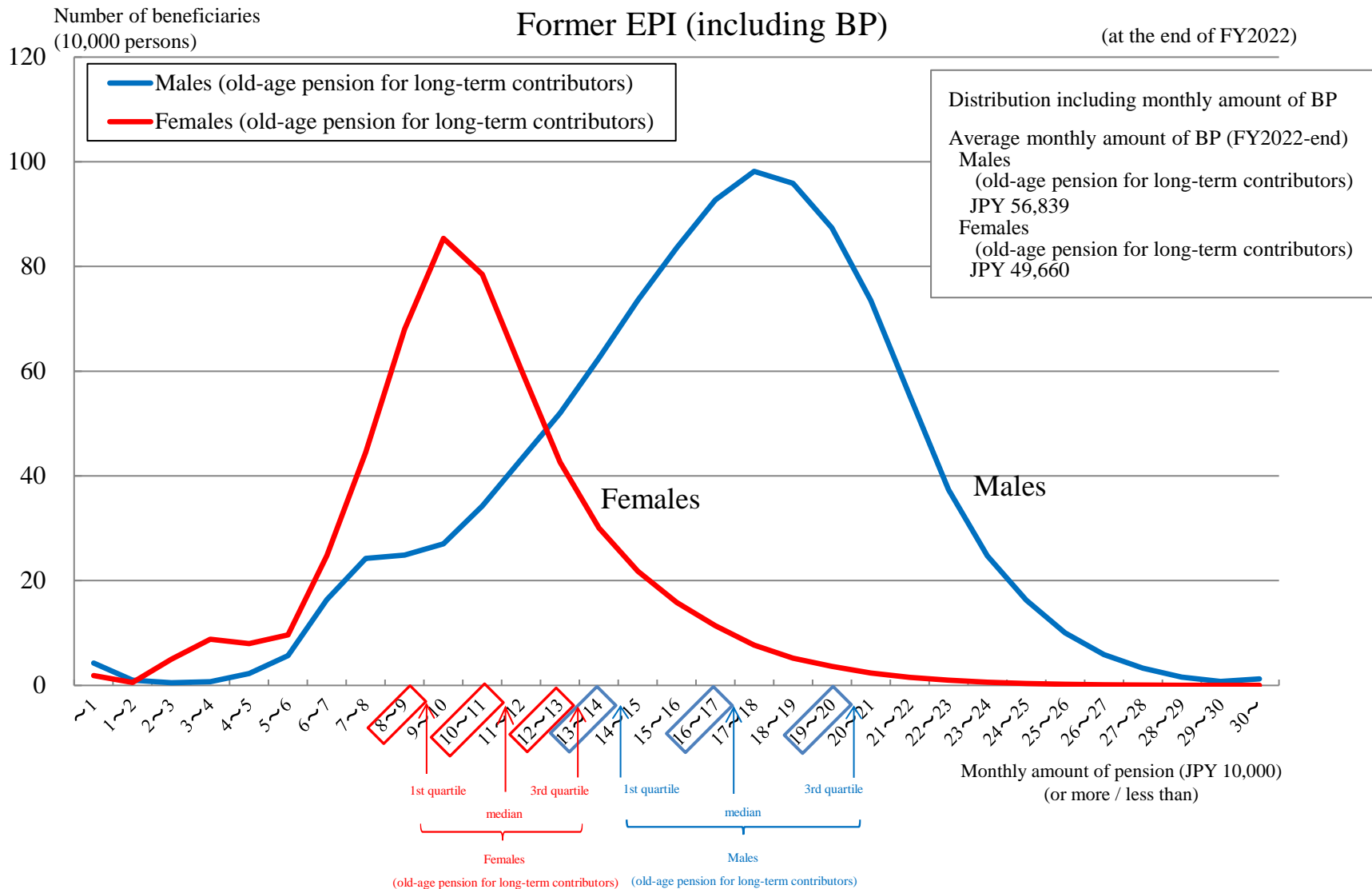


From the end of FY2012 to the end of FY2017 in addition to the reduction of benefit multiplying factor and fixed unit price, there will also be the impact of the elimination of (6) "special levels".

Note: The Basic Pension is included in the average monthly pension.

14. Number of old-age pension beneficiaries by class of monthly pension amount

The amount includes the Basic Pension. The number of beneficiaries peaks at JPY 160-200 thousand for male beneficiaries and JPY 80-120 thousand for female beneficiaries.



Current situation of fiscal revenue and expenditure (Excerpt from Chapter 2, Section 3)

15. Annual balance of revenues and expenditures in FY2022
16. Factor analysis of change in contribution income for EPI
17. Analysis of the factors causing an increase or decrease in contribution income for the current year for National Pension Account of NP

15. Annual balance of revenues and expenditures in FY2022

- The annual balance of revenues was analyzed for “Annual balance of revenues and expenditures excluding investment income” and “Investment income” separately.
- The revenue of "the public pension plans as a whole" was composed of JPY 40.7 trillion of the contribution income, JPY 13.4 trillion of the national and local government subsidies, etc. The total amount of revenues excluding investment income was JPY 54.6 trillion. The expenditure side was mainly composed of JPY 53.4 trillion of benefit disbursements, and the total amount of expenditures was JPY 53.7 trillion. As a result, the annual balance of revenues and expenditures excluding investment income was positive JPY 0.9 trillion.
- The investment income was positive JPY 3.5 trillion on a market value basis.
- The reserve of "the public pension plans as a whole" at the end of FY2022 was JPY 250.5 trillion on a market value basis which increased by JPY 4.4 trillion compared with the previous fiscal year.

Classification		Whole Employees' Pension Insurance	National Pension		Public pension plans as a whole
			National Pension Account	Basic Pension Account	
		JPY 100 million	JPY 100 million	JPY 100 million	JPY 100 million
Reserves at the previous fiscal year end (a) (on a market value basis)		2,305,528	105,642	49,539	2,460,709
Revenues (adjusted financial status base)	Total amount	516,336	34,531	255,647	546,474
	(of which) Contribution income	392,737	13,802	•	406,539
	(of which) National and local government subsidies etc.	114,832	19,089	•	133,921
	(of which) Subsidies from Basic Pension	2,896	1,605	•	(*1)
	(of which) Revenue of the contribution to Basic Pension	•	•	255,538	(*2)
Expenditures (adjusted financial status base)	Total amount	513,673	37,256	246,474	537,363
	(of which) Benefit disbursements	289,542	2,476	241,968	533,986
	(of which) Contribution to Basic Pension	221,933	33,605	•	(*2)
	(of which) Benefits equivalent to Basic Pension (Subsidies from Basic Pension)	•	•	4,502	(*1)
Annual balance of revenues and expenditures excluding investment income (b)		2,662	△2,725	9,174	9,111
Investment income (c) (on a market value basis)		33,151	1,493	4	34,649
Others (d) (on a market value basis)		225	108	-	334
Reserves at the fiscal year end (a + b + c + d) (on a market value basis)		2,341,567	104,518	58,717	2,504,802
Change in reserves from the previous fiscal year end (on a market value basis)		36,039	△ 1,123	9,178	44,093

Note 1 To observe whole EPI and the fiscal revenue and expenditure situation for EPI as a whole, “give-and-take” exchanges between EPI implementing organizations are excluded from both revenues and expenditures.

In the same way, “give-and-take” transactions within the public pension plans ((*1) and (*2)) are excluded from both revenues and expenditures for the public pension plans as a whole.

Note 2 Whole EPI and Public pension plans as a whole do not include the substitutional portion managed by EPFs.

Note 3 The amount recorded as “Others (d)” is “Transfer to reserves from the Business Account” in EPI Account and the National Pension Account of NP.

16. Factor analysis of change in contribution income for EPI

Trends in contribution income for EPI

FY	EPI Account	NPO-MAAs	LPO-MAAs	PSTE-MAA	Whole EPI
	JPY 100 million	JPY 100 million	JPY 100 million	JPY 100 million	JPY 100 million
2021	333,535	12,918	34,575	4,967	385,995
2022	340,583	12,814	34,197	5,144	392,737

The increase in the number of insured persons contributed to the increase in contribution income.

The decrease in the number of insured persons contributed to the decrease in contribution income.

Rate of change over previous FY (%)					
2022	2.1	Δ0.8	Δ1.1	3.6	1.7

Note: EPI Account and Whole EPI do not include the substitutional portion managed by EPFs.

Classification		EPI Account	NPO-MAAs	LPO-MAAs	PSTE-MAA
		%	%	%	%
Rate of change over previous FY (contribution income)		2.1	Δ0.8	Δ1.1	3.6
Contributions by factor	Number of insured persons	1.4	Δ0.4	Δ1.6	1.2
	Average amounts of standard remuneration	1.4	Δ0.3	0.6	0.1
	Contribution rate	—	—	—	2.3
	Others	Δ0.7	Δ0.1	Δ0.1	Δ0.0

Note 1: The contributions of each factor are estimates, being expressed in terms of the rate against contribution income in the previous fiscal year.

Note 2: The fiscal year average is used for the number of insured persons.

The decrease in the average amounts of standard remuneration contributed to the decrease in contribution income.

The increase in contribution rates in FY2022 contributed to the increase in contribution income.

17. Analysis of the factors causing an increase or decrease in contribution income for the current year for National Pension Account of NP

FY	Contribution income			Payment rate for current FY	Final payment rate	Contributions
	JPY 100 million	Contributions for current FY JPY 100 million	Contributions for preceding FY JPY 100 million			
2020	13,365	12,749	616	71.5	80.7	16,540
2021	13,496	12,836	660	73.9		16,610
2022	13,802	13,135	667	76.1		16,590

The decline in the number of NP Category-1 insured persons contributed to the decline in contribution income.

The increase of proportion of number of contribution-exempted insured persons contributed to the decline in contribution income.

Fall in the nominal amount of NP contributions contributed to the decline in contribution income.

	Rate of change over previous FY (%)			Difference from previous FY	
2020	Δ0.7	Δ0.5	Δ3.9	2.2	2.7
2021	1.0	0.7	7.1	2.4	
2022	2.3	2.3	1.1	2.2	

Note1: The payment rate of NP contributions is the ratio of the number of months actually paid to the number of months in which contributions should be paid. The number of months to be paid is the number of months to be paid as the concerned fiscal year's portion of contributions (not including the number of statutory exemption months, the number of full exemption months applied, number of special case months for students and number of suspension months for the youth), and the number of months paid is the number of months actually paid during that year (until the end of April of the following year). In addition, the number of months to be paid and the number of months actually paid are counted as one month even for those who paid partially the contributions.
 Note2: Contributions can be paid for the preceding two years' portion. Final payment rate is the payment rate including contributions paid in the preceding fiscal years.

Classification		2020	2021	2022
		%	%	%
Rate of change over previous FY (Contributions for current FY)		Δ0.5	0.7	2.3
Contribution by factor	Number of insured persons	Δ0.3	Δ1.1	Δ1.4
	Proportion of number of contribution-exempted insured persons	Δ3.3	Δ3.2	Δ0.6
	Amount of contributions	0.8	0.5	Δ0.1
	Payment rate	3.2	3.3	3.0
	Others	Δ1.0	1.2	1.4

Note 1: Contributions by factor are estimates, being expressed as a ratio to contributions for the current year's portion in the previous fiscal year.
 Note 2: The fiscal year average is used for the number of insured persons.
 Note 3: The amount of contributions is the weighted average in consideration of the number of months received.

The increase in the payment rate contributed to the increase in contribution income.

