



COMPONENT ONE

**Parametric Pension Reform
in Public Pension Schemes**

OCTOBER 2017

Foreword

The EU-China Social protection reform project Component One included in its programme of activities for the year 2017 the topic of Parametric Reform in Public Pension scheme, to held its main Chinese stakeholder, the National Development and Reform Commission, to be in a position to better appreciate the various avenues for reform currently being considered in the country.

To this end, the project asked prof. Zhou Hong and her team to produce a comprehensive analysis of recent parametric pension reforms undertaken in European countries, with a view to appreciate their interest and relevance as possible sources of inspiration for Chinese researchers and decision-makers.

To further contribute to the analysis, the project Component One also counted on the support of national European experts, who accepted to produce national monographs on recent pension reforms in their respective countries. Those experts are for the Czech Republic Mr. Skorpic and Mr. Suchomel, for France Ms. Lavigne, for Germany Mr. Steinmeyer, for Italy Mr. Mazzaferro, for Poland Mr. Szybkie and for Sweden Mr. Birkholz. The project was also fortunate enough to get from its authors the authorization to use and translate into Chinese an article by Mr. Sankala and Mr. Reipas from Finland.

All these materials were shared with interested Chinese counterparts, and the main synthesis report was presented in August 2017 Beijing on a peer review meeting and in September 2017 in Paris on an international workshop by prof. Zhou Hong, with participation on both sites from the various European experts involved.

The present document includes the text of all above-mentioned reports and articles, as a contribution of the EU-China Social protection reform project Component One to the on-going discussion on possible Chinese parametric reforms in public pension schemes.

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Resident Expert for Component One
Beijing, October 2017.

Report on Parametric Pension Reforms in Some European Countries

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A total of 10 countries have been covered.

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From April to July, 2017, entrusted by the National Development and Reform Commission (NDRC) and the European Union (EU), the research team has carried on the investigation about “parametric reform of the public pension systems in some European countries ”. The research subjects include France, Germany, Britain, Belgium, Sweden, Finland, Italy, Poland and the Czech Republic, which basically covers all types of European public pension system. The purpose of this work is to further provide insight into paths and methods of the public pension reforms in these European countries, as well as some reference for relevant reforms in China.

I. Research background and abstract

(I) Research background

The specific objectives of the study include: 1. look for relevant European experience on the real problem of the public pension reform in China; 2. introduce more comprehensively the causes, process, content and effects of European experience; 3. put forward the research team’s opinions and suggestions, on the basis of comparing the public pension reform practices of China and Europe.

During the investigation, we are asked the following questions:

1. Directions, steps and strategies of social security reforms in European countries, especially the relationship between parametric reform and structural reform;
2. With the trend of aging population and the declining ratio of social dependency, which policies will be more effective in balancing the income and expenditure of public pension insurance?
3. If we could reform the social security system through parametric reforms, how to determine:
 - 1) How to determine the retirement age?
 - 2) How to determine the minimum contribution period?
 - 3) How to determine the contribution base and rate?
 - 4) What are the methods of calculation and payment? And how are the effects of payment level on the sustainability of the system?
 - 5) How about account interest rate for personal accounts? And so on.

Although we have done our best to find information in a short period of time, and received considerable assistance from the EU project office and European experts, it was impossible to answer all of the above questions satisfactorily. The information and understanding that we have obtained from the survey results are as follows:

(II) Abstract

The investigation report has introduced preliminary causes and effects of the parametric reform of public pension systems in some European countries, and determined that parametric reform of public pension systems being the alternative, substitution and complementary solution of the structural reform. In countries implementing the structural reform (such as the UK and Sweden), the parametric reform is an important supporting policy tool. In European countries where the

structural reform has encountered social and political resistances, the parametric reform needs to start from the details. By using technical policy tools, the goal of controlling pension expenditure could be gradually achieved in these countries.

The report has introduced one by one the general situation of the reforms taken place in the United Kingdom, France, Germany and Northern Europe, Italy, small and medium-sized countries in Western Europe, as well as Central and Eastern European countries. It has found out that there are many kinds of entry points in parametric reform: some reforms are dedicated to changing the calculation formula of pension; some focus on adjusting the contribution rate and period; some countries use a variety of parametric tools all at once to form different policy combination, however the aim of the reforms is heading towards a healthier and more sustainable pension system.

According to the report, although most European countries have reached or is approaching the controllability of the public pension expenditure through reforms, achieving financial sustainability is not the sole goal. Rather, reducing the elderly poverty and realizing social balanced development is the original purpose of the public pension system. On the one hand, European countries are dedicated to preventing the abuse and waste of public wealth through parametric reforms; on the other hand, they attempt to avoid the emergence of extreme poverty and elderly poverty through parametric adjustments, in order to achieve social equity and balanced development.

Investigators have also noticed that, although the parametric reform has been performed for ages in Europe, it is still at the starting point as a kind of conscious, scale, focus-of-concern action. Meanwhile its various influences and specific effects still need to be continuously studied.

II. Parametric pension reforms in European countries -- an alternative to structural reform

In the 1970s when the oil crisis was over, there were voices calling for public pension reform in several European countries successively, but except Britain and Sweden, most continental European countries had encountered strong political and social resistance in terms of structural reforms. Party politics has become an essential restriction factor for public pension reform.

Starting from the 1990s, public pensions in Europe have been unable to make ends meet and the financial situation begun to deteriorate. The French Retirement Steering Committee¹ points out in its 2014 report that, without reform, the current pension system would last for no more than 15 years.² Despite grim fiscal situation of public pension system in France, pension reform with biting into muscle and bone

¹ Conseil d'orientation des retraites, or COR was established in 2000. It regularly publishes annual reports

² COR, *Evolutions et perspectives des retraites en France*, Rapport annuel, juin 2014. <http://www.cor-retraites.fr/IMG/pdf/doc-2334.pdf>.

has always been a "political killer". Therefore, governments have to basically adopt the method of parametric reform, in order to implement the reform step by step. The content of parametric reform mainly includes: adjust the retirement age, adjust the age to receive full pension benefits, adjust the contribution period to receive a full pension, and so on.

Something similar happened in Germany. In the late 1960s, "Economic Miracle" period came to a halt. However, on the one hand, the welfare schemes were diverse (more than 100 kinds in the 1970s); on the other hand, the welfare benefits were immobilized. Public pension expenditure, which accounts for more than a third of the cost of German welfare, has naturally become the main target of reform. But social security system in Germany is mature and highly interconnected; it is not easy to reform. In the early 1990s, after the former East Germany joined the federal Germany, the social insurance reform enhanced the financial burden of German public pension. It was not until Germany's former SPD chancellor Gerhard Schroder put forward the "Agenda for 2010" that Germany has begun to cut social security benefits, or in another words carried out parametric reform. Incumbent Alliance Party Angela Merkel's government continues this direction of reform, and puts forward the policy of "Rectification, Reform and Investment", which includes the structural adjustment of the pension system as well as a number of parametric reforms (main content of the reform).

Table 1 : Trend of the population aging in Germany

age	2000	2010	2020	2030	2040
< 15 years	15.6%	13.5%	12.7%	12.4%	11.6%
15-64 years	67.9%	66.2%	64.7%	60.3%	57.9%
65- 80 years	16.4%	20.4%	22.6%	27.4%	30.5%
> 80 years	3.7%	5.1%	7.1%	7.8%	9.8%
elderly population ratio (65+ / (20-64))	24.2%	30.8%	34.9%	45.5%	52.6%

Datenreport 2016, <https://www.destatis.de>

As two methods of pension reforms in Britain, structural reform and parametric reform are cooperative and used in alternation. The UK pension system mainly adopts structural reform at the early stage, which could strengthen the governmental intervention in the old-age security field, including adding pension plans hosted by the government and specifications for occupational annuity. At a matter of fact, the role played by parametric adjustment was quite limited at this stage, but it was the focus of reform and main topic of party politics. In the 1980s, the British social security has stepped into the era of austerity. At the time when such structural reforms as promoting the marketization and privatization of old-age security system faced a so many difficulties, parametric adjustment measures (for instance, standard

of pension benefits, contribution rate and retirement age) have once again become the main tools.

Sweden was once hailed as a welfare state "from cradle to grave", but the welfare model does not always fit with the Swedish industrial development. Starting from the late 1960s, Swedish companies, particularly large engineering companies, began to be influenced by the international market pressure from growing overseas investment. In order to reduce labor costs, the employment ratio of Swedish enterprises was on the rise year by year. In the early 1990s, the situation of Swedish public spending continued to deteriorate, and the amount of pension funding dropped by about 10%. Coupled by the aging of population, as the whole society was aroused by concern, the state of ideology for the Swedish welfare has undergone great changes. Since then, Sweden has embarked on a massive structural reform of public pensions, and parametric reform has emerged as one of the means for structural pension reforms in Sweden.

Both structurally and parametrically, Italian public pension has been reformed since 1992 with the aim of retrenchment. Structural reforms includes the introduction of Nominal Defined Contribution (NDC), a multi-pillar system; while parametric reforms comprising of raising the retirement age, improving the contribution level, encouraging the retirement delay, tightening early retirement qualification, etc. After entering the 21st century, in terms of structural reforms, Italian pension security system has sped up the implementation of the NDC, and cancelling the seniority pension (also called working-age pension); in terms of parametric reforms, it has sharply raised the retirement age and the minimum contribution period, at the same time, it has introduced a new early retirement scheme.

To sum up, under enormous public financial pressures, European public pension reforms take two main paths: first, structural reform. In structural reform, parametric reform is one necessary step in the process. Second, when structural reform encounters political and social resistance, parametric reform serves as a main option of reform. Parametric reform is incremental.

Next, we will introduce more about parametric pension reforms.

III. Parametric reform to achieve the fiscal sustainability of public pension through technical means

On September 30, 2016, EU Social Protection Committee issued communication file *Opinions on Social Challenge and Social Protection Board*. After giving a bird's-eye view of the EU social policy reform since 2015-2016, the file holds that the main purpose of these reforms is to make the pension sufficient and sustainable. However, due to the extreme complexity of pension reforms and too many social partners involved in the process of policy consultation, countries usually implement a reform for a couple of years, and each member states tend to choose different policy priority

and combination.

(I) Parametric reform of the public pension system in Britain

Britain is one of the earliest countries to adopt parametric tool in public pension reform. As early as 1975, Britain began to discuss how to determine the base of pension benefits. The British government alternated the two parameters: the average wage growth rate and the price index. In general, the Labor government has pushed for a link-up between pension benefits and average wages, while the Conservative Party government is committed to determining pension benefits in accordance with the price index. In the 1980 Reform Act, pension benefits should be adjusted according to price levels. Since April 2011, the UK's basic pension increases have been revised up to the rate of wage growth and the price index.

Another parametric reform is the adjustment of retirement age. In the UK Pension Reform Act of 1995, the statutory retirement age was adjusted from the age of 60 for men and 55 for women to 65 for men and 60 for women in 2010. By 2016, the retirement age for women will rise to 63 years old; anyone who is willing to work until he retires at the age of 70 could receive a bonus of up to 30,000 pounds. In 2011, Britain passed the reform bill again to increase the retirement age for women to 65 from 2016 to 2018. Men and women's retirement age will be raised to 66 from 2018 to 2020. The latest reform act, passed in 2014, introduced a parameter list that will gradually increase the retirement age to 67 by 2020. In addition, the UK has introduced policies to raise the national insurance rate. In order to compensate for the impact of this increase on the low-incomers, the income threshold of the contribution base has also been raised.

In 2014, the UK once again passed a bill to replace the national basic pension and the state's second pension with a new uniform-equal-treatment state pension starting from April 2017. The requirement for the new state pension is more than 10 years of valid national insurance contribution and reaching legal retirement age, while a full pension requires a valid contribution period of 35 years (in the past, 30 years) and reaching legal retirement age. Meanwhile the British government has cancelled the early retirement policy. So as to prevent elderly poverty, Britain's new national pension scheme has also raised the pension benefits for the low-income earners.

(II) Parametric reform of the public pension in France

Parametric pension reforms in France can be divided into basic system reforms and complementary system reforms. To date basic system has experienced three major reforms, which mainly touch upon: adjusting the retirement age, adjusting the age to receive a full pension, and adjusting contribution period to receive a full pension.

1. Steps and content of parametric reform of the basic pension system

(1) The reform of 1993 involves only employees of the private sector. The specific content includes:

- The contribution period to receive a full pension would be extended from 37.5 years to 40 years³.
- The calculation standard of pension would gradually be extended from referring a maximum of 10 years with the highest salary in one's career to a maximum of 25 years, with the transition period being 10 years (50% pension replacement rate).⁴
- The pension would be gradually disconnected from the income, but be pegged to the price index. The transition period is 5 years.

The reform results: The 2009 statistics indicate that without the reform in 1993, pension deficit in France would be three times higher than it is today.

(2) The reform of Sarkozy's government in 2010 is aimed at all citizens, which mainly involves the following parametric adjustments:

- The retirement age would be gradually increased from 60 to 62 years old. The new parameter would be applied to the newly-retired: those born in 1955 and beyond will retire at 62 years old.
- The age to receive a full pension would be extended from 65 to 67; The reform means that those who born in 1955 and beyond could receive a full pension from the age of 67. Before the age of 67, full pension could only be possible after full contributions, while the underpaid would receive a pension deducted in a certain proportion.
- Those who start their career before the age of 18 could retire early.
- The benefits of early retirement for mothers of 3 children in the public sector would be cancelled.
- Early retirement before the age of 60 could be allowed, but extra 4 to 8 quarters of pension should be paid.

(3) The following revisions and additions were made to the reform in 2010 by the Left-wing Hollande government in 2012:

- Relaxing the rules for early retirement, such as those who start a career before the age of 20 or have made full contributions could retire early; no extra fees need to be paid, etc.

³ After two reforms in 2003 and 2008, the contributions of civil servants and public-sector employees have also been extended to that of the private sector, i.e. 40 years. In other words, the increase of contribution period in civil service and public-sector is at least 10 years behind that in the private sector.

⁴ Only for the private sector. For the public sector and the civil service, the reference is the standard of salaries in the last few years, or even a few months, which is vastly different from the private sector. Therefore, this sparked people's wide discontent.

- The contribution rate of basic old-age insurance (including the private sector and public sector) would be gradually improved. From 2014 to 2017, the contribution rate for employers and employees would be gradually increased from 8.30% and 6.65% before 2012 to 8.55% and 6.90% respectively; the total contribution rate would rise from 14.95% to 15.45%.

(4) In 2014, the Ayrault Reform set a clearer target, that is, to realize the financial balance of pension insurance from 2020.⁵The reform mainly involves two parametric adjustments:

- The contribution period to receive a full pension would be gradually increased: from 2020 to 2035, the contribution period for a full pension would be extended from 40 years to 43 years; one quarter would be increased by every three years;
- The contribution rate of "total income" would be further increased⁶. In 2014, the rate for employers and employees was increased by 0.3 percentage points. From 2014 to 2017, 0.1 percentage points would be increased per year, so the high earners were most affected. After adjustments, the total contribution rate of pension in France would be 17.75% from January 1, 2017.

Table 2 : Minimum retirement age, Retirement age for a full-rate pension and Contribution record (number of quarters of contribution to get a full-rate pension) by generation

Birth date	Retirement age	Retirement age for a full-rate pension	number of quarters of contribution
1943-1948	60	65	160 (40 年)
1949	60	65	161
1950	60	65	162
Before 01/07/1951	60	65 years and 4 months	163
Between 01/07/1951 and 31/12/1951	60 years and 4 months	65 years and 4 months	163
1952	60 years and 9 months	65 years and 9 months	164
1953	61 years and 2 months	66 years and 2 months	165
1954	61 years and 7 months	66 years and 7 months	165
1955-1957	62	67	166
1958-1960	62	67	167
1961-1963	62	67	168
1964-1966	62	67	169
1967-1969	62	67	170
1970-1972	62	67	171

⁵ There is no hope to achieve that by 2020.

⁶ Social security contribution rate in France consists of two parts, part of which is contribution rate based on the income of the whole population. The former is the leading role, while the latter is the secondary role. Social security cap refers to income within a certain standard, which is defined according to the annual salary increase. For instance, the standard in 2015 is 3170 Euro/month and 32180 Euro/month in 2016. Usually the contribution rate based on the cap is adjusted. The contribution rate based on total income (cotisation déplafonnée) is a much smaller proportion, and less adjusted.

2. Content and steps of parametric reform of the supplementary schemes in France

The supplementary pension scheme in France is the important supplement of basic pension insurance. Being mandatory, "pay-as-you-go" occupational pension, it is mainly composed of two schemes: " Association Générale des Institutions de Retraite des Cadres (French federation of associations for corporate supplemental retirement plans) " (AGIRC) and "Association pour Le Régime de Retraite Complémentaire des Salariés (Association for Supplementary Retirement Plan for Employees)" (ARRCO). Ordinary salary-earners could only apply for ARRCO; whereas managers could apply for both AGIRC and ARRCO, in return, they could receive a pension from each of the two schemes.

The methods of calculation and payment for supplementary pension schemes adopt the method of counting "points", meaning that the annual contributions would be converted into points. At the time of retirement, the total points accumulated would be converted into the amount of pension (pension benefits= points X the value of points in the current year). The converted price for points would be adjusted by social partners (representatives of employers and employees) each year according to the annual income of the whole policyholders, and the points could be adjusted according to the retail price of that year. Free points could be obtained due to sick leave, invalidity, unemployment and so on; parents with under-aged children could receive additional points.

The deficit of supplementary pension schemes in France is rather severe. Without any reform, they will run out of financial support in the short term. Therefore, in recent years, the supplementary retirement schemes in France have undergone a series of reforms to adjust the parameters:

- The contribution rate would be increased;
- Within three years (until 2019), the pension would be adjusted for a percentage point below the actual rate of inflation (it is projected to save 2.1 billion€ by 2020);
- From the year of 2019, the pension adjustment time will be changed from April 1 to October 1 (it is expected to save 1.3 billion€ by 2020);
- Starting from the year of 2019, to reach the legal retirement age (62 years old) and contribution years to receive a full pension (166 seasons) require retirees to work longer and pay for one more year, so as to receive full pension benefits. In other words, if you retire on time, you will lose 10 percent of your supplemental pension benefits in the first three years of retirement, which is known as the "Solidarity Coefficient⁷." If you delay your retirement by two years to the age of 64, you would get a bonus (10%

⁷ coefficient de solidarité.

more than the supplementary pension). If you delay your retirement by three years, you will get 20% more, and 40% more by four years. The measure aims to save 6.1 billion€ by 2020, and significantly reduce the deficit in the supplementary pension schemes.

Table 3: Contribution rates of French basic pension schemes

Year	Contribution rate before the decree of 2012 (%)				Contribution rate after the decree of 2012 (%)				Contribution rates after the law of 2014 (%)			
	Under the social security ceiling		On total wage		Under the social security ceiling		On total wage		Under the social security ceiling		On total wage	
	employer's rate/employee's rate	total	employer's rate/employee's rate	total	employer's rate/employee's rate	total	employer's rate/employee's rate	total	employer's rate/employee's rate	total	employer's rate/employee's rate	total
2012	8.30/6.65	14.95	1.60/0.10	1.70	8.40/6.75	15.15	1.60/0.10	1.70	8.40/6.75	15.15	1.60/0.10	1.70
2013	8.30/6.65	14.95	1.60/0.10	1.70	8.40/6.75	15.15	1.60/0.10	1.70	8.40/6.75	15.15	1.60/0.10	1.70
2014	8.30/6.65	14.95	1.60/0.10	1.70	8.45/6.80	15.25	1.60/0.10	1.70	8.45/6.80	15.25	1.75/0.25	2
2015	8.30/6.65	14.95	1.60/0.10	1.70	8.50/6.85	15.35	1.60/0.10	1.70	8.50/6.85	15.35	1.80/0.30	2.1
2016	8.30/6.65	14.95	1.60/0.10	1.70	8.55/6.90	15.45	1.60/0.10	1.70	8.55/6.90	15.45	1.85/0.35	2.2
2017 onwards	8.30/6.65	14.95	1.60/0.10	1.70	8.55/6.90	15.45	1.60/0.10	1.70	8.55/6.90	15.45	1.90/0.40	2.3

+



(III) Content and steps of parametric reform of the basic pension system in Germany

1. Reform between structural and parametric ones

The reform of legal pension system in Germany is between structural and parametric reforms. Specifically, there are the following steps:

(1) Structural reform and "Liszt pension"

Legal pension reform in Germany has developed rapidly since the 21st century. The aim of the reform is local rather than subversive. First, the reform needs to ensure that the contribution rate for statutory pension by 2020 is no more than 20% and no more than 22% by 2030. Second, the replacement rate would be gradually reduced, and the replacement rate needs to be maintained at 58.5% in the 2030s and 51.5% in the 2040s. Third, in order to guarantee the dominant role of the public pension scheme, "private fund accumulated pension" would be introduced as a supplement. This kind of accumulated pension is also known as "Lister (German Labor minister at that time) pension".

The basic design of "Liszt pension" is that through government subsidies, residents are encouraged to save for their own personal pension; the methods include tax cuts, cash subsidies and lower social insurance contribution base. This is actually a structural reform. When the reform was initiated, it was designed to be mandatory because it was not sure whether the public would embrace it or not. That is to say, the employers are obliged to provide an "income exchange" scheme for employees. Employees can also purchase other private legal pension schemes. In order to make Lister pension attractive to employees, a special tax subsidy of up to 2,100€ a year was introduced for the reform. In addition, a special cash subsidy has been added specifically for such low-income groups as the unemployed or those with insufficient income to pay taxes. To access to this subsidy, you need to pay a "Lister pension", i.e. at least a basic total amount (4% of last year's income). Essentially a state-sponsored market behavior, "Lister pension" is encouraged by the state through the subsidy system; while the investment risk is held by product providers.

At first, the progress for "Liszt pension" account was slow, as many people lack a sense of demand for additional pension insurance, and the effects could not be seen in a short term. Moreover, the rules designed for Lister pension are very complicated as well as difficult to understand and execute. Later, the German government seeks to simplify the authentication rules for "Lister pension". In 2008, equities of "Liszt pension" could be used for private housing financing, and the number of people in the pension scheme has increased rapidly.

(2) Pension sustainability reform after 2005

One problem with "Liszt pension" is that it is only popular among the upper-middle income earners, who are capable to pay to compensate for the cuts in social pension insurance⁸. However, the low-incomers are unable to pay the extra pension contributions. Moreover, the reform is viewed as insufficient to address the sustainability problem of public pensions. Since 2005, therefore, the reform has targeted at this issue through a series of parametric reforms.

2. Specific content of parametric reform

The specific content of parametric reform of the public pension system in Germany includes:

(1) Introduce sustainability factors⁹

The reform was aimed to achieve a more long-run stability and intergenerational equity in the pension system. This ought to have a self-stabilizing effect.¹⁰ The specific measure is to introduce some sustainability factors. By changing the calculation, these factors could influence pension income and expenditure. The ultimate effects include reducing the pension benefits, reducing the replacement rate, increasing the retirement age, and abolishing the rule of retirement at 60 years old.

(2) Adjust tax relief policies

The reform of 2006 has adjusted the method of taxing in *The Elderly Income Law*. Germany has long introduced a tax exemption for pension insurance. After the reform, the pension insurance premium would still be tax-free, but the pension is taxable as income. This reform has affected not only Germany, but also many of the countries implementing pension tax breaks, which help facilitate migration between the EU countries.

(3) Increase the retirement age

One of the solutions for the pension financial problems is to increase retirement age which shortens the average period of payment of benefits and by that may lead to savings in pension expenditures. Before 1916, the retirement age eligible for pension in Germany was the age of 70; in 1916, it was 65 years old, a healthy retirement life became a way of living. In 2007 Germany has for the first time raised its retirement age to 67. In order not to offend the public, it takes a slow pace, which means that the retirement age of 67 would be eventually reached by 2030.

⁸ Coppola/Gasche, Die Riester-Förderung – das unbekannte Wesen, MEA Research Paper 244/2011

⁹ "Sustainability Factor", see *Bundesministerium für Gesundheit und Soziale Sicherung*, Nachhaltigkeit in der Finanzierung sozialer Sicherungssysteme – Bericht der Kommission, Berlin 2003

¹⁰ See Börsch-Supan/ Reil-Held/Wilke, How to make a Defined Benefit System Sustainable: The "Sustainability Factor" in the German Benefit Indexation Formula, Mannheim Institute for the Economics of Aging, Research Paper 37-2003

(4) Flexible employment and flexible retirement

With more flexible employment, the “Act on a more flexible transition to retirement and on prevention and rehabilitation” was adopted in Germany (2016-2017). This new law will make it easier to work part-time in the period prior to full retirement and to receive a kind of part-time old-age pension. This law also makes it easier to work beyond retirement and thus gives additional incentives to work longer and retire later.

3. The post-reform pension collection standard

After reform, to qualify for old age benefits a person has to meet the retirement age and has to fulfill certain other conditions like qualifying periods.

(1) Retirement age

In addition to certain situations and groups, the statutory retirement age for German citizens in 2017 is age 65.5. . In 2007 there was a reform gradually increasing retirement to 67 by 2030.

(2) Qualifying periods

To qualify for a pension benefit, a person has to have at least five years of contributions. There may be different qualifying periods in case of early retirement.

(3) Calculation of benefits

1) Contribution-based

The amount of benefits is based on the contribution paid. The contribution base is the gross amount of the wages. This amount may be reduced by the – limited – amount a person pays into certain kinds of supplementary pension funds and in case of “conversion of earnings”. In case of self-employed the basis is their profit before taxes. There may be certain special deductions.

2) Formula for calculating pension

The calculation of pension benefits is strictly earnings-related through contributions. Since it is a contributory system it also takes into account the periods (years/months) of contribution. Non-contributory periods are calculated on the basis of fictitious earnings. The calculation of pension benefits consists of the following elements:

The first element of the formula are the so-called “earnings points¹¹”, which reflect the relative earnings position of the employee. So if a person during a year of his/her working life has earned 100 % of average income of that year the person will be credited one earnings point and persons receiving 50 % of average earnings will be credited 0.5 earnings points.

