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**Japan's Public Pension:
The Great Vulnerability to Deflation**

by

Mitsuo Hosen

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Economic and Social Research Institute
Cabinet Office
Tokyo, Japan

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Mitsuo Hosen
Executive Research Fellow, ESRI

Abstract

Deflation since the mid-1990s has had a serious negative impact on the Japanese economy in many respects. This paper focuses on the financial vulnerability of Japan's public pension schemes to deflation. It is demonstrated in the paper that deflation made real pension benefits substantially higher than originally planned, and thus considerably worsened the financial conditions of the country's public pension schemes. This development also has serious implications for intergenerational distribution, since the younger and future generations need to bear the costs of these higher pension benefits at a later stage. Needless to say, ending deflation is a top priority, but at the same time it is imperative to improve Japan's public pension schemes to avoid being financially impaired by deflation.

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1. Introduction

(1) Objectives of the paper

In the current institutional setting in Japan, deflation increases the level of benefits of real pensions, while keeping the real pension contribution schedule constant; it thus has a negative impact on Japan's public pension finance. In this sense, Japan's public pension schemes are not neutral to deflation. This paper intends to explain this non-neutrality of public pension schemes to deflation and to quantify its impact on public pension finance.

I have argued in several previous papers that Japan's public finance has been greatly aggravated by deflation since the mid-1990s. Under deflationary circumstances, tax receipts tend to decrease more than proportionately due to progressive nature of personal income and other taxes, while public expenditures tend to decrease less than proportionately because of downward rigidity of some expenditure items. Public pension benefits are a typical and the most important example of such items.

(2) Scope of the paper

Japan has implemented a two-tier pension system since 1986. All residents aged 20-59 are compulsorily covered by the first-tier National Pension. In the second-tier, employees in the private sector are compulsorily covered by the Employees' Pension, and civil servants in central and local governments as well as private school personnel are compulsorily covered by Mutual Aid Associations. In addition to these public pension schemes, there are corporate pension funds and private savings plans on a voluntary basis. These third-tier supplementary schemes, however, fall outside the scope of this paper.

(3) Motivation behind the paper

An important factor behind my writing this paper is the much-worse-than-expected financial conditions of public pension schemes, which were revealed recently. In 2004 the Japanese government carried out a drastic pension reform to restore both the financial sustainability of public pension schemes and the public trust in them. It is stipulated in this 2004 Public Pension Reform Law (hereafter referred to as "the 2004

Pension Reform” or “the 2004 Reform”) that the government should examine the current situation and future prospects of the financial conditions of public pension schemes and verify their financial viability at least every five years. The government carried out a first such verification in 2009. It was revealed in this 2009 Financial Viability Verification Report (hereafter referred to as “the 2009 Verification”) that the financial conditions of public pension schemes were much worse than expected in 2004 due to significant changes in economic and demographic conditions. As regards economic conditions, both CPI and wage inflation were lower than expected; furthermore, CPI inflation was higher than wage inflation, which was opposite to the assumption made in the 2004 Reform. According to a recent population forecast by the National Institute of Population and Social Security Research, a less-favorable picture of population aging for public pension finance was projected than its previous population forecast published five years ago.

(4) Organization of the paper

As mentioned earlier, deflation raises the real pension benefit level while keeping the real pension contribution schedule constant; it therefore has an adverse effect on public pension finance. On the benefit side, there are three problems. First of all, the current pension benefit level is higher than the permanent benefit level on a provisional basis, and this overpayment will not be corrected under deflationary circumstances. Second, the automatic adjustment mechanism, which was introduced in the 2004 Pension Reform to automatically reduce the pension benefit level as the population ages, will not be activated until deflation is brought to an end. Finally, even after the automatic adjustment mechanism is activated, no adjustment will be actually made if deflation resurfaces. These problems are examined in Sections 2, 3, and 4, respectively. The total impact of deflation on public pension finance up till FY 2015 is quantitatively examined in Section 5. Section 6 analyzes the sustainability of public pension schemes under various economic conditions. Finally, Section 7 concludes the paper.

