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How can we maintain pension levels in pay-as-you-go schemes?

Survey on self-adjustment mechanisms for social security schemes and employer sponsored pension plans: Summary of findings and conclusions

Jean-Claude Ménard

Chief Actuary

Assia Billig

Actuary

Michel Millette

Director

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I. Acknowledgments

We would like to express our gratitude to all people from 26 countries around the world who spend their time answering this survey. Their names along with the social security organizations they belong to could be found in Annex 1.

II. Introduction and scope of the survey

In the recent decade, many countries have undergone pension reforms aimed at improving the solvency and sustainability of social security systems. Several countries have replaced traditional social security systems with defined contributions systems. Other countries have either introduced self-adjustment mechanisms to their traditional social security systems or have adopted Notional Defined Contribution (NDC) plans.

The Survey on Self-Adjustment Mechanisms for Social Security Schemes and Employer Sponsored Plans ("the Survey") has been developed by the Office of the Chief Actuary (Canada) and was sent to 38 countries in February 2009. Responses were received from 26 countries.

The Survey focuses on self-adjustment mechanisms. In the Survey, a self-adjustment mechanism is defined as a selection of predetermined measures set by law to be applied either immediately as required by a set of pre-determined indicators, or on a pre-determined schedule in order to restore the solvency or financial sustainability of pension systems. In particular, the definition above implies that such mechanism will be activated every time the system becomes insolvent and/or unsustainable. However, several countries have adopted *ad*

Jean-Claude Ménard, Assia Billig and Michel Millette

hoc legislated measures that are expected to be applied within a limited time frame. Even if such mechanisms do not fall under our definition of a self adjustment mechanism, we still think that the existence of such measures is an important step in ensuring the solvency and sustainability of public pension systems. In the rest of the report we will refer to such mechanisms as "temporary". "Automatic" means that they are activated each time there is a need to restore the sustainability, while "temporary" means that they are in place to solve existing sustainability issues.

It should be noted that the above definition is general enough to cover the type of mechanisms such as it exists in Canada. The application of Canada's self-adjustment provisions is conditional on the impossibility of reaching a political agreement concerning the measures necessary to restore the sustainability of the Canada Pension Plan. It could be argued that such a mechanism can not be classified as an automatic self-adjustment mechanism. However, we feel that since governments are elected by the direct stakeholders of the social security system (contributors and beneficiaries), it is not reasonable to expect governments to completely relinquish their responsibility for the future of the pension system. Canada's design provides the system with a safety net without diminishing this responsibility.

The objectives of this Survey are to gain a better understanding of the existing or planned self-adjustment mechanisms for social security systems and employer provided pension plans, to share the practices existing around the world with ISSA member organizations, and to raise awareness of the importance of mechanisms in pension systems that help ensure the solvency and the sustainability of such systems.

It should be understood that the Survey did not seek detailed information about the self adjustment mechanisms but was more oriented towards getting the general picture. Moreover, it is not in the framework of this Survey to assess the efficiencies of the self adjustment mechanism of the participating countries.

The findings presented below are based mainly on the replies of the participating countries. Some information was obtained through further research of the participating countries' pension systems.

III. Summary of findings

A. Social security systems

1. Countries without self-adjustment mechanism

Social security systems of nine countries or regions (Argentina, Cyprus, Greece, Ireland, New Zealand, Quebec, South Africa, Switzerland and Tunisia) do not currently have any self-adjustment mechanisms in place.

2. Adjustment to contribution base

Adjustments to contribution base could either result in an increase in contributions or a combination of an increase in contributions and a reduction in benefits paid (delaying the start of benefits and therefore reducing the length of the period over which the benefits are paid).

Length of contributory period

France is the only country that automatically increases the length of the contributory period necessary to obtain a full benefit. This provision applies to the basic pension insurance plan covering the employees in the trade and industries. The underlying principle of France's adjustment is that the ratio of contributory period and benefit payment period has to be constant. 2/3 of the improvements in life expectancy are attributed to the contributory period and 1/3 to the benefit payment period. The length of the contributory period is scheduled to increase by three month each year from 2009 to 2012 until it reaches 41 years. Starting in 2012, government will regularly establish a five year schedule of increases taking into account changes in life expectancy, financial status of the plan and employment situation.

Two countries (Czech Republic and Italy) have changed qualifying conditions for pensions. The Czech Republic is gradually increasing the length of contributory period, while Italy has introduced age plus service qualifying conditions which are being implemented by step. However, in both cases, the scheduled changes are temporary mechanisms.