The next element of the benefit formula is the years of service / contributory years. These comprise of years of active contributions to the system but also service years without contributions paid – like military service, three years for bringing up a child for one of the parents, years of unemployment for which the public

¹¹ Earnings points.

unemployment insurance has not paid contributions. The law assumes 45 years of employment or other periods as a standard base for calculation and calls this the normal earnings history. But as a matter of fact the average number of years is considerably lower. So the current retirees have on average 40 years (males West Germany), 44,6 years (males East Germany), 28 years (females West Germany) and 40 years (females East Germany).¹²

The third element is the current pension (point) value. This element represents the current income situation in the country; it also means that the retiree and the applicant for pensions participate in the rising prosperity generated by the economy. This means that not only the current pension value is adjusted annually but also the ongoing pension benefits are indexed by the percentage the current value of a year has been adjusted in reaction to the year before.

The fourth element is sustainability factor. The sustainability factor links the adjustment of the pension point value to the changes in the statutory pension scheme's dependency ratio, the ratio of pensioners to contributors. This is an answer to the challenges of demographics in Germany. This system generally works automatically and without any government intervention. The calculation of the current pension value and the sustainability factor are based on figures to be determined on the basis of publicly available data. The only task for the Federal Government each year is to make public the results of the calculation.

The fifth element is the pension type factor.¹³ These elements are the standard components of calculation of an old age pension. In case of old age pension this factor is 1 and in case of a widow's pension for example it is generally 0.55. So this means that a person having earned the average income for 40 years will have obtained 40 earnings points which for a current old-age pension will be multiplied by 3,103 € in West Germany and has to be multiplied by one due to the pension type factor. This in the end would mean that this person receives a pension of 1,214.20 € per month in 2017.

The sixth element is non-contributory years¹⁴. In case of non-contributory years there are provisions fixing the earnings points in special cases. So the earning points for one year of child care is one. The same applies to mandatory military service. In other cases the earnings points for non-contributory periods (such as illness, pregnancy and motherhood, unemployment, certain years of study or other kinds of education) are based on the average of earnings points for contributory years.

The seventh element is actuarial factors¹⁵, which is applied to pension benefit discrepancy between early retirement and later retirement. . For example in case of retiring earlier than the usual retirement age which is currently 65 years and six months the amount will be reduced by the factor 0.003 per month which means

¹² Rentenversicherung in Zahlen 2016, pp. 40

¹³ Pension Type Factor

¹⁴ Non-Contributory Years.

¹⁵ Actuarial Factor.

0.036 per year and a pension amount reduced by 3.6 % per year. On the average by 2015 persons retired at age 64. This figure has risen considerably in the years up to 2015 but may decrease due to some additional recent changes in the system.

The eighth element is the indexation of pension benefits in pay, which is meant to adapt to changes in the present value of pension.

Finally, In Germany generally all income – including pensions – is subject to income tax. There is a rule: for a person retiring in 2017, 74 % of the pension will be subject for tax and the other 26 % are tax exempt. Retiring in 2040, 100 % of pension benefits are subject to income tax. Contributions of the employee for pension insurance are tax deductible from his/her income tax; only the profit (yield) share of the pension should be subject.

(IV) Parametric reform of public pension in northern Europe

1. Structural reform of Swedish public pension

(1) Reform principle

In 1994 the Sweden congress passed the bill on “public pension system reform”, which divided the pension system into old system prior to the year of 1999 and the old system after 1999; the old one would gradually transition into the new one. The new system covers people born after 1954 (including 1954). In January 2010, the Swedish Pension Agency was established to replace the Swedish Insurance Agency responsible to manage pension for the whole nation. After the reform, the pension system still implements the pay-as-you-go system, supplemented by individual investment annuity.

(2) Structural reform of the Swedish public pension

After the reform, the public pension system in Sweden is divided into three parts: the guaranteed pension, the income-based pension and the premium pension.

Guaranteed pension are paid by the state tax, administered by the Swedish Pension Agency, funded to Swedish regional and local social security agencies, and then distributed to eligible retirees. There are two conditions of payment: one is Swedish residents over the age of 65 and who has lived in Sweden for more than three years; the other is those determined to be underpaid by the pension scheme. Therefore, the guaranteed pensions are no longer available for the whole population.

The income-based pension and premium pension come from social security payments. Swedish employers pay 10.21% of total employee salaries, collected by tax authorities; whereas employees pay 7% of taxable income, directly from individual income taxes. In addition, the government directly transfer a certain proportion from its budget of the state pension for payment, which is mainly used to cover the due payment of employers for individuals during the sickness, disability, unemployment, child-caring (children before the age of 4), university education,

social service. The above-mentioned three sources account for 18.5% of the annuity income for employees, 16% of which would enter into nominal personal account (i.e., income annuity) and 2.5% into investment annuity.

As a new addition to the reform in 1998, the premium pension takes the form of the Determination of the Payment (DC) method, by setting up a personal account and financial investment, proceeds could be received. The Swedish Premium Pension Authority (PPM) registers 800 mutual funds and individuals can choose to invest at most five funds. The contributions of an investment annuity can be transferred between a couple or legal partners

(3) Important parameters in structural reform

Firstly, the reform of Swedish public pension is inseparable from parameter adjustment. For example, pre-reform annuities are calculated based on the highest paid 15 years (over 30 years of work). Annuity pension benefits after reform should be calculated according to the individual contribution amount for the whole career lifetime. This principle is conducive to the long-term and stable working population, but not for temporary workers and those premature to exit from the labor market.

Secondly, personal notional account requires index adjustments. Indexation adjustment would refer to the change of economic growth, wages and prices and inflation, included in certain added value, with the value-added ratio (or interest rates) up to unified regulation of the government. The link between account assets and the total wage growth rate not only reflects the growth of the pension debt, but also can reflect the payment income growth, effectively maintain the stability of the system. As the account assets are linked to inflation, assets in the personal notional account could better reflect the actual purchasing power.

Thirdly, the equilibrium index is introduced. As the economic situation changes and the aging population increases, the pension replacement rate will continue to decline. In order to make sure that the personal notional account system is more stable, Sweden introduced a balance index and introduced automatic pension reduction procedures to increase the sensitivity of the annuity system to economic changes. The Swedish Insurance Agency calculates the equilibrium index every year. If the balance index is below 1.0, that means there is a pension deficit. In 2010, the Swedish government has for the first time initiated an automatic reduction program for the annuity index, which could cut the income-based pension interest rate for pensioners. At the same time, the government has introduced such buffer measures as tax cut, pension security for low-income retirees.

Finally, there are three types of measures to estimate life expectancy according to annuity divisors. Income-based pension and premium pension adopt different annuity divisors; there are different ways to calculate life expectancy. In the premium pension the underlying data is based on a prognosis whereas historical data is used within the income-based pension.

To sum up, Swedish public pension system adopts structural reform; however its institutional design cannot be separated from more complex parameter factors.

2. Finland - parametric reform adapted to the extended life expectancy

Like Sweden, the turning point for the Finnish reform began in the 1990s. The long-term economic boom that followed the Second World War extended life expectancy for Finns and increased public pension spending. In order to tackle the issue of the pension gap, Finland has initiated from 2005 an automatic balance mechanism, which is called "Life Expectancy Coefficient". The mechanism allows the pension benefits to automatically decrease with the extension of life expectancy.

Pension reform in Finland was finally completed in 2014 and took effect in 2017. One of the main elements of the reform is the introduction of a mechanism that correlates the total retirement age with life expectancy, in order to increase the effective retirement age and extend the working life. After the adjustment, the ratio between the years for one to receive a pension and contribution years has not changed. Objectively, this linkage will lengthen individual work cycles and increase the amount of salary and pension benefits. In the long run, this linkage also prevents the retirement age from being extended indefinitely and without a base, therefore, it is also beneficial for workers. After calculating various effects lead by the correlation mechanism, Finland concluded that: if the mechanism is not initiated, in 2025 the effective retirement age will reach 63.9; with it, up to 2085, the age would only be increased to 64.9 years.

The correlation will affect pension benefits. In 2015, average pension (public pensions linked to income) in Finland was 1,613 €; without such an correlation, it will be 3,270 € (equivalent to the value in 2015) in 2085. With this mechanism, the growth rate will be under control to some extent; by 2085 it would only be 11%, or 336 €. The correlation mechanism with life expectancy could contribute to the growth of the total wages through raising the retirement age; the capital value of the pension could be improved. By the 2030-2050, the expenditure rate will be reduced. Finland is also trying to choose the appropriate level and approach of reform, so as to cope with the changes of life expectancy with multiple schemes.

(V) Parametric reform of the Italian pension system

Mixed with structural reform and parametric counterpart, the public pension reforms in Italy can be said to be full of ups and downs.

1. Parametric reform in the 1990s

(1) Amato Reform

In 1992, the Amato government pushed the parliament to pass three bills to tighten public pension. The first is to extend the retirement age for women from 55

to 60 and men from 60 to 65. Early retirement system of the public sector would be phased out; the contribution years of the annual pension would be increased to 35 years. Meanwhile the minimum contribution period for employees and self-employed workers would be increased from 15 years to 20 years. On pension calculation, the base is changed into the average salary for the last 10 years (with at least 15 years of payment record) for the private and public sectors, rather than the average salary for the last five years for the former and the last month for the latter in the old method of calculating. For workers new to the Labor market, the calculation of their pension benefits should take all the income of their entire career into account. Generous indexation mechanism that correlates pensions with inflation was abolished.

(2) Dini Reform

In 1995, the reform of Dini government has changed the calculation of pensions from a defined benefit (DB) to the defined contribution (DC) system¹⁶. After the reform, personal notional account has been introduced in public pension, with the nominal contribution rate slightly higher than the actual contribution rate. On the method of calculation, the benefits were related to the income rather than the contributions, while the pay-as-you-go scheme was still in practice. Different industries and sectors were managed independently. Each year individual nominal assets would be revalued based on the average nominal growth of GDP in the last five years. At the same time, yields from the workers' accumulated contributions would be calculated through the "conversion factor"¹⁷ (that is, to be associated with laborers' retirement age, the conversion factor will be a revised every 10 years according to the economic and population status. Contained in the reform of 1995 are the conversion coefficient mechanism as well as the requirement for a slow increase of the contribution period (in 2006, the contribution period should be at least 35 years and at the age of 57; whereas it is 40 years in 2008). After the reform, the replacement rate of Italy's public pension would depend on four factors: the amount and period of payment, the actual retirement age, the economic situation and the population structure. In addition, Dini Reform has set up a separate pension security scheme for the flexibly employed group. Such a "credit contribution" system is meant for those who take care of children or family members and have to stay unemployed for a period of time. The funding comes from general taxes, with the minimum requirement of contributions being five years.

2. Parametric reform in the early 21st century

Berlusconi's government, which came to power in 2001, has introduced a policy

¹⁶ See more about Matteo Jessoula, *La politica pensionistica*, in Maurizio Ferrera (eds.), *Le politiche sociali*, p.93.

¹⁷ conversion factor

of rewarding later retirement. From 2004 to 2007, the voluntary late retirees would be reimbursed for pension contributions (for employees of private sector, up to 33% of wages). Starting from January 1, 2008, retirement eligibility would subject to double restrictions: 35 years of contributions and age -- the retirement age in 2008 was 60 years, and it would be delayed to 61 and 62 years old respectively in 2010 and 2014. For workers within the DC system, flexible retirement scheme was abolished, as the retirement age for the male would be 65 years old and 60 years old for the female, with the minimum contribution period still being 5 years.

The Centre-left government returned to power in 2006, with a policy of spending expansion in the short term. The first step is to reduce the retirement age to 58 from 1 January 2008, and then gradually raise the eligibility for a pension. The second step is to raise the minimum pension benefits. The third step is to improve the security level and contribution rate of floating employees and intermittent workers in the labor market, the contribution rate of the floating employees being 24% in 2008, 25% in 2009, up to 26% in 2010, close to the contribution rate of private and public sector staff. It was independently managed by the state social security bureau.

3. Reform after the financial crisis

After the financial crisis, Monti government passed the law "Save Italy" in December 2011, which refers to the Berlusconi's government reform, and stipulates more stringent conditions for the qualification of public pension: the mechanism of automatically adjusting the retirement age was revised; the age to draw a pension would be increased by 3 months directly in 2013, afterwards, it would be adjusted every three years until 2019, with the adjustment period being two years after 2019. Furthermore, in 2018, the retirement eligibility would be fully unified by gender and industry, and the standard retirement age in 2021 would be the age of 67. Monti government has also cancelled a waiting period to draw a pension under the 120 Bill of 2010¹⁸, but instead stipulates that the calculation of pension will be a DC system after January 2012.

Table 4: The retirement age schedule after reforms since 2008

Before Anti-Crisis Package		After the 2009-2010 Reform	After the 2011 Reform	After the 2011 Reform	After the 2011 Reform	After the 2011 Reform	
(minimum) Retirement age	2008	2011	2012	2013	2018	2021	2050

¹⁸ According to regulations, after January 1, 2011, workers who have qualified retirement age and contribution years have to wait for a period after retirement. The waiting period for employees is at least 12 months, and the waiting period for the self-employed is 18 months.

year							
Dependent public sector men	65	65	66	66 years 3 months	66 years 7 months	67	69 years 9m
Dependent public sector women	60	61 65 (2012)	66	66 years 3 months	66 years 7 months	67	69 years 9m
Dependent private sector men	65	65	66	66 years 3 months	66 years 7 months	67	69 years 9m
Dependent private sector women	60	60	62	62 years	66 years 7 months	67	69 years 9m
Social allowance	65	65	65 岁	65 years 3 months	66 years 7 months	67	69 years 9m

(VI) Middle and small-sized countries in West Europe

1. Main issues of the public pension reform in Belgium

(1) Background of reform

From the mid-1990s, along with the trend towards ageing and the expansion of social pension spending, Belgium has implemented pension reform since 2009. Before parametric reform, the Belgian pension expenditure as a share of GDP rose from 9.7% in the 1980s to 10.7% in the mid -1990s, among which the public pension spending as a share of GDP rose from 9.3% to 9.4%. The public pension spending has pushed up Belgium's public debt, causing it to rise from 130% of GDP to 152%, meanwhile the poverty rate has rose by 16.2%.

2) Specific measures for the parametric pension reform in Belgium

At present, the steps of parametric reform are :

First, in 2009 the laws on the retirement age have been changed, which stipulates that the retirement age for the male and female would be 65 and 64 instead of 65 and 60 respectively ; while the age eligible for pension benefits would be increased into 66 from 65 in 2025 and into 67 in 2030.

Second, in 2011 the relevant provisions for conditions of early retirement and pension contributions are modified, and the early retirement age is postponed to the age of 62 from 60.5, with the necessary working years from 38 to 40 years; the pension contribution rate of early retirement increases from 16.5% to 20%. In addition, since 2015 Belgium has cancelled early retirement service points from the public sector, and risen the minimum age for drawing companies' annuity from 60 to 62.

3) The role of parametric pension reform

First, since the parametric reform, the pension insurance expenditure in Belgium has been controlled to a certain extent. Before the reform, Belgium's pension expenditure rose from 9.7% of GDP in the 1980s to 10.7% in the 1990s. In recent 10 years, the index has risen by about 1%, but the growth rate has begun to decline. Particularly given to the aging of the population in nearly 10 years and the generation of "baby boomers", the trend of retirement is much more severe than 20 years ago. Although the number of retirees is in rapid growth, the pension spending has been under control.

Second, the public debt ratio has been controlled to some degree. In the 1990s public debt ratio was as high as 150% to some point. Through a series of parametric pension reform, public debt has been controlled within the range of about 130% in recent years. During this period, despite the European debt crisis, the parametric pension reform has proven its ability in significantly controlling the fiscal spending.

Third, the social poverty rate has fallen sharply. In the past ten years, the poverty rate in Belgium has decreased from 15.9% in the early 2000s to 10.7% at present. The parametric reform has played a prominent role in reducing the poverty gap, realizing social justice and increasing social welfare.

Finally, parametric reform still fails to involve the civil service system. Delayed by the reform in public sector, public pension expenditure is not fundamentally under control : it has rising from 9.1% of GDP in 2005 to 10.3%, higher than the average level (8.4%) in the OECD countries. Therefore, the reform of the public service system is a real headache for pension reform in Belgium.

2. Parametric reform of the pension system in the Netherlands

(1) The basic situation of pension system in the Netherlands

The social security system of the Netherlands is multi-pillar, and the retirement income for average workers is mainly composed of three pillars:

The first pillar is provided by the government, which is the universal public pension scheme based on citizenship and years of residency¹⁹. With unified contribution rate, it adopts the pay-as-you-go plan. Universal coverage has fundamentally been achieved. The main aim is to provide basic living safeguard for retirees, with the source of funds being the personal income tax of the working population.

The second pillar is dominated by occupational pension lead by social partners. Based on public pension with a universal contribution rate, supplementary retirement pension in association with the income level of the working years is provided. In general, negotiated by employers and employees, the occupational

¹⁹ Algemene Ouderdomswet, AOW.

pension scheme is part of the collective wage agreement. The government's role is limited to the following two aspects:

- 1) The government can offer tax breaks to the pension;
- 2) Although the government does not play a leading role, it can indirectly provide financial support to occupational pension plan by tax cuts and other policies. At the same time the government acts as a supervisor of occupational pension.

(2) Parametric pension reform in the Netherlands

In recent years, the trend of aging has put a lot of pressure on the pension system in the Netherlands, especially the fiscal sustainability of public pension schemes. In the wake of the financial crisis, due to lingering low interest rates and youth unemployment, fiscal uncertainty of public pension schemes is intensified in the long run. At the same time, the uncertainty of the retirement income is also on the rise. As a result, in addition to structural pension adjustment for the change of demographic structure and ways of employment, the Netherlands has also carried out the parametric pension reform. On the one hand, fiscal sustainability of public pension schemes is planned to be increased; on the other hand, the income level of retirees is meant to be effectively guaranteed.

The parametric reform in the Netherlands is implemented in both the public pension and occupational pension scheme. Reform measures taken in the public pension scheme include:

1) Increase the retirement age

The legal retirement age of public pension scheme in the Netherlands is gradually on the rise. At present, the retirement age is 65.2 years²⁰, but it is expected to be increased to 66 in 2018 and 67 in 2021. Later, the retirement age will be postponed as the life expectancy increases²¹. In addition to increasing the retirement age, the Netherlands has tightened its early retirement policy, meaning that the policy for early retirement in some heavy industries has already been eliminated.

2) Adjust index

The public pension scheme in the Netherlands is linked to the statutory minimum income, and adjusted every two years. In 2014, the single old man's public pension income is 1099.37€ per month, with 50.11€ holiday allowance. Therefore, a single old man can receive from the public pension scheme 1149.48€ per month, whereas an older couple can get 1619.29 € per month²².

The public pension scheme in the Netherlands is combined with a social safety net for the elderly; the returns of a full public pension scheme are currently about 25% of social average income. In addition, the Netherlands has no other physical subsidies for the elderly, such as housing, heating, medical care and social

²⁰ OECD, Pension at a Glance 2015, available at http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/pensions-at-a-glance-2015_pension_glance-2015-en, 2017/6/3, p50.

²¹ Ibid., p25.

²² Ibid., p310.

assistance. Some old people are unable to get full public pension because of their insufficient years of residency. Without any other income and property, these old people could be provided with social relief based on means test. The combination of an old man's social relief and the original income should be no more than full public pension benefits²³.

(VII) Central and eastern European countries

The pension security system in central and eastern European countries is largely rebuilt after the economic transformation, and its institutional design is based on Western Europe. In Poland, for example, in 1999, the formation of new pension system is composed of three pillars, respectively compulsory pay-as-you-go public pension, voluntary or open pension fund able to operate in the financial market²⁴, as well as occupational pension mainly in the service of employers. As a central and eastern European country, pension system in the Czech Republic is dominated by the first pillar, accounting for more than 95 percent of the pension expenditure. Because of the institutional design, the parametric pension reforms in Poland and the Czech Republic have different priorities.

1. Parametric pension reform in Poland

The parametric pension reform in Poland mainly involves five aspects :

The first is the contribution period. For the pension system in Poland, there is no formal provisions for the contribution years. After the retirement, the pension benefits are only linked to the amount of contributions. As long as the total amount of contribution is more with the minimum total requirement, the pension can be enjoyed after retirement. The contribution rate of general pensions is 19.52% of income, which would be collected in the form of tax.

The second is to determine the minimum amount of pension benefits. In Poland, the requirement for a minimum pension is contribution period of at least 20 years for women and 25 years for men, with a minimum amount being 233€ a month. But up to 2016, there are still some 95,400 Polish retirees who have met the requirements but received a lower amount than the minimum per month.

The third is to adjust the retirement age. On May 11, 2012, Poland has adjusted its legal retirement age for both the male and the female into the age of 67 from 65 for men and 60 for women. In a social outcry, the new legislation of November 2016 has lowered the legal retirement age to 60 for women and 65 for men.

The fourth is to reschedule early retirement conditions. There would be only three groups of people who have access to early retirement : mining workers, those who engage in work harmful to health and teachers born before the 1969, railway workers. Early retirees could no longer enjoy any preferential treatment.

²³ Ibid. p50, p58.

²⁴ open pension fund, OFE.

The fifth is to adjust the pension index. Make sure that the pension index is adjusted according to the price index of the previous year.

2. Parametric pension reform in the Czech Republic

In the face of an aging population, the Czech government has implemented two large-scale parametric pension reforms in 2008 and 2011 respectively, that is, before and after the financial crisis.

(1) Reform in 2008

In the 1990s, as the spending of the public sector in Czech Republic is rising, the pension could not make the ends meet. According to calculations, the country would need to spend 4% of its GDP on pension in 2050. In this context, the Czech Republic organized two parliamentary sessions in 1999 and 2002 to discuss future pension reform schemes. In 2004, an expert team was organized to study pension reform and released a reform report in June 2005. In 2008, the new Czech government has introduced legislations to parametric pension reform.

In 2008 parametric adjustment is mainly adopted in reforms. First, the retirement age has been extended, with the male retirement age to 65, and the female to 62 - 64 (depending on the number of children). Second, the minimum contribution period has been extended from 25 years to 35 years. Finally, early retirement has been modified from 3 years in advance to 5 years, but the conditions required for the early retirement pension is more demanding (early retirees aged below 60 years could not draw a pension for the first three years).

(2) Parametric pension reform in 2011

After a few years of recession in the wake of the 2008 financial crisis, the Czech Republic has again adjusted its pension system in 2011. This round of reform measures mainly touches upon modifying the calculation method for the amount of pension. To be specific, the old way of calculating the average value of contributions for past 35 years has been modified into calculating the average value of the total contributions. In addition, the reform has increased the penalty for an early retirement, meaning that deducting a certain percentage of the pension (0.9%, 1.2%, and 1.5% respectively) according to the years of early retirement (a year, two years, more than two years respectively).

IV. Comprehensive assessment of EU pension reform

On September 30, 2016, the European Union issued a report²⁵ of Social Protection Committee, in which the reform of its members in the field of social policy reform has been evaluated. After summarizing the reform policies of its members, it finds that most of these reforms are about parameters, such as:

²⁵ Council of European Union, Brussels, 30 September 2016 (OR.en) 12607/16, ADD2, Social Protection Performance Monitor (SPPM)-Report on key social challenges and main messages from SPC, from Social Protection Committee: *Detailed review of recent social policy reforms and initiatives (2015-2016)*.

First, later retirement is the preferred policy for most countries. 26 out of the 28 member states (including the UK) have increased the retirement age. However, the specific ways to increase the retirement age are different: there are nine countries that link the retirement age to life expectancy; two member states narrowing the difference of the retirement age for men and women; four members correlate the pensionable age with life expectancy, and one nation takes the legal retirement age as the actual retirement age. In most countries, these approaches are not one-step, but gradual and take many years.

Second, early retirement is limited. The main measures include providing incentives to later retirement, modifying the calculation of pension benefits, etc. In the case of limiting early retirement, it also focuses on whether people could receive an invalidity pension, thus the reform also includes a disability guarantee. Some countries' policies have focused on increasing the minimum pension to strengthen social protection for the most vulnerable.

Third, contribution period and the contribution rate are adjusted. The Malta government, for example, has risen the contribution period of pension benefits from 40 to 41 years. In Bulgaria, the contribution period would also be increased to 40 years for men and 37 years for women.

Table 5: National Social Security Reform in EU Countries²⁶

Area of policy reform	Policy options	EU members relevant to the reform
Options for Early retirement	More stringent requirements	Belgium, Finland, France
	Postponement	Luxembourg, Latvia
	Raising awareness	Finland, Croatia, Portugal, Slovenia
The retirement age	Increasing	Belgium, Bulgaria, Finland, Netherlands
	Being associated with life expectancy	Finland, Lithuania, Netherlands
Contribution period and rate	Increasing the contribution rate	Bulgaria
	Expanding the contribution period	Bulgaria, Malta
The calculation and index of pension benefits	New pension mechanism	Czech Republic, Lithuania, Latvia
	Regression of full index	Portugal
	Freezing index	Finland
	Universal pension	The UK
Minimum pension	Improving adequacy and coverage	Malta, Slovakia
Pension in association with disability	Improving access and working conditions for the disabled to enter the labor market	Luxembourg, Romania
	More stringent standards	Bulgaria
The capacity and safety of private pension funds	Improving the access	Czech Republic, Luxembourg
	Improving the financial management	Lithuania

²⁶ The source: Social Protection Committee: *Detailed review of recent social policy reforms and initiatives (2015-2016)*.

Fourth, the calculation and indexation of pension benefits. Some countries have built a more flexible pension system, embracing the economy and population indices into the formula. Patterns of indexation in different countries are different, with the Finnish government freezing the pension index to limit the growth of public debt. The UK introduced a more extensive universal pension in 2016, to help reduce the gender gap in pension incomes. Some countries restrain people from receiving more pension by lengthening working life; some countries encourage additional pension savings in order to improve the retirement income; some countries correlate the pension system reform with incentives in the labor market, in order to improve the employment of the elderly; while others have made a more extensively positive strategy for the elderly.

Fifth, through various publicity education and training, public awareness towards the necessity of parametric reform is enhanced.

Sixth, minimum pension is guaranteed. In the whole process of reform, guaranteeing the minimum pension is a policy option that cannot be ignored. Many countries have initiated the minimum pension schemes to prevent vulnerable groups from falling into poverty due to public pension reform.

