How to Make Pension Systems Financially Sustainable?

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1 Introduction[1]

This paper gives an overview on how to make social security pension systems financially sustainable. Ample experiences in developed countries are to be illustrated.

Before taking up the main subject, fundamental characteristics of social security pensions and a need for periodic actuarial evaluations are explained.

2 Major Requirements of Social Security Pensions

Social security pensions have two major requirements for satisfying the sincere desire of the public. One is financial sustainability, and the other is adequacy of benefits.[2] As a population aging went on, financial sustainability got more and more serious in almost all countries, and then a long list of policy options to ensure financial sustainability have been demonstrated in the world. They are usually painstaking with tears, quite unpopular to the public. Nevertheless, many developed countries have already managed to implement these policy measures.

The other requirement, adequacy, is desired for the elderly to maintain a decent living standard after retirement. If any pension system fails in meeting this requirement, it will turn to be *politically* unsustainable.[3]

Financial sustainability often violates the adequacy requirement, however.[4] Both requirements will not always be compatible with each other. Sophisticated balances between them are necessary for pension policy making.

3 Fundamental Characteristics of Social Security Pensions

There are four major characteristics in social security pensions;

- a system of dividing the value-added of the national economy among different generations
- pay-as-you-go vs funded: output is central
- defined benefit plans vs defined contribution ones
- lifetime annuities vs fixed-term annuities

A brief discussion of each is presented below.

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[1] This paper was presented at the 6th China-Japan Joint Workshop on Pensions, Zhejiang University, Hangzhou, 20-21 April 2019.

[2] Some persons refer to these two requirements as "objectives," but the genuine objective would rather be to attain a stable standard of living after retirement.

[3] Detailed discussions on the adequacy requirement are beyond the scope of this paper.

[4] Many developed countries currently give a greater stimulus to people to participate in voluntary occupational and personal pensions to make up for the reduced social security ones.

Social security pension benefits for the elderly are mainly financed by contributions from their children and grandchildren. It is a socialized system of income transfers between parents and their children. It is also a system of dividing the value-added of the national economy (an economic pie) between retired persons and actively working ones. In Japan, for example, 66 million working persons financially supported life of her 127 million whole population (1.9 persons per worker) in 2015. In 2050, 46 million working generations will be estimated to do so for the total of 100 million persons (2.2 persons per worker). Actively working persons there will be forced to bear relatively a little bit heavier burdens during the next 35 years under a declining and aging population. Social security pensions thus have to flexibly adapt to the changing size of the national economy, together with the changing distribution of the population.

In a macroeconomic context, social security pensions stand indifferent as to their choice of the financing method, pay-as-you-go or funded. It is known as an *equivalence proposition* (see Geanakoplos-Mitchell-Zeldes 1998). Namely, pay-as-you-go pension benefits depend on growth of the future economy, while funded pensions pay their benefits by returns from the funded reserve and/or its decumulation. Under an aging population with a slower growth rate of the economy, the rate of return from investment or the selling price of the funded assets will consequently decline. The end results will be indifferent, regardless of pay-as-you-go or funded pensions.

Someone might say that more prefunding of social security pensions will contribute to strengthening their financial sustainability under a population aging. This assertion is a "complete lie," quite contrary to the equivalence proposition (above stated) which is currently shared as a common understanding among pension professionals in the world.[5]

In essence, output is central for pensions in the future. Higher productivity and later retirement are both crucial. Longer working years corresponding to longer life expectancy are immensely required. Pension policies have to go hand in hand with employment policies.

Within the pension system, encouraging later retirement and/or eliminating the work-disincentives are needed. In a microeconomic context, pension entitlements to each individual vary between defined benefit and defined contribution plans. Defined benefit plans first prescribe pension benefits, while defined contribution plans do contributions and adjust their benefits after. Benefits in defined benefit plans occasionally change in the course of time, however. Eventually adjustments in benefits are inevitable in both plans.[6]

Finally, social security pension benefits are lifetime annuities. Their payment continues until the death of each pensioner. This makes a sharp contrast to private pensions whose benefits are usually fixed-term annuities or even lump-sum ones. In this

[5] Global diversification of investments from *non-mandatory* funded pensions might mitigate their reduced rate of return due to a population aging.