Increase in retirement age

The increase in retirement age is one of the most widespread measures included in pension social security legislation among the surveyed countries. This measure addresses both contribution period and the time over which the benefits are paid.

Nine countries (Australia,¹ Czech Republic, Denmark, Germany, Italy, Japan, Republic of Korea, United Kingdom and United States of America) have either adopted or proposed scheduled legislated increase in the retirement age. The ultimate retirement age for eight countries is 65 or over.² The only country in this group which has a retirement age under 65 is Italy.

Denmark is the only country that has provisions that allow for the future indexing of the retirement age in line with the increases in life expectancy after an initial increase of the retirement age to 67. The life expectancy review is supposed to be done every five years (the first review is scheduled for 2015), and the change in retirement age will come in effect after a notice period of 15 years. The Danish Parliament must approve every increase in the retirement age.

The remaining eight countries have temporary mechanisms. Still, these are important steps toward improving the sustainability of social security systems.

The transition periods over which the retirement age increases vary from about 20 years to about 35 years, with the exception of Italy, which plans to increase its retirement age by 2013. The increase mechanisms could be roughly classified into two categories:

- gradual increase every year during a transition period by a certain amount of months; and
- increase by a full year or some fixed amount of months occurring at specified interval (e.g. every five years).

Two countries – France and Greece – include in their systems incentives for deferring retirement in a form of additional benefit accruals after a certain age and after completion of

¹ Budget introduced in May 2009.

² In Czech Republic the retirement age of women could be less than 65 depending on the number of children.

a specified number of years of service. While these incentives are interesting approach that may increase the effective retirement age, they could not be classified as self-adjustment mechanisms.

Increase in contribution rate

One of the primary objectives in the financing of public pensions is the stabilization of the contribution rate. Moreover, both *ad hoc* and/or legislated increases in the contribution rate are always unpopular political measures. Therefore, not surprisingly, only three countries (Canada, Germany and Japan) have contribution rate increase mechanisms in place.

In Japan, the contribution rate is increasing until 2017. This is a temporary mechanism.

The German system includes a provision that the contribution rate should be adjusted if the liquidity reserve is either less than 20% or higher than 150% of the average monthly expenditure. It should be noted that the German system implies that the rate could be either increased or decreased.

In Canada, if the most recent actuarial report of the Canada Pension Plan shows that the minimum contribution rate necessary for the plan to remain sustainable is higher than the legislated rate, and that the federal and provincial ministers – who are the joint stewards of the Canada Pension Plan – cannot agree on a solution, then one of the measures prescribed by law is a gradual increase in the contribution rate.

3. Adjustment to benefit amount

The adjustments to benefit amounts could either affect only new beneficiaries, or both new and existing beneficiaries. These adjustments are often related to demographic factors (e.g. changes in life expectancy and changes in dependency ratio) and/or economic factors (e.g. pension fund performance and GDP growth). The adjustments to the benefits may increase the contribution base, since people may wish to work longer to compensate for reductions in benefits they would have incurred by retiring at the same age as previous cohorts.

Conversion factors for Notional Defined Contributions (NDC) accounts

The conversion factors for NDC accounts are addressing increases in life expectancy.

Four countries – Italy, Norway,³ Poland and Sweden – have a NDC component in their social security pension systems. All four countries adjust the systems' conversion factors to account for changes in the life expectancy.

It is interesting to note that the 2007 reform in Italy states that the modification of the transformation factor (i.e. conversion factor) is based on macroeconomic, demographic and migration trends figures. In addition, workers' life expectancy based on employment sector is also taken into account.

Indexation

The change in the indexation of the benefits in pay is one of the ways to share the burden of the adjustment between the contributors and current beneficiaries.

³ The reform comes into force in 2011.

The majority of countries reported that the social security pension benefits are adjusted to preserve the standard of living of retirees; however, only six countries – Canada, Denmark, Germany, Japan, Portugal and Sweden – have the indexation linked to the changes in solvency/sustainability status of social security systems.

In Canada, the change in benefits indexation is the second part of the self-adjustment mechanism described earlier. When the law prescribes the increase in contributions, the benefits indexation is simultaneously frozen for three years until the next actuarial report is produced and the situation of the plan is reassessed.

In Denmark's ATP⁴ scheme (a defined contribution scheme with certain guarantees), the indexation depends on the performance of the pension fund.