2. Provisional Treatment and Its Impact on Real Pension Benefits

(1) Origin of the problem

The actual pension benefit level has been higher than the permanent level on a provisional basis since FY 2000. Prior to the 2004 Reform, the pension benefit level

was indexed to the CPI¹, but this rule was not observed in the early 2000s. Although the CPI declined by 0.3% in 1999, 0.7% in 2000, and 0.7% in 2001, the pension benefit level was maintained in FY 2000, FY 2001 and FY 2002 on a provisional basis. As a result, the actual benefit level in FY 2002 was 1.7% higher than the permanent level, which was fully indexed to the CPI.

[Figure 1]

Since FY 2003, the gap between the provisional level and the permanent level has actually widened to 2.2 % by FY 2010, essentially because of negative or low inflation. The CPI fell by 0.9% in 2002, and the provisional and permanent pension benefit levels were both reduced by 0.9% in FY 2003, but the 1.7% gap was maintained. Again in FY 2004 the provisional and permanent levels were both reduced by 0.3% as the CPI fell by 0.3% in 2003, and the gap remained intact. Neither the provisional nor permanent levels changed, and thus neither did the gap again in FY 2005 because of a 0.0% CPI inflation in 2004.

(2) The gap not eliminated by FY 2009

In the 2004 Pension Reform, the 1.7% gap was expected to be eliminated by inflation in a couple of years by holding the provisional level constant and by raising the permanent level by the inflation rate. However, the gap did not narrow from FY 2006 to FY 2007 despite 0.3% CPI inflation in 2006. It also narrowed only by 0.9% from FY 2008 to FY 2009, despite 1.4% CPI inflation in 2008. To understand why this was the case, we have to gain a proper understanding of the indexation of the permanent benefit level.

[Table 1]

To be precise, the permanent pension benefit level is indexed to per-capita disposable income of active workers for newly awarded beneficiaries and to the Consumer Price Index (CPI) for already- awarded beneficiaries. This is the principal indexation rule set by the 2004 Pension Reform. The 2004 Pension Reform also assumed that wage inflation in terms of per capita disposable income was higher than CPI inflation. However, when wage inflation is actually lower than CPI inflation, a slightly different

¹ To be precise, the pension benefit level in a fiscal year (FY_t) was indexed to the Consumer Price Index in the previous calendar year (CY_{t-1}).

indexation rule will be applied. If both wage and CPI inflation are positive, the wage inflation rate -- the lower rate -- will be used for both newly and already-awarded beneficiaries. If wage inflation is negative and CPI inflation is positive, there will be no revision for either beneficiary. If both wage and CPI inflation are negative, the CPI inflation rate -- the higher rate -- will be used for both beneficiaries.

[Figure 2]

Between 2005 and 2009, because wage inflation was consistently lower than or equal to CPI inflation, the same rate of change was applied to both newly and already-awarded beneficiaries between FY 2006 and FY 2010. In FY 2007 and FY 2009, the rate of wage inflation -- the lower positive rate -- was applied to both beneficiaries, whereas in FY 2008 and FY 2010, the rate of CPI inflation -- the higher negative rate -- was applied to them. In FY 2006, the rate of wage inflation was equal to that of CPI inflation.

The gap between the provisional level and the permanent level would have narrowed from 1.7% in FY 2006 to 1.4% in FY 2007 and would have been eliminated in FY 2009, if the permanent level had increased by the rate of CPI inflation rather than by that of wage inflation in FY 2007 and FY 2009. In reality the gap was still 0.8 (= 1.7-0.9)% in FY 2009, since the rate of wage inflation was applied in FY 2007 and FY 2009.