The EU Social Protection Committee stresses that the pension reform of EU countries was mainly focused on the long-term fiscal sustainability. However, pension reform should not be isolated from sustainable development and pension adequacy ratio. Economic and social and political risks relevant to the elderly low-income replacement need full attention. At the same time, such issues as poverty as a result of rapidly growing aging population and gender gap in the field of pension should also be addressed. It is an effective policy choice to adjust the pension system in accordance with the economic situation, and associate the retirement age with life expectancy. There are other tools available to increase the effective retirement age and promote longer working years. A policy combination that embodies the characteristics of the state pension system is the most appropriate.

V. Effect assessment on parametric pension reforms in European countries

As it can be seen from the reform practice of public pension in EU countries, parametric reform is an important means of pension reform. Some countries mainly adopt the method of parametric reform; whereas other countries use parametric and structural reforms alternately and complementarily. There are similarities and differences in reform of different countries, and their effects vary. With regard to the effects of parametric reform, currently the assessment is not widely available. There are several noteworthy points:

(I) Public pension deficits could be reduced, with the sustainability of pension being improved

By some estimates, after the implementation of parametric reform, most countries in have reduced the expenditure of public pension in ways that could be accepted by the people or in an imperceptible way. Thus the financial pressure of pension could be relieved. EU researches show that although there are various measures taken by member states, pension spending in all the 28 states have been under control. By 2060, public pension spending in all member states would not be higher than in that of 2013. Most member states are expected to cut pension expenditure.

While reducing spending, reforms also play a prominent role in generating the revenue: the contribution period could be prolonged by increasing the retirement age or other financial incentives to postpone retirement, which will directly lead to an increase of pension income; a higher contribution rate will also help generate revenue. The reforms, for example, would give France an additional contribution of 0.6% points of GDP. In the long run (in 2040), the fiscal situation of French pension will be improved by about 1.5% of GDP.

(II) "Adequacy" means a lot for the public pension systems

In addition to "sustainability", Europe has used such indicators as "adequacy" to judge the pension system. In addition to the pension replacement rate, "sufficiency" also takes into account the income distribution during retirees' lifetime, poverty risk and poverty rate, intergenerational differences and gender differences among retirees. Although pension system in France, for instance, has notoriously poor sustainability, it has always done well in "sufficiency". A study by the OECD indicates that in 2015, the poverty risk of the elderly in France is at 7.9%, well below the average of 18% in the EU and also below the average (13.6%) of all French citizens. Of course, there is an "intergenerational gap" between retirees and working employees relative to the "adequacy" of French pension.

(III) It is unfavorable for the low-incomers and the early retirees in the labor market

After the parametric reform, people mainly make up for the reduction of pension due to postponing the retirement age and increasing the contribution period through prolonging their career. As a result, if you cannot hold out until the last of the career, the amount of pension basically is doomed to fall. Generally, parametric reforms have the greatest negative impact on low-incomers and early retirees. Take a lifetime as a whole, if a Frenchman leaves work at the age of 50, the average pension will be reduced by 6.6% due to the reform of 2010. But the impact is almost

zero for high earners. Therefore, the reform has widened the income gap of retirees to some extent, increasing the poverty risk of some retirees.

(IV) The employment rate and unemployment rate of the elderly are increased, with the poverty risk of poverty the elderly being on the rise

Increasing retirement age and the contribution years for a full pension exert a certain degree of negative impact on the elder employees. On the one hand, increasing the retirement age by two years helps improve the employment rate of the elderly. On the other hand, it will be harder for the elderly to keep a career life until retirement, and it will be harder to find a job than the time prior to the reform. In France, for example, the result of the reform in 2010 is that the elderly who have already worked between the ages of 58 and 60 will continue to keep their jobs, while the unemployed at this age will continue to stay unemployed. Accordingly, the costs of unemployment insurance and old age assistance in the country have also been increased. Researches show that out of the 14 billion€ saved thanks to the reform in 2010, 15% has been used in a variety of additional aid.

(V) The social contribution burden of enterprises is increased

Although the parametric reform could bypass the politically sensitive area, usually the contribution base and rate would be enhanced, coupled with higher retirement age, these measures are not conducive to the improvement of employment environment, as they add more social contribution burden on enterprises, especially for the small and medium-sized ones.

(VII) The space for structural reform of the pension system is expanded

With the gradual implementation of parametric reform, public pension will shrink in the future. In addition, the parametric reform has an increasingly more stringent requirements on the contribution period of full pension qualification, which will inevitably cause "binary" division of old-age security: on the one hand, employees with stable jobs can access to relatively good security; on the other hand, contract, temporary and hourly workers or other kinds of informal workers could fail to be fully guaranteed, as a result of a lack of contribution years, an interrupt of contribution or an income too low. The elderly who have lost their jobs and are unable to return to work will also suffer. As public pension cannot provide sufficient security protection, more and more people will seek to a pension plan with a fund system, in order to supplement the decrease in the level of public security. Finally, the multi-layer multi-pillar pension security system has been formed.

(VIII) The dispute over the modes of reform is not yet over

Parametric reform will also give rise to various new problems. For instance, the introduction of scores is considered as equal treatment, but how to determine the

score has become a new problem. Moreover, early retirees at the age of 63 are less likely to receive a lower pension, because there is no computational actuarial factor. Meanwhile, a more flexible labor market and a general employment environment with low wage could create economic insecurity for quite a large group. Therefore, the government must also provide some kind of subsidy for the lowest income group, meaning that a more solid and popular safety net should be woven under the welfare net. But has the reform returned to the original point? So the debate over the strengths and weaknesses of structural reform and parametric reform is far from over.

VI. Some enlightenment to public pension reform in China

First, European countries have taken small steps to take parametric reform in order to tackle such problems as fiscal unsustainability and pension inadequacy of public pension as the population is aging. Along with the slowing development of Europe's economy in the 1990s, parametric pension reforms have become a policy option for a number of European countries. In the wake of the 2008 financial crisis, countries need to reduce their government debts, and control the over-rapid growth of pension expenditure, thus the parametric pension reform is more widely valued. Parametric reform, as the main policy option of reforming the pension system, or as the supporting policy of structural reform, has played a crucial role.

We believe that while drawing lessons from European experience, we should not only pay attention to the theories, policies and methods of structural reform, but also attach importance to the guiding ideology, strategy selection and concrete operation methods of parametric reform. Through introducing some calculation factors determined by a democratic process, parametric reform could help the pension system realize an automatic adjustment, reduce government intervention, and avoid the government's directly confrontation towards social conflicts, so as to make the reform into a kind of technical work.

Second, the parametric reform of pension can be focused on both the contribution and the expenditure.

1. From the contribution stage, there are some entry points:

(1) Adjust the contribution base. What is the contribution base of pension? Is it the minimum income standard? Is it a full income including welfare? Or the average social wage? These are the key points of parametric reforms, which require political decision-making and uniform standards. A number of European countries are now extending their contribution scope to welfare earnings.

(2) Raise the contribution rate. As tax system in European countries are relatively perfect, the income tax has been on the high side, continuing to improve the contribution rate will bring enterprises and individuals extra burden. Therefore, enhancing the contribution rate is not a good policy option, and difficult to get through under the condition of European social democracy. However, it does mean that increasing the contribution rate is not a line of thinking. Because in addition to

directly raising the contribution rate, the amount of contributions could also be increased by means parametric adjustments, such as extending contribution period.

(3) Increase the retirement age. As the population is aging, this option is inevitable, but it is not easy to implement. In the 1960s and 1970s, lowering the retirement age is adopted as a policy in Europe, making "enjoying healthy old age" a social right. In order to change this situation, reasonable logic and social recognition are required. The EU has recommended Finland's approach, which dynamically associates the retirement age with life expectancy in indexation. With a longer life expectancy, working life would be prolonged correspondingly. In theory, with a shortened life expectancy, working years could also be reduced. Thus increasing of the retirement age could rest on a reasonable basis. Increasing the retirement age, of course, means longer contribution years and more accumulation of pension. Meanwhile it could avoid sensitive social opinion and solve long-term social strategic problems with technical solutions.

(4) In addition to increasing the retirement age, limiting early retirement or encouraging later retirement is also a popular option for reform. France and many other countries have opted for a policy of severely punishing early retirement. Some countries choose supportive policies, such as recognizing "double identities", which encourages people who have reached retirement age to continue working and at the same time receive labor payment and a proportion (20%) of pension. This would link the pension system to the labor market, which helps increase pension income while reducing pension costs.

2. From the expenditure stage, the main topics are focused on the calculation of pension benefits:

(1) Which parameters are linked to the pension? Are they linked with contribution, in order to reflect the principle of more pay for more work? Or are they linked to a wage index that allows retirees to share the growth of social wealth? Or are they tied to the price index to control the over-rapid growth of pension? In general, the left-wing parties in Europe argue that pension should be linked to the wage index; whereas the right-wing parties hold that pension should be linked to price index. Different policy options reflect different political ideas, or argue that social members share economic growth and prosperity, or strive to achieve fiscal sustainability. Therefore, political choices are required before policy choices.

(2) Should pension benefits calculate personal income for the last 5 years? Or the average personal income in the last 10 or 25 years? Countries have different policy choices according to their own national conditions, but the current trend is generally to calculate the income for the last five years to 10 years or beyond. Given that the average person's income increases with seniority, the longer the calculation period is, the lower the pension benefits will eventually be calculated.

(3) Introduce the sustainable computing factor or "score". For instance, while calculating the pension benefits, Germany has particularly calculated the "income

score", years of working/contribution, pension current value, sustainability factor, category factor, actuarial factor, etc. It has included a lot of elements into calculation factors, to meticulously reflect a variety of policy choice through parameters.

Third, parametric reforms in European countries could influence each other and learn from each other, meanwhile they have their own characteristics and trade-offs. Moreover, most countries choose a number of parametric reforms, thus forming different policy combination. The EU argues that the different combination of parametric reforms adopted by member states is justified as long as the reforms are broadly directed towards a healthier and more sustainable pension system. Therefore, China could also consider multi-pronged reform when implementing reforms.

Fourth, according to preliminary estimates, the parametric reforms of pension in European countries have mostly reached the basic goal of controlling the increase of public pension. According to the 2016 German pension insurance report, the pension deficits would be controlled within 1.5%, while maintaining the contribution rate of pension unchanged as 18.7% from 2016 to 2020. However, reducing the pension expenditure is not the only goal of reform, nor its original purpose. The establishment of public pension system in Europe is to reduce the poverty of old age and realize the balanced development of society.

Therefore, while the EU countries are preventing waste and abuse of the pension system, they have never forgotten to take measures to avoid the old-age poverty. The policy choice of parametric reform is not merely to curb the growth of future expenditure, but also to suggest that the adequacy of the pension is as important as its fiscal balance. The measures of parametric reform in this regard are varied, including equality between men and women and the convergence of the nominal and real pension system. European countries are also paying close attention the social poverty rate while assessing pension reform. Preliminary tracking shows that the average poverty rate in European countries is generally declining after the reforms. Therefore, China should not ignore the effects of reform on society when drawing a lesson from Europe, as it can consider the introduction of social balance factor (or index), which could help enable the reforms to cut spending, and to balance the gap between the rich and the poor.

Fifth, some European countries, such as Sweden and Italy, begin to try out "personal notional account ". This is a sort of pension accounting reform, with the main purpose being to balance the intergenerational conflicts, and likely to solve the new problems caused by flexible employment. Since the discussion in this regard has just begun, this report would not introduce or comment on the system.

Finally, although the parametric pension reforms in Europe have been implemented for many years, as a conscious and systematic reform action, it is still in its infancy. Its ultimate effects and various roles need to be further observed. Thus, it is recommended to continue the study.

ANNEX – ENVISAGED PARAMETRIC REFORM, CHINESE PENSION SCHEME FOR EMPLOYEES

(List drawn by Project Component 1 technical team)

1. Contribution rate

Currently 28%: 20% employer + 8% employee

Adjusted rates by 1-8 percentage point downwards, effect on the level of pension replacement and the financial sustainability of the fund

2. Qualifying period

The current system provides a minimum qualifying period of 15 years of contributions

The estimated contribution period is 22-30 years, the impact on the level of pension treatment and the replacement rate

3. Retirement age

Calculate the impact of delayed retirement on pension treatment and redistribution

From 2022 onwards

Option 1: ordinary female workers every 3 years to extend by 1 year, female cadres, men every 4 years to extend by 1 year.

Option 2: ordinary female workers every 2 years to extend by 1 year, female cadres, men every 3 years to extend by 1 year.

4. Interest rate on Personal accounts

Calculate the impact of interest rates on personal account on the accumulation of pension benefits

Option 1: Average annual wage growth of urban non-private units in the previous year * 80%

Option 2: Average annual wage growth of urban non-private units in the previous year * 60%

5. Computation of benefits

Benefit formula

Full basic pension: payment of 30 (or 35) years, to reach the retirement age, can receive full pension 40-50%

Every one year not full career, treatment deduction 1 or 2 percentage points.

6. Benefit adjustment

Estimated impact of pension adjustment index on the change and redistribution of pensions

Option 1: Benefit Adjustment Index = Average wage growth rate of urban non-private sector workers in the previous year * 60%

Option 2: Benefit adjustment index = last year GDP growth rate * 50% + last year, urban non-private sector workers in the average wage growth rate * 30%

Option 3: Benefit Adjustment Index = Average wage growth rate of urban non-private sector workers in the previous year * 100%



Parametric Pension Reform in European Member States

Country Report The Czech Republic



Component 1

June 2017, v.1

Recent reforms of the Czech pension system

**Jan Škorpíc, Marek Suchomel,
Ministry of Labour and Social Affairs**

Introduction

The Czech pension system is characterized by high dependence on 1st pillar pension which represents around 95 % of old age people income. Supplementary schemes have not been well developed yet and play only a very limited role. Therefore, the pension reform, from the Czech perspective, is mostly parametric reform measures of the 1st pillar with only a few attempts of paradigmatic changes.

The pension reform is a continuous process that was started at the beginning of 1990's hand in hand with the transformation from centrally planned to market based economy. Almost all governments have had the pension reform measures on their agendas since then. Firstly as a part of general social reform adapting social system to new economic circumstances culminated by adopting the New Pension Act in 1995.

Further reform measures have been driven mainly the population ageing phenomenon, characterized by the increase of the proportion of people in higher age groups (the old and the oldest old), which is a world-wide phenomenon impacting mainly pension, health and long term care schemes especially highly developed social schemes in European countries.

It means that 2008 and 2011 pension reforms describe in this text, do not stand alone, but they a part of ongoing process and it should be looked at them from this point of view.

2008 Reform

The need for parametric reforms of the Czech pension system, which was introduced in 1995, started to grow within the public debate in the late 1990s. Between 1999 and 2002 two separate committees of the Parliament, one in the Senate and the other in the Chamber of Deputies, discussed the further course of pension reform. The projections of the pension system at this time indicated a highly unsustainable long-term trajectory of pension expenditure, with the overall balance of the pension system dropping to negative 4 % GDP by 2050.

The situation culminated in 2004 when the Team of Experts was established by mutual agreement and membership of political parties represented in the Chamber of Deputies, supported by the Executive Team. The Executive Team was an independent body consisting of representatives of public administration (mainly the Ministry of Labour and Social Affairs, Ministry of Finance and the Czech National Bank) that was tasked by the Team of Experts with performing a thorough analysis of the current state of the pension system, its development trends and assessing the reform proposals

of the political parties. The Executive Team finished its work in June 2005 by publishing its Final Report¹.

Based on the Final Report and further discussion in the Team of Experts the political parties were supposed to agree on a Proposal on Agreement on the Basic Principles of further Pension Reform. Unfortunately, the document has never been approved and signed by the leaders of the political parties. Nevertheless, the new government in 2008 followed the findings of the Executive Team proposed a significant parametric reform, which was subsequently adopted by the Parliament. The main goal of the reform was to enhance long-term sustainability of the pension scheme.

The pension reform made numerous changes to the pension scheme². Firstly a previously started process of **gradual increase in the retirement age** was prolonged³. The statutory retirement age was set to increase to **65 years of age for men** and to **62 – 64 years of age for women** based on the number of children they have raised. The retirement age was to be increased, at the same pace as already legislated, by two months per year for men and by four months per year for women until the final values will have been reached in 2030. Details on the retirement age increase schedule prior and after the reform can be found in Annex 1.

In addition to the changes to the statutory retirement age **the old-age pension qualifying condition of minimum required period of insurance** was tightened. The minimum insurance period was increased **from 25 years prior to the reform to 35 years**. In order to ensure a smooth transition and to minimize the potential negative impact on workers moving to retirement, this increase was also implemented gradually, starting in 2010 and reaching the final 35 years of insurance in 2018.

Further changes were adopted in the field of credited non-contributory periods⁴. **Periods of studies** acquired after 2009 stopped being treated as non-contributory periods of insurance. While these periods no longer increase the overall insured period they have kept their status of excluded periods and therefore they do not lower the calculation base of the pension.

Additionally, the extent to which the **non-contributory periods are taken into account for minimum required insurance period qualifying condition** was reduced **from 100 % to 80 %** similarly as for already legislated pension amount calculation. That means that for 5 years of being in a state that constitutes a non-contributory period only 4 years are credited. This change does not apply to periods of child care and compulsory military service.

Further changes were made with regard to flexibility of old-age pension take up and work activity after retirement. Newly, the **periods of concurrence of economic activity and pension payment grant a slight yearly increase in the paid out pension** equal to 0,4 % of the calculation base and a possibility to **combine half the old-age pension with economic activity** was allowed. In the latter case the pension is increased by 1,5 % of the calculation base for every 180 days of such concurrence.

Moreover, new rules of early pension were adopted. The **period in which an early pension can be drawn was extended from 3 to 5 years** with the condition that pension cannot be granted earlier than 3 years before reaching statutory retirement age at an age lower than 60. Therefore the change

¹ http://www.mpsv.cz/files/clanky/3445/Final_report.pdf

² See Actuarial Report on Pension Insurance for pension calculation rule details (http://www.mpsv.cz/files/clanky/14299/PMZ_2012_en_final.pdf)

³ The 1995 reform started the process of gradual increase of retirement age.

⁴ Periods, when pension rights are accumulated while the pension contributions are not paid, e.g. child care or unemployment.

will have come into power gradually, since the retirement age for men will not have reached more than 63 years until 2017 and for women the necessary age would be reached even later. The penalties for early pension were also overhauled. For every 90 day period within the first 720 days of early pension the pension is reduced by 0,9 % of the calculation base and for each 90 days period which occur earlier than 720 days prior to retirement the reduction equals to 1,5 % of the calculation base.

Last but not least, a new system of disability classification was introduced, changing the older system of partial and full disability which had been granted if the ability to perform economic activity declined by at least 33 % and 66 % respectively to a system that recognizes **only one disability with 3 degrees** with 35 %, 50 % and 70 % reductions in ability to perform economic activity. The first and second degree disability replaced the former partial disability, while reducing the benefits the first degree disability from 0,75 % to 0,5 % of the calculation base for each full year of insurance. For the second degree disability the pension level stayed unchanged (equal to previous partial disability pension level). The former full disability pensions were transformed to third degree disability pensions and the benefits remained the same at 1,5 % of calculation base per year of insurance. In addition to that, disability pensions of people reaching 65 years of age (or statutory retirement age if it is higher than 65 years) are transformed to old age pension (the level of pension is maintained) and all disability pension older than 65 years were transformed to the old age as well.

2011 Reform

The 2011 pension reform was mainly brought about by the Constitutional Court ruling of 2010. Based on a legal action of a former high income citizen whose income was replaced by a pension that constituted less than 20 % of his previous income, the Constitutional Court had invalidated the pension calculation formula. The ruling was to come into power in September 2011 and a new calculation formula had to be adopted prior to this date.

In addition the financial crisis of 2008 and the following economic downturn had aggravated the sustainability prospects of the Czech pension scheme. As austerity measures became paramount, additional changes to the pension scheme were proposed and adopted as a part of the reform package of 2011.

The first change introduced was reworking the pension calculation formula. The former system of **two reduction thresholds was replaced by a system with one threshold and ceiling**. Previously earnings up to the first threshold had been taken into account fully (this rule is maintained), 30 % of earnings between the first and second had been included and 10 % of earning above the second threshold. Newly, 26 % of the earnings between the first threshold and ceiling is taken into account. The new pension formula ensures a more adequate replacement rate for mid- and high-earners.

In addition the Czech **government no longer has any leeway in setting the pension system parameters, as the reduction thresholds are specified directly in the Law and are anchored to the national average wage**. The first reduction threshold is set as 44 % of the average wage and the second one as 400 % of the average wage which corresponds to the cap on pension insurance contributions. The same stands for other pension system parameters which were newly set as fixed by the Law, namely the Basic Amount of a pension and the pension indexation formula.

Further changes, aimed at promoting financial sustainability of pensions, included **another long-term increase of the statutory retirement age**. The process of retirement age increasing for women was

set to be sped up to 6 months per year (from the former 4 months). The statutory retirement age for men was decreed to **increase past 65 years of age and it was set to increase by 2 months per year with no upper limit**. The retirement age for women was to gradually reach the retirement age of men and then increase at the same pace. Details on the retirement age increase schedule prior and after the reform can be found in Annex 1.

Another significant change adopted in 2011 was the **extending of the reference period** for pension calculation. Previously the pension was calculated based on the average earnings in the period of the last 30 years prior retirement (but not before 1986). Since 2011 the reference period was extended to include the full income history (1986 remains unchanged).

Also, a minor tweak was made to the **penalties for early retirement**. Newly, the early pension is reduced by 1,2 % of the calculation base for every 90 day period of early retirement in the period between 360 and 720 days before reaching the statutory retirement age. The remaining penalties have not changed since the 2008 reform. That means that for the first 360 days of early pension the benefit is lowered by 0,9 % of the calculation base for every 90 day period of early retirement, the next 360 days (between 361st do 720th day of early retirement) the benefit is lowered by 1,2 % of the calculation base for every 90 day period of early retirement and for early retirement preceding the 721st day the penalty amounts to 1,5 % of the calculation base for each 90 day period of early retirement.

Endorsement process

Both parametric reforms underwent a standard legislative process. As a first step the reform packages were prepared by the responsible ministries, mainly the Ministry of Labour and Social Affairs. The proposal contained both the necessary legislative changes in the form of proposed amendments to the Pension Act (law No. 155/1995 Coll., on Pension Insurance) and the accompanying documents that contain the analysis and reasons for the proposed changes.

The proposals were preliminarily discussed by Governmental working group consisting of economic ministers. After these discussions and resulting modifications, the amendment bills were submitted by the ministry to the Government as a whole, which approved the proposal and passed it onto the Chamber of Deputies of the Parliament. During the discussions in the Government, the reform proposal were also discussed on a tripartite basis with representatives of trade unions and employer organizations, as well as on the grounds of the Legislative Council of the Government which is tasked with assessing legislative proposal with regard to their conformity with the existing legal order.

Afterwards, the proposed bills underwent the legislative process in the Chamber of Deputies, which consists of three readings and including sectional talks in specialized committees that consist of parties political experts on various fields, such as social policy or budgetary policy.

After the Chamber of Deputies approved the proposals, they were passed on to the Senate of the Parliament, which discussed them in a similar, yet slightly more condensed fashion. After the approval of the proposals they were submitted to the President of the Czech Republic for the final signature that precedes the formal endorsement of the proposals.

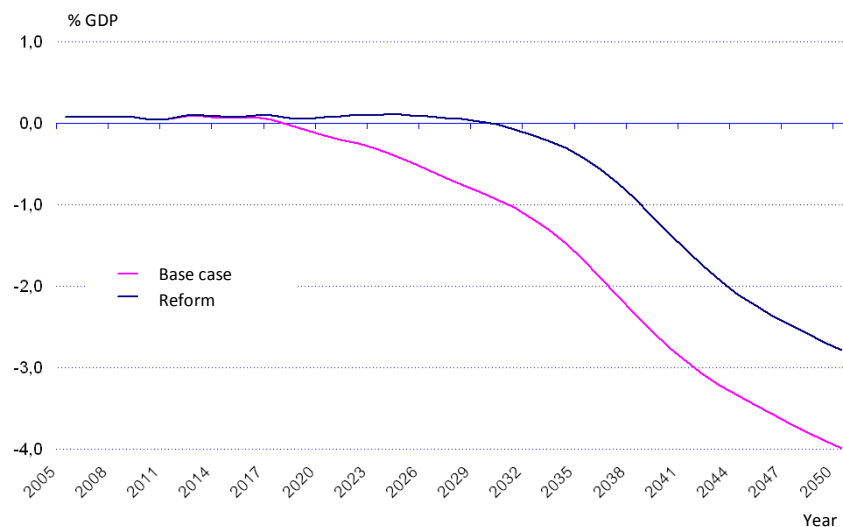
The 2008 reform package was approved by the Government in February 2008 and came into full power effective on January 1st 2009. The 2011 reform proposal was passed through the Government in February 2011 and came into power on September 30th 2011.

Expected effects

2008 Reform

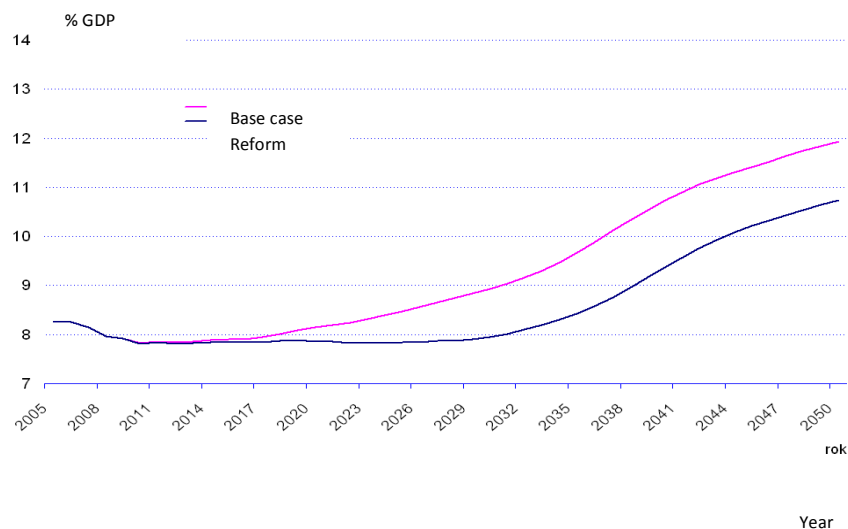
As was mentioned before, the main goal of the 2008 parametric change was to promote long-term fiscal sustainability of the pension system. Previously the pension scheme had been projected to remain balanced for about 10 years, until 2015. Afterwards the balance was projected to steadily drop into the red, reaching negative 4 % GDP in 2050.