Portugal's indexation depends on cost of living increases and GDP growth. The slow GDP growth could result in an indexation lower than the increase in the cost of living. In addition, the indexation formula is more generous toward lower income recipients.

The indexation in Sweden depends directly on the solvency position of the system (balance ratio). If the balance ratio is less than one, the indexation is reduced proportionally. This mechanism allows for the indexation catch-up once the balance ratio becomes greater than one.

The benefits index in Japan is adjusted according to the evolution of the number of active workers and is further offset by a factor of 0.3% to reflect an increase in life expectancy.

Finally, in Germany, the indexation depends on the evolution of the generalized dependency ratio (25% of this evolution is taken into account). It should be noted, that the change in the contributions rate also has an impact on the indexation, which may either be negative or positive.

Other adjustments to benefit amounts

Five countries – Brazil, Finland, Germany, Japan and Portugal – adjust initial pension benefits in relation to demographic factors. Brazil's adjustment factor takes into consideration life expectancy and retirement age. Finland and Portugal adjust the initial benefits to track increases in life expectancy. Japan's indexation of the career earnings to the retirement age takes into account the evolution of the number of active workers and a 0.3% factor, which is similar to its post-retirement indexation formula. Finally, Germany's initial benefits are adjusted the same way as benefits after retirement.

In Sweden, the balance ratio described above also affects the growth rate of the NDC accounts. If this ratio is less than one, the NDC account growth rate will be reduced on a prorated basis. Like the benefit indexation, the mechanism allows for a catch-up.

France is gradually extending from 10 years to 25 years the period used to calculate the best average salary on which benefits are based. This process has already been completed for some of the plans. Such a mechanism is temporary one and similar to *ad hoc* measures implemented in the past by other countries (e.g. Canada and Tunisia).

⁴ ATP (*Arbejdsmarkedets Tillaegspension*) – Labour Market Supplementary Pensions Institution.

4. Funded plans

All countries that answered the question regarding fully or partially funded social security systems stated that since the solvency position of the system depends on the fund size, the performance of the fund affects the application of the self-adjustment mechanisms.

In Sweden, the performance of the buffer fund is a direct trigger of the self-adjustment mechanism since it affects the balance ratio.

In Canada, as long as the legislated contribution rate is higher than the minimum contribution rate necessary for the Canada Pension Plan to remain sustainable, the negative performance of the fund does not necessarily trigger the application of the self-adjustment mechanism. Currently, the legislated rate is higher than the minimum contribution rate.

Denmark's situation (ATP scheme) merits special attention. As mentioned above, the indexation of the benefits depends on fund performance. At the time the indexation is granted, the additional accumulations are also provided to the individual accounts. It could be said, that this plan is a defined contributions plan with some minimum guarantees. Moreover, instead of promising certain benefits such as high account accumulation or indexation, the plan provides these benefits only if the funds are available. This particular self-adjustment mechanism results in a positive adjustment to benefits.

The individual accounts component of the Polish social security system includes a relative minimum return guarantee feature. If a fund manager fails to achieve a certain level of return as compared to the performance of other funds, then additional payments should be made to the fund. These payments first come from special reserves held by the pension fund, and then from the management company's own assets. Such procedures could result in the bankruptcy of the management company.

5. Sharing of the adjustment between contributors and beneficiaries

The ability of the self-adjustment mechanisms to share the financial burden and/or gain between contributors and beneficiaries could be a desirable feature aimed toward improving the intergenerational equity within the pension system.

Six countries – Canada, Denmark, Germany, Japan, Portugal and Sweden – have sharing arrangements of varying degrees embedded in their systems' self-adjustment mechanisms.

Canada's self-adjustment mechanism previews the simultaneous increase in contribution rate and the temporary freezing of the indexation for retirees. In Denmark, a positive fund performance may result in a higher accumulation of the account balances for contributors and granting an indexation to retirees. In Germany, a change in the contribution rate also results in a change in the indexation for retirees (both positive and negative). In Japan, both the initial pension amount and the post-retirement indexation are related to the changes in the workforce and mortality. In Portugal, mechanisms affecting contributors and beneficiaries are not directly related since contributors' future benefits are affected by the changes in mortality, while the beneficiaries' indexing depends on the GDP growth. Finally, in Sweden, the self-adjustment mechanism affects both NDC account accumulation rate and the post-retirement indexing.

6. Planned adjustments

Norway's reform introducing a NDC component to public pension system is scheduled to start in 2011. Australia's budget presented in May 2009 included measures related to the increase in retirement age.