(3) The widened gap in FY 2010 and the indexation of the provisional benefit level

Curiously enough, the gap widened from 0.8% in FY 2009 to 2.2% in FY 2010, because the provisional level did not decline in FY2010, despite 1.4% CPI deflation (and 2.6% wage deflation) in 2009. To see the reason why the gap widened, a proper understanding about the indexation of the provisional benefit level is required.

To be precise, the provisional level is indexed to the lowest yearly Consumer Price Index (CPI) since 2003. That is,

1) if $p_t \geq p_0$, $b_t = b_0$

2) if $p_t < p_0$, $b_t = b_0 \times (p_t/p_0)$

where p_t : the CPI for year t

p_0 : the lowest yearly CPI since 2003

b_t : the provisional benefit level in fiscal year $t+1$

b_0 : the provisional benefit level corresponding to p_0 .

Until 2009, the lowest yearly CPI since 2003 was 100.0, which was recorded in 2005, and so the provisional benefit level has been fixed since FY 2006. In 2009, the CPI fell by 1.4% and yet the provisional level did not decline in FY 2010, since the CPI in 2009 was 100.3 and still higher than the level reached in 2005. The provisional level will not decline until the CPI falls below 100.0.

(4) The gap will widen further

It is very likely that the CPI will fall again in 2010 and 2011. According to a Bank of Japan (BOJ) projection, released in April 2010, the rate of CPI inflation is -0.5% for FY 2010 and 0.0% for FY 2011, excluding the impact of the newly introduced subsidies for high school tuition. The BOJ excluded this impact as a special factor, which was not related to a basic trend in consumer price inflation. However, the actual CPI statistics will inevitably capture this impact, and, with its inclusion, the CPI is projected to fall by 1.0% in 2010 and 0.2% in 2011.

This implies that the gap between the provisional benefit level and the permanent benefit level is most likely to expand in FY 2011. To simplify our discussion, let's assume that the rate of change in after-tax nominal wage is equal to that in the CPI in 2010 and 2011 for now. Then the CPI inflation rate is applied to revise the permanent benefit level of both newly and already-awarded beneficiaries. The CPI is projected to decrease from 100.3 in 2009 to 99.3 in 2010. Based on our assumptions, the provisional level will decline by 0.7% ($= 1 - 99.3/100$), while the permanent level will fall by 1.0% in FY 2011, so the gap will widen from 2.2% in FY 2010 to 2.5% in FY 2011.

(5) When will the gap be eliminated?

When will the gap between the provisional level and the permanent level be eliminated? To answer this question, a longer-term CPI projection is required. As was mentioned earlier, the CPI is projected to fall by 1.0% in 2010 and by 0.2% in 2011 in this paper. For 2012 and beyond, this paper assumes 1.0% CPI inflation every year, which is equal to the BOJ's understanding of price stability in the medium-term. Based on this CPI projection, the gap is expected to be eliminated in FY 2015. Here we also assume that the after-tax wage inflation rate is equal to the CPI inflation rate for simplicity.

So the actual pension benefit level is expected to be higher than the permanent level on a provisional basis for 15 years, between FY 2000 and FY 2014. However, this overpayment is not the only financial problem caused by deflation for public pension finance. Let us now turn to the next one caused by deflation, which is related to a new mechanism introduced in the 2004 Pension Reform.

3. Automatic Adjustment Mechanism Not Activated

(1) The 2004 Reform and the automatic adjustment mechanism

In the 2004 Reform, a very important new mechanism was introduced to ensure the financial viability of public pension schemes in the face of population aging. As we have seen already, the pension benefit level is basically indexed to after-tax wage or CPI inflation, but it is automatically reduced by the sum of the following two rates as well:

- 1) the rate of decrease in the number of covered persons by public pension schemes
- 2) the projected average annual rate of increase in life expectancy (0.3%).

This automatic adjustment mechanism, once activated, will not be terminated until financial viability of public pension schemes is ensured.