Figure 1 Projected balance of the pension scheme pre- and post-reform (2008)



The reform package was set to curtail the expenditure on public pensions throughout the period when the statutory retirement age would be increased. The change was driven by keeping the expenditures on the same level as in 2010. Thus, the pension system after the change was projected to remain in balance until 2030 -2035 and dipping into negative afterwards. The overall effects of the 2008 change are captured in figures 1 and 2.

Figure 2 Projected expenditure of the pension scheme pre- and post-reform (2008)



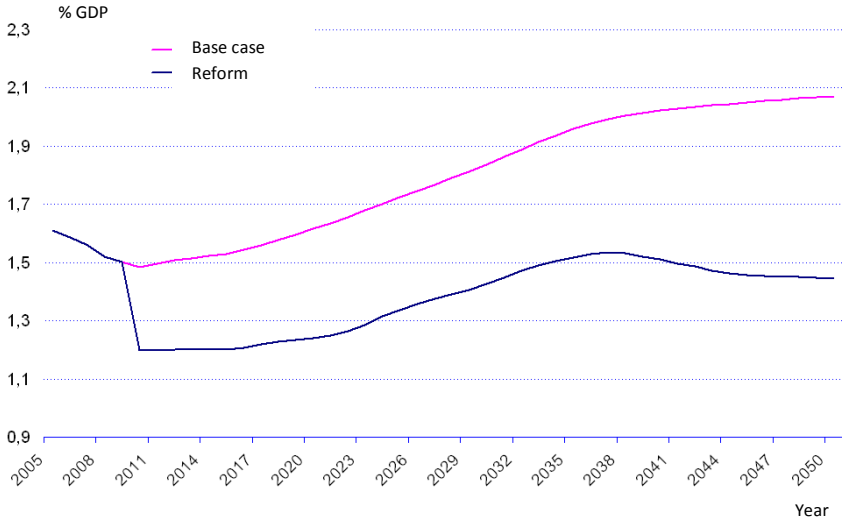
The total impact of the reforms can be split between the effect on expenditure on old age pensions and disability pensions. In the area of old age pensions the expenditure change was mainly driven by the prolonging of the period of retirement age increase and by the higher cap on statutory retirement age, which was set to 65 years instead of the previous 63 years of age. This change has shifted the moment at which the pension expenditure would rise from approximately 2015 to 2030 when the process of retirement age increase was to be finished while slightly increasing the expenditure in the first years after adoption. The total impact was estimated to be at 0.5 % GDP in 2050 as is shown in figure 3.

Figure 3 Old-age pension expenditure projection (2008)



The transition from partial and full disability to the new three degree disability classification also improved the outlook of the expenditure side of the pension system. The reclassification of the existing disability pensions was expected to rapidly lower the expenditure by 0.4 % GDP (mainly due to disability pensions transformation to old age at the age of 65) and subsequently to slow down the pace of expenditure growth with a final effect of lowering expenditure in 2050 by additional 0,3 % GDP.

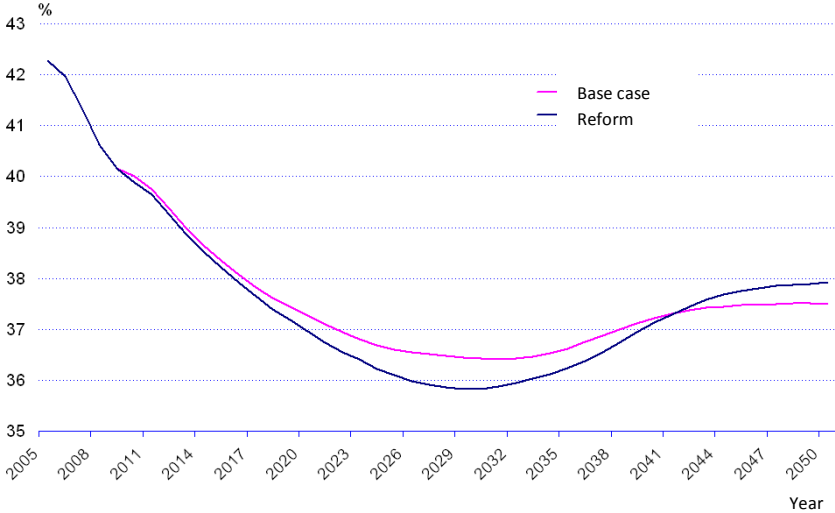
Figure 4 Disability pension expenditure projection (2008)



While it is difficult to gauge the full impact of the change in the area of old age pensions, given that the reform effects were projected to become significant only after 2020 and also due to the economic downturn and further changes adopted in 2011, the situation regarding disability pensions is a lot clearer. The sum of disability pensions paid out dropped from CZK 57.5 billion in 2008 to CZK 43 billion in 2016. This represents a decrease in expenditure from 1.4 % GDP to the recent 0.9 % GDP.

As the projected expenditure on old age pensions change was to be mostly brought about by changes to the statutory retirement age and no major changes were done in the calculation formula, the reform was not expected to have any strong effect on the benefit levels. On the other hand the average replacement rate of I. and II. degree disability pensions compared to the former partial disability pensions was projected to dip by 4 percentage points from 24 to 20 percent of the average wage. The impact on disability pensions can be supported with statistical data, as the ratio of average non-full disability pension to the average wage has gone down from 25.3 % in 2008 to 21.8 % in 2016.

Figure 5 Benefit ratio projection (2008)



2011 Reform

In the aftermath of the financial crisis of 2008 and the following economic downturn the pension scheme current and expected future balance deteriorated rapidly. While the difference between contributions on pension insurance and expenditure on benefits in 2008 was positive CZK 6 billion, in 2009 the same balance accrued negative CZK 30 billion. This represents an almost 1 % GDP swing on a year-to-year basis. By 2011 the difference between contributions and benefits reached negative CZK 40 billion.

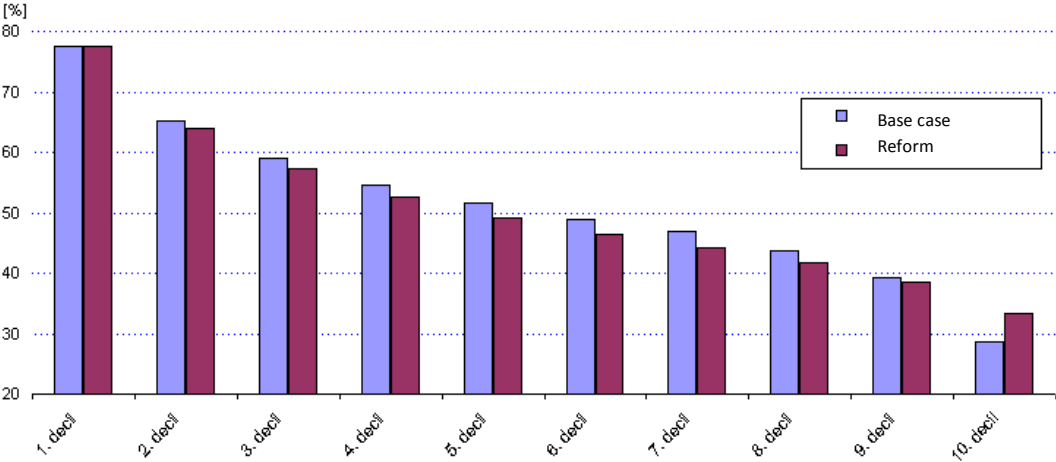
Moreover, while the post-reform projections from 2008 expected the pension system to remain in slightly positive balance until 2030, under the effects of a worsened economic outlook and starting position the system was expected to remain in a deficit for the whole projection period by actualized calculations made in 2010.

Over this economic background came the ruling of the Czech Constitutional Court that decreed that granting pensions of 20 % or less of the previous incomes to high-earners was in contradiction to the right on adequate old-age security as guaranteed by the Czech Constitution. Effective from

September 2011, the Constitutional Court abolished the legal provisions of the Pension Act which contained the pension calculation formula. This forced the Government to react and enact a new calculation formula and also presented the opportunity to propose further changes promoting long-term financial sustainability of the pension scheme.

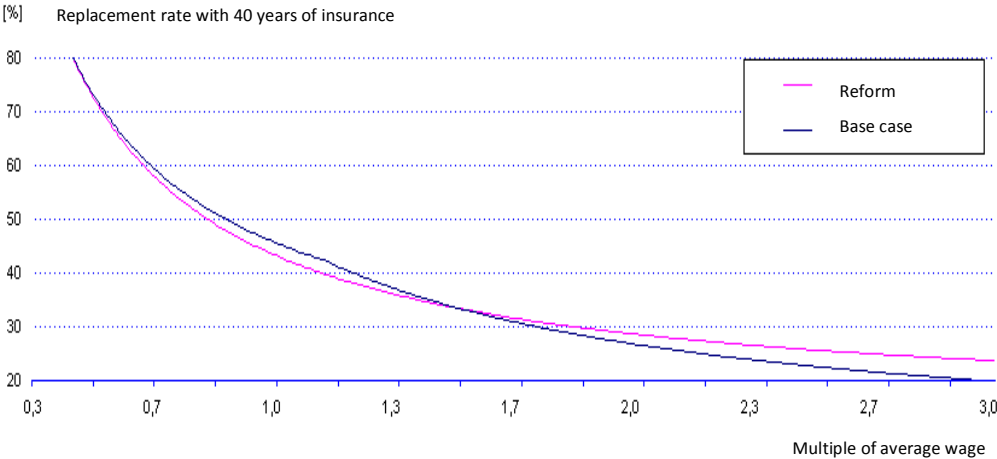
The change to the calculation formula was designed to be financially neutral. Therefore, the new formula primarily brought about a different distribution of newly granted pension (pensions being paid out at the moment of the change were not recalculated). The formula change was designed to not impact the low-earners, it slightly reduced the replacement rate of mid-earners while significantly improving the level of pensions of high-earners.

Figure 6 Replacement rate by income decile pre- and post-reform (2011)



Statistically speaking, the new formula has decreased the pensions of 80 % of the new pensioners when compared to the previous legal state and increased the pensions of the top 10 % earners. With respect to previous earnings, the pension level was kept constant for people, who had previously been earning up to 0.45 times of the average wage. The second breakeven point was set at 1.5 times the average wage with people above this income gaining a higher pension then previously.

Figure 7 Replacement rate by income pre- and post-reform (2011)

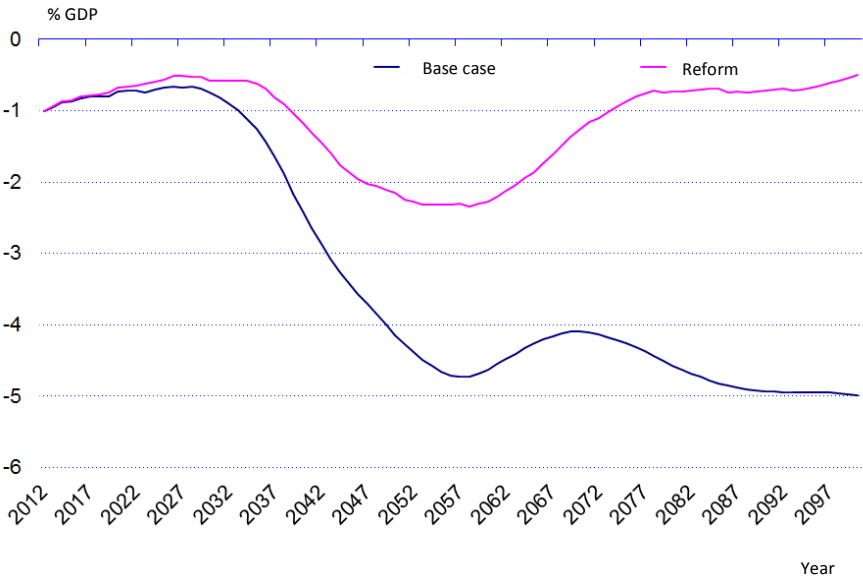


The other legislated changes help ensure a much stronger fiscal position of the pension system. Driven mainly by the increases in prospective statutory retirement age, the pension system was

started on a balanced trajectory which would keep the pension system at a relatively stable deficit under 1 % GDP. Only in the period between 2035 and 2070 the deficit would be temporarily bigger, which is to be caused by a demographic wave where the numerically strong generations of the 1970s would be moving into retirement and the prime workforce would be consisting of the less numerous generations of 1990s and early 2000s.

The other reform changes, i.e. the extension of the reference period and changes in early retirement, conditions should have an earlier, albeit lesser impact. These changes can be seen in figure 8, with their impact starting around 2015 with the full effect being estimated at approximately 0.5 % GDP.

Figure 8 Projected balance of the pension scheme pre- and post-reform (2011)



As the austerity of the reform change was mainly achieved through changes in retirement conditions, namely statutory retirement age, the tradeoff for the overwhelming decrease in pension spending in terms of benefit generosity is very limited. The average replacement rate was projected to drop ever so slightly, by less than half percentage point between 2015 and 2060.

Figure 9 Benefit ratio projection (2011)



After this period, the effect of longer working careers should kick in and negate the effects of the lower pension caused by extending the reference period which lowers the average calculation base.

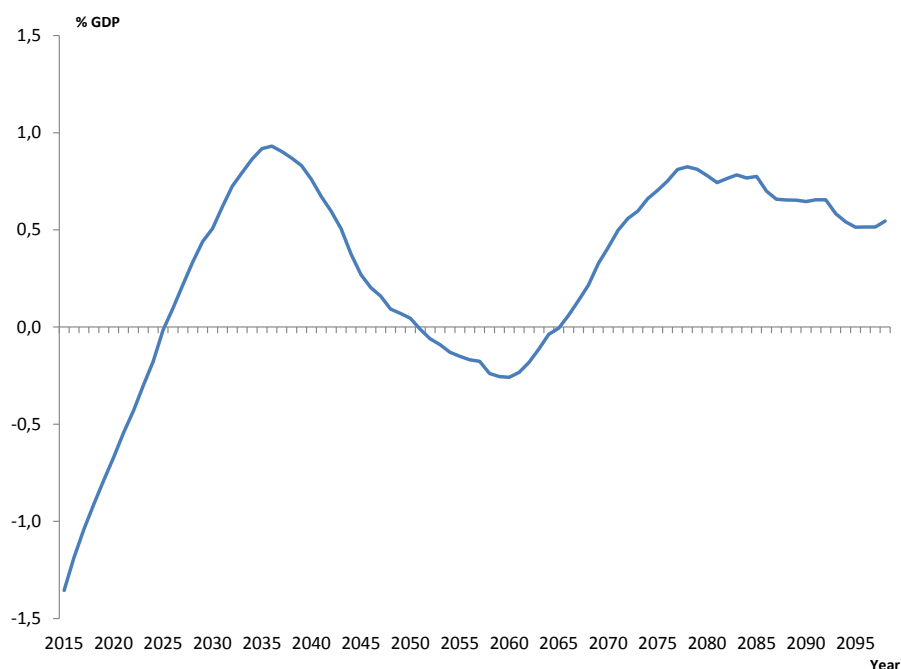
Cumulative effect of reforms

The full impact of the two major reforms passed in the last 10 years can be hard to estimate. Given the fact that most of the changes, mainly the changes to the retirement age increase schedule, are not expected to come into full power until 2025 – 2030. The effects must therefore be extracted from changes in the projected development of the key variables of the pensions system.

The Ministry of Labour and Social Affairs has acquired a new modelling tool in a dynamic microsimulation model in 2011 and undertook the actualization of the pension system projections using the new model. The recent results (2015) confirm that a significant improvement in terms of long-term fiscal sustainability have been achieved with the 2008 and 2011 reforms. While the absolute figures may not be perfectly representative, it is clear that the Czech pension system has been set on a well-balanced trajectory.

The late influence of the economic crisis should wear off in the late 2010s, bringing the expected fiscal position of the pension scheme into positive figures after 2020. Afterwards the pension scheme should remain in balance for the rest of the projection period with some ups and downs caused mainly by the demographic waves that will be coming into retirement in the coming years.

Figure 10 Projected pension system balance (2015)

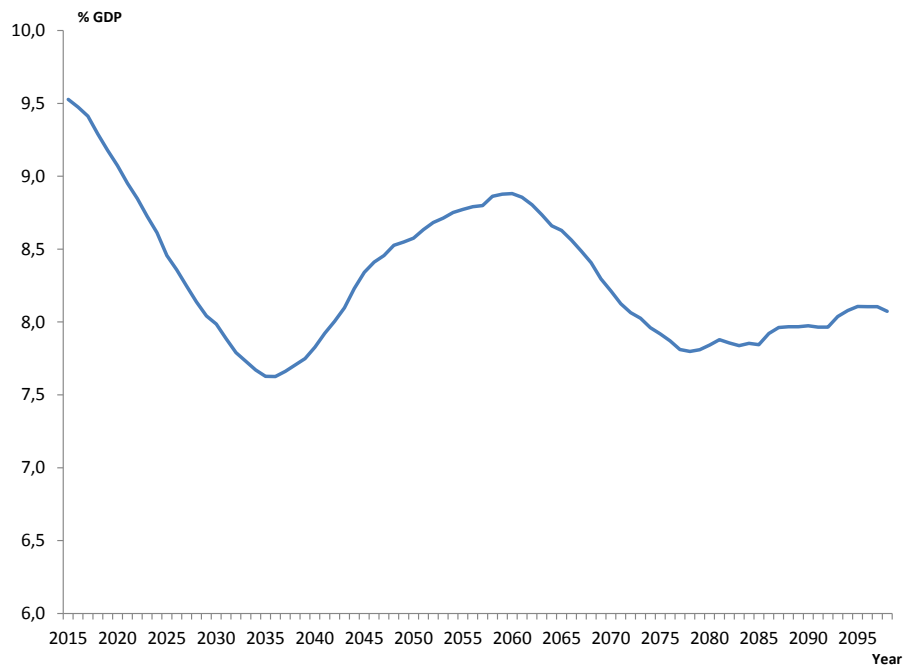


The positive trend can be partly confirmed by the latest statistical figures. In 2016 the pension system deficit, or more correctly the difference between the sum of contributions on pension insurance and the total of pension benefits paid out, was equal to CZK 16 billion, representing only a 0,3 % GDP deficit.

The reforms did not affect the revenue side of the pension system, leaving the contribution rate and base intact, the effects are concentrated on the expenditure side. A downward trend in the

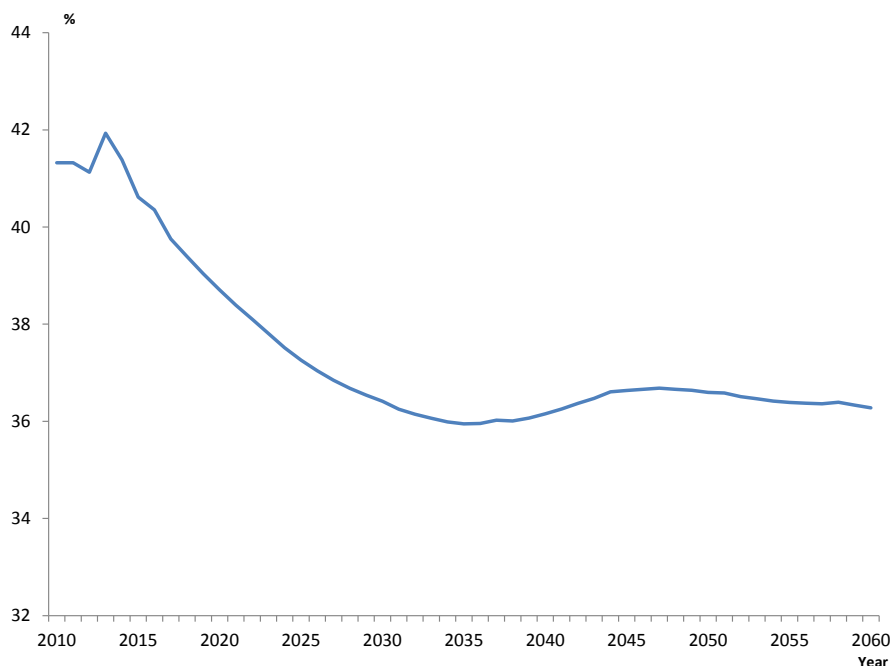
expenditures on pensions is projected, reducing the public spending on pensions from the current 9,5 % GDP to 8 % GDP by 2100.

Figure 11 Projected pension system expenditure (2015)



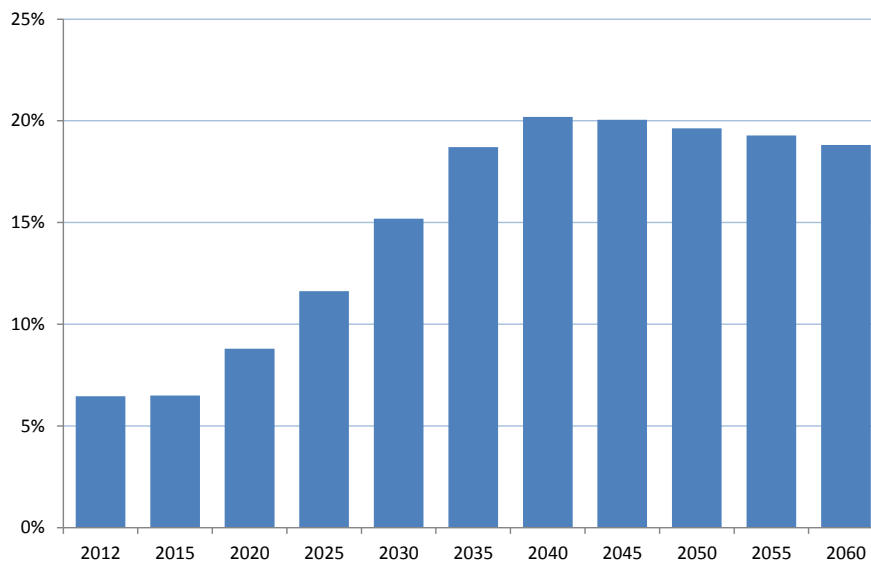
Both the 2008 and 2011 reforms were not aimed at addressing the issue of pension benefits. Therefore, changes to the overall generosity of pensions are only secondary. The current projections do not expect any abrupt changes to the level of granted pensions. A gradual decline in the benefit ratio, i.e. the ratio of the average old-age pension to the average wage, is forecasted as a result of the extension of the reference period, the abolishment of some of the non-contributory periods as well as a result of the changed distribution of wages in the post-transformation era.

Figure 12 Projected benefit ratio (2015)



As the reforms did little in the area of pension adequacy, they were bound to have some negative impact on the social situation of pensioners. The total impact is difficult to assess as the older modelling equipment did not allow for an analysis of impact on an individual level. It is nevertheless obvious that the austere nature of the reforms had contributed to the negative expected development of the at-risk-of-poverty indicator⁵, which is expected to rise significantly between 2015 and 2060.

Figure 13 Pensioners at-risk-of-poverty⁶



Further policy changes – reform reversals

The 2008 and 2011 reforms were passed in a quite unique conjunction of circumstances. Firstly, both reforms were proposed during the reign of governments consisting of right leaning political parties. Secondly, the financial and economic crisis prepared the grounds for strict austerity policies that would be much more difficult to pass in normal economic conditions. In addition, the Constitutional Court ruling forced the Government to act and make changes to the Pension Act in quick succession after the 2008 reform, which allowed for more substantial changes in a short span of time.

While the reforms, and especially the 2011 reform, had a strongly positive impact on fiscal sustainability and tried to influence the level of benefits minimally, the changes were not overall positively accepted. As the reforms were passed without seeking a political consensus beforehand, the left wing opposition criticized the reform for not being socially acceptable. Moreover, the social partners, mainly the trade unions, also expressed their dissatisfaction, culminating with a series of public protests and a cautionary one-day strike of workers in public services.

The main brunt of political and public opposition was taken by the newly introduced fully funded pension pillar⁷ which was seen as anti-social and undermining the financial stability of the state run

⁵ The at-risk-of-poverty indicator is measured as the percentage of people in households with equalized income lower than 60 % of the median of the equalized income.

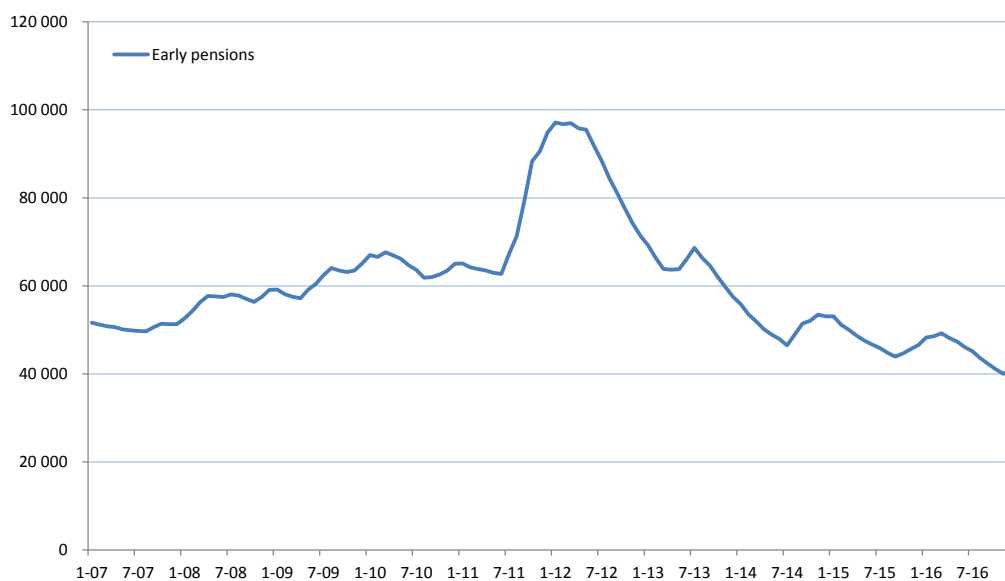
⁶ The absolute levels shown in the chart should be taken as only indicative due to problems with methodology and restrictions of model calculations, but the trend is deemed valid.

⁷ Another part of the 2011 reform which is not discussed as it is outside of the scope of this paper.

first pension pillar. Nevertheless the social aspects of the 2011 reform also came under scrutiny, especially the statutory retirement age increases with no cap on retirement age.