[6] Today, the prototype of defined benefit plans is very hard to survive, and they virtually have turned to become defined contribution ones.

sense, social security pensions can only serve as the indispensable basic floor of income security in old age for all persons.

4 Need for Periodic Actuarial Evaluations

Social security pensions are fundamentally financed on a pay-as-you-go basis. They involve each individual for a long time, say, usually for 60 years or even nearly 100 years at the longest. The future is quite uncertain, and precise predictions are beyond human knowledge and skill. There is no single ideal form for pensions, and their system has thus to be reformed continually with no finish to flexibly adapt the changing demographic and economic circumstances.

Developed countries generally publish the periodic actuarial evaluation to make the public know whether or not the current pension systems are financially sustainable, and what outcome will take place if selective reform measures are adopted. In evaluating the long-term financial performance, the public actuary's office places basic assumptions at first on future changes in fertility, mortality, labor force participation, CPI, wage index, and investment return from the funded reserve. And then it projects long-term changes in the each number of contributors and beneficiaries, annual revenues, expenditures, surplus/deficit, and balance of the funded reserve. The special concern is whether or not the funded reserve will be used up in the future, and when it will run out, provided that the current provisions remain unchanged. The actuary's office usually assumes three cases (optimistic, medium, and pessimistic), at least.

Regarding the projection term, it is 75 years in the US, Canada, and Sweden. It is 65 years in the UK, 50 years in France, and 100 years in Japan. Actuarial evaluations are to be done every year in the US and Sweden, while they are done at least every five years in the UK, France, and Japan. In the meantime, actual and assumed conditions will more or less diverge, even when every effort is made, using the best available data. With the passage of time, fresh data become available, and periodic updates of the financial projections are to be done using revised assumptions. In this sense, actuarial evaluations are more like "projections (投影)" into the future of pension finances based on currently available demographic and economic data, rather than future "forecasts (予測)."

The authoritative actuary office has ideally to be independent of pension administrations. This is for ensuring neutrality, making its evaluation trustworthy. This is the case in the UK and Canada.

5 Major Policy Options for Ensuring Financial Sustainability

There are four major options, as Barr-Diamond (2010) points out.

- Reducing the Level of Benefits
- Raising the Normal Pension Age
- Hiking the Contribution Rate
- Increasing National Output

Each option is explained below in order.

5.1 Reducing the Level of Benefits

There are several ways to reduce the level of pension benefits, such as changes in the reference indicator for benefit indexation and for the update of past wages, a delay in the onset of benefit indexation, a reduction of the accrual rate (and/or the unit price of the flat-rate benefit) and a cut of the nominal amount of too generous benefits.

In the past the automatic indexation of benefits to wages and the automatic update of past wages for new beneficiaries were applied in many developed countries. But, today, they have changed the reference indicator for these indexation and update in order to contain the increasing cost for paying the aggregate amount of benefits.

The Iron Lady, Margaret Thatcher executed the representative example, changing the automatic indexation of benefits to wages into the indexation only to CPI in the UK. Wages got upward higher than CPI there, and the level of pension benefits began to deteriorate in real terms as time went on.

Japan recently faced wage increases lower than CPI increases (or wage decreases more than CPI decreases). The government decided to use the lower indicator of them for benefit indexation from 2021 on.

Furthermore, in 2004, Germany and Japan introduced so-called "demographic factors" to additionally adjust the level of pension benefits for the time being. Japan then started to take into account the annual decline in the number of insured persons and the annual increase in life expectancy, as well, to reduce the benefit level for all existing pensioners in real terms every year. Germany virtually adopted the similar tool as Japan did. Spain followed suit from 2014, establishing a new revaluation formula.

Spain also began to apply "the sustainability factor" (life expectancy) to calculate starting benefits of social security defined benefit pensions from 2019 (see Ramos 2014). Since life expectancy tends to rise over time, this application will indicate that future retirees will automatically have a lower monthly amount of starting benefits than current retirees with the same employment record, while the total amount received as pensions over their lifetime would remain unchanged on average cohort by cohort, thereby enhancing intergenerationally more equitable redistributions of retirement income. This is an adjustment quite similar to that structurally built in the defined contribution or notional (or non-financial) defined contribution pensions (see Settergren 2001 for Sweden and the cases in Italy, Latvia, Norway, and Poland).