(2) Deflation and an activation of the automatic adjustment mechanism

Although the most important device introduced in the 2004 Reform to ensure financial viability of public pension schemes is the automatic adjustment mechanism, this mechanism has not been activated. This automatic adjustment mechanism will not be activated until the gap between the provisional benefit level and the permanent benefit level is eliminated. In the 2004 Pension Reform, the gap was expected to be eliminated around FY 2008, but it was not eliminated or even reduced by that time. In the 2009 Financial Viability Verification Report, the gap was expected to be eliminated around FY 2012, assuming that there will be a 1% VAT (value added tax) hike every year and the rate of inflation will be higher accordingly between FY 2011 and FY 2015. However, the gap is now expected to be eliminated in FY 2015, assuming that there will be no VAT hikes in several years and that CPI inflation is -1.0% in 2010, -0.2% in 2011 and 1.0% in 2012 and beyond. Even if a 1% VAT hike and a resultant higher inflation are assumed every year from FY 2011, the gap is now expected to be eliminated in FY 2013.

It is very likely that the automatic adjustment mechanism will not be activated for 10 years or even more after its introduction. This has the following two major impacts.

1) Impact on fiscal balance

Public pension finance will worsen and the general government fiscal deficit will be larger in the near future until the automatic adjustment mechanism is activated, although fiscal discipline is seriously called for in Japan.

2) Intergenerational distributional impact

Older generations will benefit from the delayed adjustment period at the expense of younger and future generations.

(3) A VAT hike

It is noted that an increase in the VAT rate will have an indirect impact on fiscal balance of Japan's general government by pushing up inflation and thus activating the automatic adjustment mechanism earlier, unless special treatment is given to this policy-induced inflation in setting the public pension benefit level.

4. Automatic Adjustment Mechanism After Activation

Even after the automatic adjustment mechanism is activated, only a partial adjustment will be made if the rate of inflation is moderate, and no adjustment will be made if the rate of inflation is negative. A full adjustment will be made only when the rate of inflation is higher than the automatic adjustment rate, which is the sum of the rate of decrease in the number of covered persons by the public pension schemes and the projected average annual rate of increase in life expectancy (0.3%). The automatic adjustment rate set out in the 2009 Verification is slightly more than 1.0% on average during the 2010s and slightly less than 1.0% on average during the 2020s. If inflation is positive but lower than the adjustment rate, the actual rate of adjustment is equal to the inflation rate and consequently the nominal benefit level is not altered. If inflation is negative, no adjustment will be made and thus the nominal benefit level is reduced by the negative inflation rate. This mechanism aims at reducing the real pension benefit level without decreasing the nominal benefit level when the rate of inflation is positive. When it is negative, the real pension benefit level is not reduced at all, with the nominal benefit level being cut by the rate of deflation. When it is positive but moderate, i.e., lower than the adjustment rate, the real pension benefit level is not fully but only partially reduced, with no change in the nominal benefit level. Even after the

automatic adjustment mechanism is activated, it is evident that financial viability of public pension schemes is heavily dependent on the rate of inflation because of this asymmetric treatment of the automatic adjustment.

[Figure 3]

When a full adjustment is not made due to deflation or moderate inflation, this needs to be compensated by automatic adjustment at a later stage, which implies an inter-generational transfer of financial burden of public pension from the older or current generation to younger/future ones as well as deterioration in current financial conditions.

The rates of automatic adjustment expected in the 2004 Reform and the 2009 Verification are summarized in Table 2. When the 2004 Reform was published, the automatic adjustment was expected to reduce the pension benefit level by 15.0% between FY 2008 and FY 2023, if fully implemented, i.e., if the rate of inflation was consistently higher or equal to the adjustment rates. In the 2009 Verification, the automatic adjustment was expected to reduce the level by 33.3% between FY 2012 and FY 2038², again if fully implemented. The total effect of the adjustment is now much larger than it was five years ago, and the duration of the adjustment process is much longer as well. This reflects both the overpayment of public pension benefits in recent years and a higher rate of decrease in the projected number of the insured.