Several countries like Argentina, South Africa, Switzerland and Tunisia are taking a closer look at their pension systems. For these countries, the possibility of introducing self-adjustment mechanisms into their pension systems is potentially there.

Other countries with existing self-adjustment mechanisms continue to monitor the appropriateness of their models. For example, Finland is planning to make changes to the way life expectancy coefficients are applied in the calculation of the disability pension.

B. Employer sponsored defined benefits pension plans

The majority of the Survey responders either did not answer the questions regarding the employer sponsored defined benefits pension plans, or have indicated that no self-adjustment mechanisms exists for such plans.

In the United Kingdom (UK), cost sharing mechanisms were recently introduced for some public sector pension schemes. These mechanisms specify which risks (e.g. life expectancy increase, pay increases, benefit structure, etc.) should be shared by the employer and employees, and the set procedures for increases in contributions (both employer and employees) and reduction in benefits, if required.

In Canada, some pension plans link the indexation of benefits after retirement to the performance of the underlying pension funds. For example, a plan could guarantee an indexation equal to one half of cost-of-living increase, and grant the remaining one half if the fund performance allows it. Another example would be that an indexation formula could be based on a fund's rate of return minus a specified percentage. The latter type of adjustments could result in either an increase or a decrease of pension benefits in pay.

Another type of plan in Canada that has self-adjustment features is multi-employer plans. These plans normally cover several employers (e.g. by trade), and some provincial pension legislations allow these plans to reduce accrued benefits and/or increase contributions if facing shortfalls.

In Norway, the AFT plan (*Avtalefestet Pensjon*) is funded by employers and government. To be eligible for benefits from this plan, one needs to be employed at the time of retirement; however, only about 80% of people employed at retirement are covered by this plan. This plan is not a part of the social security system. The reform of 2011 is expected to transform this plan and introduce adjustments for life expectancy similar to the ones that were put in place in Norway's public pension system.

In Brazil, the general private pension law states that the amortization of deficit, if any, should be divided between the sponsors and the participants.

IV. Conclusions

The high response rate to the Survey indicates that countries are paying increased attention to the questions of the sustainability and solvency of pension systems.

One of the most popular measures adopted either in isolation or in conjunction with other measures, is the gradual increase in the retirement age. For the majority of countries, this measure is a temporary one: the retirement age is expected to be brought to a certain level, and no further increases are foreseen by the laws.

Another direction taken by several countries is adjusting retirement benefits according to the evolution of the workforce and/or life expectancy trends. Such mechanisms exist for the Notional Defined Contribution schemes as well as for traditional defined benefit schemes.

The Survey shows that countries are also paying attention to the sharing of adjustments between contributors and current beneficiaries. In this area, a variety of designs exists.

Several countries have sophisticated self-adjustment mechanisms that combine measures addressing demographic and economic conditions affecting social security schemes.

Finally, most of countries do not possess self-adjustment mechanisms for employer sponsored defined benefits plans.

Monitoring the financial sustainability of social security systems is a continuous process for many countries. During this process, solutions appropriate for specific countries' situations are being examined. The Survey presents an overview of the existing mechanisms hoping it will help countries around the world improve the sustainability and health of social security systems and stimulate the development of new solutions.

Annex 1. Respondents to the OCA survey on self-adjustment mechanisms for social security schemes and employer sponsored pension plans

Country	Respondent name	Responding organization
Argentina	Laura Lacasta	Ministry of Social Security
Australia	Glenda Ellis	Department of Families, Housing, Community Services and Indigenous Affairs
Brazil	Helmut Schwarzer Rogério Nagamine Costanzi Ricardo Pena Pinheiro	Ministry of Social Security
Canada	Assia Billig	Office of the Chief Actuary
Cyprus	Costas Stavrakis	Ministry of Labour of Social Insurance
Czech Republic	Jiří Král	Ministry of Labour and Social Affairs
Denmark	Ole Beier Sorensen	Arbejdsmarkedets Tillaegspension (ATP) (Labour Market Supplementary Pensions Institution)
Finland	Kalle Elo Marina Sirviö	Finnish Centre for Pensions Social Insurance Institution
France	Michel Gleizes	National Old-Age Insurance Fund
Germany	Dr. Ulrich Reineke	German Federal Pension Insurance
Greece	Marianna Papamichail	National Actuarial Authority
Ireland	Paul Morrin	Department of Social and Family Affairs
Italy	Graziella Rambaldi	Italian National Social Insurance Institute
Japan	Shinryu Kamada	Ministry of Health, Labour and Welfare
New Zealand	Geoff Rashbrooke David Benison	Ministry of Social Development Ministry of Economic Development
Norway	Ole Christian Lien	Directorate of Labour and Welfare
Poland	Tomasz Kukawski	Social Insurance Institution
Portugal	Clarisse Coelho Maria da Conceição Sousa	General Directorate for Social Security
Quebec	Pierre Plamondon	Régie des rentes du Québec
South Africa	Mahlogonolo Moloko	Department of Social Development
Republic of Korea	Kim Soonock	National Pension Service
Sweden	Danne Boguslaw Mikula	Swedish Social Insurance Agency
Switzerland	Laurence Capraro	Federal Social Insurance Office
Tunisia	Mohamed Chaabane	Research and Study Centre for Social Security
United Kingdom	James Thompson	Government Actuary's Department
United States	Alice Wade	Social Security Administration