Comparison of actual and projected fiscal revenues and expenditures (Excerpt from Chapter 3, Sections 2 and 3)

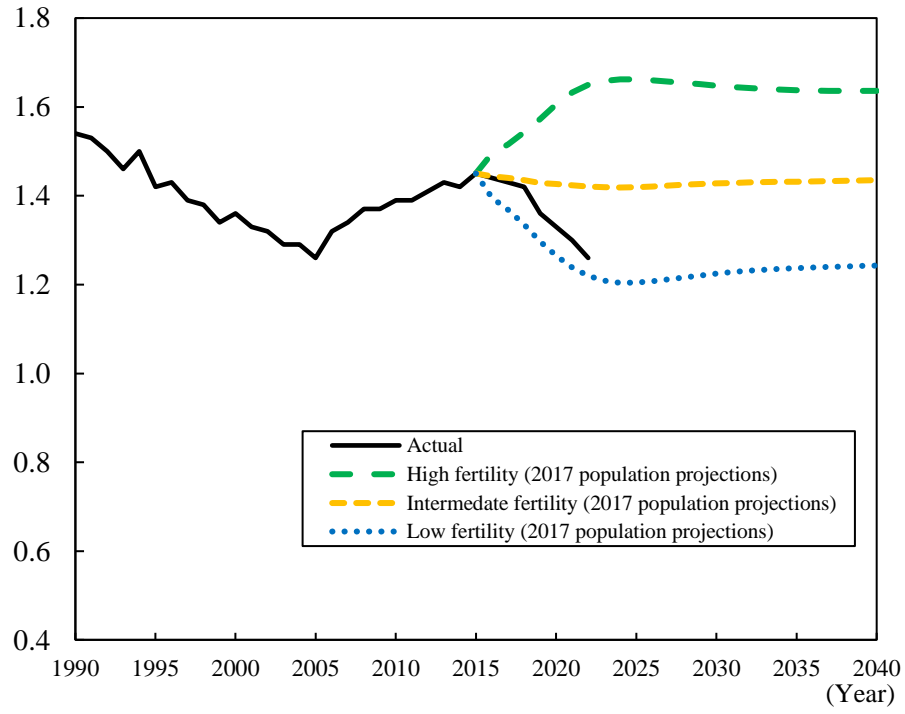
18. Comparison of actual results and assumptions for total fertility rate and average life expectancies at 65
19. Comparison of actual and assumed inflation rates
20. Comparison of actual rates of real wage increase and assumed rates
21. Comparison of actual substantial investment returns and assumptions
22. Comparison of actual labor force participation rates and assumed rates
23. Comparison of actual number of insured persons and future projections
24. Comparison of actual number of recipients and future projections
25. Comparison of actual contribution income and future projections
26. Comparison of actual benefit disbursement and future projections
27. Comparison of actual contributions to Basic Pension and the future projections
28. Comparison of actual reserves and future projections
29. Comparison of actual actuarial indices and future projections

18. Comparison of actual results and assumptions for total fertility rate and average life expectancies at 65

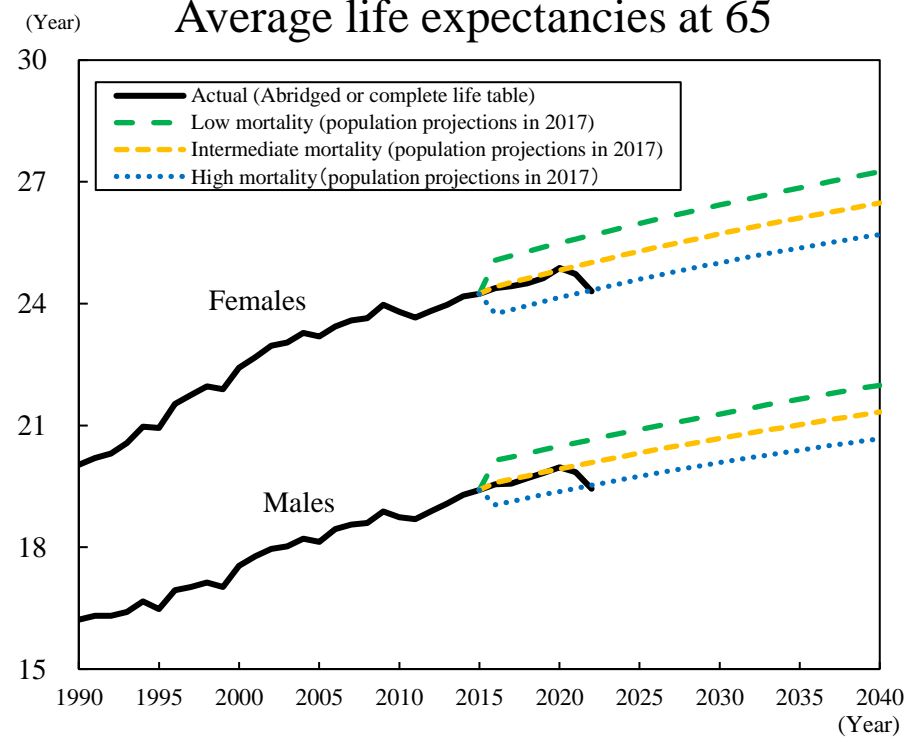
- The actual fertility rate in 2022 was 0.05 lower than the previous year and roughly in the middle of the assumed intermediate fertility rate and the assumed low fertility rate in the 2017 population projections*. However, the deviation from the assumed intermediate fertility rate has further widened.
- Compared with the previous year, the actual average life expectancies of Japanese nationals aged 65 in 2022 lowered by 0.41 years for males and 0.43 years for females. Life expectancies for both genders were also below the assumed high mortality rate in the 2017 population projections*.

*Although a new population projection (estimated in April 2023) has already been published, we compared the actual fertility rate with the assumptions in the 2017 population projection (one of the bases of the 2019 actuarial valuation).

Total fertility rate

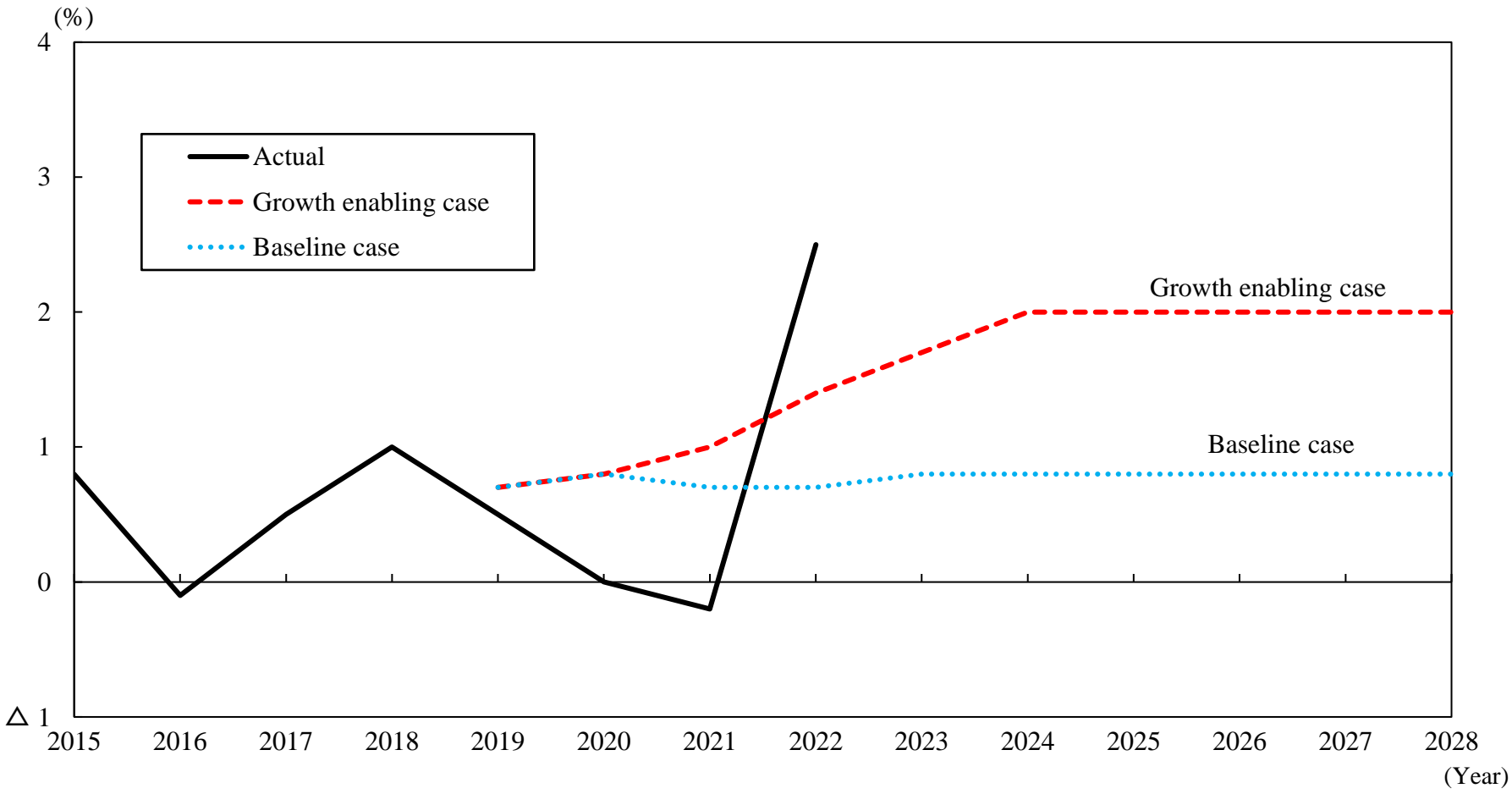


Average life expectancies at 65



19. Comparison of actual and assumed inflation rates

The actual inflation rate in 2022 was 2.5%, exceeding the assumptions made in the actuarial valuation, both in growth enabling and baseline cases.

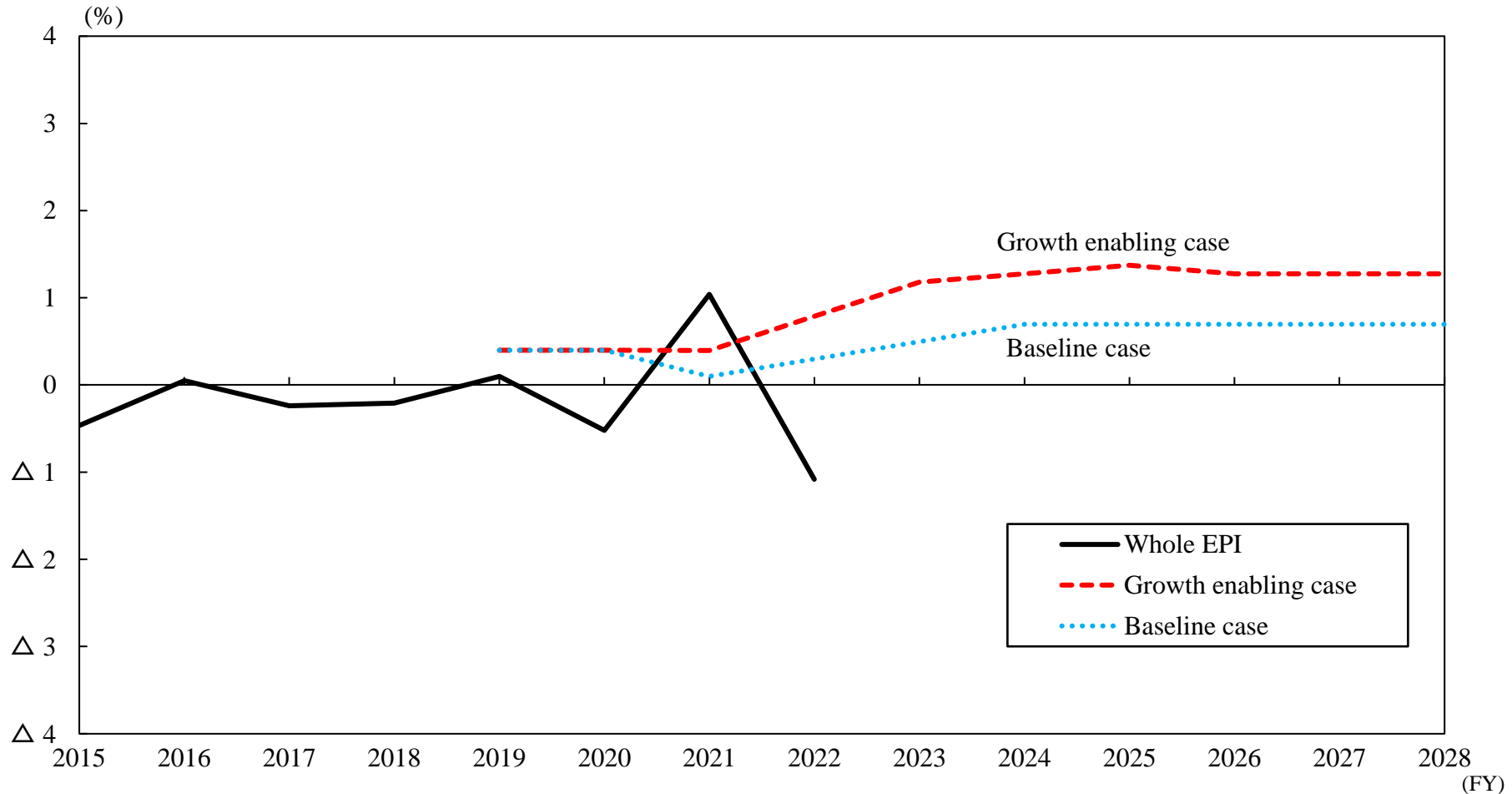


Note: The "Growth enabling case" is connected to Case I-III, and the "Baseline case" is connected to Case IV-VI of the actuarial valuation.