[Table 2]

5. Quantitative Assessment

(1) Three channels summarized

Let us summarize the impact of deflation on financial sustainability of public pension schemes. First of all, the actual benefit level has been higher than the permanent level on a provisional basis for more than ten years, primarily because of deflation. This anomalous situation will not be corrected until deflation is brought to an end. Second, the automatic adjustment mechanism, which was introduced in the 2004 Reform to ensure the financial viability of Japan's public pension schemes, has not been activated

² The adjustment of earnings-related benefit level is to be terminated in FY 2019.

so far and is not expected to be activated until FY 2015 or so. Again, this is primarily due to deflation. Third, even after the automatic adjustment mechanism is activated at some point in time, following a period of positive inflation, no adjustment will be actually made, if deflation strikes again. Again, this will have a serious detrimental impact on financial sustainability of public pension schemes.

(2) Assumptions

Let us now quantitatively analyze the impact of deflation on public pension finance. We will try to capture the magnitude of the impact through the first and second channels in the previous paragraph. To do so, the following assumptions are made.

- 1) The rate of CPI inflation is -1.0% in 2010, -0.2% in 2011, and 1.0% in 2012 and beyond.
- 2) The rate of wage inflation (after tax and social security contribution) is assumed to be equal to the rate of CPI inflation for simplicity.
- 3) Nominal GDP grows by 2% every year from FY 2010 onward.
- 4) The total amount of public pension benefits expands by 2% every year from FY 2008 onward.
- 5) The nominal public pension benefit amounts for a fiscal year are deflated by the previous calendar year's CPI, rather than the current fiscal year's CPI, to calculate the real public pension benefit amounts.

As mentioned earlier, assumption 1) on CPI inflation is based on a) the actual CPI during the first quarter of 2010, b) the BOJ forecast for FY 2010 and FY 2011, published in April 2010, and c) its understanding of price stability in the medium-term, i.e., 1% . Regarding assumption 2), it is noted that the rate of (before-tax) wage inflation was 0.3% lower than the rate of CPI inflation on average in the last five years, although the former was expected to be higher than the latter in the 2009 Verification as well as in the 2004 Reform. On assumption 4), the last five-year average until FY 2007 was 2.7% , the last ten-year average was 3.4% , and the last 20-year average was 5.1% . The rationale for assumption 5) is that the nominal pension benefit level in a fiscal year is institutionally indexed to the nominal wage level or the CPI in the preceding calendar year. On assumptions 3) and 4), a sensitivity analysis will be conducted at a later stage.

(3) Nominal benefit level and overpayment

The gap between the provisional level and the permanent level is 1.7% in FY 2008, 0.8% in FY 2009 and 2.2% in FY 2010. Based on the assumptions above, the gap is projected to become 2.5% in FY 2011 and FY 2012, before gradually falling back to -0.4% in FY 2015.

The amount of overpayment is estimated by multiplying actual total public pension benefits for a fiscal year by (1-permanent level / provisional level). When the permanent level is higher than or equal to the provisional level, there is no overpayment. The total overpayment between FY 2000 and FY 2010, the last year for which the benefit level is already fixed, is estimated at ¥7.2 trillion, which is equal to 1.4% of GDP. Based on our current assumptions, the total estimated overpayment between FY 2000 and FY 2014 amounts to ¥10.6 trillion, which is 2.1% of GDP³. On a yearly basis, the overpayment peaks at ¥1.2 trillion in FY 2012. In FY 2015, there is no overpayment, since the permanent level is projected to exceed the provisional level. Here the amount of overpayment refers to all public pension schemes, which include not only the National Pension and the Employees' Pension but also Mutual Aid Associations. Apparently, the overpayment is due to the simple fact that the actual provisional benefit level exceeds the permanent level.