Annex 2. Social Security Systems self-adjustment mechanisms – Brief summary

Country	Adjustment to contribution base		Adjustment to benefits	Sharing mechanism
	Automatic	Temporary		
Argentina				
Australia ⁵		X		
Brazil			X	
Canada	X		X	X
Cyprus				
Czech Republic		X		
Denmark	X		X	X
Finland			X	
France	X		X ⁶	
Germany	X	X	X	X
Greece				
Ireland				
Italy		X	X	
Japan		X	X	X
New Zealand				
Norway ⁷			X	
Poland			X	
Portugal			X	X
Quebec				
South Africa				
Republic of Korea		X		
Sweden			X	X
Switzerland				
Tunisia				
United Kingdom		X		
United States		X		

⁵ Budget introduced in May 2009.

⁶ Temporary adjustment.

⁷ From 2011.

Annex 3. Copy of the survey

INTRODUCTION

In the recent decade many countries have undergone pension reforms aimed at improving solvency and sustainability of social security systems.

Several countries have replaced traditional social security systems with defined contributions systems. Other countries have either introduced self-sustaining mechanisms to their traditional social security systems or have adopted Notional Defined Contribution (NDC) plans.

This survey focuses on self-adjustment mechanisms. A self-adjustment mechanism could be defined as a selection of predetermined measures set by law to be applied either immediately as required by the set of pre-determined indicators or on the pre-determined schedule in order to restore the solvency or financial sustainability of pension systems.

The present questionnaire has been developed by the Office of the Chief Actuary of Canada and sent to ISSA member organizations managing or supervising social security systems. The main objective of this survey is to gain a better understanding of the existing or planned self-adjustment mechanisms for social security systems and employer provided pension plans.

The information gathered will permit us to identify the best practice around the world that deserve to be shared with other ISSA member organizations in order to raise awareness of the importance of mechanisms in pension systems that help to insure the solvency and the sustainability of such systems. Depending on the number of respondents and the information provided, the results of the survey will be presented at the 16th International Conference of Social Security Actuaries and Statisticians.

QUESTIONNAIRE

Confidentiality: The Office of the Chief Actuary of Canada is aware that certain information requested in this questionnaire may be of a sensitive nature. Please indicate clearly any information which you regard as particularly sensitive and to which you would not wish any reference to be made without your express prior agreement.

Name of your organization:

Country:.....

Name of respondent to questionnaire:.....

Position of respondent in the organization:.....

Respondent's telephone: E-mail:.....

Social Security Systems

1. Please identify the type of your country's social security system

- Defined Benefit (DB)
- Defined Contributions (DC)
- Notional Defined Contributions (NDC)
- Other (Please describe)

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2. Please indicate if your country's social security system **legislation** includes any self-adjustment mechanisms (please check all appropriate boxes)

Adjustment to contribution base – length of contributory period. Please answer question 4.

Adjustment to contribution base – increase in retirement age. Please answer question 5.

Adjustment to contribution base – increase in contribution rate. Please answer question 6.

Adjustment to contribution base – other. Please answer question 7.

Adjustment to benefit amount – conversion factors for NDC accounts. Please answer question 8.

Adjustment to benefit amount – indexation of benefits in pay. Please answer question 9.

Adjustment to benefit amount – other. Please answer question 10.

For fully-funded or partially funded systems: adjustment linked to fund performance. Please answer question 11.

Other. Please answer question 12.