20. Comparison of actual rates of real wage increase and assumed rates

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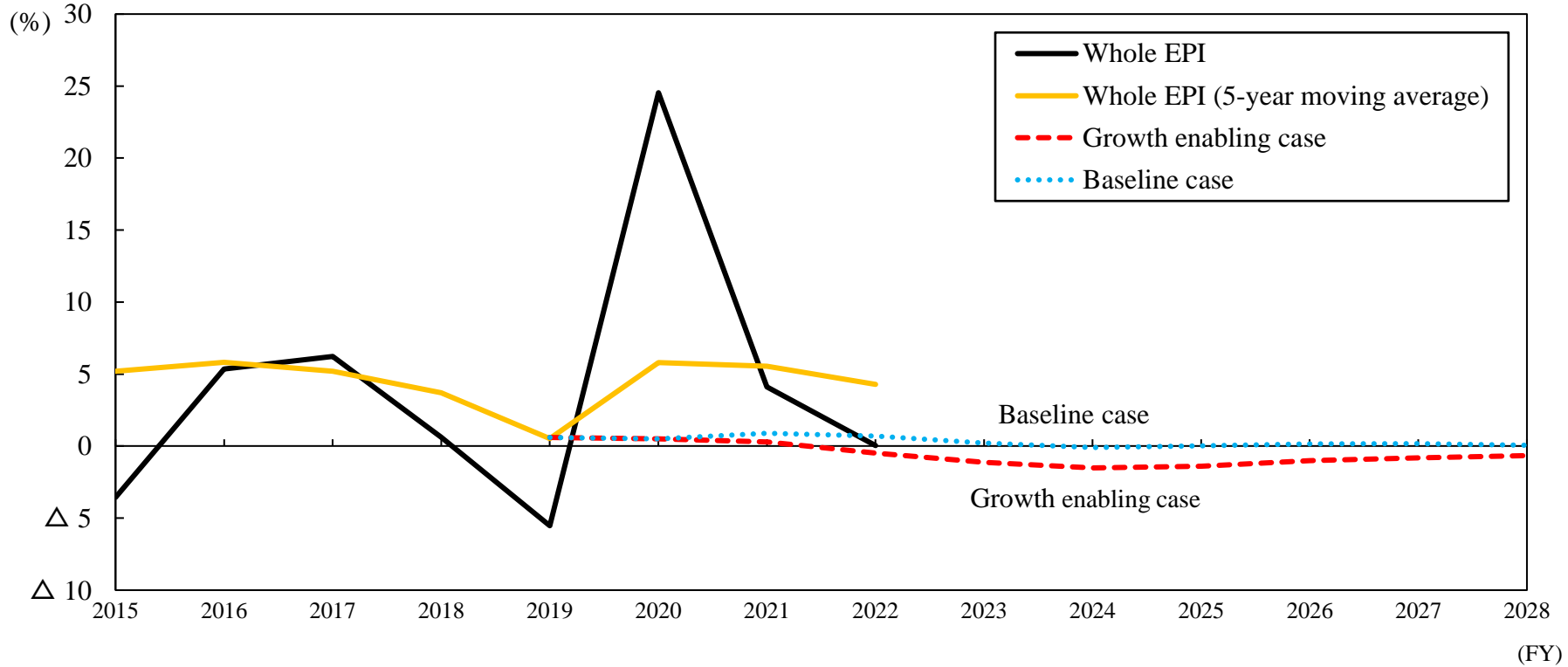
The actual rate of real wage increase (adjusted for price inflation) in FY2022 was lower than the assumptions in the actuarial valuation due to inflation.



Note: The "Growth enabling case" is connected to Case I-III, and the "Baseline case" is connected to Case IV-VI of the actuarial valuation.

21. Comparison of actual substantial investment returns and assumptions

The actual substantial investment return (adjusted for nominal wage increase) in FY2022 exceeded the assumption in the growth-enabling case but lower than the assumption in the baseline case.



Note 1: The whole EPI (five-year moving average) is calculated by averaging the substantial investment returns for the five years prior to the fiscal year in question, for the whole EPI FY2015 and subsequent years, and for the former EPI for FY2014 and earlier.

Note 2: The "Growth enabling case" is connected to Case I-III, and the "Baseline case" is connected to Case IV-VI of the actuarial valuation.

As public pension plan contributions and newly awarded benefits vary in accordance with rates of nominal wage increase, the actual investment return and the assumption used for future projections are best compared from a long-term perspective **by comparing the substantial investment return** (adjusted for nominal wage increase).

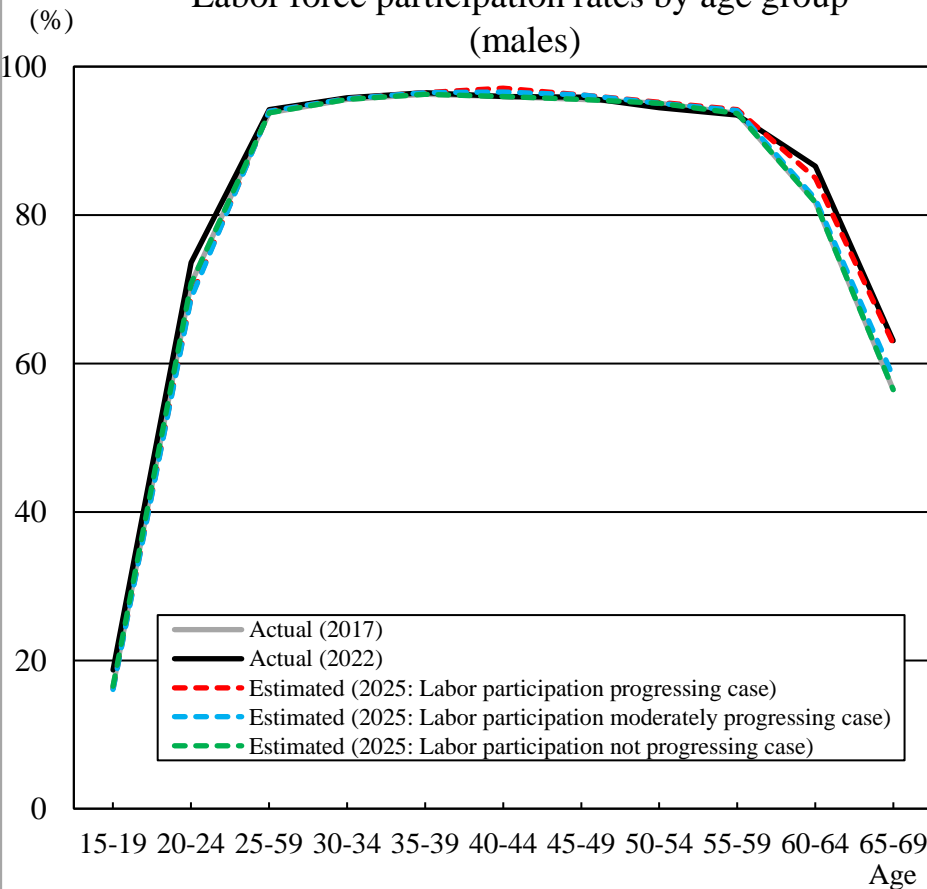
22. Comparison of actual labor force participation rates and assumed rates

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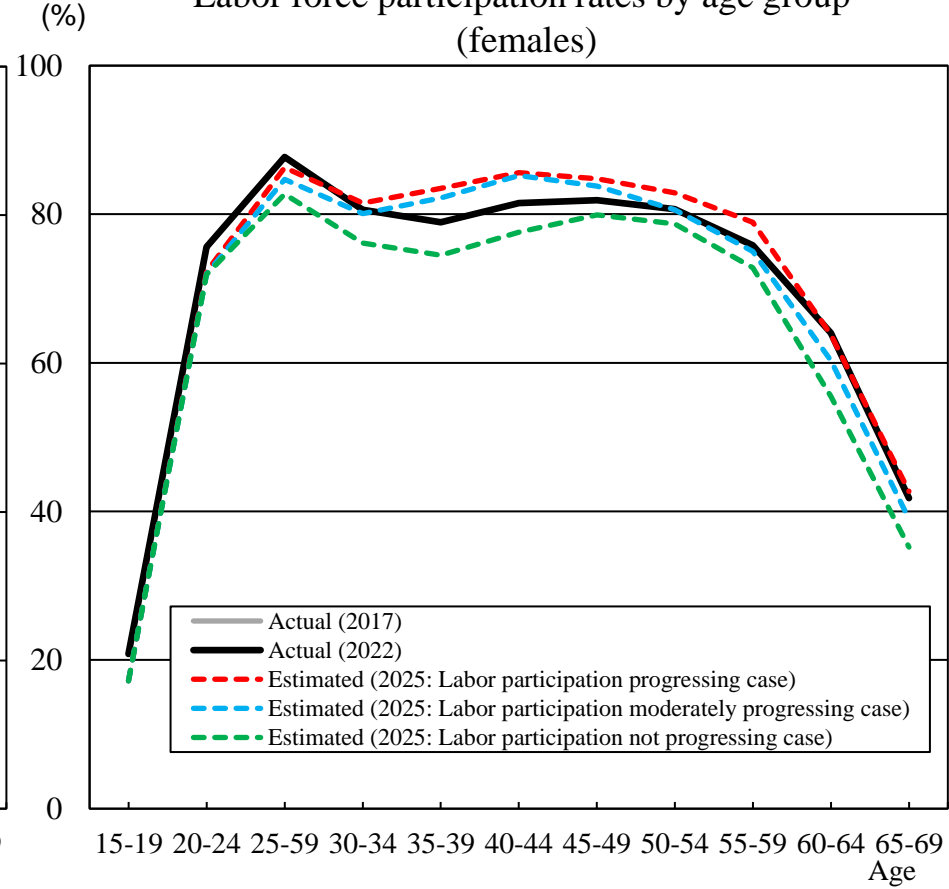
Comparing* the actual results in 2022 with the labor participation progressing case estimates in 2025, the actual results exceeded the labor participation progressing case estimates for males aged 15-34 and over 60, and females aged 15-29 and 60-64.

* Note that the future projections being compared are three year ahead of the actual performance.

Labor force participation rates by age group
(males)



Labor force participation rates by age group
(females)