(4) Real benefit level and overpayment

The provisional benefit level exceeds the permanent level not only in nominal terms but also in real terms. The total overpayment in real terms between FY 2000 and FY 2010 is estimated at ¥7.3 trillion in FY1999 prices, which is roughly 1.5% of GDP in that fiscal year. Based on our assumptions, the total estimated overpayment between FY 2000 and FY 2015 is ¥11.0 trillion in FY1999 prices, which is equal to 2.2% of FY1999 GDP.

The overpayment in real terms is not confined to the difference between the provisional benefit level and the permanent level. The 2004 Reform assumed that the gap between the provisional and permanent levels would be eliminated in FY 2008 and thus the automatic adjustment mechanism would be activated in that fiscal year. Once

³ No overpayment is projected for FY 2015 and beyond, since the permanent pension benefit level is expected to exceed the provisional level in those fiscal years.

activated, the automatic adjustment mechanism would reduce the permanent benefit level in real terms as well as in nominal terms. Since the gap has actually not been eliminated and the mechanism has not been activated, however, the actual permanent benefit level in real terms has been higher than the level envisaged in the 2004 Reform since FY 2008.

[Figure 4]

Now let us look at the magnitude of real overpayment in terms of the difference between the actual provisional benefit level and the benefit level envisaged in the 2004 Reform. In FY 2010, the actual benefit level is 3.7% higher than what the 2004 Reform envisaged in real terms, and it is projected to be 4.9% higher in FY 2011, and 5.8% higher between FY 2012 and FY 2015.

The 2004 line in Figure 4 (in blue), however, refers to benefit level of already-awarded beneficiaries in FY 2004. As was mentioned earlier, in the 2004 Reform, the benefit level of already-awarded beneficiaries was indexed to the CPI, and that of newly awarded ones to the after-tax wage level. In the 2004 Reform, the CPI inflation rate was projected to be 0.8% lower than the after-tax wage inflation rate until 2008 and 1.1% lower than that in 2009 and beyond. Therefore the rate of increase in the benefit level for newly awarded beneficiaries was expected to be higher than that for already-awarded beneficiaries.

So the amount of real overpayment for a fiscal year calculated by

$$\begin{aligned} & \text{total real pension benefit amount in that fiscal year} \\ & \times (1 - \text{the benefit level envisaged in the 2004 Reform for already-awarded} \\ & \text{beneficiaries} / \text{the actual benefit level}), \end{aligned}$$

inevitably overestimates the magnitude of the overpayment, and the degree of overestimation is larger in a more distant future. The degree of overestimation is minimal, however, until FY 2010 or so, and it is not so large until FY 2015 or so, essentially because of a small proportion of newly awarded beneficiaries to total ones in the near future⁴.

⁴ Please refer to Appendix 2 for further elaboration on this point and bold, but more realistic, estimates of real overpayments.

The estimated real overpayment is ¥1.8 trillion, 0.4% of FY1999 GDP for FY 2010, ¥2.5 trillion, 0.5% of FY1999 GDP for FY 2011, ¥3.0 trillion, 0.6% of FY1999 GDP for FY 2012 and so on. The total real overpayment between FY 2000 and FY 2015 is estimated at ¥22.9 trillion in FY1999 prices, which is 4.6% of FY1999 GDP. This overpayment is due to the following two factors: 1) the fact per se that the actual provisional benefit level exceeds the permanent level, and, as a consequence, 2) non-activation of the automatic adjustment mechanism.

The overpayment in real terms is not confined until FY 2015. Based on our assumptions, the permanent benefit level will exceed the provisional level in FY 2015 and afterward, and so the actual benefit level is not the provisional level but the permanent level from FY 2015 onward. The difference in real terms between the actual permanent level and the level envisaged in the 2004 Reform is 5.8% in FY 2015. The difference will not narrow much until FY 2023, when the automatic adjustment was to be terminated in the 2004 Reform.