The negative public reception and negative publicity had had a visible effect in terms of number of people opting for an early retirement (figure 14). Despite the fact that granted pensions were only marginally influenced there was a massive influx of early pensions in the second half of 2011. Between July and December 2011, the number of early pensioners grew by almost 57 thousand, compared to the 12 thousand in 2010. In 2008 and 2009 this number was around 15 – 20 thousand, which was already inflated above normal due to the effects of the economic downturn, where companies were solving laying off workers with a short time remaining till retirement.

Figure 14 Number of early old-age pensions



After the general elections in 2013 a new Government was installed in January 2014. The new Government established an advisory Pension Committee that was tasked with analyzing the pension system and proposing further reform steps. As the political climate has changed and the public policy became more social oriented, a significant part of the proposals of the Committee was aimed at revoking certain part of the previous reforms.

Based on the work of the Committee a change in the process of retirement age increase was proposed by the Government and submitted to the Chamber of Deputies of the Parliament of the Czech Republic in September 2016. The proposal sets once again a cap on statutory retirement age at 65 years of age, which should be reached in 2030. In addition a procedure of review of retirement age is envisaged by the proposal, but with limited legal power only. The proposal was further supplemented with a change in the pension indexation formula. After the bill is passed, the pensions in payment should be indexed by the price index growth and half the real wage growth every year, compared to the current price index and 1/3 of the real wage growth. The declared goal of the change is to improve the income situation of pensioners and prevent their risk-of-poverty. The

proposal is, as of today, being passed through the legislative process and has not been fully endorsed yet. It is expected that the changes will come into power by August 2017.

Meanwhile, another measure to address the low pension indexation was approved in 2016. The Government regained the ability to increase the indexation percentage above the minimum set by statistical indices which was taken from it as a part of the 2011 reform. The main difference between the old and the new authorization is that an upper limit is set at 2.7 %. Therefore if the indexation calculated based on the statistically measured inflation and real wage growth is lower than the aforementioned 2.7 % the Government can decree a higher increase, up to the limit of 2.7 %.

On the overall, it can be said that the reform of 2011 was, at least in the main features, completely revoked in the following years, bringing the state of the pension system broadly to the post 2008 situation. This development has certainly helped the income situation of the current pensioners, but opened the necessity of further reform once again.

Conclusions

The pension reform is highly politically sensitive issue, mainly due to negative perception of reform measures as they are primarily restrictive. The Czech experience shows the combination of continuous political and expert debate and time to time concrete reform proposal as a result of the debate. Pension reform debate plays an important educative role among public and increases its social (or at least pension system) literacy.

Despite the debate a broad political consensus on specific reform measures has not been reached in last decade. However, something that can be called as implicit acceptance of unpopular but necessary steps forward exists, mainly on the retirement age increase.

The 2008 as well as 2011 reforms show the retirement age and its increase as the primary tools to improve long term financial sustainability in the ageing society. The retirement age increase has double positive effect on financial stability by decreasing number of pension recipients (and lower expenditures) and on the other hand increasing number of contributors (and increase revenues). As the positive effect on expenditures side is direct. The effect on revenue side needs additional measures on labour market, mainly via adapting workplaces for older workers to maintain them at work.

The latest development revoking a significant part of previous reform measures (esp. very forward-looking retirement age increase adopted in 2011 with strong impact on long term financial stability) indicates that 2011 reform were too ambitious and broke the unwritten rule of gradual reform steps. It confirms that successful pension reform should be continuous process of gradual step (not a “big bang”) based on expert debate and at least implicit political consensus (do not be part of political struggle) which is understandable but invisible for society.

Annex 1 Retirement age changes

Before 2008

	Men		Women											
			0 children		1 child		2 children		3 children		4 children		5 children	
1935	60y	0m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1936	60y	2m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1937	60y	4m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1938	60y	6m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1939	60y	8m	57y	4m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1940	60y	10m	57y	8m	56y	4m	55y	0m	54y	0m	54y	0m	53y	0m
1941	61y	0m	58y	0m	56y	8m	55y	4m	54y	0m	54y	0m	53y	0m
1942	61y	2m	58y	4m	57y	0m	55y	8m	54y	4m	54y	4m	53y	0m
1943	61y	4m	58y	8m	57y	4m	56y	0m	54y	8m	54y	8m	53y	4m
1944	61y	6m	59y	0m	57y	8m	56y	4m	55y	0m	55y	0m	53y	8m
1945	61y	8m	59y	4m	58y	0m	56y	8m	55y	4m	55y	4m	54y	0m
1946	61y	10m	59y	8m	58y	4m	57y	0m	55y	8m	55y	8m	54y	4m
1947	62y	0m	60y	0m	58y	8m	57y	4m	56y	0m	56y	0m	54y	8m
1948	62y	2m	60y	4m	59y	0m	57y	8m	56y	4m	56y	4m	55y	0m
1949	62y	4m	60y	8m	59y	4m	58y	0m	56y	8m	56y	8m	55y	4m
1950	62y	6m	61y	0m	59y	8m	58y	4m	57y	0m	57y	0m	55y	8m
1951	62y	8m	61y	4m	60y	0m	58y	8m	57y	4m	57y	4m	56y	0m
1952	62y	10m	61y	8m	60y	4m	59y	0m	57y	8m	57y	8m	56y	4m
1953	63y	0m	62y	0m	60y	8m	59y	4m	58y	0m	58y	0m	56y	8m
1954	63y	0m	62y	4m	61y	0m	59y	8m	58y	4m	58y	4m	57y	0m
1955	63y	0m	62y	8m	61y	4m	60y	0m	58y	8m	58y	8m	57y	4m
1956	63y	0m	63y	0m	61y	8m	60y	4m	59y	0m	59y	0m	57y	8m
1957	63y	0m	63y	0m	62y	0m	60y	8m	59y	4m	59y	4m	58y	0m
1958	63y	0m	63y	0m	62y	0m	61y	0m	59y	8m	59y	8m	58y	4m
1959	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	58y	8m
1960	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m
1961	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m
1962	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m
1963	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m
1964	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m
1965	63y	0m	63y	0m	62y	0m	61y	0m	60y	0m	60y	0m	59y	0m

Before 2011

	Men		Women											
			0 children		1 child		2 children		3 children		4 children		5 children	
1935	60y	0m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1936	60y	2m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1937	60y	4m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1938	60y	6m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1939	60y	8m	57y	4m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1940	60y	10m	57y	8m	56y	4m	55y	0m	54y	0m	54y	0m	53y	0m
1941	61y	0m	58y	0m	56y	8m	55y	4m	54y	0m	54y	0m	53y	0m
1942	61y	2m	58y	4m	57y	0m	55y	8m	54y	4m	54y	4m	53y	0m
1943	61y	4m	58y	8m	57y	4m	56y	0m	54y	8m	54y	8m	53y	4m
1944	61y	6m	59y	0m	57y	8m	56y	4m	55y	0m	55y	0m	53y	8m
1945	61y	8m	59y	4m	58y	0m	56y	8m	55y	4m	55y	4m	54y	0m
1946	61y	10m	59y	8m	58y	4m	57y	0m	55y	8m	55y	8m	54y	4m
1947	62y	0m	60y	0m	58y	8m	57y	4m	56y	0m	56y	0m	54y	8m
1948	62y	2m	60y	4m	59y	0m	57y	8m	56y	4m	56y	4m	55y	0m
1949	62y	4m	60y	8m	59y	4m	58y	0m	56y	8m	56y	8m	55y	4m
1950	62y	6m	61y	0m	59y	8m	58y	4m	57y	0m	57y	0m	55y	8m
1951	62y	8m	61y	4m	60y	0m	58y	8m	57y	4m	57y	4m	56y	0m
1952	62y	10m	61y	8m	60y	4m	59y	0m	57y	8m	57y	8m	56y	4m
1953	63y	0m	62y	0m	60y	8m	59y	4m	58y	0m	58y	0m	56y	8m
1954	63y	2m	62y	4m	61y	0m	59y	8m	58y	4m	58y	4m	57y	0m
1955	63y	4m	62y	8m	61y	4m	60y	0m	58y	8m	58y	8m	57y	4m
1956	63y	6m	63y	0m	61y	8m	60y	4m	59y	0m	59y	0m	57y	8m
1957	63y	8m	63y	4m	62y	0m	60y	8m	59y	4m	59y	4m	58y	0m
1958	63y	10m	63y	8m	62y	4m	61y	0m	59y	8m	59y	8m	58y	4m
1959	64y	0m	64y	0m	62y	8m	61y	4m	60y	0m	60y	0m	58y	8m
1960	64y	2m	64y	2m	63y	0m	61y	8m	60y	4m	60y	4m	59y	0m
1961	64y	4m	64y	4m	63y	4m	62y	0m	60y	8m	60y	8m	59y	4m
1962	64y	6m	64y	6m	63y	8m	62y	4m	61y	0m	61y	0m	59y	8m
1963	64y	8m	64y	8m	64y	0m	62y	8m	61y	4m	61y	4m	60y	0m
1964	64y	10m	64y	10m	64y	4m	63y	0m	61y	8m	61y	8m	60y	4m
1965	65y	0m	65y	0m	64y	8m	63y	4m	62y	0m	62y	0m	60y	8m
1966	65y	0m	65y	0m	65y	0m	63y	8m	62y	4m	62y	0m	61y	0m
1967	65y	0m	65y	0m	65y	0m	64y	0m	62y	8m	62y	0m	61y	4m
1968	65y	0m	65y	0m	65y	0m	64y	0m	63y	0m	62y	0m	61y	8m
1969	65y	0m	65y	0m	65y	0m	64y	0m	63y	0m	62y	0m	62y	0m
1970	65y	0m	65y	0m	65y	0m	64y	0m	63y	0m	62y	0m	62y	0m

After 2011

	Men		Women											
			0 children		1 child		2 children		3 children		4 children		5 children	
1935	60y	0m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1936	60y	2m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1937	60y	4m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1938	60y	6m	57y	0m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1939	60y	8m	57y	4m	56y	0m	55y	0m	54y	0m	54y	0m	53y	0m
1940	60y	10m	57y	8m	56y	4m	55y	0m	54y	0m	54y	0m	53y	0m
1941	61y	0m	58y	0m	56y	8m	55y	4m	54y	0m	54y	0m	53y	0m
1942	61y	2m	58y	4m	57y	0m	55y	8m	54y	4m	54y	4m	53y	0m
1943	61y	4m	58y	8m	57y	4m	56y	0m	54y	8m	54y	8m	53y	4m
1944	61y	6m	59y	0m	57y	8m	56y	4m	55y	0m	55y	0m	53y	8m
1945	61y	8m	59y	4m	58y	0m	56y	8m	55y	4m	55y	4m	54y	0m
1946	61y	10m	59y	8m	58y	4m	57y	0m	55y	8m	55y	8m	54y	4m
1947	62y	0m	60y	0m	58y	8m	57y	4m	56y	0m	56y	0m	54y	8m
1948	62y	2m	60y	4m	59y	0m	57y	8m	56y	4m	56y	4m	55y	0m
1949	62y	4m	60y	8m	59y	4m	58y	0m	56y	8m	56y	8m	55y	4m
1950	62y	6m	61y	0m	59y	8m	58y	4m	57y	0m	57y	0m	55y	8m
1951	62y	8m	61y	4m	60y	0m	58y	8m	57y	4m	57y	4m	56y	0m
1952	62y	10m	61y	8m	60y	4m	59y	0m	57y	8m	57y	8m	56y	4m
1953	63y	0m	62y	0m	60y	8m	59y	4m	58y	0m	58y	0m	56y	8m
1954	63y	2m	62y	4m	61y	0m	59y	8m	58y	4m	58y	4m	57y	0m
1955	63y	4m	62y	8m	61y	4m	60y	0m	58y	8m	58y	8m	57y	4m
1956	63y	6m	63y	2m	61y	8m	60y	4m	59y	0m	59y	0m	57y	8m
1957	63y	8m	63y	8m	62y	2m	60y	8m	59y	4m	59y	4m	58y	0m
1958	63y	10m	63y	10m	62y	8m	61y	2m	59y	8m	59y	8m	58y	4m
1959	64y	0m	64y	0m	63y	2m	61y	8m	60y	2m	60y	2m	58y	8m
1960	64y	2m	64y	2m	63y	8m	62y	2m	60y	8m	60y	8m	59y	2m
1961	64y	4m	64y	4m	64y	2m	62y	8m	61y	2m	61y	2m	59y	8m
1962	64y	6m	64y	6m	63y	6m	63y	2m	61y	8m	61y	8m	60y	2m
1963	64y	8m	64y	8m	64y	8m	63y	8m	62y	2m	62y	2m	60y	8m
1964	64y	10m	64y	10m	64y	10m	64y	2m	62y	8m	62y	8m	61y	2m
1965	65y	0m	65y	0m	65y	0m	64y	8m	63y	2m	63y	2m	61y	8m
1966	65y	2m	65y	2m	65y	2m	65y	2m	63y	8m	63y	8m	62y	2m
1967	65y	4m	65y	4m	65y	4m	65y	4m	64y	2m	64y	2m	62y	8m
1968	65y	6m	65y	6m	65y	6m	65y	6m	64y	8m	64y	8m	63y	2m
1969	65y	8m	65y	8m	65y	8m	65y	8m	65y	2m	65y	2m	63y	8m
1970	65y	10m	65y	10m	65y	10m	65y	10m	65y	8m	65y	8m	64y	2m
1971	66y	0m	66y	0m	66y	0m	66y	0m	66y	0m	66y	0m	64y	8m
1972	66y	2m	66y	2m	66y	2m	66y	2m	66y	2m	66y	2m	65y	2m
1973	66y	4m	66y	4m	66y	4m	66y	4m	66y	4m	66y	4m	65y	8m
1974	66y	6m	66y	6m	66y	6m	66y	6m	66y	6m	66y	6m	66y	2m
1975	66y	8m	66y	8m	66y	8m	66y	8m	66y	8m	66y	8m	66y	8m
1976	66y	10m	66y	10m	66y	10m	66y	10m	66y	10m	66y	10m	66y	10m
1977	67y	0m	67y	0m	67y	0m	67y	0m	67y	0m	67y	0m	67y	0m

Retirement age of people born after 1977 was to increase by 2 months per year of birth with no upper limit

Parametric Pension Reform in European Member States

Country Report France



Component 1

September 2017, v.4

Parametric Reforms of the Pension System in France
Country brief

September 2017

Anne Lavigne ¹

Secrétariat général du Conseil d'orientation des retraites

The French pension system is often depicted as complex and fragmented. Basically, it is composed of two major pay-as-you-go schemes, the general basic scheme (Régime général) for most wage earners working in the private sector or contractual public servants (representing 60 to 70% of the employed labor force) and the public pension scheme that applies to civil and military servants (representing about 15% of the labor force). The other schemes concern self-employed workers and special schemes for workers in state-owned companies. For private sector employees, the first-pillar annuity-based scheme is completed by a professional pay-as-you-go point-based scheme.

The aim of the present draft is to focus on the last reforms that have taken place between 2010 and 2015, with a brief presentation of the remote context of the previous reforms (1993 and 2003) that have set the basic principles and step-by-step method for reforms.

1. Reasons for parametric reforms

1.1. Context as of the beginning of the 1990 decade

Both the private and public sector schemes were characterized by a legal age at retirement equal to 60 until the 1993 reform. At 60, provided she had been contributing during at least 37.5 years for a compulsory scheme, a former private sector worker was entitled to a basic pension equal to 50% of a reference wage computed on the basis of his best-10-years past wages, up to the “social security ceiling”. The basic pension was topped with one or two additional pensions served by the two compulsory professional schemes, ARRCO and AGIRC, the second one being specific to managers. At the same age of 60 (or at 55 for some specific categories of workers exposed to arduous jobs) a public sector employee was entitled to about 75% of his last treatment, excluding bonuses.

During the 1980, views expressed needs for reforms in political and academic circles with white books and reports. There were demographic concerns with respect to sustainability and, to a lesser extent, pension adequacy. No significant political moves have been observed during the 1980s (there has been a convention on the future of social protection organised by the government led by the Prime Minister Jacques Chirac that led to an expert report in 1987 but no political move). The parliamentary elections in 1993 gave a solid political support to the newly appointed Prime Minister, Edouard Balladur, who had enacted the first major reform of the French pension on public finances.

¹ The views expressed are those of the author and do not necessarily reflect those of the Conseil d'orientation des retraites.

1.2. Reform trend

Since 1993, France has experienced four main parametric reforms of its first-floor basic schemes in 1993, 2003, 2010, 2014 and several agreements in the second-floor occupational schemes, the last being in 2015. It should be noted that in 1995 the right-wing Government confronted to massive public protest failed to implement a third floor financed on a fully-funded basis (beside the basic and complementary floors financed on a pay-as-you-go basis). To avoid pitfalls in future reforms, the subsequent left-wing Government lead by Lionel Jospin has settled an independent pensions' advisory council, the *Conseil d'orientation des retraites (COR)*, in 2000. The COR is composed of 39 members:

- its president;
- 16 representatives of employers' organisations and trade-unions;
- 6 representatives of the Government;
- 2 representatives of associations of retirees;
- 8 members of the Parliament. The COR publishes a yearly report in which it provides some statistics and analyses of the French pension system and simulations on its evolution in the long run (over the next 50 years).

Herein we focus on the 2010 reform (plus 2012 adjustment), the 2014 reform, and the 2015 agreement (concerning compulsory complementary pension schemes).

2. Contents of the last five years reforms

2.1. Reforms in the basic schemes

2.1.1. The 2010 and 2012 reforms

- Law of 9 November 2010 on pensions reform (adopted under the right-wing government lead by Prime Minister François Fillon)

The 2010 law concerns all the basic schemes. The main element is the scheduled increase in legal retirement ages (see tables 1 and 2): the minimum retirement age is progressively set at 62 (starting from 60) and the automatic full-rate retirement age is progressively set at 67 (starting from 65). The law also suppresses derogatory early retirement for parents of 3 children or more in the public schemes. In counterpart, the law enables early retirement at 60 for those having started their career before their 18th birthday.

- Decree of 12 July 2012 (known as the 'Hollande's decree' after the name of the left-wing President François Hollande)

The 2012 decree concerns all the basic schemes. It modifies the rules for early retirement on four elements:

- The eligibility is opened for those who have started their career before their 20th birthday, with a progressive implementation along generations (see table 3);

- When the contribution record for a full-rate pension is obtained, no extra contributory duration is required²;
- The number of credit periods for unemployment and maternity leave is extended:

Table 1: Minimum retirement age by generation (since 2010)

Birth date	Private sector workers, independent workers, military and civil servants (except 'active' workers)	'Active' military and civil servants
Before 01/07/1951	60	55
Between 01/07/1951 and 31/12/1951	60 years and 4 months	55
1952	60 years and 9 months	55
1953	61 years and 2 months	55
1954	61 years and 7 months	55
Between 01/01/1955 and 01/07/1956	62	55
Between 01/07/1956 and 31/12/1956	62	55 years and 4 months
1957	62	55 years and 9 months
1958	62	56 years and 2 months
1959	62	56 years and 7 months
1960 onwards	62	57

Source: legislation

Table 2: Retirement age for a full-rate pension, by generation

Birth date	Private sector workers, independent workers	Military and civil servants (except 'active' workers)	'Active' military and civil servants
1945	65	Non applicable	Non applicable
1946	65	61	Non applicable
1947	65	61 years and 6 months	Non applicable
1948	65	62 years	Non applicable
1949	65	62 years and 3 months	Non applicable
1950	65	62 years and 6 months	Non applicable
Between 01/01/1951 and 30/06/1951	65	62 years and 9 months	56
Between 01/07/1951 and 31/08/1951	65 years and 4 months	63 years and 1 month	56
Between 01/09/1951 and 31/12/1951	65 years and 4 months	63 years and 4 months	56
Between 01/01/1952 and 31/03/1952	65 years and 9 months	63 years and 9 months	56 years and 6 months
Between 01/04/1952 and 31/12/1952	65 years and 9 months	64	56 years and 6 months
Between 01/01/1953 and 31/10/1953	66 years and 2 months	64 years and 8 months	57

² In the 2010 reform, early retirement was possible before 60, provided that an extra contributory period of 4 to 8 quarters (with respect to full-rate contribution record) was completed.

Between 01/11/1953 and 31/12/1953	66 years and 2 months	64 years and 11 months	57
Between 01/01/1954 and 31/05/1954	66 years and 7 months	65 years and 4 months	57 years and 3 months
Between 01/06/1954 and 31/12/1954	66 years and 7 months	65 years and 7 months	57 years and 3 months
1955	67	66 years and 3 months	57 years and 6 months
Between 01/01/1956 and 30/06/1956	67	66 years and 6 months	57 years and 9 months
Between 01/07/1956 and 31/08/1956	67	66 years and 6 months	58 years and 1 month
Between 01/09/1956 and 31/12/1956	67	66 years and 6 months	58 years and 4 months
Between 01/01/1957 and 31/03/1957	67	66 years and 9 months	58 years and 9 months
Between 01/04/1957 and 31/12/1957	67	66 years and 9 months	59
Between 01/01/1958 and 31/10/1958	67	67	59 years and 8 months
Between 01/11/1958 and 31/12/1958	67	67	59 years and 11 months
Between 01/01/1959 and 31/05/1959	67	67	60 years and 4 months
Between 01/06/1959 and 31/12/1959	67	67	60 years and 7 months
1960	67	67	61 years and 3 months
1961	67	67	61 years and 6 months
1962	67	67	61 years and 9 months
1963 onwards	67	67	62

Source: legislation

Table 3: Early retirement rules applicable to long careers and other particular situations

Conditions	Long careers (since 1st November 2012)	Disability	Permanent incapacity (PI) (since 20 January 2014)
Concerned schemes	All basic schemes	All basic schemes	General basic scheme, scheme for agricultural workers
Minimum retirement age	Starting from 56 (for the 1960 generation onwards: 58 or 60)	55	60
Affiliation record	No condition required	Contributory record for a full-rate pension minus 40 to 80 quarters	No condition required
Contribution record	Contributory record for a full-rate pension or, for retirement before 60, contributory record for a full-rate pension plus 4 to 8 quarters	Contributory record for a full-rate pension minus – 60 to 100 quarters	No condition required
Age at entry of career	16 or 20 (depending on generation)	\	\
Rate of permanent incapacity (PI)	No condition required	Since 1 st February 2014: at least 50%	- PI over 20% or - 10% <PI < 20% plus duration of career

Source: legislation

* when unemployment benefits are received, each period of 50 days of unemployment benefits grants a credit of one quarter of contribution record, in the limit of 4 quarters per year, instead of 2 quarters previously;

* a credit of 2 more quarters is given to one of the parents for child raising, that adds to the credit periods for maternity leave or military service (open either to the mother or the father)

- An increase in the contribution rates in all the basic schemes (see table 5).

2.1.2. The 2014 reform (adopted under the left-wing Government lead by Prime Minister Jean-Marc Ayrault)

The Law of 20 January 2014 guarantying the future and fairness of the pension system concerns all the basic schemes. It contains two 'structural' elements and some parametric adjustments. The two 'structural' elements are the introduction of a personal account for the prevention of arduous work (*Compte personnel de prévention de la pénibilité – C3P*) and the implementation of a unique claiming window (*Liquidation unique pour les polypensionnés des régimes alignés – LURA*) for pensioners affiliated to several private basic schemes (the general scheme for private sector employees and the so-called 'aligned' schemes for agricultural workers and independent workers).

2.1.2.1. Structural elements

- Arduous work (*C3P*)

The Decree taken in application of the Law defines 10 criteria of arduous working conditions, with a threshold associated to each criterion that opens a special account to exposed workers. The criteria are the following: repetitive work; night shifts; working an alternating succession of shifts; working in a hyperbaric environment; manual handling of loads; painful working positions; mechanical vibrations; loud noise; extreme temperatures and hazardous chemical substances. A year of exposition to one type of arduous working condition credits the account by 4 points; a year of exposition to several types of arduous working conditions credits the account by 8 points. The overall cumulated points in a career cannot exceed 100 points.

Points can be used in three ways:

- Vocational training: the first 20 points have to be used to vocational training, to give an incentive to employees to move to a less arduous or demanding job. Each point in the account qualifies for 25 hours of training;

- Reduction of working time: 10 points in the account can be used to finance part-time work for 3 months, without loss of pay.

- Early retirement: 10 points allow employees to retire 3 months earlier than expected at their full pension rate. No more than 80 points can be used for early retirement (which thus cannot exceed 2 years with respect to normal retirement).

- Unique claiming window (*LURA*)

This unique claiming window aims at simplifying pension claiming for the workers affiliated to more than one basic private scheme during their career (being either a blue or white

collar worker, or an agricultural worker or an independent worker). The LURA is implemented from 1st July 2017. It merges all career earnings in a single one to compute the reference wage (see below the details in the computation of benefit formula). It also merges all contributory periods in a single one to determine the contribution record (meaning that if more than 4 quarters of contributory periods overlap in a single year due to contributions to more than one scheme, the annual contributory period is bounded by 4 quarters). The unique claiming window is at the last scheme of affiliation.

2.1.2.2. Parametric adjustments

- Increase in the contribution record to qualify for a full-rate pension (sustainability)

The length of the contribution record to qualify for a full-rate pension is adjusted upwards, from 166 quarters for the generation born in 1955 to 172 quarters for the generations born in 1973 and beyond (see table 4).

Table 4: Contribution record (number of quarters of contribution to get a full-rate pension) by generation, since 2014

Birth year	Private sector workers, independent workers	Military and civil servants (except 'active' workers)	'Active' military and civil servants
1943	160	150	150
1944	160	152	150
1945	160	154	150
1946	160	156	150
1947	160	158	150
1948	160	160	150
1949	161	161	152
1950	162	162	154
1951	163	163	156
1952	164	164	158
1953	165	165	160
1954	165	165	161
1955	166	166	162
1956	166	166	163
1957	166	166	165
1958	167	167	165
1959-1960	167	167	166
1961-1963	168	168	167
1964-1966	169	169	168
1967-1969	170	170	169
1970-1972	171	171	170
1973-1975	172	172	171
1976 onwards	172	172	172

Source: legislation.

- Increase in the contribution rates (sustainability)

The contribution rates in all basic schemes are increased along a scheduled calendar, from 2014 until 2017 onwards, for the part of the contribution base above the Social security ceiling (*Plafond de sécurité sociale*), see table 5.