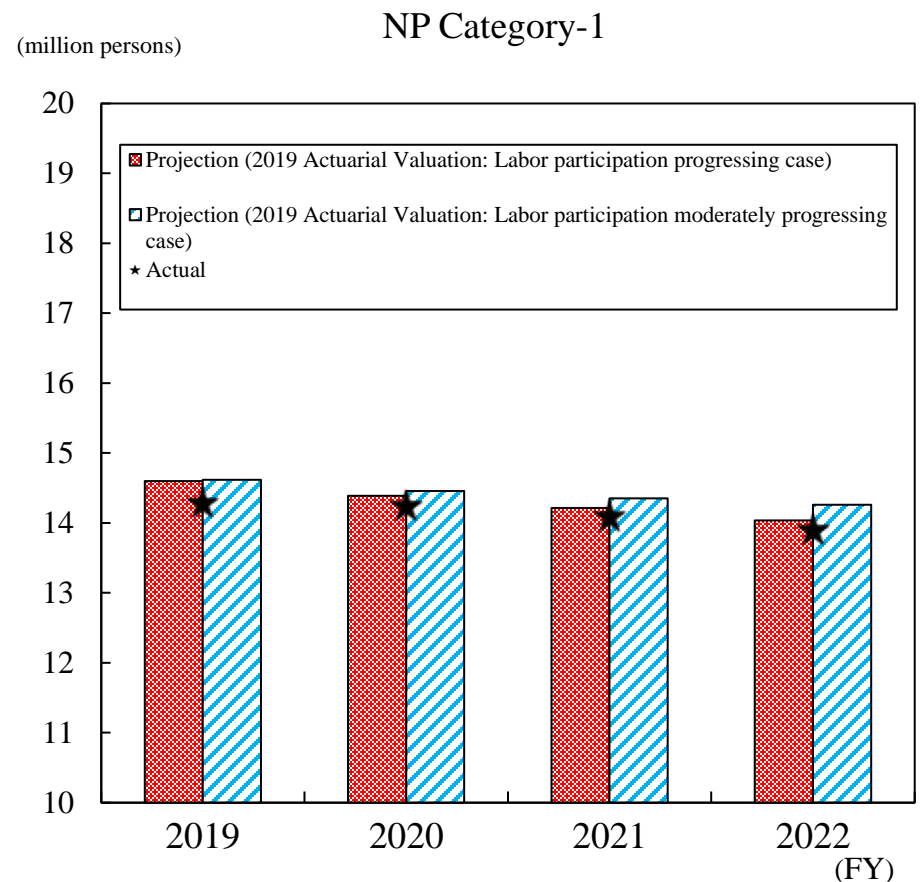
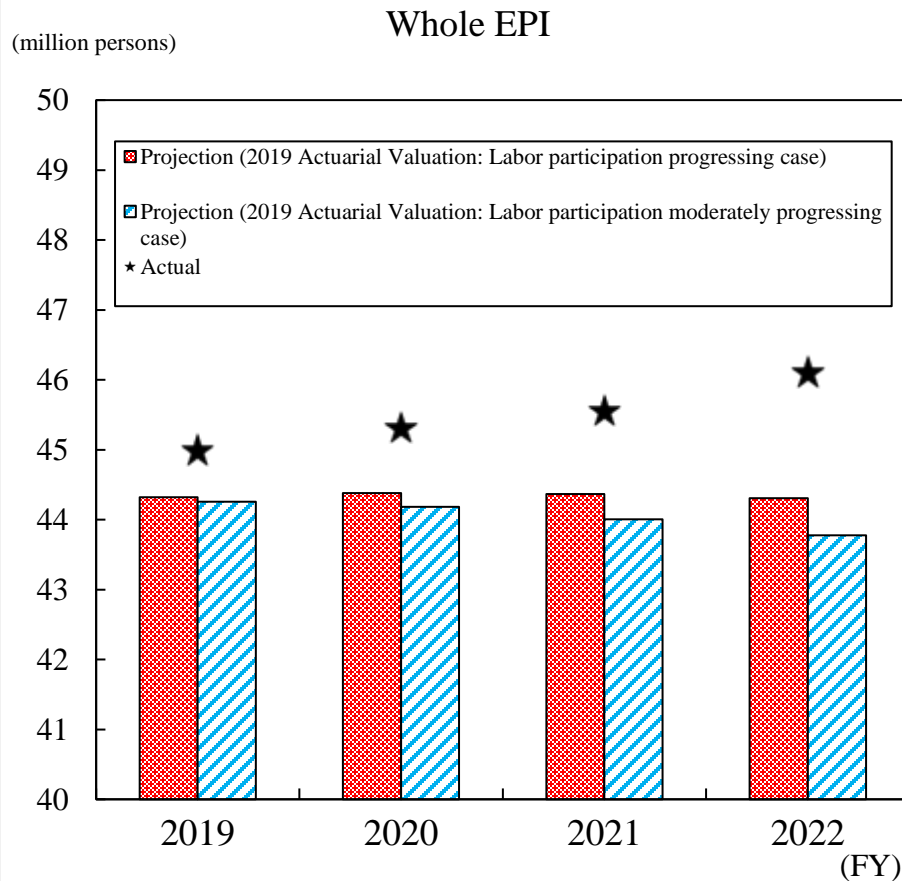


Note: The “Labor participation progressing case” corresponds to Case I-III, the “Labor participation moderately progressing case” to Cases IV and V, and the “Labor participation not progressing case” corresponds to Case VI of the actuarial valuation.

23. Comparison of actual number of insured persons and future projections

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In FY2022, the actual result (marked with “★” in the figure below) exceeds the future projections (bar graph) for the whole EPI, while the actual result is lower than the future projections for NP Category-1 insured persons.

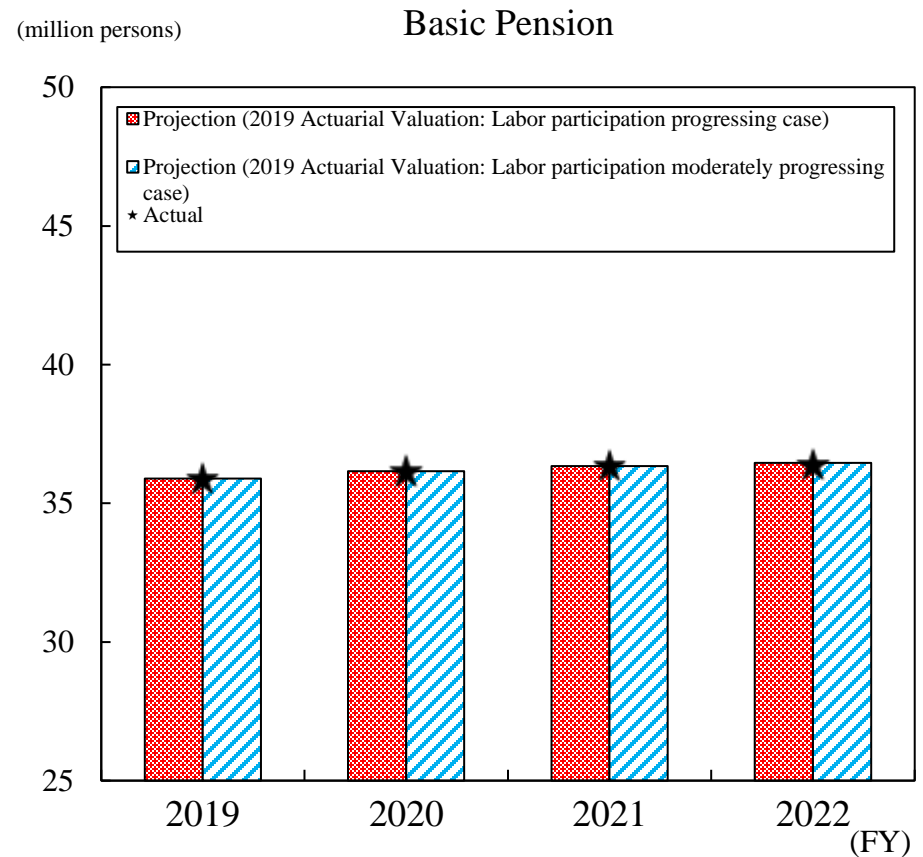
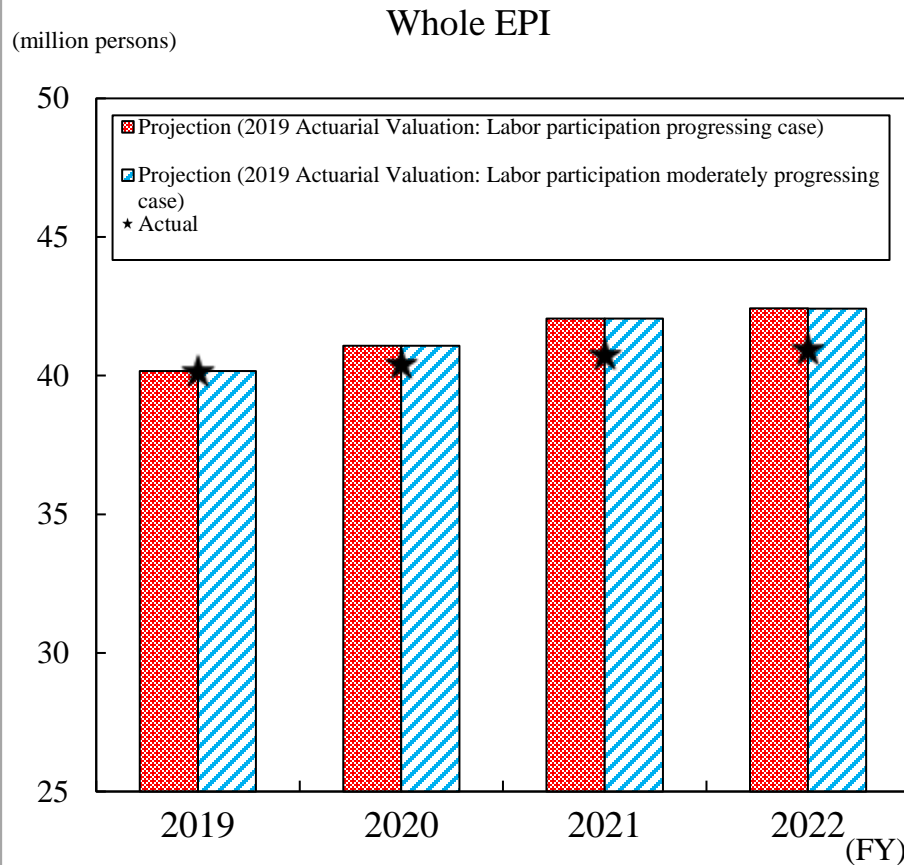


Note: The “Labor participation progressing case” corresponds to Case I-III, and the “Labor participation moderately progressing Case” corresponds to Case IV and V of the actuarial valuation.

24. Comparison of actual number of beneficiaries and future projections

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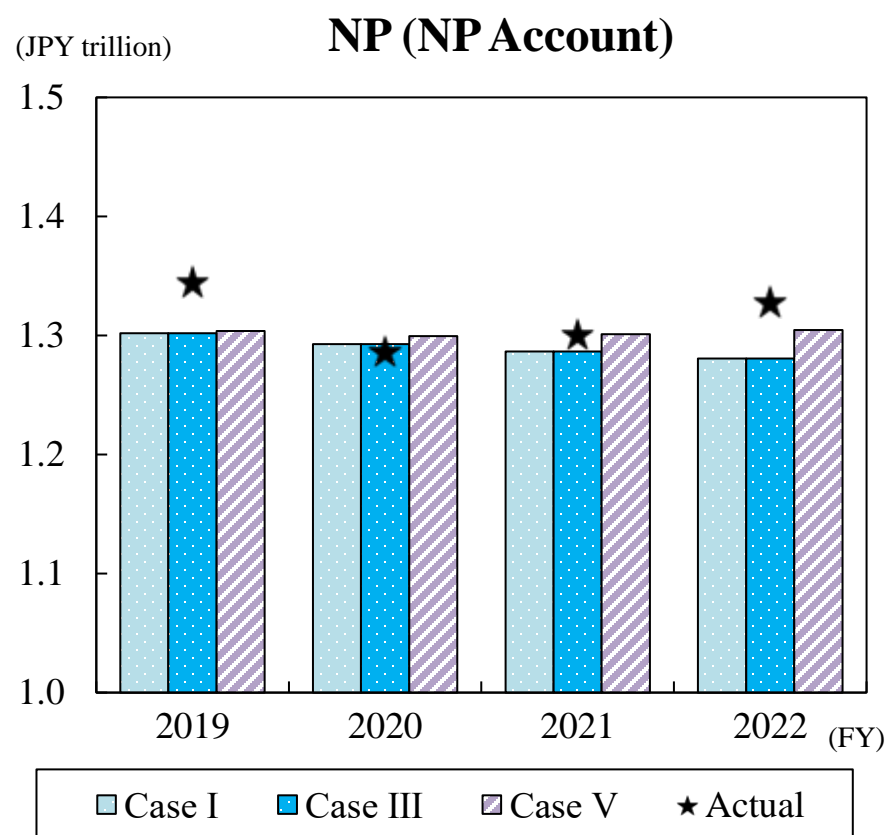
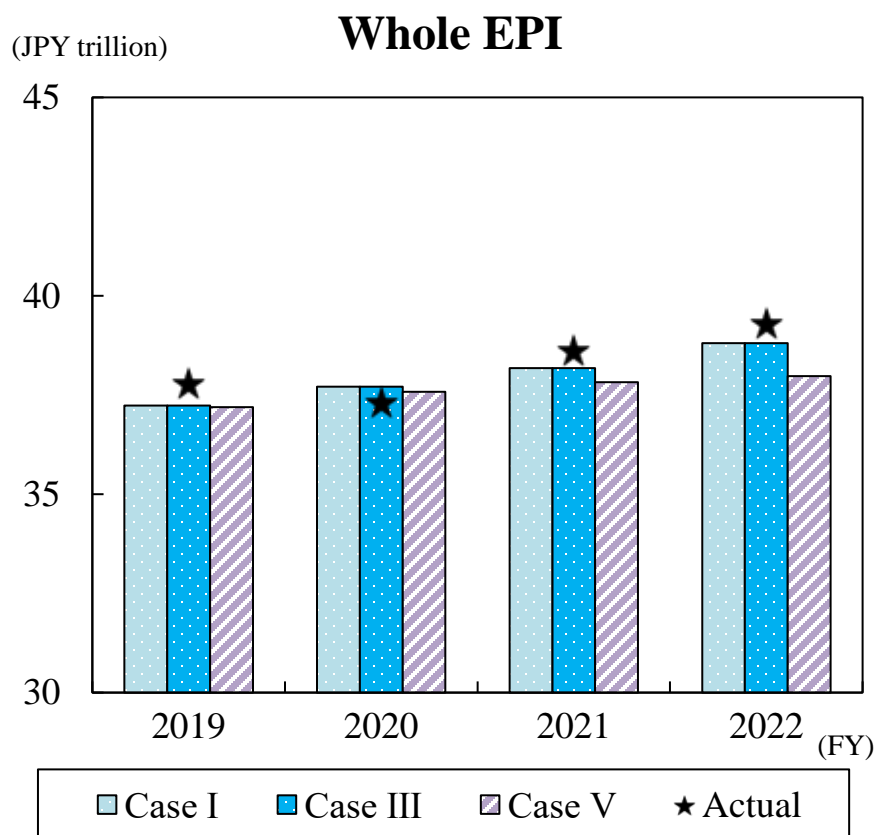
In FY2022, the actual result (marked with “★” in the figure below) is lower than the future projections (bar graph) for the whole EPI, while the actual result is almost equivalent to the future projection for the basic pension.