3. Please describe the events that trigger the applicable adjustments from question 2.
4. **Adjustment to contribution base – length of contributory period.** Please describe:
- the adjustment mechanism;
 - is it a permanent adjustment or it is scheduled to end at the specified date;
 - any other relevant information.
5. **Adjustment to contribution base – increase in retirement age.** Please describe:
- how the retirement age is expected to increase (is it a scheduled adjustment or is it related to the financial position of the plan);
 - is it a permanent adjustment or it is scheduled to end at the specified date (please give a date)
 - any other relevant information
6. **Adjustment to contribution base – increase in contribution rate.** Please describe:
- mechanisms to determine the increase;
 - any other relevant information.
7. **Adjustment to contribution base – other.** Please describe the adjustment.
8. **Adjustment to benefit amount – conversion factors for NDC accounts.** Please describe:
- mortality basis;
 - frequency of the mortality basis updates;
 - implementation date;
 - any other relevant information.
9. **Adjustment to benefit amount – indexation.** Please describe:
- the indexation basis (e.g. inflation, increase in average industrial wage);
 - the adjustment mechanism;
 - any other relevant information.
10. **Adjustment to benefit amount – other.** Please describe the adjustment.

11. For fully-funded or partially funded systems: adjustment linked to fund performance.

Please describe:

- is the system fully or partially funded;
- the nature of adjustment;
- any other relevant information.

12. Other. Please describe.**13.** Does the self-adjustment mechanism affects contributors only or both contributors and existing beneficiaries? If both, please describe the sharing mechanism.**14.** If your country social security system legislation does not include any self – adjustment mechanisms, please indicate if your country is considering to implement any of the following self-adjustment mechanisms (please check all appropriate boxes)

Adjustment to contribution base – length of contributory period.

Adjustment to contribution base – increase in retirement age.

Adjustment to contribution base – increase in contribution rate.

Adjustment to contribution base – other.

Adjustment to benefit amount – conversion factors for NDC accounts.

Adjustment to benefit amount – indexation of benefits in pay.

Adjustment to benefit amount – other.

For fully-funded or partially funded systems: adjustment linked to fund performance.

Other. Please describe.

Employer provided pension plans**15.** Please describe any self-adjustment mechanisms for employer provided pension plans existing in your country, if any.**16.** Please specify if the provisions for self-adjustment mechanisms for employer provided pension plans are included in your country legislation or they are in the form of contractual agreements between employers and employees (e.g. pension plan text).**General****17.** Please provide us, if possible, with any relevant documents and the applicable sections of legislation (either in electronic form or hard copy) containing the description of self-adjustment mechanisms discussed above. This would help us to better understand your country experience and minimize any further demands on your time.

Appendix

A self-adjustment mechanism could be defined as a selection of predetermined measures set by law to be applied either immediately as required by the set of pre-determined indicators or on the pre-determined schedule in order to restore the solvency or financial sustainability of pension systems.

The self-adjustment mechanism ideally should possess the following features:

- It should be **gradual**, i.e. the adjustments should be small and frequent;
- It should be **equitable**, i.e. the adjustments should be spread evenly through cohorts of participants;
- It should be **sustainable**, i.e. the adjustments should be sufficient to deal with the stress during a long-term time frame;
- It should be **automatic**, i.e. the adjustments should be triggered by specific event and the political risk should be minimized;
- It should be **transparent**, i.e. all cohorts should be able to understand the nature of adjustments.

Most of the existing self-adjustment mechanisms do not possess all of the above features, but only some of them.

Many self-adjustment mechanisms link future pensions to changes in life expectancy. In defined contribution systems life-expectancy indexing occurs automatically when benefits are annuitized using the current mortality tables. In NDC systems there exists a range of adjustment to life expectancy at retirement age. In traditional systems the examples of self-adjustment mechanisms include increase in pensionable age, increase in the years of contributions required for a full benefit and adjusting benefit amounts according to the changes in life expectancy.

In addition, several countries such as Sweden, Germany and Japan have introduced sophisticated mechanisms that link the benefits with fertility rates, dependency ratio and labour force participation.

The adjustment mechanism could affect working participants' rate of return on NDC contributions, benefit amounts at retirement etc. Retirees could be affected, for example, through a reduction in indexing of benefits in pay.

Employer provided defined benefit pension plans generally do not tend to include self-adjustment mechanisms. In the majority of cases, when such mechanisms exist, they are related to the investment performance of the underlying pension funds. It should be also noted that for employer provided defined benefit pension plans the concept of "law" included in the definition of a self-adjustment mechanism could include not only the actual legislation but contractual agreements between employer and employee (i.e. pension plan text).