Table 5: Contribution rates (first-floor basic schemes)

Table 5: Contribution rates (first-floor basic schemes)						
Contribution rates before the decree of 2nd July 2012		Contribution rates after the decree of 2nd July 2012		Contribution rates after the law of 20 January 2014		
Private sector employees (CNAV) and salaried employees in the agricultural sector (MSA salariés)						
Year	Under the social security ceiling (employer's rate/employee's rate)	On total wage (employer's rate/employee's rate)	Under the social security ceiling (employer's rate/employee's rate)	On total wage (employer's rate/employee's rate)	Under the social security ceiling (employer's rate/employee's rate)	On total wage (employer's rate/employee's rate)
2012	8.30%/6.65%	1.60%/0.10%	8.40%/6.75%	1.60%/0.10%		
2013	8.30%/6.65%	1.60%/0.10%	8.40%/6.75%	1.60%/0.10%	8.40%/6.75%	1.60%/0.10%
2014	8.30%/6.65%	1.60%/0.10%	8.45%/6.80%	1.60%/0.10%	8.45%/6.80%	1.75%/0.25%
2015	8.30%/6.65%	1.60%/0.10%	8.50%/6.85%	1.60%/0.10%	8.50%/6.85%	1.80%/0.30%
2016	8.30%/6.65%	1.60%/0.10%	8.55%/6.90%	1.60%/0.10%	8.55%/6.90%	1.85%/0.35%
2017 onwards	8.30%/6.65%	1.60%/0.10%	8.55%/6.90%	1.60%/0.10%	8.55%/6.90%	1.90%/0.40%
Independent workers (RSI)						
Year	Under the social security ceiling	On total revenues	Under the social security ceiling	On total revenues	Under the social security ceiling	On total revenues
2012	16.65%	0.00%	16.65%	0.00%		
2013	16.65%	0.00%	16.85%	0.00%	16.85%	0.00%
2014	16.65%	0.00%	16.95%	0.00%	16.95%	0.20%
2015	16.65%	0.00%	17.05%	0.00%	17.05%	0.35%
2016	16.65%	0.00%	17.15%	0.00%	17.15%	0.50%
2017 onwards	16.65%	0.00%	17.15%	0.00%	17.15%	0.60%

Source : legislation

Table 6: Contribution rates (second-floor occupational schemes Arrco and Agirc) after the 13th March 2013 agreement

Year	Tranche 1		Tranche 2		Tranches B and C	
	Arrco		Arrco		Agirc	
	Before the 2013 agreement	After the 2013 agreement	Before the 2013 agreement	After the 2013 agreement	Before the 2013 agreement	After the 2013 agreement
2013	6%	6%	16%	16%	16.24%	16.24%
2014	6%	6.10%	16%	16.10%	16.24%	16.34%
2015	6%	6.20%	16%	16.20%	16.24%	16.44%

Note: these contribution rates do not directly apply to earnings since there is a 'calling rate' of 125% which apply to earnings but does not give pension rights above 100%. The contribution rates above are those that open pension rights.

Source : legislation Agirc-Arrco

- Date of indexation of pensions postponed to October, instead of April (sustainability)

The 2014 Law modifies the time-schedule of pensions indexation: instead of a yearly indexation as of the 1st of April, the indexation takes place on the 1st of October. Since the 2016 Social Security Financing Act, the indexation is based on the observed as of July (instead of expected) annual average inflation rate. If the inflation rate is negative, pensions are not indexed.

- Lower level of the reference wage enabling to validate one quarter of contributory period (fairness)

Instead of perceiving at least 200 hours of minimum wage, the 2014 law sets at 150 hours of minimum wage the reference wage qualifying for one quarter of contributory period. This measure contributes to a higher degree of fairness in the pension system, since it benefits to low-wage earners who are mostly women working part-time and having interrupted careers.

- Early retirement provisions (fairness)

The 2014 Law enlarges the time span for credit periods by 2 quarters for disability and unemployment, and by taking into account all legal maternity leaves as credit periods.

2.2. Reforms in the complementary schemes

Beyond the reforms adopted in the basic schemes, complementary schemes have modified some key parameters for sustainability concerns. We focus here on the main two complementary schemes (ARRCO and AGIRC) which top up the pension of the general scheme for private sector workers.³

The complementary schemes which operate on a parity principle between trade unions and employers' organisations have adopted three agreements in 2011, 2013 and 2015.

2.2.1. The 2011 agreement

The 2011 agreement:

- indexes, between 2012 and 2015, the evolution of the reference wage in both schemes on the evolution of the average wage less 1.5 percentage point, with a lower bound on the inflation rate;
- indexes, in 2012, the evolution of the (benefit) value of the point in the ARRCO scheme on the evolution of the average wage less 1.5 percentage point, with a lower bound on the inflation rate;
- indexes, in 2012, the evolution of the (benefit) value of the point in the AGIRC scheme to equalise the return at AGIRC and ARRCO as of 2011;

³ Two ministerial rulings in September and October 2008 have also modified the parameters of IRCANTEC, the complementary scheme for public sector employees who are not civil servants. Basically, they increased the contribution rates and reduced the pension benefits.

- indexes, between 2013 and 2015, the evolution of the (benefit) value of the point in both schemes on the evolution of the average wage less 1.5 percentage point, with a lower bound on the inflation rate;
- harmonises the rules on pension bonuses for parents of 3 children or more. The pension bonus is set at 10% in both schemes, and concerns only points accumulated from 2012 onwards;
- sets a ceiling on pension bonuses for parents of 3 children or more: the ceiling is equal to 1 000€ in each scheme, for individuals born after the 2 August 1951.

2.2.2. The 2013 agreement

The 2013 agreement:

- indexes, between 2014 and 2015, the evolution of the reference wage in both schemes on the evolution of the average wage less 1 percentage point, with a lower bound on the inflation rate;
- indexes, between 2014 and 2015, the evolution of the (benefit) value of the point in both schemes on the evolution of the average wage less 1 percentage point, with a lower bound on the inflation rate;
- increases the contribution rates (see table 6)

2.2.3. The 2015 agreement

The 2015 agreement has been signed between the three representative employers' organisations (MEDEF, CGPME and UPA) and three (out of five) representative trade-unions (CFDT, CFE-CGC, CFTC).

The 2015 agreement is the most comprehensive and ambitious one for the last decade.

- it sets a new path for the indexation of the (benefit) value of the point in both schemes on the evolution of the inflation rate less 1 percentage point, with a lower bound at 0%, in 2016, 2017 and 2018;
- it modifies the time-schedule of pensions indexation: instead of a yearly indexation as of the 1st of April, the indexation takes place on the 1st of November;
- it increases the reference wage in 2016, 2017 and 2018, to reach a target of an internal return of the schemes equal to 6%;
- it increases the 'effective rate' (*taux d'appel*) of contributions.

Beyond these parametric adjustments, it introduces temporary incentives to postpone retirement through temporary (maximum 3 years) pension cuts for those who retire at the legal retirement age in the basic scheme and temporary (1 year) pension premiums for those who postpone their pension claiming beyond the legal retirement age under the basic scheme. These minoring or majoring coefficients on pensions will be effective as of 1st January 2019 for the generations born in 1957 onwards.

Finally, a more structural measure has been agreed upon: ARRCO and AGIRC are scheduled to merge as of 2019.

3. Process to have it endorsed

To complement the advisory role of the *Conseil d'orientation des retraites* (see above), the Government has settled in 2014 a permanent steering committee for pensions (*Comité de suivi des retraites*) with a citizens' jury (*jury citoyen*). The *Comité de suivi des retraites* (CSR) is composed of five members (including its president) designated by the Government for their expertise of the pension system, on a gender-parity basis. The CSR is in charge of steering the French pension system with respect to its sustainability and adequacy. More precisely, its role is:

- to give a yearly public notice to assess whether the pension system departs from its goals "in a significant manner";
- to issue, if necessary, recommendations for corrective measures;
- to convene a citizens' jury and get its advices and recommendations.

With these two committees, the French government benefits from a minimal consent on the diagnosis of the state of the pension system, if not on the ways to reform it.

4. Results analysis

The *Direction de la Recherche, des Etudes, de l'Evaluation et des Statistiques*⁴ has undertaken an in-depth evaluation of the past pension reforms. The herein analysis draws heavily on DREES (2016) and the synthesis provided by COR (2017).

4.1. Sustainability

The recent reforms have relied on the three main levers used to preserve the long-run sustainability of a PAYG pension system: the level of contributions, the relative level of pensions and the retirement age (and/or the contribution record which is partly correlated with retirement age).

As far as the retirement age is concerned, the past decreasing trend observed between 2004 and 2010 (following eligibility to early retirement for employees with long working careers) is expected to follow an upward swing: the average retirement age would grow from 60.5 in 2010 to 64 by the end of the 2030 decade.

The 2010 reform (increasing by 2 years the minimum and the full-rate retirement ages) is estimated to reduce pension benefits more significantly in the short run than in the long run. In the long run, the reduced period of retirement is balanced by an increase in pension rights due to longer contribution records. The 2014 reform (increasing the required contribution record for a full-rate pension) has the opposite time profile: in the short run, the first generations hit by the reform are not eligible to retirement and start to retire by 2030; in 2040, the 2014 reform generates an estimated reduction of pension benefits equivalent to 0.3 GDP point (0.15 GDP point in 2030). Overall, when taking into account all the reforms

⁴ The *Direction de la Recherche, des Etudes, de l'Evaluation et des Statistiques* is an administrative department of the ministries in charge of social affairs, employment, labor, occupational training and social dialogue).

adopted since 2010 (including complementary schemes) the reduction of pension benefits amounts to 1 GDP point in 2020, 2030 and 2040.

On the contribution side, the past reforms have increased both the legal retirement ages and the financial incentives to postpone retirement, generating more contributions to the schemes. Combined with the increase in contribution rates, the overall effects of reforms on levied contributions are evaluated at 0.6 GDP point in 2020, 2030 and 2040.

All in all, the financial balance of the pension system (excluding the public sector employees' schemes) would be improved by around 1.5 GDP point in 2040. In a shorter run, the improvement would be mainly due to the 2010 reform.

4.2. Adequacy

The past reforms will also impact future retirees' living standard. Pension wealth (defined by OECD as "the size of the lump sum that would be needed to buy a flow of pension payments equivalent to that promised by the mandatory pension system") is a relevant indicator of pension adequacy both from an intergenerational and intra-generational viewpoint. It complements the replacement rate as a measure of the adequacy of pension benefits to meet beneficiaries' needs, since it takes into account the expected life expectancy at retirement and therefore the ability of mandatory schemes to cover the individual longevity risk.

- Effects of reforms within generations

For the generation born in 1980, the estimated pension wealth would be 4.5% lower following the past reforms. This evolution results from two opposite effects. On the one hand, pension benefits would be paid over a shorter timespan (due to a higher effective retirement age); on the other hand, the level of average pension with respect to average wage would increase by 2.1%.

The overall effects of past reforms are also expected to reduce the gender gap in pension wealth. Pension wealth would decrease by 6% for men born in 1980, against 3% for women of the same generation.

Past reforms have undesired differential effects along the wage scale: the negative impact on pension wealth is heavier for low-wage earners (-7% for the first quartile of the distribution) than for high-wage earners (-3.4% for the fourth quartile).

- Effects of reforms between generations

When considering the four generations born in 1950, 1960, 1970 and 1980, it appears that the cumulated effects of all reforms have the stronger negative impact on the 1970 generation's pension wealth (-5.9%), the 1950 generation being hardly affected (-1.2%).

Beyond pension wealth, other indicators may be used to assess the impact of pension reforms on retiree's well-being. Among them, the *Conseil d'orientation des retraites* focusses

on four complementary indicators, namely the length of retirement period (with respect to lifetime), the length of career, the average pension and the average contribution rate during career.

Despite the increase in life expectancy, the length of retirement with respect to lifetime would be globally stable for the generations born between 1950 and 1990, around 30% according to DREES. The length of career with respect to lifetime would decline from 41.5% for the 1950 generation, to 39.8% for the 1990 generation.

The lifecycle replacement rate (defined as the average pension cumulated benefits perceived at retirement divided by the average cumulated earnings perceived during the career) would drop over the generations, from 55% for the 1950 generation to 45% for the 1990 generation (under an assumption of a 1.5% long-term increase of the labour productivity). This lifecycle replacement rate differs from the replacement rate defined as the individual pension entitlement divided by pre-retirement earnings, which was close to 68% in 2014.

The impact of the pension reforms on lifetime contributory effort would also make the last generations worst off: the lifetime contribution rate would rise from 23% for the 1950 generation to 27.8% for the 1990 generation.

5. Cumulative effects of past reforms

The increase of legal retirement ages and required contribution record for a full-rate pension is expected to improve the financial sustainability of the pension system. It may nevertheless have undesired side effects on other public expenditures.

Among them, the inflexibility of labour markets in the short-run may impede older workers to stay in employment or to find a job whenever they are unemployed (due to their higher seniority-linked wages). As a result, an increase in legal retirement ages may inflate unemployment or disability benefits. It has been assessed that, on the 14 billion euros of reduction in pension benefits generated by the 2010 reform, 15% have been compensated by an increase in disability benefits or social welfare benefits.

The increase of legal retirement ages has had a favourable impact on the employment rate of senior workers, but also on their unemployment rate. For the past 25 years, the employment rate of the 55-64 years old workers has been substantially raising as a consequence of an increase in the women's labour force participation and of the last pension reforms. France which was lagging behind with respect to other OECD countries in terms of senior workers' employment is progressively catching up, even if the specific role of pension reforms is difficult to isolate.

A difference-in-difference estimation between the first generations concerned by the 2010 reform (borne after t July 1st 1951) and the previous ones evidenced an increase in the employment rate at the age of 60, estimated at 24 (resp. 22) percentage points for men (resp. women). The probability of being effectively employed surged from 17 (resp. 16)

points for men (resp. women). But underemployment also rose by 7 (resp. 6) points for men (resp. women). The predominant effect of the reform has been to extend the employment duration for those effectively employed between 58 and 60 years old.

6. Remedial measures against undesired effects

The prolongation of working life raises questions about the physical and intellectual abilities at work of senior workers. With that respect, there have been reform qualifications for targeted populations, mainly those with arduous and physical demanding jobs and those who entered the labour market at younger ages.

The *Comité de suivi des retraites* relies on the annual report by the *Conseil d'orientation des retraites*. If the *Comité de suivi des retraites* believes, with respect to the indicators measured by the *Conseil d'orientation des retraites*, that the pension system deviates from its objectives, its recommendations to the Government and the Parliament may concern the evolution of the contributory record needed to get a full pension, the level of the contribution rates both in the basic and complementary schemes (within an overall upper limit of 28%), the use of the *Fonds de réserve pour les retraites* (the French public pension reserve fund).

7. Public opinion reactions to reform

The 2010 reform has caused a series of strikes and demonstrations. The first one occurred on March 23 in opposition to the Government's announcement of a pension reform. On April 14, the *Conseil d'orientation des retraites* issues a report that highlights the impact of the financial crisis on the long run sustainability of the French pension system. At the same time, the Government launches a consultative process with the social partners. On July 7, eight trade-unions sign a joint statement by which they advocate increases in contribution bases (contributions levied on capital income) and rates. On July 10, the Government presents its reform project at the National Assembly. As described above, the two main measures are the increase of the minimum and the automatic full-rate retirement ages.

The parliamentary process opened a period of eight days of nationwide demonstrations and strikes organised by the French union leaders, between September 7 and November 6. The strikes led to cancellations in railways public services, motorway blockages by lorry drivers and disruption to oil deliveries to refineries leading to local fuel shortages. French students also joined the workers in the protests. According to a poll organized on October 21-22 (IPSOS, 2010), 53% of respondents felt acceptable to postpone retirement age, but 63% declared to support the protest movement.

Despite these events, the Government's project has been adopted with only minor amendments by the National Assembly on September 15 and by the Senate on October 22.

The following reforms in 2012, 2014 and 2015 have been adopted without significant social movements.

8. Overall evaluation

Over the past decades, the French Governments, whatever their political orientation, have adopted step-by-step pension reforms. These reforms have been mainly driven by adjustments of the parameters of the pay-as-you-go pension schemes and by a convergence of pension rules between private and public schemes. The overall assessment so far is that the sustainability of the whole system is preserved in the middle run (next 25 years) under reasonable assumptions on the future economic growth rate.

As far as adequacy is concerned, the French pension system still provides a high level of coverage for its affiliated. The average living standard of the retirees represents 105% of the average living standard of the whole population (103% for the women and 108% for the men). This ratio has been stable for two decades and even slightly increasing since 2010. The last COR projections show that the ratio could drop to 94% at the 2060 horizon in case of a 1% long-term real growth and to 74% at the same horizon with a 2% long-term growth.

At risk-of-poverty and social exclusion rates are lower than the EU average rates: 7.9% of retirees are at risk-of-poverty (compared to 13.6% for the whole population and to more than 18% in average in the EU).

Since the election of the President Emmanuel Macron in May 2017, the French reform process seems to be moving from a step-by-step approach to a more structural one. As far as the pension system is concerned, the reform process could entail the adoption of a unified system based on notional accounts. The recent nomination of a High Commissioner for pension's reform (*haut-commissaire à la réforme des retraites*) paves the way for a reform to be conceived and enacted by 2018 with a progressive implementation within the next five years.

Appendix 1

Country profile – France – Pension system as of 2017

1. Overall organisation

Pay-as-you-go mandatory pension schemes with minimum pensions. Supplementary voluntary occupational schemes.

Basically, two main schemes:

- for private sector employees: a first-floor annuity-based scheme (*régime général*) providing former workers a pension equal to 50% of their reference earnings, up to a ceiling, at the legal retirement age; and second-floor points-based complementary schemes, ARRCO (for all workers) and AGIRC (for managers) topping the basic pension;
- for civil and military servants: a unique annuity-based scheme providing former employees 75% of the last-six-months salary (excluding career premiums which give pension rights through a public mandatory fully-funded pension fund)

Other special schemes for self-employed workers and for workers in state-owned firms.

2. Key indicators as of 2014 (Source: INSEE when not specified)

- Public pension spending (minimum pensions and pensions provided by mandatory schemes) as a percentage of GDP: 14.7% (Source: DREES)
- Private pension spending (occupational or voluntary retirement saving) as a percentage of GDP: 0.3% (Source: DREES)
- Share of public pension as a percentage of total pension income: 95% (Source: OECD)
- Standard of living of the 65 and over population with respect to the overall population: 103%
- Employment rate of the 55-64 population: 47.0% (68.2% for the 55-59 and 25.1% for the 60-64)
- Population over 65 as a percentage of overall population: 18.2%
- Life expectancy at 65: 19.3 years for men, 23.3 years for women

3. Key parameters of private sector schemes

3.1. Basic pension

* Qualifying conditions: a minimum of one quarter of contribution record to be entitled to a pension; age and contribution record for full-rate pension (see below)

* Benefit formula:

The pension depends on three variables:

- Reference wage (average annual earnings), w , under a ceiling (*plafond de sécurité sociale*⁵)

⁵ As of 2017, the annual social security ceiling is set at 39 228 €.

- Payment rate, r : the maximum payment rate (full rate) of 50% is granted either for individuals over the minimum retirement age and with a complete contribution record, or for individuals having reach the full-rate retirement age whatever their contribution record; otherwise the payment rate is adjusted to the contribution record (see below 'pension rebate' and 'pension bonus')

- Contribution period, n , including the credit periods (see below), compared to the required contribution record; the required contribution record to get full-rate N depends on the year of birth y .

$$\text{Basic pension} = r \cdot w \cdot \frac{n}{N_y}$$

* Minimum retirement age

62, for the generations born in 1955 onwards

* Automatic full-rate retirement age

67, for the generations born in 1955 onwards

* Early retirement age

- for long careers: from 56 years and 4 months for the generation born in 1955, to 58 years for the generation born in 1960 provided the individual fulfils the required contribution record and has started contributing before the age of 20.

- for disability: disabled may retire before the minimum legal age under conditions depending on the severity of disability, on the contribution record and on the generation.

* Contribution record for full-rate pension

Ranging from 166 quarters for those born in 1955 to 172 quarters for those born in 1973 and after (with a gradient of one quarter every three generations)

* Pension haircut (*décote*) for one missing quarter of contribution (early retirement, see table 7)

-1.25% reduction on full payment rate per missing quarter of contribution, in the limit of 20 missing quarters. Therefore, the payment rate cannot be inferior to 37.25%.

* Pension premium (*surcote*) for an additional quarter of contribution (deferred retirement, see table 7)

+1.25% bonus on full payment rate per additional quarter of contribution, without limit.

* Reference wage: calculated on the 25 best-earning years of career with past earnings revalued in line with the evolution of CPI

* Credit periods

- Child care:

▪ A credit of four quarters of contribution record is given to the mother for each born or adopted child (whether she continues to work or not); another credit of four quarters is given to one of the parents for child raising (or the parents can share this additional child credit as they want; by default, the additional child credit is given to the mother).

- Periods out-of-work or working part-time for child care (or care for a disabled relative) (*Allocation vieillesse des parents au foyer – APVF*): credits are awarded as if the parent had earned the minimum wage. To be eligible to the AVPF pension benefit, the parent must fulfil three cumulative conditions: receiving one of the special benefits for child raising; and working part-time or not working at all; and a means-tested condition on the household’s earnings.

- Unemployment: when unemployment benefits are received, each period of 50 days of unemployment benefits grants a credit of one quarter of contribution record, in the limit of four quarters per year. When unemployment benefits are not received, each period of involuntary unemployment gives a credit period in the overall limit of four quarters when the worker is under 55, and of 20 quarters when the worker is 55 or over and already completes a contribution record of 80 quarters. Special rules applies for unemployment at the beginning of working life: if the unemployment period occurs after 2011, with no unemployment benefits perceived before, the involuntary periods of unemployment give a credit period in the overall limit of 6 quarters.

Table 7: Haircut and premium on pension benefit*

Basic schemes (first-floor <i>CNAV</i> , <i>MSA</i> and <i>RSI</i>)		Civil and military servants	
Birth year		Year of pension claiming	
Before 1944	2.5%	2006	0.125%
1944	2.375%	2007	0.25%
1945	2.25%	2008	0.375%
1946	2.125%	2009	0.5%
1947	2%	2010	0.625%
1948	1.875%	2011	0.75%
1949	1.75%	2012	0.875%
1950	1.625%	2013	1%
1951	1.5%	2014	1.125%
1952	1.375%	2015 onwards	1.25%
1953 onwards	1.25%		

* Percentage of haircut per missing quarter or percentage of premium per additional quarter of contributory record to be entitled to full-rate pension

*** Arduous work**

Since the adoption of the Law n° 2014-40 of 20 January 2014, arduous work is taken into account in the private sector’s basic scheme to acknowledge that workers exposed to arduous working conditions have a reduced life expectancy and thus will have a shorter pension period compared with the average life expectancy of other workers. The n° 2014-1159 Decree defines 10 criteria of arduous working conditions, with a threshold associated to each criterion that opens a special account (*Compte personnel de prévention de la pénibilité*) to exposed workers. The criteria are the following: repetitive work; night shifts; working an alternating succession of shifts; working in a hyperbaric environment; manual handling of loads; painful working positions; mechanical vibrations; loud noise; extreme temperatures and hazardous chemical substances. A year of exposition to one type of arduous working condition credits the account by 4 points; a year of exposition to several

types of arduous working conditions credits the account by 8 points. The overall cumulated points in a career cannot exceed 100 points.

Points can be used in three ways:

- Vocational training: the first 20 points have to be used to vocational training, to give an incentive to employees to move to a less arduous or demanding job. Each point in the account qualifies for 25 hours of training;
- Reduction of working time: 10 points in the account can be used to finance part-time work for 3 months, without loss of pay.
- Early retirement: 10 points allow employees to retire 3 months earlier than expected at their full pension rate. No more than 80 points can be used for early retirement (which thus cannot exceed 2 years with respect to normal retirement).

* Progressive retirement

Progressive retirement, meaning cumulating wage and pension benefits, is open to workers qualifying to the cumulative following conditions: having reached the age of 60 and having a contribution record of at least 150 quarters and working part-time (between 40% and 80% of the full-time employment).

* Pension indexation

Pension benefits are indexed on the evolution of the CPI.

* Contributory minimum pension (*minimum contributif*)

The contributory minimum pension (*minimum contributif*) aims at increasing pensions up to a minimum threshold when the strict application of the benefit formula leads to a pension considered as too low. To be eligible to the *minimum contributif*, the pensioner must meet the requirements for a full-rate pension (contribution record and/or age) and a means-tested condition on her overall pensions (basic plus complementary). If the calculated pension is below the *minimum contributif* pro-rated for the contribution record, the pension benefit is levelled up to the *minimum contributif*. An extra minimum pension (*minimum contributif majoré*) is perceived when the worker has a contribution record of 120 quarters or more. As of 2017, the *minimum contributif* is set at 629.62€ per month and the *minimum contributif majoré* at 688€.

* Child benefits (pension bonus)

Both parents of at least three born or adopted children get a 10% bonus on their pension benefit, conditionally on having raised each child for at least 9 years before age 16.

* Survivor's benefits

Only married, or divorced, survivors can get survivor's benefits (other registered or informal unions do not open derived rights), whatever the length of marriage. The cumulative eligibility conditions are as follows:

- The deceased spouse has contributed for at least one quarter (but need not be retired at the time he/she dies);
- The survivor is at least 55 years old;
- The survivor's total revenues, or the survivor's household total revenues (if he/she is remarried or in couple), has to meet a means-tested condition (as of 2017: 20 300.80 € for a single survivor and 32 481.28 € for a survivor in couple).

The rate of survivor's benefit in the basic scheme is equal to 54% of the deceased spouse's basic pension (bonuses excluded). The rate is increased to 60% for widows aged 65 or more – to be progressively raised to 67 in line with the full-rate retirement age – under a means-tested condition⁶.

* Contribution rates

Contributions are due at different rates under and above the social security ceiling, both by employers and employees. As of 2017, employers' contribution rates are set at 8.5% under the social security ceiling, and at 1.8% above; employees' rates are respectively set at 6.85% and 0.3%.

3.2. Complementary pension

* Qualifying conditions

Being an employee in the private sector. Both non-executive employees (*non cadres*) and executive staff (*cadres*) contribute to the wage-earners ARRCO scheme (*Association pour le*

⁶ As of 2017, the total (direct or derived) pension benefits perceived by a widow over 65 cannot 2 559.73€ per quarter.

régime complémentaire des salariés). Executive staff also contributes to the AGIRC scheme (*Association générale des institutions de retraite des cadres*). These schemes will merge in 2019. Both are operated by social partners, who set up the rules and manage pension provisions.