(5) Sensitivity analysis

To check how sensitive these results are to our assumptions, we conducted a sensitivity analysis. Regarding the total amount of public pension benefits, we assume 2% annual growth from FY 2008 onward as a standard case. In addition to this case, a 3% growth case and a 4% growth case are also examined. On the nominal GDP growth rate from FY 2010 onward, a 1% growth case and a 3% growth case are also studied on top of the standard 2% growth case. The results of this sensitivity analysis are summarized in Table 3. The nominal overpayment between FY 2000 and FY 2015 as a percentage of nominal GDP does not change very much, with the lowest number being 2.09% and the highest being 2.23%. It is 2.12% in our standard case, with the 2% total pension benefit growth and the 2% nominal GDP growth.

[Table 3]

(6) If inflation is lower than 1%

In the analysis above, we assumed 1% inflation from 2012 and onward. Based on our recent experience, however, the actual inflation rate may well turn out to be lower than

1%. So we also examined a 0% inflation case and a -1% inflation case. As we can see from Figures 5 and 6, the provisional and permanent levels will not change from FY 2012 and onward in the 0% inflation case, and so the gap between the two levels will not narrow, which implies no activation of the automatic adjustment mechanism. In the -1% case, both the provisional level and the permanent level will decline by 1% per annum from FY 2013 and onward, and so the gap between the two will not change at all, implying no activation of the automatic adjustment mechanism again.

In terms of the real pension benefit level, the provisional level will start to decline in FY 2013 and so will the permanent level in FY 2015 in our standard 1% inflation case. As we can see from Figures 7 and 8, however, neither the provisional level nor the permanent level will change in 2011 and after. Therefore the gap between the provisional level and the level envisaged in the 2004 Reform will continuously widen in the 2010s.

[Figures 5, 6, 7, 8]

(7) The contribution side

So far we have seen that the real pension benefit level increases as prices and wages decline. On the contribution side, the actual contribution level is exactly the same as expected in the 2004 Reform in real terms, because the contribution schedule is fully indexed to the before-tax wage level. To be precise, in the case of the Employees' Pension, the contribution amount is a certain percentage, which is scheduled to be raised from 13.58% in FY 2003 to 18.3% in FY 2017 and afterward, of nominal (before tax) wages, and in the case of the National Pension, it is a fixed amount in real terms, which is scheduled to be increased every year from ¥13,300 in FY 2004 to ¥16,900 in FY 2017 and afterward (both in FY2004 wages). In the former case, the amount of contribution is automatically adjusted for (before tax) wage inflation. In the latter case, it is fully indexed to the (before tax) wage level.

[Figure 9, Figure 10]

6. Sustainability of Public Pension Schemes Under Different Economic Conditions

(1) The 2009 Verification and the replacement ratio

It is beyond the scope of this paper to thoroughly examine the sustainability of Japan's public pension schemes under various economic and demographic conditions. The Ministry of Health, Labour and Welfare has provided some useful information in this regard, however, in the context of the 2009 Verification.

It is stipulated in the 2004 Reform Law that the government should report the current situation and future prospects of the financial conditions of public pension schemes at least every five years. In this process, the government verifies the financial viability of public pension schemes over a 95-year period from the time of verification, with the target level of the reserve funds at the end of this period being a year's amount of public pension benefits.

In this verification process, a very important concept is the replacement ratio of the Employees' Pension, which is the ratio of the standard pension benefit at the age of 65 to an average disposable income (including bonuses) of the working age male population. The standard pension benefit of the Employees' Pension is defined as the total amount of benefits of a worker who has worked for 40 years and those of his spouse, who has been married to him for 40 years. If the replacement ratio is projected to be below 50.0% within next five years, the contribution and benefit levels will be thoroughly reexamined. Otherwise, no major reexamination will be made at that point in time.

In sum, in the context of the 2004 Reform and the 2009 Verification, no major reexamination of public pension schemes are required as long as the following two conditions are met. First, the replacement ratio is not projected to fall below 50.0% within next five years. Second, the reserve funds at the end of the 95-year verification process are equal to or more than the annual amount of their pension benefits.

