Automatic Balancing Mechanisms

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Agenda

➢ Introduction

➢ Purpose of the paper

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➢ Sweden

➢ Germany

➢ Japan

➢ Summary

➢ Concluding remarks

Introduction

➢Many countries initiated social security pension reforms in the late 20th century.

- greater improvements in longevity and greater decline of fertility than anticipated

- slowdown of economic growth

➢Sustainability of social security pension schemes has become one of the issues of top priority in many countries.

➢The socio-economic environmental changes destroyed financial equilibrium that had once been attained by scheme reforms.

➢Several countries started to introduce an automatic balancing mechanism (AMB) in the 1990's or in the 2000's to keep the social security pension schemes sustainable.

- ABM: the framework stipulated in the law that is supposed to restore the financial

  equilibrium of social security pension schemes

- activated in the event of parliamentary inaction or without parliamentary

  decision making

Purpose of the paper

➤ Reasons for introducing the ABM vary from country to country.

- to take up four countries: Canada, Sweden, Germany and Japan

- political reasons: Germany, Japan

- technical reasons: Sweden

- as a principle of financial management (mixture of both): Canada

➤ Reasons differentiate their features.

➤ The purpose is to compare them.

- It may be of any help to the discussions on whether to introduce an ABM, what kind of
ABM to choose or how to reform the ABM.

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Canada (insufficient rates provisions)

➤ It introduced a framework called "insufficient rates provisions" in the 1998 reform.

- as a principle of financial management of the Canada Pension Plan (CPP)

➤ Actuarial valuations of the CPP

- Actuarial valuations are carried out every three years.

- The Chief Actuary reports, on each actuarial valuation, the minimum contribution rate

  that will sustain the plan, together with other analysis of the financial state of the CPP, to

  the federal and provincial Ministers of Finance in order for them to make recommendations as

  to whether the benefits and/or contribution rate should be changed.

- (the minimum contribution rate) = (the steady-state rate) + (the full funding rate)

- The steady-state contribution rate means the smallest contribution rate by which the

  ratio of assets to expenditures stabilizes over time.

- The full funding contribution rate applies to any new benefits which, by law,

  must be fully funded.

Canada (continued)

➢ Insufficient rates provisions

 - If the legislated contribution rate is lower than the minimum contribution rate, and the

 federal and provincial finance ministers cannot reach an agreement to increase or

 maintain the legislated rate:

 > The contribution rate is increased over three years by a half of the difference between

 the minimum contribution rate and the legislated contribution rate.

 > The benefit indexation is frozen until the next actuarial valuation.

➢ The insufficient rates provisions serve as the ABM for the CPP.

Canada (continued)

➢ Advantages

- They keep the CPP in a better financial condition than without them.

- They make the policy makers conscious of intergenerational fairness.

- There is no need to change the benefit design.

- The pain of returning to sustainability is shared between workers and retirees.

➢ Disadvantages

- If it should happen that they are activated several times in a row, the contribution rate might go up beyond the sustainable level or the benefit level might become inadequate though such situations will be extremely rare.

- Even if they are activated, they do not guarantee that the financial conditions of the CPP are in steady-state funding.

Sweden (automatic balancing mechanism)

➢ It introduced a framework called the automatic balancing mechanism in the reforms in the 1990's.

- The social security pension scheme was restructured into the notional defined-

  contribution (NDC) system with additional DC part.

   > to solve the 30-15 problem

   > to avoid the problem of paying two pensions by participants in transition

   > only to provide old-age benefits

- The contribution rates are fixed:

   > the NDC part: 16%

   > the DC part: 2.5%

- The interest rate for the NDC is equal to the increase rate of salary.

- It introduced the ABM to make the NDC system sustainable.

Sweden (continued)

➢ Swedish ABM

- innovative framework

- At the end of each year the balance ratio is calculated.

- The balance ratio:

$$\frac{(\text{reserve fund (buffer fund))} + (\text{contribution asset})}{(\text{present value of the benefits that have so far accrued})}$$

- The contribution asset: (contribution revenue of the year) X (turnover duration)

- The turnover duration: (weighted average age of beneficiaries by benefit amount)

            - (weighted average age of participants by income)

- The Swedish ABM:

   > If the balance ratio is no less than 1, nothing happens.

   > If the balance ratio is less than 1, the interest rate of the individual account of the NDC system and the indexation of benefits are reduced by the difference between 1 and the balance ratio.

Sweden (continued)

➢ Advantages

- It makes the scheme design simple.

   > For the participants it looks no different from personal savings.

- It solves the problem of two pensions.

- It only uses the experienced data to activate the ABM and does not use projections that

   quite often entail political discussions with respect to assumptions.

➢ Disadvantages

- The benefit design is restricted to the NDC system.

   > It has no income redistributive function, so, if the current scheme plays an income

      redistributive role and we want it to continue to do so, we cannot introduce a

      Swedish-type ABM.

   > Furthermore if we convert such a scheme into the NDC, for those

      whose pension is not relevant to the minimum guarantee pension,

      the higher the career average salary is, the more increase or the less

      decrease the beneficiary will have. This is not acceptable.

Sweden (continued)

➢ Disadvantage (continued)

- A Swedish-type ABM cannot be defined in a scheme that has a benefit design different from the NDC system.

> The notion of turnover duration cannot defined.

- It cannot be applied to a scheme where the working population is fast decreasing.

> The annual contribution revenue can decrease for a long time.

> The contribution asset might be too optimistic in such a case and it can happen that the balance ratio is less than 1 every year for a very long time.

> It is not an effective way to restore financial equilibrium under a rapidly ageing environment.