* Benefit formula

The pension is calculated with a point-based formula.

Contributions credit points on the employee's account. The number of points n_p is equal to the amount of contributions divided by the purchase price of a point: $n_p = \frac{w \cdot t}{p_a}$. The amount of contributions is equal to the reference wage w multiplied by the purchasing rate t , since the crude contribution rate does not credit full, but truncated, pension rights. Contrary to the basic scheme in which pension benefits are capped by a ceiling, the complementary schemes credit employees' account for the total wages perceived during the career. The purchase price of a point is yearly set by the scheme, along with the purchasing rate. The employee's complementary pension is then equal to his/her number of points multiplied by the (benefit) value of the point yearly set by the scheme⁷:

$$\text{Complementary pension} = v_p \cdot n_p$$

* Credit periods

- Maternity leave: points are credited for maternity leave;
- Unemployment: points are credited only if unemployment follows a period of employment and if unemployment benefits are received.

* Minimum retirement age

62, for the generations born in 1955 onwards; full-rate complementary pension can be obtained at 62 with the qualifying contribution record in the basic scheme (see above).

* Automatic full-rate retirement age

67, for the generations born in 1955 onwards.

* Early retirement age

Complementary pension can be awarded at 57 with a definitive haircut which depends on employee's age and/or contribution record. Special situations (disability, long careers, arduous working conditions etc.) open full-rate complementary pension before the age of 62.

* Temporary haircut (*décote*) or premium (*surcote*) as of 2019

Starting in 2019, for contributors born in 1957 onwards, temporary haircuts or premiums will be applied to foster late retirement and thus secure the financial sustainability of complementary occupational schemes.

- Temporary haircut: if the complementary pension is claimed at the same age as in the basic scheme (e.g. at 62 years old with full-rate contribution record), a temporary haircut

⁷ As of 2017, the purchase price of an ARRCO point is set at 16.1879€ and the (benefit) value of the ARRCO point is set at 1.2513€. The respective values for AGIRC points are 5.6306 € and 0.4352 €.

of 10% is applied on the complementary pension during 3 years. The haircut is lifted when the retiree reaches his 67th birthday.

- No haircut and no premium: if the complementary pension is claimed one year later than the normal claiming age (e.g. at 63 years old with full-rate contribution record), it is awarded at full-rate.

- Temporary premiums: if the complementary pension is claimed at least 2 years later than the normal claiming age, it is awarded with:

- A 10% premium during one year if claiming is postponed 2 years later;
- A 20% premium during one year if claiming is postponed 3 years later;
- A 30% premium during one year if claiming is postponed 3 years or more later

* Progressive retirement

The qualifying conditions for progressive retirement in complementary schemes are the same as in the basic scheme. The complementary pension is pro-rated on the working duration: an employee working 55% of full-time duration receives 45% of his/her complementary pension.

* Minimum pension

Every employee affiliated to AGIRC and working full-time is entitled to a minimum of 120 points (*Garantie minimale de points – GMP*) per year, even if his/her wage is not high enough to get this number of points. This GMP is awarded in counterpart of a flat contribution set by the AGIRC scheme⁸. It will be suppressed in 2019, with the merging of ARRCO and AGIRC.

* Child benefits (pension bonus)

Two types of child benefits, mutually exclusive, can be claimed:

- Benefits for child caring
- Benefits for child born or raised

The rules differ at ARRCO and AGIRC. Bonuses are computed on complementary pensions excluding (temporary or definitive) age-related haircuts at ARRCO but including them at AGIRC. The most favourable rule applies (i.e. the one that provides the highest bonus in each scheme).

⁸ As of 2017, the annual flat contribution is set to 844.56 €.

	Bonus for child caring	Bonus for child born or raised
ARRCO	On the whole complementary pension: 5% per child	On the whole complementary pension for pensions rights accrued in 2012 onwards: 10% for 3 children and more, up to a ceiling (1031.15€ as of 1 st November 2016) On the whole complementary pension for pensions rights accrued between 1999 and 2012: 5% for 3 children and more For pensions rights accrued before 1998: specific agreements
AGIRC	On the whole complementary pension: 5% per child	On the whole complementary pension <ul style="list-style-type: none"> ▪ for pensions rights accrued in 2012 onwards: 10% for 3 children and more, up to a ceiling (1028.12€ as of 1st November 2016) ▪ for pensions rights accrued before 2011: <ul style="list-style-type: none"> 8% for 3 children 12% for 4 children 16% for 5 children 20% for 6 children 24% for 7 children and more

Benefits for child caring can be transferred to the employee's survivor when the child was also the deceased employee's one. Benefits for child raised can be transferred to the employee's survivor even if the child has no parental link to the survivor. At ARRCO, the bonuses are fully transferred to the survivor; at AGIRC, the bonuses are transferred at a 60% rate. The same ceilings as above apply for the survivor's.

* Survivor's benefit

Married, or divorced, survivors can get survivor's benefits (other registered or informal unions do not open derived rights), whatever the length of marriage. Orphans (under 21) of two parents are also eligible to survivor's benefits.

The cumulative eligibility conditions for married or divorced survivors differ from those of the basic scheme and are as follows:

- the survivor must not be remarried (if he/she gets married after benefiting from survivor's allowance, the survivor's benefit is suspended);
- the survivor is at least 55 years old when the survivor's benefit is paid by ARRCO, and at least 60 years old when the survivor's benefit is paid by AGIRC (or 55 years old with haircut); the age conditions do not apply if the survivor is in charge of at least 2 children or if he/she is disabled;

The rate of survivor's benefit in the complementary schemes is equal to 60% of the deceased spouse's complementary pension (bonuses excluded). If the benefiter is an orphan, the rate of survivor's benefit which can be claimed for each parent is equal to 50% at ARRCO and 30% at AGIRC.

* Pension indexation

The purchase price of a point is indexed on the evolution of the average wage in each scheme plus 2% until 2018. The (benefit) value of a point is indexed on the evolution of the CPI minus 1% until 2018. From 2019 onwards, the indexation will be determined by the newly merged scheme.

* Contribution rates

Contributions are due at different rates depending on wage tiers (*tranche*) and schemes. The contribution rates are shared between employers (60%) and employees (40%).

Scheme	Tier brackets	Contribution rates
ARRCO		
Tier 1 (<i>Tranche 1</i>)	From 1€ to 1 Social security ceiling	7.75%
Tier 2 (<i>Tranche 2</i>)	Between 1 and 3 Social security ceilings	20.25%
AGIRC		
Tier B (<i>Tranche B</i>)	Between 1 and 4 Social security ceilings	20.55%
Tier C (<i>Tranche C</i>)	Between 4 and 8 Social security ceilings	20.55%
CET¹ (exceptional and temporary contribution)		
Tier B (<i>Tranche B</i>)		0.35%
Tier C (<i>Tranche C</i>)		0.35%
AGFF² (extra contribution)		
Tier 1 (<i>Tranche 1</i>)		2%
Tier 2 (<i>Tranche 2</i>)		2.20%
Tier B (<i>Tranche B</i>)		2.20%
Tier C (<i>Tranche C</i>)		2.20%

1. Solidarity contribution in the AGIRC scheme that does not accrue pension rights.

2. Special contribution that finances early retirement between 65 and 67 years old in the complementary schemes and does not accrue pension rights.

4. Key parameters of the public sector scheme

The public sector pension scheme is an integrated scheme, meaning that the scheme provides both a basic and a complementary (occupational) pension. It covers military and civil servants, in the central, local and hospital administration. It is an annuity-based scheme. Some civil servants perceive, besides their index-related salary, premiums that do not accrue pension rights in the integrated pay-as-you-go scheme, but in a mandatory fully-funded pension fund (*Retraite additionnelle de la fonction publique – RAPF*).

* Distinction between *active* and *sédentaire* categories

According to the legislation, there are two categories of positions in the French administration: *active* and *sédentaire*. The *active* category refers to jobs with a particular occupational hazard or physically demanding. The positions considered as *active* are defined by ministerial orders, and all positions not defined as *active* are *sédentaires* by default.

Being in an *active* position opens special pension rights (early retirement, pension bonuses).

* Vesting period

To be eligible to a pension from the public pension scheme there is a vesting period of 2 years for the *sédentaire* category (and 17 years for the *active* category – with exceptions for military servants).

* Benefit formula

Full-rate pension is equal to the product of three terms: the index-related gross salary (*traitement indiciaire brut*), the payment rate and a bonus or haircut coefficient.

- Index-related gross salary: correspond to the index-related salary perceived during at least 6 months before pension claiming;

- Payment rate: the full payment rate is equal to 75% if the servant has a contribution record ranging from 166 quarters of contribution in the public scheme for those born in 1955 to 172 quarters for those born in 1973 and after (with a gradient of one quarter every three generations)

- Haircut coefficient: applies whenever the servant has not reached the automatic full-retirement age or has not the qualifying contribution record (in all pension schemes) for the full payment rate. Bonus coefficient: applies whenever the servant has reached the automatic full-retirement age or meets the qualifying contribution record (in all pension schemes) for the full payment rate.

* Minimum retirement age and automatic full-rate retirement ages

The same rules as for private workers apply to civil servants.

* Early retirement age

- For long careers

From 57 years old for the generation born in 1957, to 58 years for the generation born in 1960 provided the individual fulfils the required contribution record at pension claiming and an additional condition on his/her contribution record at the beginning of the career (before 20).

- For disability

The same rules as for private workers apply.

* Pension haircut (*décote*) for one missing quarter of contribution (early retirement)

The same rules as for private workers apply since 2015.

* Pension premium (*surcote*) for an additional quarter of contribution (deferred retirement)

The same rules as for private workers apply since 2009.

* Credit periods for child caring

Credit periods for child caring are different from those applicable to private sector workers. Since 2004, different periods for child caring are considered as effective service periods (and therefore credited to the servant's contribution record):

- part-time working for child caring: from a maximum credit of 6 quarters (whatever the number of children simultaneously taken care of) for a 50% part-time working to a maximum 2.4 quarters for a 80% part-time working.

- leave (*disponibilité*) for child caring: a maximum credit of 12 quarters for child caring between birth and 3rd birthday of the child; an additional maximum credit of 12 quarters for

child caring before the 8th birthday of the child. In case of multiple births or adoptions, the credits for child caring cumulate (unless they overlap).

* Arduous work

The *compte de prévention de la pénibilité* open to private sector workers does not apply in the public sector pension scheme. In the public sector scheme, it is the difference between *active* and *sédentaire* categories that accounts for arduous work.

* Progressive retirement

Does not apply in the public sector pension scheme

* Pension indexation

Pension benefits are indexed on the evolution of the CPI.

* Contributory minimum pension (*minimum garanti*)

The *minimum garanti* is the equivalent of the *minimum contributif* designed in the private basic scheme. To be eligible to *minimum garanti*, the civil servant has to meet one of the conditions for a full-rate pension.

The amount of *minimum garanti* depends on the service record: if the service record is at least equal to 40 years, the monthly *minimum garanti* cannot be inferior to a given index-related gross salary (1 158.06€ as of 2017); if the service record is less than 40 years, the monthly *minimum garanti* is pro-rated on the contributory record required to get a full-rate pension.

* Child benefits (pension bonus)

Child benefits are different in public and private schemes. In the public scheme, both parents of three born or adopted children get a 10% bonus on their pension benefit, conditionally on having raised each child for at least 9 years before age 16. For each additional child born or adopted after the third one, the additional bonus on pension benefit is equal to 5% per child. The overall pension benefit (including child benefits) cannot exceed the last index-related salary (if it does, the total pension benefit is capped at the last index-related salary).

* Survivor's benefits

As for private sector employees, only married, or divorced, survivors can get survivor's benefits (other registered or informal unions do not open derived rights), but the other eligibility conditions differ. In the public sector, there are no age condition (the widow may perceive survivor's benefits whatever his/her age) and no means-tested condition. In the public sector, survivor's benefits are perceived under the following conditions:

- in any case, the surviving spouse must not be remarried; if he/she re-marries (or even has a new non-registered partner), he/she does not perceive survivor's benefits any longer.
- for a deceased civil servant's widow, or divorced and non-remarried spouse, at least one of the four conditions must apply:

- At least one child has been born or adopted during the marriage;
- The marriage has last at least 4 years;
- The marriage has occurred at least 2 years before the deceased spouse retired;

- The deceased spouse perceived disabled benefits.
- for a deceased civil servant's divorced spouse who has been remarried before the decease of his/her former spouse, at least one of the four previous conditions must apply, plus two additional conditions:
- His/her new marriage has ceased with no survivor's benefits due to this new union;
 - The deceased spouse had no spouse or orphan who may be entitled to survivor's benefits.

The rate of survivor's benefit in the public scheme is equal to 50% of the deceased spouse's pension (including child benefits if any). If the deceased spouse had been married twice or more times, the survivor's benefits are split between the ex-non-remarried spouses pro-rated at the length of their respective marriage.

* Contribution rates

The civil servants' contribution rate (on index-related salary) to the pay-as-you-go scheme is set at 10.29% as of 2017, in line with the private sector employees' contribution rate. An exceptional solidarity contribution is set at 1% for monthly salaries comprised between 1 447.98€ and 13 076€. The contribution rate (on premiums) to the RAPF (mandatory public pension fund) is equal to 5%. The State's contribution rate is set at 74.28% for civil staff and at 126.07% for military staff.

5. Minimum allowance for the elderly

Next to the contributory schemes, the French pension system provides a minimum non-contributory means-tested allowance (allocation de solidarité aux personnes âgées - ASPA) eligible to all residents aged 65 and over. As of 2017, the ASPA is equal to 803€ for a single and 1 247€ for a couple. The ASPA as well as low-value pension benefits are tax exempted.

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Parametric Pension Reform in European Member States

Country Report Germany



Component 1

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Parametric Pension Reforms in Germany

By

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I. Introduction

Germany has a long established pension system consisting of three tiers (or layers):- the public insurance pension, supplementary pensions – usually provided by the employer – and personal savings. In the late nineteen eighties and early nineties reforms were introduced which led to a move towards employee-financed supplementary pensions using an instrument known as ‘conversion of earnings’ (earmarked savings for pension).

The current public pension system is based on a pension reform of 1957 which introduced a Pay As You Go system and was aimed to provide an income which represents a decent replacement for earnings during the working career. It was in the beginning roughly aimed at about 60 % replacement rate.

This system has been faced with especially demographic problems – starting in the 90s. In 2001 a major reform has been introduced which is the major foundation of the system as it currently works. Therefore the paper will also have to cover that – older – reform. Also reforms in 2005/2006 should be covered shortly which introduced a special demographic factor in the benefit formula and changed taxation rules for benefits and contributions.

II. The German Public Pension System

1. General Remarks

The German system of old age income protection is a three-tier-system or three-layer-system consisting of a public pension insurance, occupational (supplementary) pensions and private savings/life insurance etc.

The public system is financed by contributions – currently 18.7 % of income to be shared between employer and employee by 50 % each - plus state subsidies which amount to 75 Billion € per year. The total expenditures amount to 300 billion € per year (2017).

Covered by the system are all workers gainfully employed as well as certain self-employed. Not covered by this system are public officials who fall under a special retirement system.

The system provides benefits in old age but also covers invalidity and death. In case of invalidity the system provides benefits in case of partial invalidity and in case of full invalidity. For the case of death there are widow's and widower's benefits.

The system also provides rehabilitation measures in order to reintegrate persons into the labor market or to prevent persons from leaving the labor market for health reasons. This means in-kind-benefits by the pension insurance including specialized hospitals, vocational training etc.).

2. Rules to Qualify for Pensions

To qualify for old age benefits a person has to meet the retirement age and has to fulfill certain other conditions like qualifying periods.

a. Retirement Age

The retirement age currently (2017) is 65 years and 6 months. In 2007 there was a reform increasing retirement to 67 by 2030. There is a gradual increase per year until that year to be seen from the following list:

Year of birth 1947 - increase by 1 month resulting in 65 years and 1 month

Year of birth 1948 - increase by 2 months resulting in 65 years and 2 months
Year of birth 1949 - increase by 3 months resulting in 65 years and 3 months
Year of birth 1950 - increase by 4 months resulting in 65 years and 4 months
Year of birth 1951 - increase by 5 months resulting in 65 years and 5 months
Year of birth 1952 - increase by 6 months resulting in 65 years and 6 months
Year of birth 1953 - increase by 7 months resulting in 65 years and 7 months
Year of birth 1954 - increase by 8 months resulting in 65 years and 8 months
Year of birth 1955 - increase by 9 months resulting in 65 years and 9 months
Year of birth 1956 - increase by 10 months resulting in 65 years and 10 months
Year of birth 1957 - increase by 11 months resulting in 65 years and 11 months
Year of birth 1958 - increase by 12 months resulting in 66 years and 0 month
Year of birth 1959 - increase by 14 months resulting in 66 years and 2 months
Year of birth 1960 - increase by 16 months resulting in 66 years and 4 months
Year of birth 1961 - increase by 18 months resulting in 66 years and 6 months
Year of birth 1962 - increase by 20 months resulting in 66 years and 8 months
Year of birth 1963 - increase by 22 months resulting in 66 years and 10 months

There are a number of special provision for certain cases and certain groups of people. More details about retirement age provisions and their conditions and effects will be covered later since they are interrelated with the qualifying conditions and the benefit formula.

[b. Qualifying Periods](#)

To qualify for a pension benefit a person has to have at least five years of contributions. There may be different qualifying periods in case of early retirement.

3. Calculation of Benefits

a. Contribution-based

The amount of benefits is based on the contribution paid. The contribution base is the gross amount of the wages. This amount may be reduced by the – limited – amount a person pays into certain kinds of supplementary pension funds and in case of “conversion of earnings”. This means that the employee decides to put a certain amount of his salary into the pension plan of his employer and then “saves” social insurance contributions. In case of self-employed the basis is their profit before taxes. There may be certain special deductions. Subject to contributions are only the first 6.350 € of monthly gross income (upper earnings threshold – Beitragsbemessungsgrenze) which is about twice the average monthly gross wage. For East Germany (former German Democratic Republic) the amount is lower – 5.700 €¹; by 2024 there will be a uniform amount for entire Germany. In case of persons receiving unemployment benefits the basis 80 % of former wages and the contribution is paid by the Federal Employment Agency (Bundesagentur für Arbeit).

b. The Benefit Formula in Detail

The calculation of pension benefits is strictly earnings-related. The benefit formula is aimed to provide a pension in relation to income from work during the working career. Since it is a contributory system it also takes into account the periods (years/months) of contribution. Non-contributory periods are calculated on the basis of fictitious earnings.

(1) Earnings Points

All this means that the formula consists of several elements; the first element of the formula are the so-called “**earnings points**” which reflect the relative earnings position of the employee. So if a person during a year of his/her working life has earned 100 % of average income of that year the person will be credited one earnings point (Entgeltpunkt) and persons receiving 50 % of average earnings will be credited 0.5 earnings points. This ensures that the earnings of a person will be put into relation of average income and by that present the relative earnings position.

(2) Years of Service

The next element of the benefit formula are the **years of service** / contributory years. These comprise of years of active contributions to the system but also service years without

¹ Figures for 2017 – changed annually according to development of wages

contributions paid – like military service, three years for bringing up a child for one of the parents, years of unemployment for which the public unemployment insurance has not paid contributions.

The law assumes 45 years of employment or other periods as a standard base for calculation and calls this the normal earnings history (Eckrentner). But as a matter of fact the average number of years is considerably lower². So the current retirees have on average 40 years (males West Germany), 44,6 years (males East Germany), 28 years (females West Germany) and 40 years (females East Germany). The difference between East and West comes from the fact that in the former GDR (German Democratic Republic) by definition unemployment was not existing and all people were required to work. But these figures also show that the idea of this fictitious normal earnings history is indeed a fictitious one and leads to lower pensions for women in the West. This trend may even accelerate in the future since younger people have usually a far more interrupted working career.

(3) Current Pension Value

Another element then is the **current pension (point) value** (aktueller Rentenwert). This element is indexed to annual changes in the level of wages net of pension contributions and thus represents the current income situation in the country. This also means that the retiree and the applicant for pensions participate in the rising prosperity generated by the economy. This means that not only the current pension value is adjusted annually but also the ongoing pension benefits are indexed by the percentage the current value of a year has been adjusted in reaction to the year before.

The current pension value as of July 1, 2017 is 31,03 € West Germany und 29,69 € East Germany. These differences between East and West have been fixed due to the different productivity rates and different income levels. By 2024 they have to be equalized.

(4) Sustainability Factor

A very specific element of this current pension value is the **sustainability factor**. This means in principle that the change of the number of standardized contributors is measured in relation to the number of standardized pensioners; the sustainability factor links the adjustment of the pension point value to the changes in the statutory pension scheme's

² Rentenversicherung in Zahlen 2016, pp. 40

dependency ratio, the ratio of pensioners to contributors. This is an answer to the challenges of demographics in Germany.

This system generally works automatically and without any government intervention. The calculation of the current pension value and the sustainability factor are based on figures to be determined on the basis of publicly available data. The only task for the Federal Government each year is to make public the results of the calculation.

(4) Pension Type Factor

These three elements are the standard components of calculation of an old age pension. They also apply to other kinds of pensions like invalidity pensions, widow's, widower's and orphan's pensions. In case of those the amount should be smaller and therefore there is another factor depending on the **pension type**. In case of old age pension this factor is 1 and in case of a widow's pension for example it is generally 0.55.

(5) Example

So this means that a person having earned the average income for 40 years will have obtained 40 earnings points which for a current old-age pension will be multiplied by 31,03 € in West Germany and has to be multiplied by one due to the pension type factor. This in the end would mean that this person receives a pension of 1.214,20 € per month in 2017.

(6) Non-Contributory Years

In case of **non-contributory years** there are provisions fixing the earnings points in special cases. So the earning points for one year of child care is one. The same applies to mandatory military service. In other cases the earnings points for non-contributory periods are based on the average of earnings points for contributory years. Non-contributory years (beitragsfreie Zeiten) are those meeting certain additional requirements like illness, pregnancy and motherhood, unemployment, certain years of study or other kinds of education.

(7) Actuarial Factor

For **actuarial reasons** there is an **additional factor** taking into account that in case of early retirement the period of payments of benefits will be longer and in case of later retirement the period will be shorter. Therefore this factor reduces the amount of pensions in case of retiring earlier than the usual retirement age which is currently 65 years and six months the amount will be reduced by the factor 0.003 per month which means 0.036 per year and a pension amount reduced by 3.6 % per year. There is no factor to increase the pension in case of late retirement. On the average by 2015 persons retired at age 64. This figure has raised

considerably in the years up to 2015 but may decrease due to some additional recent changes in the system.

4. Indexation of Benefits in Pay

In case of retirees receiving benefits their benefits will be adjusted annually in accordance with the percentage the current pension value has been changed in relation to the year before.

5. Early Retirement

Early retirement has been very popular in Germany in the past and has led then to an overall average actual retirement age of around 60 years of age. In the past there also have been different retirement ages for men and women which meant that women could retire already at age 60 which was seen as unconstitutional and has been removed. The last age cohort have been women born in 1951 – so retirement in 2011.

Currently it is more restricted to retire earlier and the person has to meet a number of additional conditions and maybe faced with the actuarial reduction.

Generally it is possible to retire earlier than with age 65 and 6 months. In that case people have to accept the actuarial reduction of 3.6 % per year and have to be 62 at least. In addition they have to meet the requirement of a qualifying period of 35 years. For those people being disabled the retirement age remains at currently 63 and 10 months without actuarial reductions and 60 and 10 months with actuarial reduction; in that case in addition to the requirement of disability there is a special qualifying period of 35 years. For the qualifying period of 35 years all periods are taken into account which count for pensions either as contributory period or as non-contributory period. Last but not least there is an even more generous rule for persons who have a very long pension insurance history. They may retire at age 65 without actuarial reductions but would have to meet a requirement of 45 years qualifying period which should not include non-contributory years.

Just recently these rules have been amended fundamentally by introducing what is called “Rente mit 63” which means retirement at age 63. As a result of protests against the new retirement age of 67 a law was enacted that allows more generally people to retire without

actuarial reductions at age 63 – currently age 63 and 4 months. This exception from the general rules requires also 45 years waiting period and is limited to persons born between 1953 and 1963.

Even earlier retirement has been possible in the past and was subsidized by the state according to a number of laws that made possible even earlier retirement than shown above. This have been especially an Act on Early Retirement (Vorruhestandsgesetz) making possible a retirement even at 58 years of age and another Act on Old-Age Part-Time (Altersteilzeitgesetz) which originally was planned to make possible working part-time and receiving a part-time pension benefit over a period of five years starting age 55. This was nearly always used in another – possible – version meaning that people used the subsidies provided by continuing to work for 2 1/2 years and then retiring under this plan. Both approaches were mainly used to fight unemployment by taking older workers out of the labor force. Both acts are still existing but the state subsidies are no longer available.

There are still certain forms of early retirement by collective agreements between trade unions and employers / employers associations. But this provide early retirement without using the public pension system.

6. Taxation Rules

In Germany generally all income – including pensions – is subject to income tax.

a. Taxation of Benefits

Originally pensions from public pension insurance were subject to income tax only in part. The philosophy was that only the profit (yield) share of the pension should be subject. This was held unconstitutional because in case of public pensions it is difficult to define a profit share and this also would mean unequal treatment compared with other pensions – especially those for public executives.

So in principle now public pension insurance pensions are subject to income tax and expenses for those pensions (contributions) are tax deductible. In detail there is still a transition rule which does not make pensions from public pension insurance totally subject to income tax; instead for a person retiring in 2017 74 % of the pension will be subject for

tax and the other 26 % are tax exempt. Retiring in 2040 100 % of pension benefits is subject to income tax.

b. Tax-Deductibility of contributions

Contributions of the employee for pension insurance are tax deductible from his/her income tax. In addition other kinds of precautionary expenses (private pension insurance, health insurance, liability insurance) are also tax-deductible. There is an upper limit of 19.624 € for a person in 2017.

7. Accumulation of pension benefits and income derived from continued occupational activity

In principle it is possible to receive a pension and continue to work as well. This person may choose to pay contribution from his/her earnings in order to further increase the pension; for the employer to continue to pay contributions is generally speaking compulsory.