Incidentally, the replacement ratio actually rose from 59.3% in FY 2004 to 62.3% in FY 2009, although it was expected in the 2004 Reform to decline to 57.5% in FY 2009 and eventually to 50.2 % in FY 2023. This clearly reflects the overpayment of public pension benefits in real terms in recent years.

In the basic scenario of the 2009 Verification, which assumed the intermediate demographic and economic conditions, the replacement ratio of Employees' Pension was projected to decrease from 62.3% in FY 2009 to 60.1% in FY 2014 and ultimately to

50.1% in FY 2038 and beyond. So no major revision was made to public pension schemes. In this scenario, the assumed long-term CPI inflation rate, wage inflation rate, and return on investment were 1.0%, 2.5% and 4.1%, respectively.

(2) Different economic assumptions and sustainability of the Employees' Pension

In 2009 the Ministry of Health, Labour and Welfare examined the fiscal sustainability of the Employees' Pension under less-favorable assumptions than the official projection on three economic variables: CPI inflation, wage inflation, and return on investment. Other variables were assumed to be exactly the same as the basic scenario of the official projection. The following cases were considered by the Ministry.

[Table 4]

Each figure in case a) is the actual average of each variable in the last ten years, and that in case b) is the actual average in the last 20 years. For example, $\Delta 0.2\%$ is the actual average of CPI inflation rate in the last ten years. In cases c), d) and e), only wage inflation is different from the official projection in the 2009 Verification.

In case a), since both the CPI and wage inflation rates are negative, the automatic adjustment mechanism will not be activated. This will have a serious adverse impact on pension finance, and, with an additional negative effect of the low return on investment, the reserve fund of Employees' Pension will be depleted in FY2031. In case b), both the CPI and wage inflation rates are positive but below 1.0%, the automatic adjustment mechanism will be only partially implemented and, again with an additional negative effect of relatively low return on investment, the reserve fund will be depleted in FY 2050. In case c), since the wage inflation rate is zero, the automatic adjustment mechanism will not be activated for newly awarded beneficiaries, and as a result the reserve fund will be depleted in FY 2042. In cases d) and e), since the wage inflation rate is lower than the official projection but positive, the automatic adjustment mechanism will be fully or partially implemented. Fiscal sustainability will not be ensured, however, unless the government will allow the replacement ratio to drop below 50.0% on and after FY 2037, with the required rate of reduction in replacement ratio larger in case d) than in case e). Here the fiscal sustainability is defined as maintaining a year's amount of reserve funds at the end of the 95-year projection period.

Case e) is exactly the same as the official projection except that the rate of wage inflation is only 0.5% lower than the official one. Taking recent wage development in account, 2.0% wage inflation in case e) is probably on the optimistic side. And yet the Employees' Pension is not sustainable under these assumptions unless the replacement ratio will be allowed to drop below 50.0% on and after FY 2037.

7. Conclusion

As we have seen, Japan's public pension schemes are extremely vulnerable to deflation. Various economic policies and institutional arrangements in Japan are vulnerable to deflation. They are probably designed on the assumption that inflation is the norm and deflation is an exception, as was the case until the first half of the 1990s. The public pension schemes are the most typical and important example of such institutional arrangements. If the Japanese economy will not be able to escape from deflation for long, this arrangement will have a detrimental impact on the health of public pension finance and on that of the general government fiscal balance as well. The automatic adjustment mechanism, which was introduced in the 2004 Reform to counter the adverse effects of population aging on public pension finance, does not work under deflationary circumstances and works only partially under low inflationary circumstances.

The Japanese public pension schemes seem to be designed on the presumption that a reduction in nominal benefits will not be endured by pension beneficiaries but that a reduction in real benefits will be tolerated by them as long as nominal benefits are not cut. This presumption of money illusion has caused a serious financial problem for public pension schemes in Japan, which has not been able to escape from deflation.

Putting an end to deflation is a first priority, but at the same time it is imperative to improve Japan's public pension schemes to avoid financial impairment by deflation.