Note: The “Labor participation progressing case” corresponds to Case I-III, and the “Labor participation moderately progressing case” corresponds to Case IV and V of the actuarial valuation.

25. Comparison of actual contribution income and future projections

In FY2022, the actual results (marked with “★” in the figure below) exceed the future projections (bar graph) for both the whole EPI and the National Pension Account of NP.

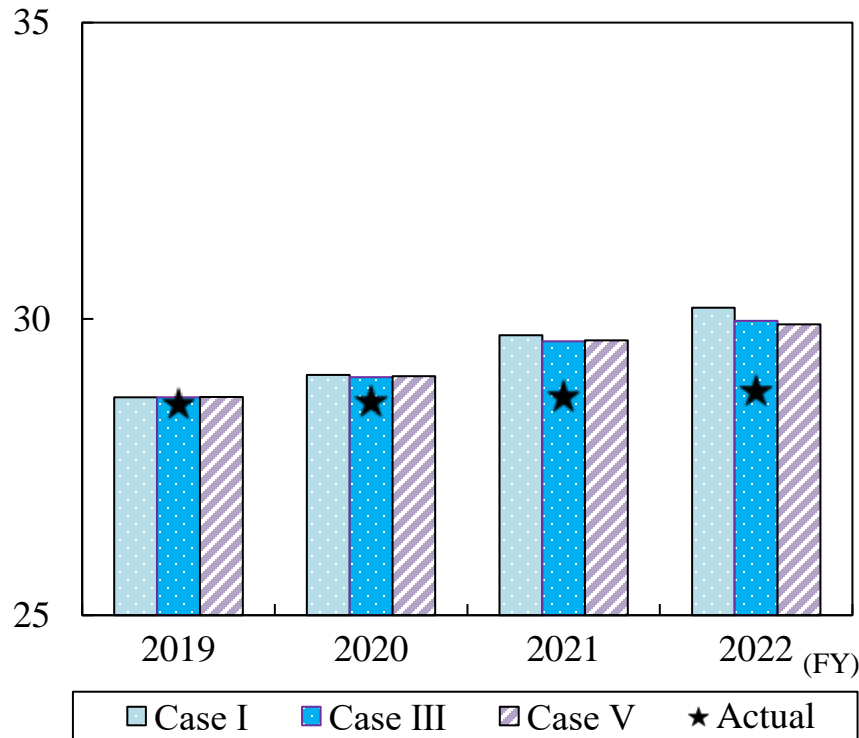


26. Comparison of actual benefit disbursement and future projections

In FY2022, the actual result (marked with “★” in the figure below) is lower than the future projections (bar graph) for the whole EPI, while the actual result is almost equivalent to the future projections for the National Pension Account of NP [Benefit disbursement of additional pension plan for NP category-1 insured persons and voluntary insured persons, etc.].

Whole EPI

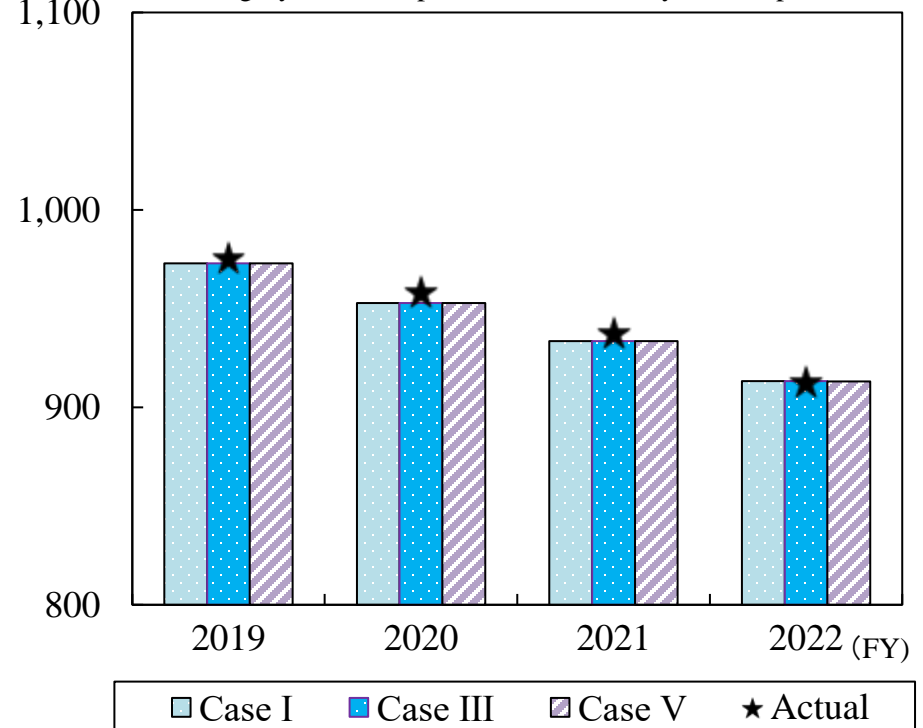
(JPY trillion)



NP (NP Account)

(JPY 100 million)

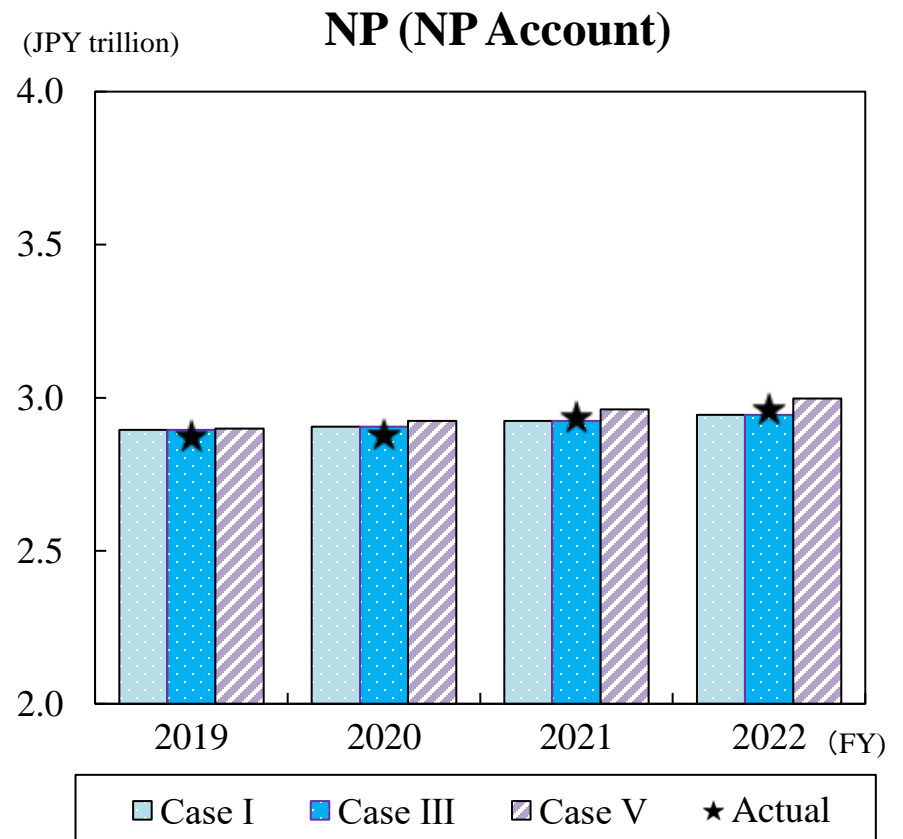
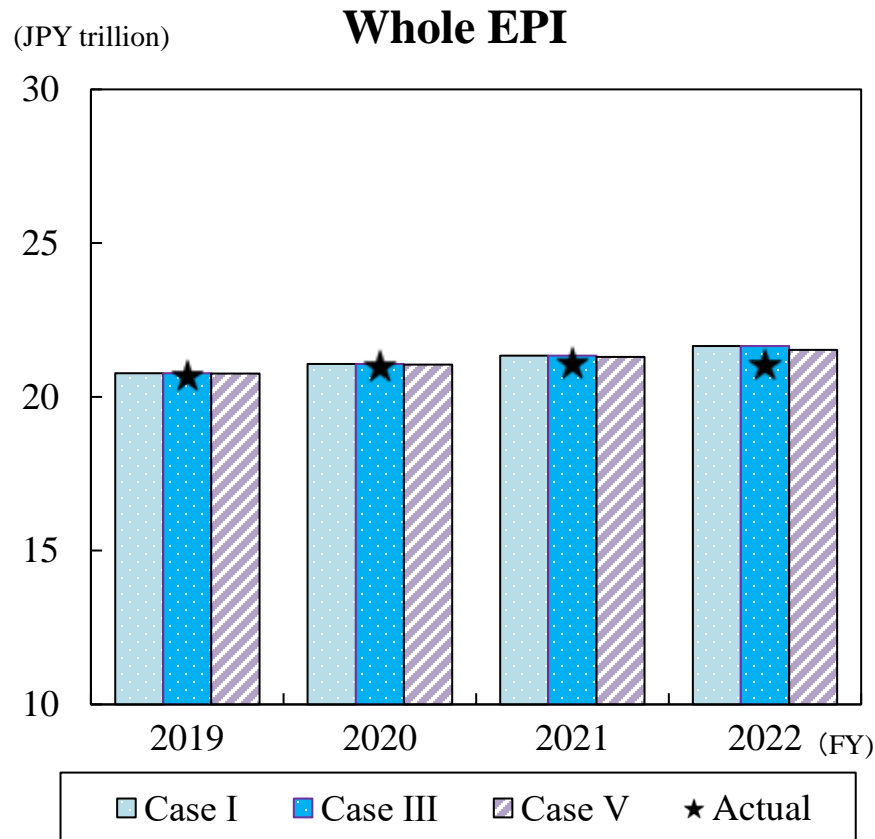
Benefit disbursement of additional pension plan for NP category-1 insured persons and voluntary insured persons, etc.]



Note: Excludes benefit cost of Basic Pensions provided by the New Law and National Pensions equivalent to BP provided by the Old Law.