As for a delay in the date of benefit indexation, France, for example, moved the date from April to October, i.e. six month later from 2014. The Slovak Republic limited the benefit increase by fixed amounts for years from 2013 to 2017, while Austria, Greece, Portugal and Slovenia temporarily froze automatic benefit indexation for all but the lowest group.

Regarding the update of past wages in line with wage increases in fixing the benefit amount for new pensioners, Germany and Japan changed the indicator from wages *before* deducting tax and social insurance contributions, to the take-home pay (wages *after* tax and social insurance contributions deducted). The former got higher than the

latter in the aging process. Japan further introduced the demographic factors mentioned above in updating past wages as an additional adjustment.

A reduction of the accrual rate for the earnings-related component is the most orthodox means for reducing the level of pension benefits. If the average service (contribution) years get longer in the future, say, from the current 30 years to 40 years, then, the accrual rate can be reduced gradually from, say, 1.0% per year to 0.75% per year cohort by cohort, keeping the average replacement rate unchanged. This was done in Japan in the 1985 reform. If the average service years no longer get extended in the future, a new and lower accrual rate can be introduced for all insurers including the existing beneficiaries, provided that the current nominal amount of benefits is fully guaranteed for existing pensioners to receive (従前額保証) for the time being until the newly determined amount exceeds the predetermined amount. In the meantime, the benefit indexation is to be suspended. This kind of special treatments enables a smoother transition. This took place in Japan when a drastic reform was done in 1986 for civil servants, and in Greece when unification of all social security pension systems was legislated in 2016.

As for a cut of the nominal amount of too generous benefits, it is politically most difficult. Even if it is accepted by the public, its improving effect on pension financing might remain much limited. Rather it can help the system to become more equitable.

Followings are a few examples in Japan. A maximum 10% cut of the nominal amount of pension benefits was forced to retired employees in National Railway Company when they began to receive the supportive grant from civil servants in Central Government in 1985. At that time, the funded reserve of the pension system for employees in National Railway Company ran out. Another maximum 10% cut of the nominal amount of pension benefits for retired civil servants was executed in 2013 who were receiving a total of old-age benefits more than JPY 2.3 million per year. The pension systems for civil servants were keeping their financing healthy, yet this cut was taken to cool down the intensified jealousy against priviledged civil servants. A 10% cut is just an easy option for Japanese to make the first compromise, whereas it ensures the pensioners concerned to keep their living standard little unchanged, thus being regarded not contrary to public order and morals.

Taxing more on too generous pension benefits is an alternative option.

5.2 Raising the Normal Pensionable Age

Raising the normal pensionable age[7] is fairly difficult, since it is easy for people concerned to promptly know that things are of their own. They hurriedly think themselves as the “losers,” and are likely to violently protest its raising (see the latest

[7] The normal pensionable age is not always the same as the mandatory retirement age or the retirement age in practice. The normal pensionable age is defined as the starting age for receiving old-age pension benefits with no reduction nor increment. The mandatory retirement age means the age when workers with indefinite-term employment are forced to retire.

case under the Putin Administration, for example. The Guardian 2018). This policy option is politically most unpopular.

It takes much time for a majority of the public to understand why this option is necessary for the pension system to keep its financing healthy and to remain intergenerationally equitable under the lengthening life expectancy.

Polite, patient, and repeated explanations are required before its proposal is made, as to why this policy measure is appropriate, and what will happen in the future without adopting this option.

In implementing this policy, due lead time has to be build up, say, 10 or 15 years. During this preparatory period, the government needs to complementarily create or improve working conditions for seniors, by subsidizing elderly workers who receive better training for higher productivity (upgraded skills and better job quality), and by giving subsidies to employers who hire seniors more.

These orthodox approaches might end in vain, however. Rather, persistent deficits in current account of the pension system and/or depletion of the funded reserve often trigger an enforcement of this option, in a much hastier and ruder way (the 2010/2012 reform in Greece, and the 2011 reform in Italy, for example. See OECD 2013 and Segreti-Dinmore 2011).