- There is no guarantee that the scheme is in financial equilibrium in traditional sense even if the balance ratio is no less than 1.

> It should be checked by the actuarial projections.

Germany (sustainability factor)

➤ It introduced a sustainability factor for indexation in the 2004 reform.

 - It is to keep the PAYGO contribution rate constant.

$$(\text{PAYGO contribution rate}) = \frac{(\text{annual benefit expenditures})}{(\text{annual total amount of base salary})}$$

$$= \frac{(\text{average amount of benefit}) \times (\text{number of beneficiaries})}{(\text{average amout of salary}) \times (\text{number of active workers})}$$

$$= \frac{(\text{average amount of benefit})}{(\text{average amount of salary})} \times (\text{maturity rate})$$

$$\text{where maturity rate} = \frac{(\text{number of beneficiaries})}{(\text{number of working people and unemployed people covered by the scheme})}$$

> If the indexation is reduced by the increase rate of the maturity rate, the PAYGO contribution rate does not change.

> The sustainability factor was introduced by focusing on this nature.

Germany (continued)

➢ Sustainability factor

- defined as $SF_t = 1 + \alpha(1 - \dfrac{M_{t-1}}{M_{t-2}})$

where M_t is the maturity rate at the end of the year t, and α is a constant with $0 \le \alpha \le 1$.

- α represents the degree to which the increase rate of the maturity rate is reflected in the sustainability factor.

    > If $\alpha < 1$, it mitigates the reduction of benefit level.

    > Actual choice of Germany was $\alpha = 0.25$.

- The indexation is modified by multiplying the normal index by the sustainability factor.

- The sustainability factor plays the role of restoring the financial equilibrium over time by gradually reducing the benefit level. So this is a framework of ABM.

- The upper limit of the contribution rate is stipulated to be 20% until 2020 and 22% after 2020.

    > There is some room for the contribution rate to slightly increase.

Germany (continued)

➢ Advantages

- The certainty that the sustainability factor restores the financial equilibrium is very high if α is set properly.

- It is applicable to any benefit design.

- It can assure the active participants that the contribution level will not change so much in the future.

➢ Disadvantages

- It may give rise to anxieties that the benefit level might infinitely be reduced and eventually lose its adequacy.

- It might not restore financial equilibrium even when the pension scheme reaches a state where the maturity rate would not increase as $\alpha = 0.25$ and the sustainability factor only reflects a quarter of the change in the maturity rate of the scheme.

Japan (modified indexation)

➢ It introduced a framework called modified indexation in the 2004 reform.

- to avert fruitless political fights between the government parties and the opposition parties

- The social security pension schemes in Japan must carry out actuarial valuations every five years.

> Each valuation entailed reforms and, reflecting the more rapid ageing than anticipated of the population, it was repeated that the contribution rates were raised and the benefit level was reduced since the mid 1980's.

> Fruitless political fights were repeated.

- The contribution programmes of the social security pension schemes were stipulated in the law for the whole future period in the 2004 reform.

> to erase the anxiety that the contribution rate might be raised endlessly

Japan (continued)

➢ Modified indexation

- Normal indexation: indexed to salary increase until the age of 65 and to the CPI

  increase after the age of 65

- Modifier: the sum of the following two rates

  > decrease rate of the number of the covered in the social security pension schemes

  > annual increase rate of the unisex life expectancy at the age of 65

- Modified indexation: If the actuarial valuation shows the financial imbalance for the next

  95 years under the normal indexation, the index is modified in the following way:

  > modified index: (normal index) – (modifier)

  > If it becomes negative, it is replaced by zero.

  > If the normal index is already negative, no modified indexation.

  > Under the deflationary economy, the modified indexation has not been

  activated since its introduction for 9 years.

Japan (continued)

➢ ## Similarity to German sustainability factor

$$\frac{M_{t-1}}{M_{t-2}} - 1 = \frac{1 + (\text{increase rate of the number of beneficiaries})}{1 + (\text{increase rate of active participants and the unemployed})} - 1$$

$\cong (\text{increase rate of the newly awarded persons}) + (\text{increase rate of life expectancy}) + (\text{decrease rate of active participants and the unemployed})$

➢ ## Advantages

  - It is applicable to any benefit design.

  - It can erase the anxiety that the contribution rate might endlessly increase.

➢ ## Disadvantages

  - It may give rise to anxieties that the benefit level might be endlessly reduced.

    > There are provisions of benefit floor.

  - It is not activated under the deflationary economy.

    > It will result in a lower benefit level for the future generations.

  - It does not necessarily restore financial equilibrium if the

  socio-economic environment deteriorates beyond a certain limit.

Summary

Issues	Canada	Sweden	Germany	Japan
Does the ABM exactly restore the financial equilibrium?	almost	to some extent	almost	to some extent
Necessary to change the benefit design?	no	yes	no	no
Sharing the "pain" between workers and beneficiaries?	yes	to some extent	to some extent	to some extent
Giving rise to anxiety that the contributions would go up endlessly?	no	no	no	no
Giving rise to anxiety that the benefit would fall to lose adequacy?	no	to some extent	to some extent	benefit floor
Actuarial valuations involved in deciding the activation of ABM?	yes	no	no	yes
Contribution rate or programme fixed?	no	yes	upper limit	yes

Conclusion

➤ Demographic environment

- Canadian and German ABMs are applicable to any case.

- Swedish ABM is not applicable to fast ageing case.

- Japanese ABM is not applicable to non-decreasing case

➤ Economic environment

- Japanese ABM should be adjusted to be applicable as well to deflationary environment.

➤ Benefit design

- Swedish ABM is only applicable to the NDC.

Thank you very much for your attention!

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