27. Comparison of actual contributions to Basic Pension and the future projections

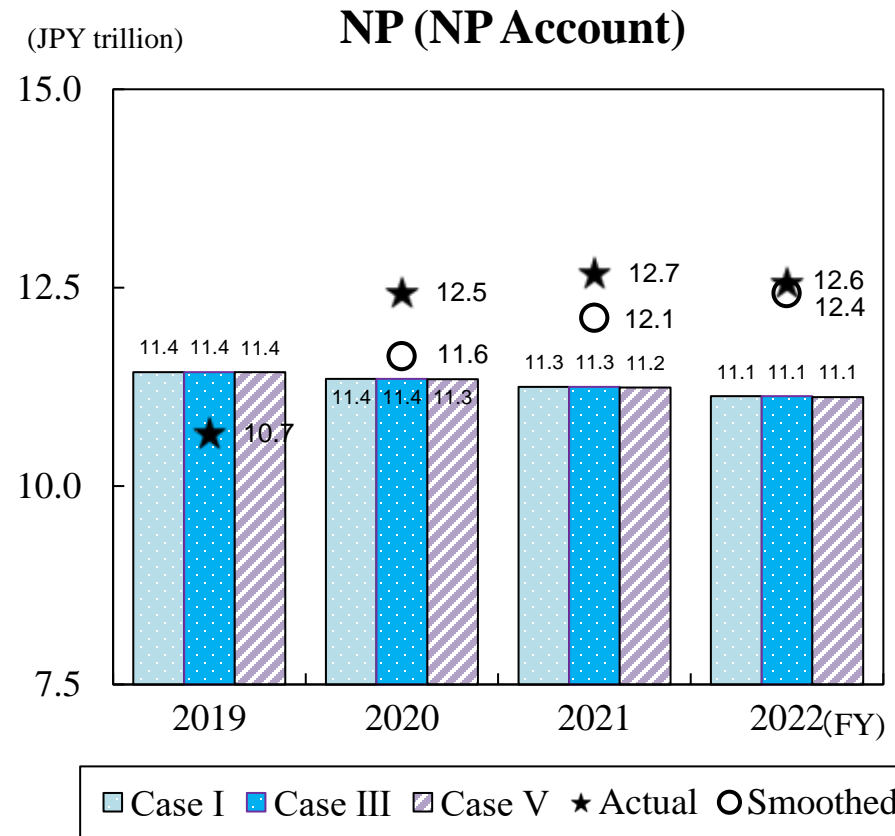
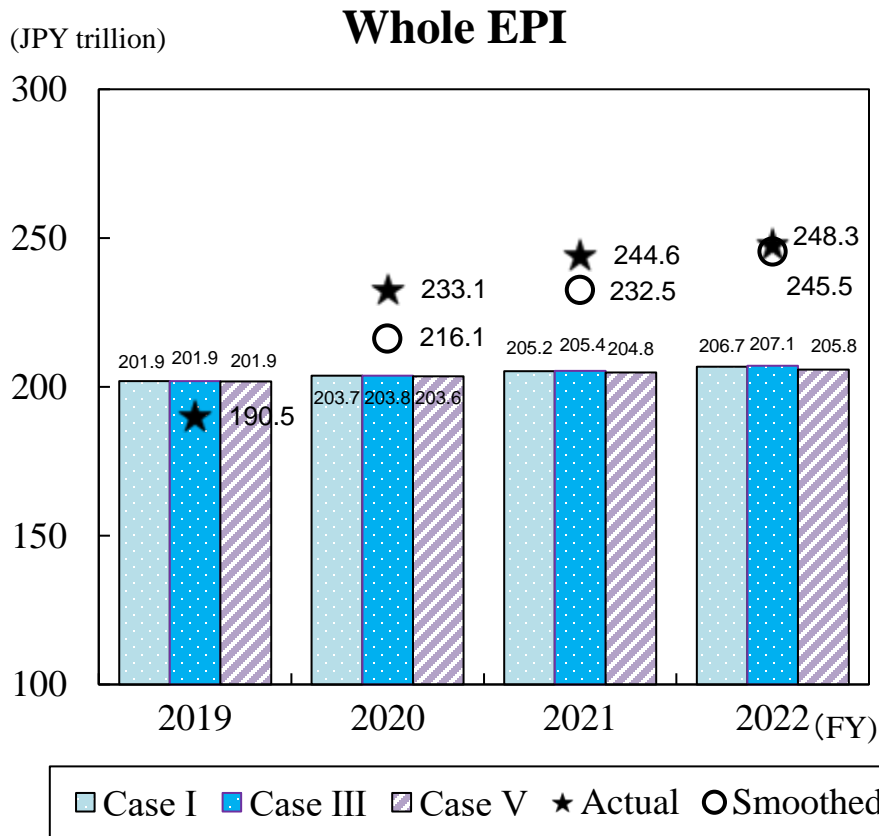
In FY2022, the whole EPI (marked with “★” in the figure below) is lower than the future projections (bar graph), while the actual result of the National Pension Account of NP is equivalent to the future projections.



28. Comparison of actual reserves and future projections

- At the end of FY2022, the actual results for both the whole EPI and the National Pension Account of NP (marked with “★” in the figure below) exceeded the future projection (bar graph).
- The reserve amounts smoothed for changes in market valuation* (marked with “○” in the figure below, calculated from FY2020) also exceeded the future projection at the end of FY2022.

* The difference between investment income on a market value basis and historical average income is smoothed out for the past five fiscal years and reflected in the reserve valuation.



29. Comparison of actual actuarial indices and future projections

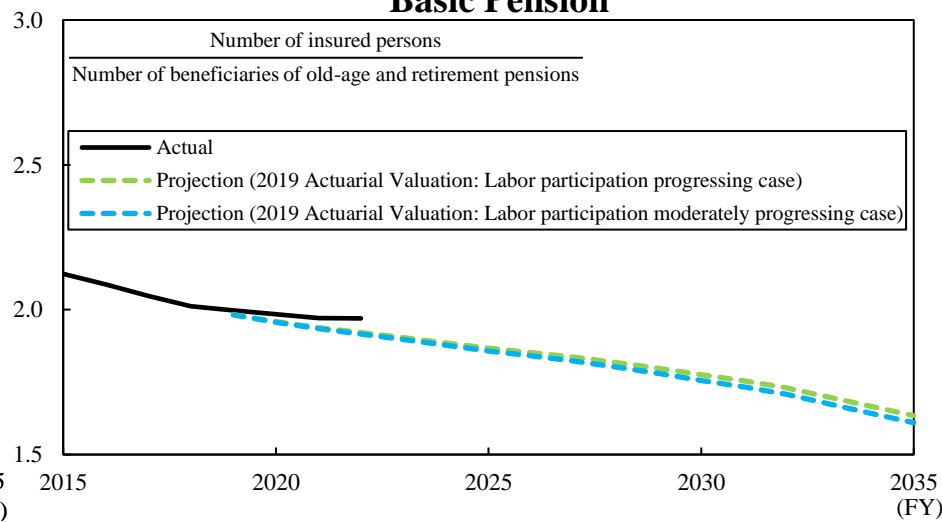
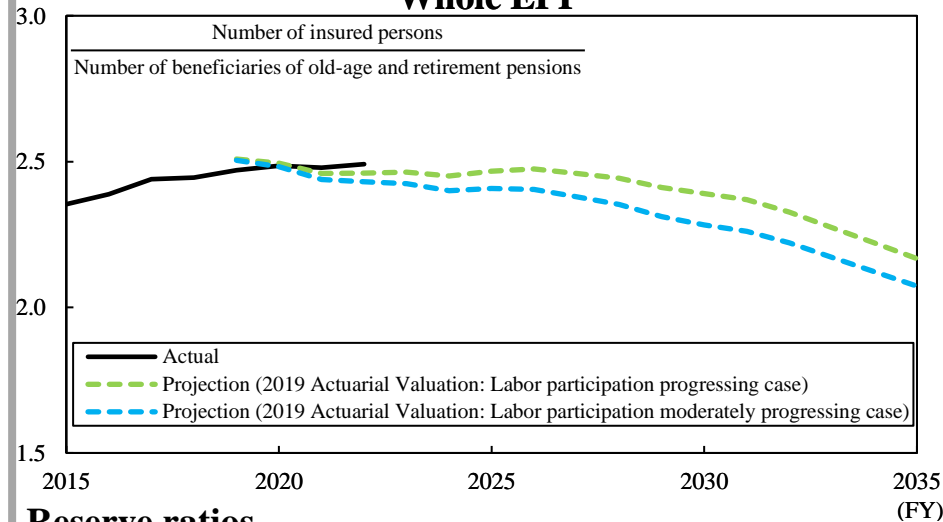
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- At the end of FY2022, the actual results of pension support ratios for both the whole EPI and the Basic Pension exceeded the future projection.
- In FY2022, the actual results of reserve ratios for both the whole EPI and the National Pension Account of NP exceeded the future projection.

Pension support ratios

Whole EPI

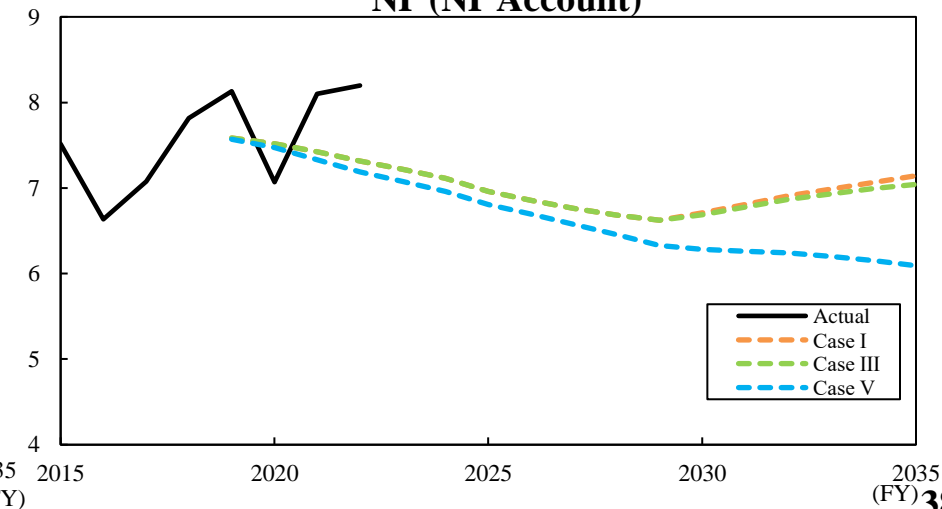
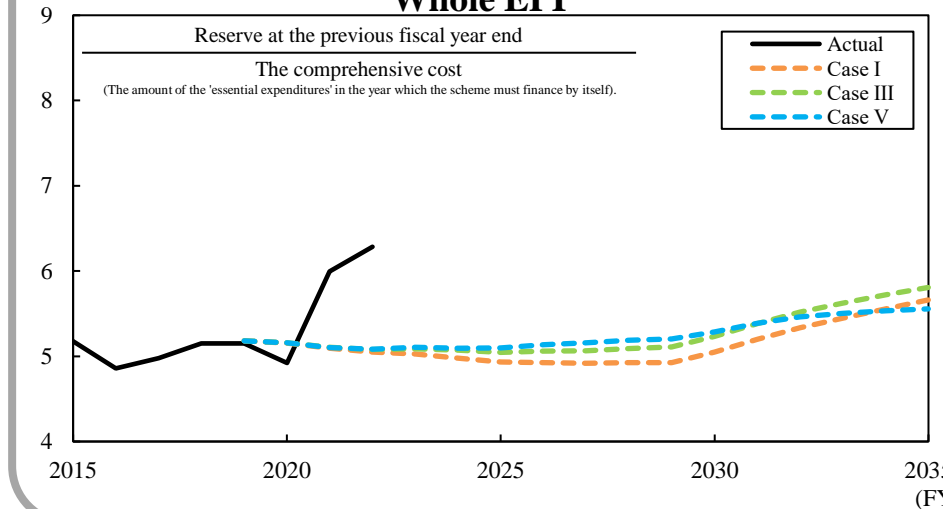
Basic Pension



Reserve ratios

Whole EPI

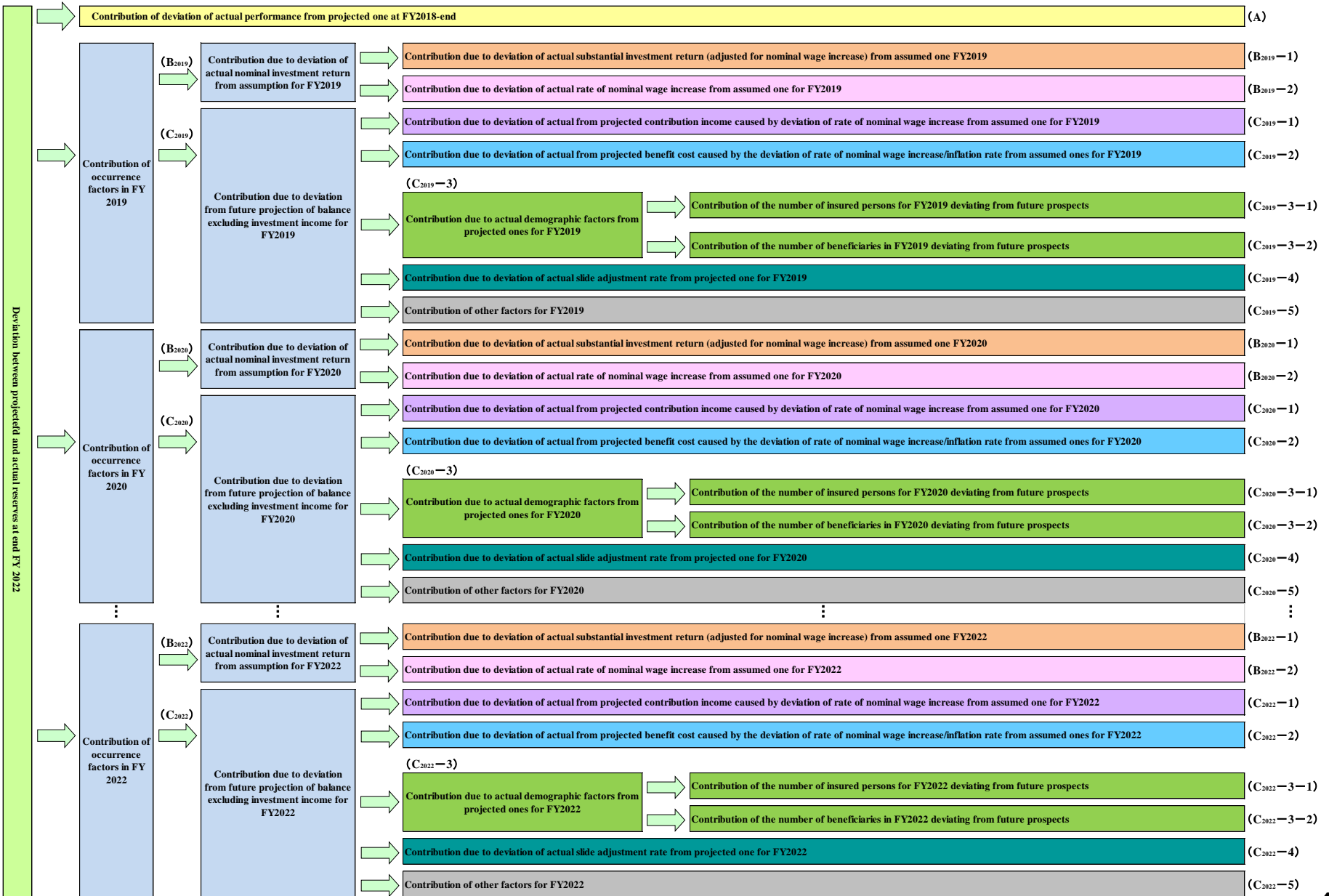
NP (NP Account)