The less difficult option will be to attain gender equality, by converging the lower normal pensionable age for women to the same level for men. This is often the case in many countries. Incidentally, women live longer than men on average.

To cope with rising longevity, some countries (the UK, France, and Sweden) adopt a "trisection" rule of one's grown-up life stages, thereby regarding the third stage as the period of pensioners while placing the first and second stages as the contribution period. Their recent idea of increasing the normal pensionable age (or extending contribution years for receiving a full or non-reducing amount of benefits) is based on this rule. Following this rule, the normal pensionable age is to be increased to 68 by 2046 in the UK.

Other countries such as Denmark, the Netherlands, and Italy have adopted an automatic indexation of the normal pensionable age to longevity. Belgium, Finland, Greece, Hungary, Korea, Portugal, the Slovak Republic, and Turkey follow suit. Once a one-shot reform for the government to enforce this rule is done, then the rule automatically applies thereafter, without any further legislation. Thus, this is regarded as a wise method to avoid the *political risk* (see European Commission 2009).

Overall, many developed countries have already increased the normal pensionable age to 67 or even higher, although they underwent great hardships before enacting their own legislation. The estimated normal pensionable age of Denmark will reach 74 in the future, presenting an extreme case.

An advance payment of actuarially reduced benefits is usually admitted from age 60 or 62. The UK is an exception, having no such provisions.

Some countries such as Japan and Spain set up a temporary bridge to the increased normal pensionable age, by devising a "partial pension" for those working part time close to the normal pensionable age.

An alternative option is to extend the contribution years for receiving the full amount of benefits. France, for instance, once *decreased* the normal pensionable age from 65 to 60 in 1982. This decision was made to enable employment conditions for young persons to get much better, by encouraging elderly workers to retire earlier. Since then, increasing the normal pensionable age has been particularly difficult in France. The French government has been forced to muddle through pension-sustainability issues, struggling to work out by devising an extension of contribution years for receiving the full amount of benefits. It was extended step by step from 37.5 years in 1994 to 43 years in 2035.

5.3 Hiking the Contribution Rate

As the population aging proceeded, many countries hiked the contribution rate for pensions, little by little. Some countries with a relatively lower rate of contributions can still further increase its rate. Its increase might do damages to companies' economic activity, however. A majority of developed countries have little room for adopting this policy, today. These countries are seeking for alternative policy options to raise revenues. See Section 6 below.

5.4 Increasing National Output

Increasing national output is very crucial, as the present author already discussed it above in Section 3. This is the policy option outside the pension system. Policy makers for this purpose are there in the cabinet office other than the ministry in charge of pensions.

6 Other Options for Ensuring Financial Sustainability

In addition to four major options, there are following five other options more.

- Increasing Transfers from General Revenue
- Expanding the Contribution Base
- Coverage Expansion
- Broadening the Social Pool
- System Integration/Unification

Each option is illustrated below in order.

6.1 Increasing Transfers from General Revenue

Transfers from general revenue can be increased when the economy is steadily growing with accompanying increased tax revenues. This was done to realize a jump-up of the benefit level for Japan's Kosei-Nenkin-Hoken (KNH) in 1965, for example.

Governments can concentrate the transfer from GR to make it more equitable, by subsidizing a flat-rate portion of benefits only, stopping help to finance the earnings-

related portion any more. This was done in Japan when the “common” basic benefit was introduced in 1986.

Transfers from general revenue are sometimes used to make up for a financial loss in some pension systems. There is a natural limit for this selective use, however.

Increases in transfers from general revenue will probably be feasible when a new tax is introduced. In France, Contribution Sociale Généralisée (CSG) has been used to newly finance part of social security pension benefits since 1991. In Japan, an earmarked consumption tax was introduced in 2014 to lift transfers from general revenue from one third to one half for financing the basic benefit. Both taxes can be regarded as variants of the value-added tax, imposing them on not only actively working persons but also retired ones. They are more equitable between generations than contributions for pensions.

6.2 Expanding the Contribution Base

Contributions were imposed initially on regular wages and salaries. Their base can be expanded to include bonuses and every kind of allowances, for the pension system to have a possible increase in revenues. This expansion also contributes to attaining more equitable burdens among different kinds of employees.