Analysis of deviations in reserves and evaluation of actuarial status of EPI and the Public Pension Plans (Excerpt from Chapter 3, Sections 4, 5 and 6)

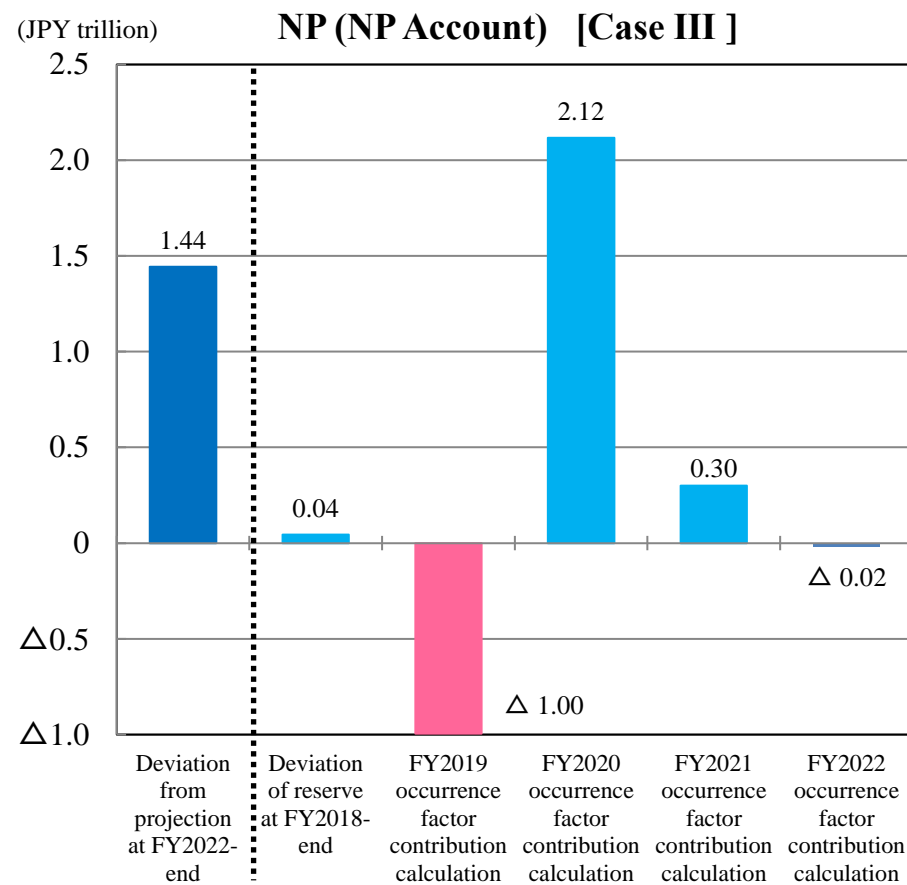
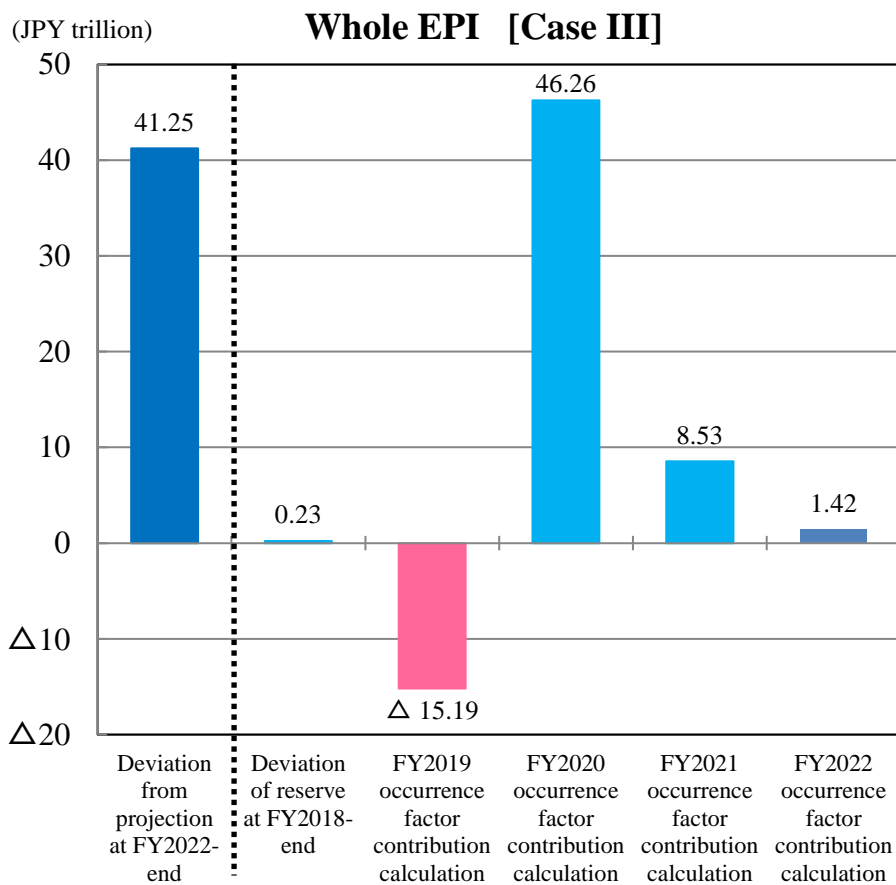
30. Flow of deviation analysis in actual reserves and future projections
31. Deviation of actual reserves and future projections by generated year
32. Results of deviation analysis in reserve (1) (deviation that occurred in FY2022)
33. Results of deviation analysis in reserve (2) (deviation that occurred between FY2019 and FY2022)
34. Evaluation of the actuarial status for EPI (1)
35. Evaluation of the actuarial status for EPI (2)
36. Evaluation of the actuarial status for the Public Pension Plans

30. Flow of deviation analysis in actual reserves and future projections



31. Deviation of actual reserves and future projections by generated year

Actual reserves for the whole EPI and National Pension Account of NP as of the end of FY2022 exceeded the future projections. This was because the total amount of FY2020 occurrence factor contribution calculation and FY2021 one was more than cancel out the negative contribution of FY2019 occurrence factor contribution calculation.



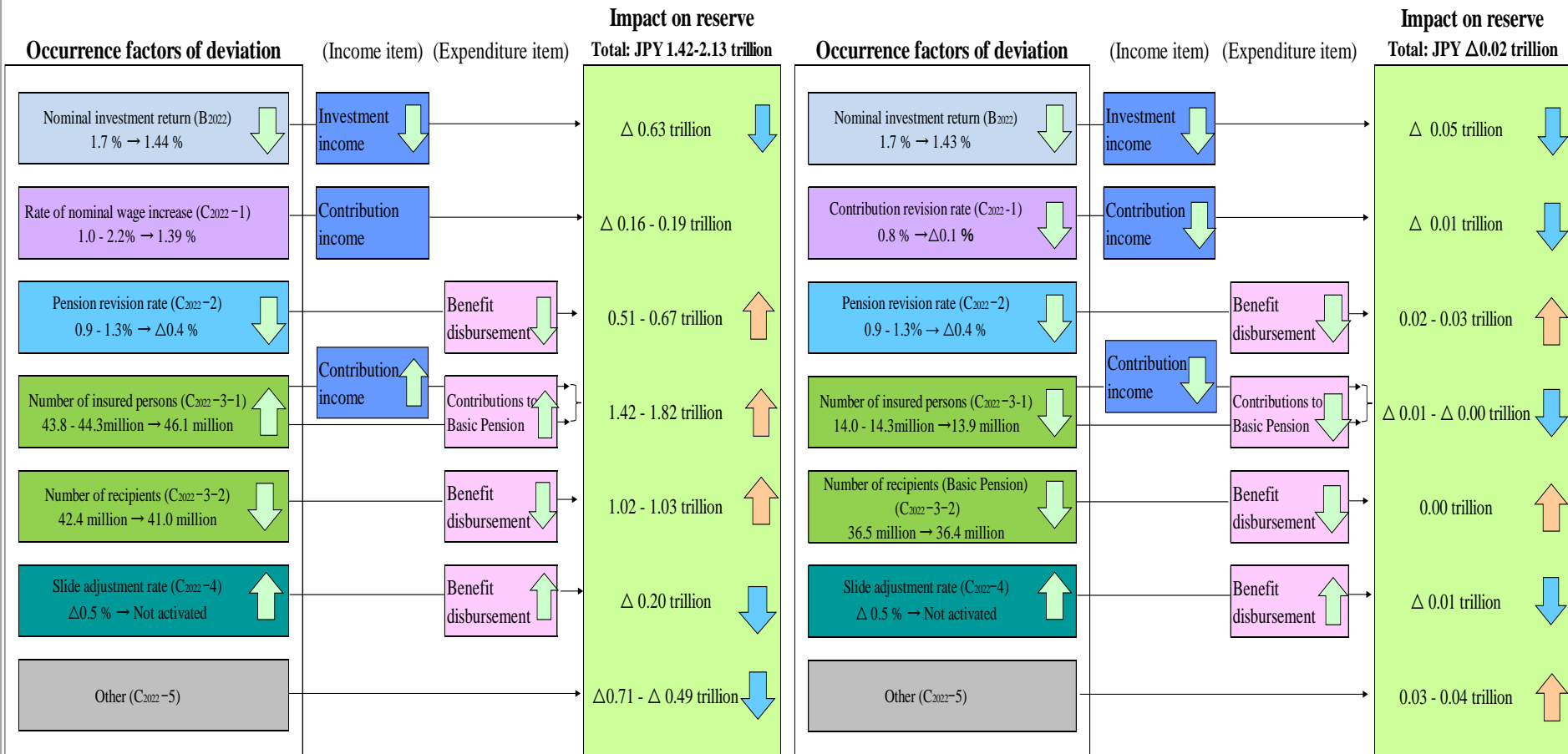
Note: The results are the same for Cases I and V.

32. Results of deviation analysis in reserve (1) (deviation that occurred in FY2022)

- The deviation in the reserve for the whole EPI in FY2022 (JPY 1.42 to 2.13 trillion) comes mainly from the deviation in the number of insured persons (JPY 1.42 to 1.82 trillion).
- The deviation in the reserve for the National Pension Account of NP in FY2022 (JPY Δ0.02 trillion) comes mainly from the deviation in the nominal investment return (JPY Δ0.05 trillion).

Whole EPI

NP (NP Account)



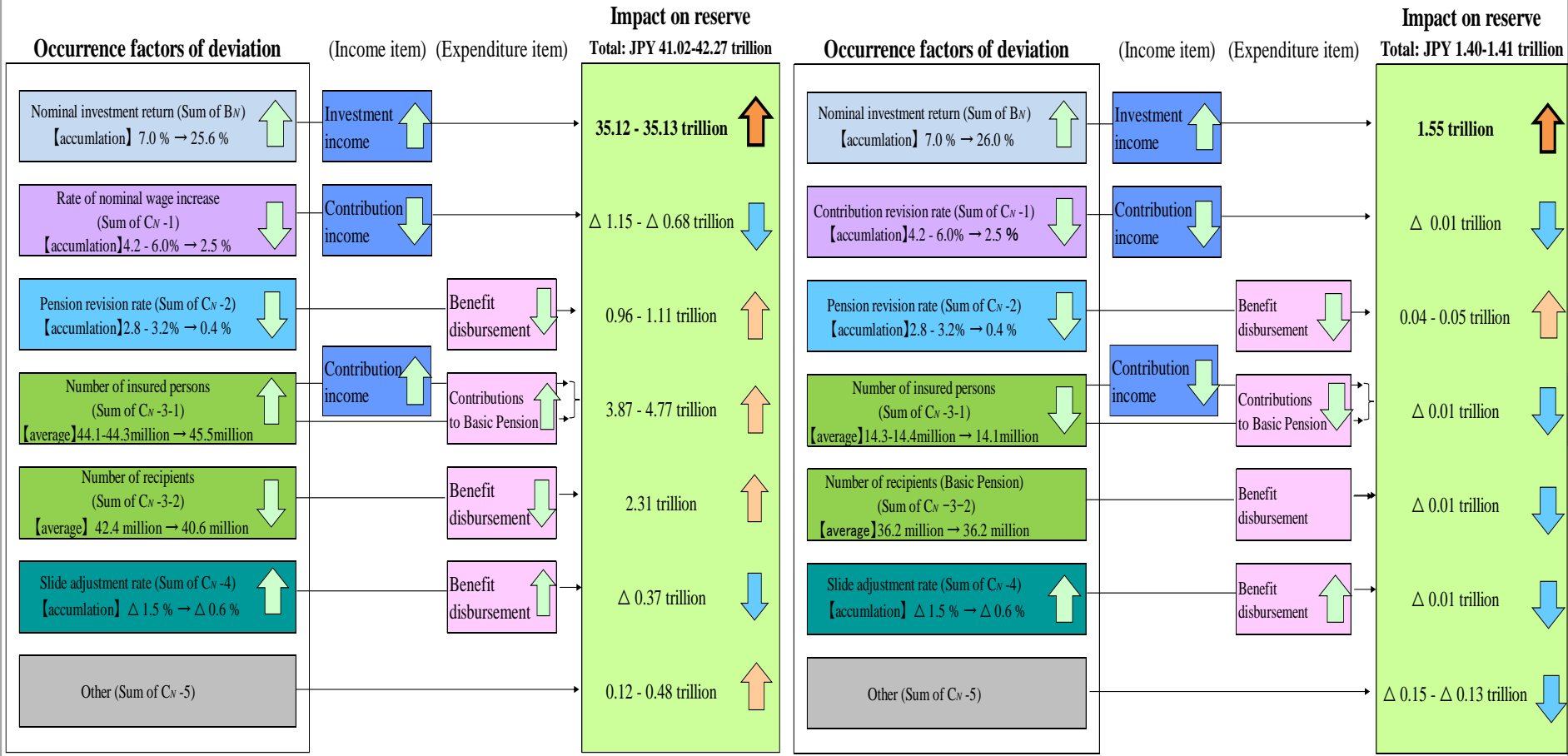
Note: Deviation in reserves is extracted by the factor to be summarized, and the maximum and minimum values are indicated for Cases I, III and V.

33. Results of deviation analysis in reserve (2) (deviation that occurred between FY2019 and FY2022)

The deviation in the reserve for the whole EPI from FY 2019 to FY 2022 (JPY 41.02-42.27 trillion) comes mainly from the deviation in the nominal investment return (JPY 35.12-35.13 trillion), and the deviation in NP (National Pension Account) (JPY 1.40-1.41 trillion) does mainly from the deviation in the nominal investment return (JPY 1.55 trillion).

Whole EPI

NP (NP Account)

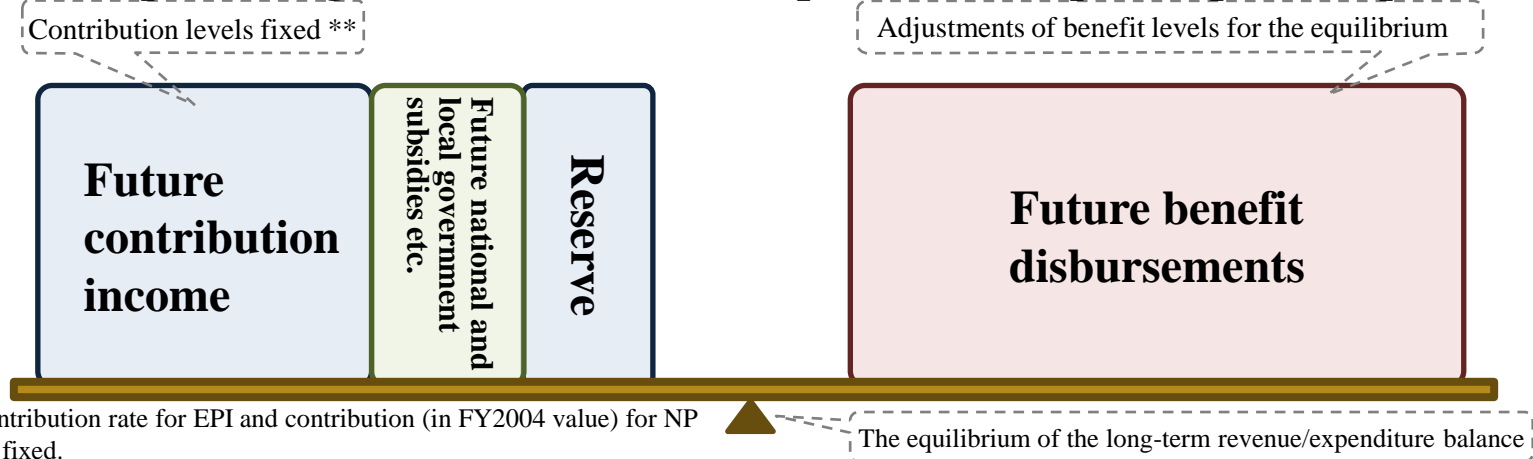


Note: Deviation in reserves is extracted by the factor to be summarized, and the maximum and minimum values are indicated for Cases I, III and V.

34. Evaluation of the actuarial status for EPI (1)

- The evaluation of the actuarial status for EPI is carried out by considering the difference between actual reserve and ‘baseline reserve for assessment (estimate).’
Here, the ‘baseline reserve for assessment (estimate)’ is the amount for which the future projections for the reserves are adjusted for the gap between the actual rate of nominal wage increase and inflation rate and those assumed in the actuarial valuation.*
* See P290 and P291 of the full text of the annual report.
- This consideration is based on the following:
 - The financial equilibrium of public pension plans is achieved by the total financial resources of future premium contribution income, future national and local government subsidies, etc. and current reserve, and future benefit disbursements.
 - The plan is designed to automatically adjust benefit levels so that future benefit disbursements are balanced by whole financial resources (such as future contribution income, and reserves), while contribution levels are fixed.
 - The actuarial status is evaluated by comparing with whole financial resources (future contribution income and reserve).

Conceptual diagram of the financial equilibrium of public pension plans



** Contribution rate for EPI and contribution (in FY2004 value) for NP are fixed.

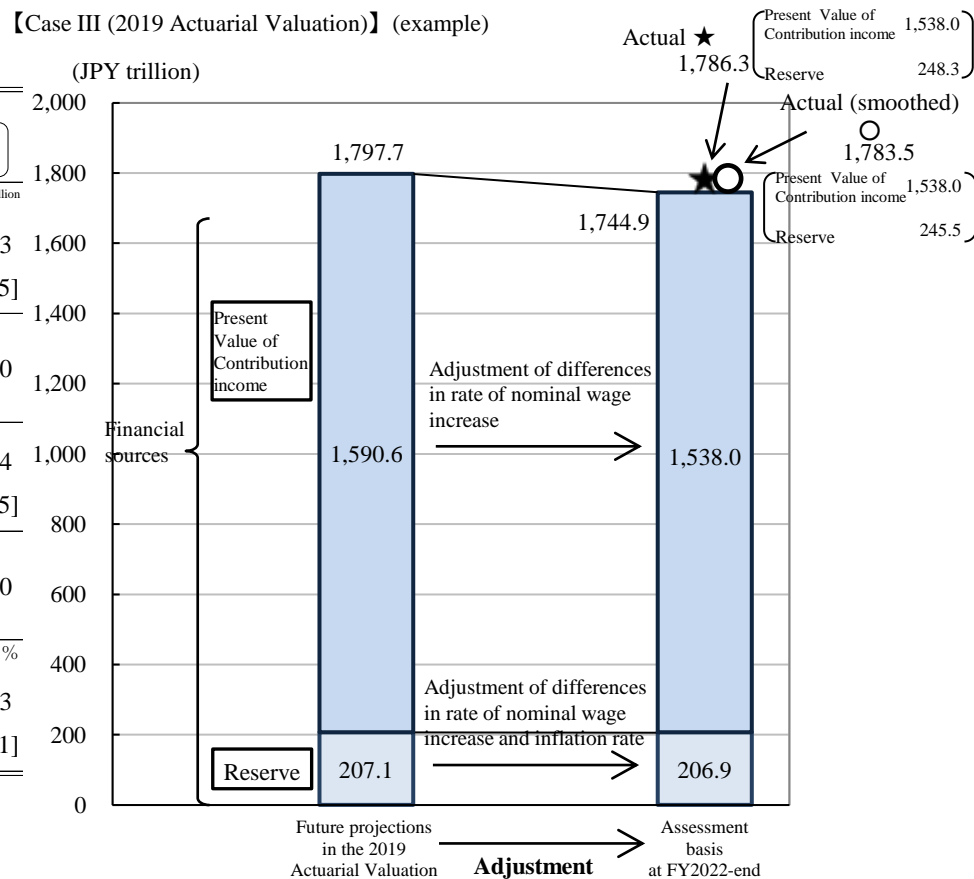
35. Evaluation of the actuarial status for EPI (2)

An analysis of the financial situation of EPI at the end of FY2022 in Cases I, III and V (2019 Actuarial valuation) and Cases III and V (2020 Plan Revision) reveals a positive difference between actual reserves and “baseline reserves for evaluation (estimate)” within the range of 2.2 to 2.4% against financial resources (reserves and future contribution income).

(Using the reserved amount smoothed for change in market valuation, the range is 2.1% to 2.2%.)

【Case III (2019 Actuarial Valuation)】 (example)

	Case I (2019 Actuarial Valuation)	Case III (2019 Actuarial Valuation)	Case V (2019 Actuarial Valuation)	Case III (2020 Plan Revision)	Case V (2020 Plan Revision)
	JPY trillion	JPY trillion	JPY trillion	JPY trillion	JPY trillion
Actual reserve ①	248.3 [245.5]	248.3 [245.5]	248.3 [245.5]	248.3 [245.5]	248.3 [245.5]
Baseline reserve for assessment (estimate) ②	206.7	206.9	208.0	206.9	208.0
Difference between actual reserve and baseline reserve for assessment (estimate) ③= ①-②	41.6 [38.7]	41.4 [38.5]	40.4 [37.5]	41.4 [38.5]	40.4 [37.5]
Financial sources (reserve and future contribution income) ④	1,862.2	1,744.9	1,768.5	1,757.2	1,779.0
Ratio of the difference between actual reserve and baseline reserve for assessment (estimate) to financial resources (reserve and future contribution income) ③/④	2.2 [2.1]	2.4 [2.2]	2.3 [2.1]	2.4 [2.2]	2.3 [2.1]



Note : [] indicates the value when the reserved amount smoothed for change in market valuation is used.

* Baseline reserve for assessment (estimate) is the amount for which the future projections for the reserves are adjusted for the gap between the actual rate of nominal wage increase and inflation rate and those assumed in the actuarial valuation.

- It was confirmed that the number of NP Category-1 insured persons continues to be lower than the future projections of the actuarial valuation, and the number of insured persons for Whole EPI continues to exceed the future projection. In addition, it was confirmed that the actual reserve fund exceeds the future projection due to the strong performance of investment income in FY2020 and FY2021.

However, since 2019 the actual fertility rate has been roughly in the middle of the assumed intermediate fertility rate and the assumed low fertility rate in the 2017 population projections^(*). Moreover, the deviation from the assumed intermediate fertility rate has further widened.

(*) Although a new population projection (estimated in April 2023) has already been published, we compared the actual fertility rate with the assumptions in the 2017 population projection (one of the bases of the 2019 actuarial valuation).

- Should these deviations from future projections continue over the medium to long-term, instead of temporarily, the financial impact on public pensions would be significant.
- From the financial perspective of public pensions, we should pay attention to the long-term trend of actuarial status, regardless of the short-term change, including those of demographic and economic factors.