Sweden removed the wage cap (ceiling) for *employers'* contributions, while keeping the wage cap unchanged in calculating the amount of pension benefits.

Strengthening measures to collect contributions is another option for increased revenues. Some countries changed its collection authorities from the social insurance agency to the tax office. The latter usually have superiority in collection capacity.

6.3 Coverage Expansion

An increase in the number of contributors is another policy option. There may be persons who meet the eligibility requirements for the program participation, yet are not covered. These persons have to be encouraged to participate in the pension program. Relaxing the eligibility requirements is the other policy tool. For instance, atypical employees such as part-time employees, temporary staff, contract workers and dispatched employees, can be included in the pension program for employees.

Eligibility requirements can be eased further by applying the program to employees who are working at smaller business establishments with less than 5 members or even only one member.

Eligibility requirements may also be relaxed to mandate older employees to pay contributions after they reach the normal pensionable age and above when they continue working. This is the case in Germany and Japan.

6.4 Broadening the Social Pool

Some population groups with a declining number of contributors and/or a lower level of monthly salaries face financial difficulties earlier than others in the pay-as-you-go

system. Broadening the social pool of pension contributions beyond the boundary of respective programs (財政調整) can make their programs financially more sustainable.

It also enables an equal treatment for all pensioners to receive the same amount of monthly benefits when they have paid the same amount of contributions during their active life, as far as the same cohort is concerned. Or given the same benefit formula, it enables a smaller gap of contribution rates among different programs. Germany, France and Japan have such broadened social pool in pension financing (see Takayama 2019 for the Japanese case). These countries have segmented pension programs separated by different sectors of the population.

6.5 System Integration/Unification

The ultimate goal for pay-as-you-go pension system will be to integrate or unify all the systems. Germany enacted a law of integrating two major programs for blue- and white-collar workers in 2004. Japan took a step-by-step approach for integrating pension programs for employees, and has unified all of them since 2015 (see Takayama 2018).

Broadening the social pool or integration can save some time before fully fledged policy measures are implemented.

7 Concluding Remarks

Policy measures for ensuring the financial sustainability of pensions mostly take pains and tears. The later pension reforms come, the more painful they are.

If any country has lacked the political will to tackle the problem, letting things run their course, the outcome would be to excite outrage and despair among the elderly, together with roaring distrust against the country leaders among the young who would be most deprived by their extremely high unemployment rate.

Greece serves a typical example of what not to be (反面教師). Pensions in Greece were once known to be among the most generous in the EU, while Greece suffered from high public debt and deficit. The financial crisis took place there in 2008. The European Central Bank and other lenders imposed radical austerity packages on Greek people. Drastic pension reforms and cuts in its benefits were a precondition for the loans granted to Greece. More than 10 pension cuts were implemented from 2010 (see Nakou 2018). In 2010, Greece was forced to do an outright rise in the normal pensionable age, extend the contribution period, and impose an emergency benefit freeze. In 2012, they abolished holiday bonuses (the 13th and 14th pensions), and executed additional cuts to the highest benefits. The cumulative cuts ranged from 14% for the lowest-paid pensioners to over 40% for the top 2% of pensioners whose monthly benefits were above EURO 2,000. In 2016, they unified all the pension systems, abolishing all special arrangements. Existing benefits had to be recalculated by the new method and be frozen at current levels until their value becomes equal to the value of the respective new pensions.

In concluding this paper, the present author would like to emphasize that any success or failure in pension reforms will depend on whether or not smoother transitions from the existing system to a new one can be implemented.

Any reform involves both winners and losers. Winners usually have no voice or keep silent, while losers are most likely to be against the reform, sometimes with loud voices and radical actions.

Losers have to be limited to those who are financially better-off, enjoying privileged benefits. It takes some time for them to correctly understand what reform is urgent, and why the reform will save the cost imposed on their children and grand-children, or why the reform will make the system more equitable. It is political leaders that have to persuade them to accept some concessions. Their vested interests have to be preserved to the utmost limit, while their expected rights can be shaken down slowly over time. Pensions should not make a steep turn.

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