There are limits in case of retiring earlier than the normal retirement age. If a person retires at normal retirement age there are no limits for additional earnings. In case of a full pension received before normal retirement age additional earnings are limited to 6.300 € per year. If a person earns more than that 40 % of earnings will be deducted from the pension amount.

III. Reforms in Pension Insurance

1. General Remarks

The German public pension insurance system is that of an industrialized country with a history of more than 130 years. The system is matured and covers a population far more homogenous than that of the People's Republic of China. The average income of all areas of Germany is rather similar which is also a reason for finally removing the different figures for East and West Germany.

The major problems of the German public pension insurance system are of a financial type. Germany is a country with one of the lowest birth rates in the world which means for a system based on the principle of pay-as-you-go that a working generation has to finance those in retirement and those not yet working. If the reproduction rate is low and the

number of retirees is high – the “Baby-Boom”- generation born after World War II is now retiring – the financing of public pension insurance becomes difficult. Also the period of education is rather long in Germany so that people enter the work force late and people try to retire early.

There are different ways to face this problem.

One is **to increase contributions to the system**. This does not really help since in Germany already now the state takes a big share from people’s income. Taking about 30 % as the average tax-rate for average income and 9.35 % (out of 18.7 %) contribution for the pension system, 7.3 % (out of 14.6 %) for public health insurance, 1.275 % (out of 2.55 %) for long-term care insurance and 1,5 % (out of 3 %) for unemployment insurance³ about half of gross wages are taken away for taxes and social security contributions. In addition it has to be expected that health insurance contributions will increase due to the ageing population; the same applies to long-term care insurance. So there is not much space for increasing contributions.

Other way might be to **finance it by taxes to a larger extent**. But also here the same problem arises. Already now the tax subsidies to pension insurance take a large share of the Federal budget and taxes have to be paid by the same persons paying the contributions.

So increase of taxes or contributions could only be of very limited help.

The other approach would be **to change benefit rules**. This could mean either later retirement or cutting benefits. To raise retirement age beyond age 65 has been difficult during high unemployment and is also difficult “to sell” due to expectations of people. Cutting benefits would mean less pensions and thus a decreasing replacement rate.

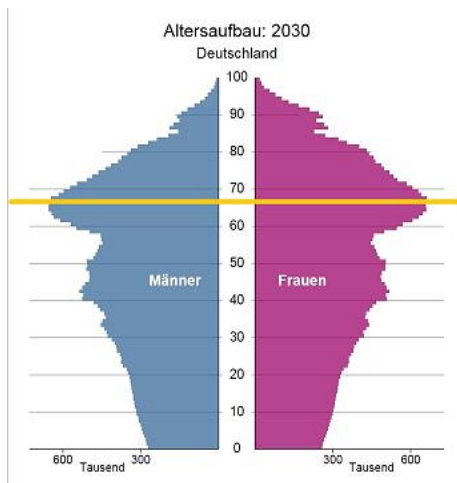
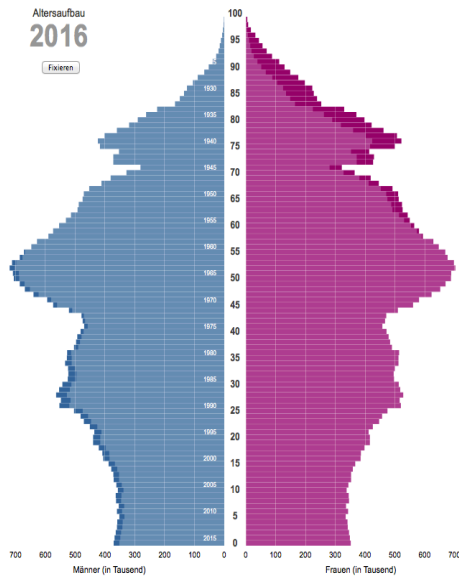
A final approach is to **supplement the pay-as-you-go system by a supplementary funded system**.

So the reforms to be reported deal with this. In 2003 a committee established by the Federal Government - chaired by Prof. Bert Rürup – published a study on “Nachhaltigkeit in der Finanzierung der Sozialen Sicherungssysteme” (Sustainability in the Financing of Social

³ The other half paid by employer

Security Systems)⁴ which addressed all issues and already then presented solutions which roughly have been followed by the reforms to come.

The following charts⁵ will show the age pyramid for Germany as of 2015. (“Männer in Tausend” means “men in thousand” and “Frauen in Tausend” means “women in thousand”)



2. Reform in 2001

In 2001 there was a major pension reform in Germany which introduced subsidized private pensions and subsidized conversions of earnings⁶. The relevant acts (Altersvermögensgesetz

⁴ *Bundesministerium für Gesundheit und Soziale Sicherung, Nachhaltigkeit in der Finanzierung der Sozialen Sicherungssysteme, Bericht der Kommission, Berlin 2003*

⁵ © Statistisches Bundesamt

and Altersvermögensergänzungsgesetz) were passed on June 26, 2001 resp. March 21, 2001 and became effective January 1, 2002. The reasons for the reform were as follows:- it was feared that the contribution rate for public pension insurance would rise to 26 per cent by 2030 – due to demographic change. Such a high contribution rate together with expected increases in public health insurance contributions were viewed as being too high. The viability of the pay-as-you-go system is vulnerable to demographic change (a low birth rate in the baby-boom generation), from early retirement and late entry into the job market. Reforms over the recent years have made early retirement less attractive and have introduced small cuts or “adjustments” in the benefit system; but without the reforms of 2001, the contribution rate for pension insurance would have been 26 % of gross salary compared with a current rate of 18.7 %.

The reform therefore was aimed at keeping the contribution rate in public pension insurance at around 20 % until 2020 and 22 % until 2030 but with some reduction in the overall replacement rate. The outcome of a debate on pay-as-you-go financing compared with funding led to the introduction of some elements of capital funding in the overall system of old age protection.

By 2030 the replacement rate was at that time projected to be at 58.5 %. In 2040 the projected level was assumed at 51.5 %. The solution was to introduce a capital funded personal pension – named Riester-Pension after the Federal Minister for Labour and Social Order at that time Walter Riester. It is a system of subsidized personal pensions organised on a voluntary basis. The subsidy is via tax deductibility, cash subsidies and a reduced social insurance contribution base. When the scheme was initially developed lawmakers were not sure if this new measure would be widely accepted and thus planned to make it mandatory if the acceptance rate was low. This meant also tax-sponsoring of occupational pensions meeting the requirements of conversion of earnings which means that if an employee decides to convert earnings into pension entitlements in a pension plan provider by his/her employer, the employer then has to convert this into a pension right which means that s/he will set up an account on behalf of the employee in the employer pension scheme. This is

⁶ See *Steinmeyer*, Private und betriebliche Altersvorsorge zwischen Sicherheit und Selbstverantwortung, Gutachten 65. Deutscher Juristentag, 2004, Munich 2005; See on this *Veil*, Germany's Pension Reform in 2001: More or Less Gender Equality?, in: *Hughes/Stewart* (Ed.), *Reforming Pensions in Europe*, 2004, pp. 207

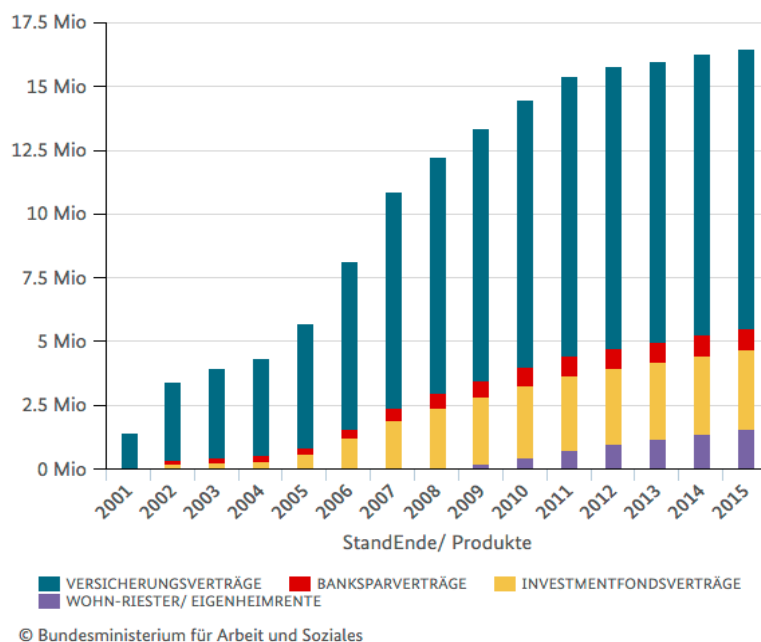
voluntary for the employee and the employee can in principle “convert” as much of current pay into pension entitlements as s/he wants but practically speaking will limit it to what can be afforded and what is tax deductible as expenses for pensions and other provision.

The Reform in 2001 recognised these developments and introduced a requirement that employers are obliged to provide plans for conversion of earnings. Employees may also purchase other personal pensions which meet certain requirements set up by law. A combination of different approaches was used in the reform of 2001: in the first place any employee could require that his employer establishes a pension plan to be used for conversion of earnings of up to 254 € per month. In addition a system of state subsidies was established which applies if a person subscribes to a pension plan or a pension contract meeting certain requirements. This pension plan can be used either for conversion of earnings – linked to an insurance-based employer’s pension plan – or for any other plan which can be exclusively used only for retirement and works as a lifetime annuity, i.e. covering longevity risks as well. These plans are offered by insurance companies, banks and investment funds; what kind of investment they make depends on the rules for the different providers. “Riester Pensions” in a narrowly defined sense refer to these latter plans. The conversion of earnings in the meaning described above might be referred to as a Riester-sponsored pension or - in a broader sense a Riester Pension.

In all cases it is required by law that an amount equivalent to the contributions paid has to be guaranteed at the time of payment of the Riester pension. This means that investment risks are borne by the provider of the Riester product and results in a conservative investment approach. Therefore there is also no discussion on the effects of the credit crisis on Riester pensions.

To make Riester pensions attractive for employees a special tax subsidy was introduced. This means that amounts up to 2.100 € per annum are tax deductible. An alternative subsidy is not based on tax exemptions but on a cash subsidy administered by a special authority. This is specifically aimed at low income people who may be unemployed or whose income is insufficient to pay tax. In order to receive this subsidy an individual must establish and contribute to a Riester Pension plan. In order to be eligible for the cash subsidy at least the basic amount (4 % of last year’s income) has to be paid into the contract. For a person with two children at an income level of 30.000 € p.a. this subsidy may be of 754 €.

In the first years the take-up of Riester pensions was low. Possible reasons for this were the lack of awareness of the need for additional pension coverage, the unattractiveness of these plans for the insurance industry since charges could not be 'front-loaded' (groups at the beginning of the plan) but must be spread over a period of ten years. In addition in the first years subsidies were low as the system was phased in over a number of years. Last but not least the rules for this system were very complicated and difficult to understand and to work with – not so much for employees but for financial firms such as banks and the insurance industry. In this period it was feared that the Riester Pension would turn into a Riester flop. Against this background there were some reforms of the Riester system in more recent years. In 2005 the rules for certification were simplified and the system of commission for financial firms selling Riester contracts was made more attractive. In 2006 a general requirement of unisex mortality tables in Riester pensions was introduced. Finally from January 1, 2008 Riester pension entitlements can be used for financing a house or apartment intended for own use instead of receiving a Riester pension as an annuity. The development of Riester is shown by the following table which shows the number of contracts.



Findings⁷ have shown that personal pensions, i.e. Riester plans and conversion of earnings, are popular among medium and high income people. But they are not popular among low income people. It could be argued that low income individuals cannot afford additional

⁷ Coppola/Gasche, Die Riester-Förderung – das unbekannte Wesen, MEA Research Paper 244/2011

pension contribution. Although it should be noted that those on low incomes receive a cash subsidy so that in order to contribute to a Riester pension very little of their own funds must be contributed; the cash subsidy is applicable if a person contributes at least 1 % of its own last year's income. One possibility is that low income groups are not aware of the subsidies attached to Riester pensions. Another possibility might be that the Riester pension will be regarded as income under a means test in the case of a means-tested benefit in old age.

Therefore a basic criticism of the reforms is that the aim of avoiding poverty in old age is only met for people with medium and higher income who must contribute a greater amount than before the reforms. So those who contribute to Riester pensions will compensate for the reduction in Social insurance based pensions but in the end they pay more to achieve the same replacement rate as might be expected from the public insurance system alone prior to the reforms. So this reform has met its expectations only in part.

3. Reform in 2005

The reform in 2005 was a kind of follow-up on the reform of 2001. It was found that the measures in 2001 had not been sufficient enough to ensure a sustainable system. Therefore this reform – also called Rentenversicherungs-Nachhaltigkeitsgesetz (Act on Sustainability of Public Pension Insurance) introduced the above-mentioned sustainability factor which has shared the demographic risk between retirees and workers⁸. The factor also takes into account the financial efforts of individuals to save in a Riester plan, i.e. to get additional private and funded pensions and reduces the income base. The “Riester Factor” has been criticized since private additional efforts reduce the pension paid by the public pension system⁹.

This reform also abolished certain types of early retirement – for example retiring at age 60 after periods of unemployment.

⁸ See *Bundesministerium für Gesundheit und Soziale Sicherung*, *Nachhaltigkeit in der Finanzierung sozialer Sicherungssysteme – Bericht der Kommission*, Berlin 2003

⁹ *Steffen*, *Wirkungsanalyse der Riester-Treppe*, Berlin 2013

The reform was aimed to achieve a more long-run stability and intergenerational equity in the pension system. This ought to have a self-stabilizing effect¹⁰. It as a matter of fact indeed stabilized the system but also reduced pension benefits and by that reduced the replacement rate which in the end leads to less money on old age – and by that more burden on other social systems like social assistance because a lower pension might lead to poverty among the elderly. As computed, this factor in the first years due to low wage increases would have led to not only smaller increase but even cuts in benefits in pay. As a consequence it was fixed by law that the benefit amount should not be cut but it would be compensated by Zero-indexation for a couple of years; that again led to political problems since pensions were practically not adjusted despite considerable wage increases.

But in general this reform was not controversial as such since it was clear that such a stabilizing measure was necessary. The “only” problem has been that by this measure the replacement rate decreased further.

4. Reform in 2006

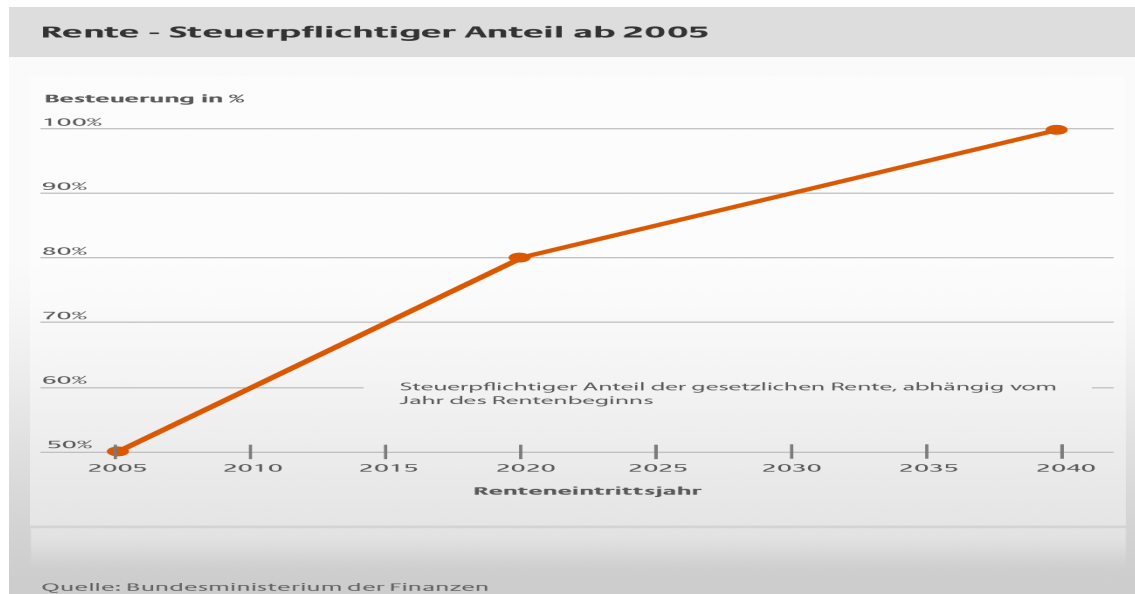
As already mentioned above the tax treatment of pensions from public pension insurance vs. pensions for executives was found unconstitutional by the Federal Constitutional Court (Bundesverfassungsgericht) in 2002¹¹.

In order to follow the constitutional requirements in the *Alterseinkünftegesetz* (Act on Old-Age Income) the taxation system was adjusted and now in principle not only pensions of public executives are taxable income but also pensions from public pension insurance¹². In order to make this workable from a fiscal point of view but also from the point of view of the beneficiaries there is a long transition period.

¹⁰ See *Börsch-Supan/ Reil-Held/Wilke*, How to make a Defined Benefit System Sustainable: The “Sustainability Factor” in the German Benefit Indexation Formula, Mannheim Institute for the Economics of Aging, Reserch Paper 37-2003

¹¹ Decision of March 6, 2002 - 2 BvL 17/99

¹² See also *Wagner*: Die neue Renten- und Pensionsbesteuerung, Regensburg, Berlin 2004.



Rente – Steuerpflichtiger Anteil ab 2005 – means Pension from public pension insurance – part subject to taxation

Renteneintrittsjahr means year of start of pension

It can be seen from the table that over a long time public pension insurance benefits will be taxable income only in part – and in the same way deductible expenses will increase over the years.

This reform was a consequence of a legal issue but as an effect it also harmonized the German taxation rules substantially with the taxation rules of most other countries which in general make expenses for pensions tax deductible and tax pensions after retirement as income. The different rules have brought a number of problems in Europe when persons moved from one country to another one.

5. Reform in 2007

A highly controversial reform has been done in which changed the retirement age for the first time since 1916 when it was brought down from age 70 to age 65. As mentioned above one of the solutions for the pension problems is to increase retirement age which shortens the average period of payment of benefits and by that may lead to savings in pension expenditures. Therefore the intention of the Altersgrenzenanpassungsgesetz (Act on Adjustment of Retirement Age) raised the normal retirement age from 65 to 67. This is not done in one step but as shown above in a number of steps until 2030. This also applies to other old age systems like those for public executives and occupational – private – pensions.

This move has been highly controversial – not among the experts who had discussed and proposed it already for a long time¹³ - but in the general public. Experts always have been convinced that retirement age has to be increased and already urge to increase retirement age even more – to 69 or 70 in the foreseeable future¹⁴. Originally the retirement age of 65 was aimed to give a pension to people who are typically unable to work because of age. Public health has been improved substantially over the decades and so people age 65 are much fitter than they have been decades ago. Early retirement then became a chance to enjoy a healthy retirement. The move towards working longer therefore was very unpopular and may even have become one of the reasons why the Social Democrats in elections in 2009 came down to around 25 % of voters from over 35 % before. It is still to be seen that most people retire before the normal retirement age of 65 and 6 months as of 2017 but the average age they retire has raised considerably. But earlier retirement has become “more expensive” because the actuarial reduction now takes the now normal retirement age as the basis.

6. Reform in 2014

In 2014 – right after the beginning of the current term of the German Bundestag (Federal Parliament) and government two different measures have been introduced which are in a way improvement in a sense that they improved the position of beneficiaries and possible retirees. It did not ease the financial burden on the system but rather introduced additional expenses.

This reform dealt with the so-called Mütterrente (mothers’pension) which means that the same number of credits for children are provided for births before 1992 as are provided for births after that date. So by now for those births two earnings points are credited until 2017 and after that three earnings points. This has put an additional financial burden on the system but was justified for reasons of equal treatment.

Far more controversial and problematic has been the introduction of early retirement at age 63 without actuarial reductions. This is limited to certain age cohorts and requires additional

¹³ *Berkel/Börsch-Supan, Renteneintrittsentscheidungen in Deutschland: Langfristige Auswirkungen verschiedener Reformoptionen, MEA Research Paper 31/2003*

¹⁴ See Deutsche Bundesbank, Monatsbericht August 2016 pp. 69

conditions to be met. In the first place it was estimated by the Federal Government that the claiming of this benefit would be limited but instead this form seems to be very attractive. The criticism comes from the fact that the message to be sent to the general public should be to accept later retirement rather than to make a kind of early retirement more attractive. It is a draw-back from the idea behind the actuarial reduction in case of earlier retirement. The additional costs or less savings for the system (no actuarial reduction) may be 10 billion € in 2018 and close to 20 billion per year in 2020¹⁵. It is also criticized that only the older generation may profit from it and the younger generation has to bear the additional costs. Last but not least it is also contradictory to moves at the EU level to get people acquainted with a longer working life. The EU Commission proposes to link retirement age to increasing life expectancy¹⁶. In a period of decreasing unemployment, industry also points to a loss of experienced and qualified personnel. In conclusion here this seems to be a move by the Social Democrats in government to deal with the opposition against unpopular raising retirement to age 67.

7. Reforms in 2016/17

In 2016/17 there have been several reforms in public pensions to be mentioned. Following the certain move towards back to earlier retirement the „Gesetz zur Flexibilisierung des Übergangs vom Erwerbsleben in den Ruhestand und zur Stärkung von Prävention und Rehabilitation im Erwerbsleben“ (Flexirentengesetz)“ (Act on a more flexible transition to retirement and on prevention and rehabilitation) was adopted. This new law will make it easier to work part-time in the period prior to full retirement and to receive a kind of part-time old-age pension. This law also makes it easier to work beyond retirement and thus gives additional incentives to work longer and retire later.

A very recent reform will finally unify the rules for pensions between East Germany and West Germany. Generally the same system applies but still there are some different figures calculations are based on. This will be harmonized gradually over the years until 2024.

¹⁵ *Institut der Deutschen Wirtschaft, Rentenpolitik: Die Jungen sind die Dummen, Cologne April 2017*

¹⁶ *European Commission, White Paper, An Agenda for Adequate, Safe and Sustainable Pensions, COM(2012) 55 final*

IV. Conclusion

The German situation gives a mixed picture. In a way Germany has used all possible parameters for a sound and sustainable financing of public pension insurance.

The choice of increased pension contribution has not been considered. This is mainly because the financial burden – taxes and contributions – on the wages and other income is already rather high and cannot be increased anymore. This also would affect international competitiveness of Germany. There has once been a discussion on linking contributions to productivity; but this has been sorted out; this was especially for two reasons - one being the danger for competitiveness in high technology and the other being the weakening of the contributory nature of the system and the earnings-relation of benefits.

The choice of cutting benefits has been used in a number of detailed provisions. This was done mainly by using the system of earnings points and changing the value of non-contributory periods.

Indirectly this was also done by using the pension value formula. Here it has to be pointed to the sustainability factor which takes into account the relation of number of retirees to the number of persons paying into the system. The demographic risks by this move is shared between the working generation and the retired. All this is done with a kind of legislative automatism and therefore beyond the influence of government, by contrast with changes on which the legislator – parliament – has to act.

Another parameter used is the retirement age. This – like in other countries including China – has been the politically most difficult move since retirement age has something to do with planning one's life and people view retirement as a – final – chance to just enjoy life. In addition there are also jobs with high consumption of personal energy that cannot be performed anymore by older workers so they wish to retire earlier. The retirement age move has been to raise it to age 67 but allow earlier retirement – but with actuarial reduction reducing the amount of benefits. The problem of this move is shown by the recent instruction of a retirement at age 63 without actuarial reduction for a number of years. This has to be seen as a political move and should not put into question the overall need to increase retirement age even more in the future.

Instead of enabling early retirement the move should be to make working longer more attractive. This is not only an issue of the rules of the public pension system but also of other incentives to stay in the labor market like part-time retirement or incentives for employers to employ older workers or continue to keep them in the jobs. Therefore consequently the latest move in Germany is that of arranging more flexibility.

Nevertheless all this has led to a considerably lower replacement rate for the future. Originally public pension insurance was aimed to provide a replacement rate after a full career of about 60 - 70 % of net income. Now it is estimated at less than 50 % and will even be lower in the future¹⁷ (Rentenniveau means net replacement rate)

Jahr	Rentenniveau in Prozent (netto vor Steuern)
2017	47,9
2018	47,6
2019	47,6
2020	47,6
2021	47,5
2022	47,3
2023	46,9
2024	46,4
2025	46,0
2026	45,7
2027	45,3
2028	45,0
2029	44,6
2030	44,3

This is because of all the moves explained in this paper but also increased life expectancy.

This also means that public pension insurance can no longer be the only source of income in old age. Therefore Germany just recently has considerably improved the system of supplementary – occupational – pensions and tries to improve coverage also among employees of small and medium-sized companies. This will be done by introducing defined contribution plans based on collective agreements¹⁸. In addition people are advised to save for retirement themselves.

¹⁷ Rentenversicherungsbericht 2015

¹⁸ See *Steinmeyer*, in *Erfurter Kommentar zum Arbeitsrecht*, Commentary on Betriebsrentengesetz – Supplementary Pensions Act, 18th edition – in Print

Parametric Pension Reform in European Member States

Country Report Italy



Component 1

July 2017, v.3

COUNTRY BRIEF

ITALY'S SOCIAL SECURITY SYSTEM REFORMS IN THE LAST DECADE

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1. Introduction

In the last decade Italian policymakers (Government and Parliament) completed the reform process of the national social security system, which started already in 1992. Many reasons called for a structural reform of the system. Demographic projections foresaw a prolonged and intense process of ageing for the Italian population, pushed by a low fertility rate coupled with a decreasing trend in mortality, particularly among +65 individuals. A very fragmented and generous system allowed current and past pensioners to receive high benefits, both in term of replacement rates and of internal rate of return. The prevalence of a DB system in the computation of pension benefits induced a substantial share of workers to retire as soon as possible, making the average retirement age particularly low in the international comparisons. Finally the system was fragmented and very badly designed in term of target efficiency: means tested programs for the definition of eligibility of minimum pensions were totally absent and often resources for poverty contrast among older people were totally misallocated. Considering all these factors the pre reformed system was at the same time not financially sustainable, determined undesired intra-generational and the intergenerational distribution of resources and distorted the retirement choice of workers.

After a first structural reform in 1992, which modified the indexation rule, progressively increased legal retirement age and reduced benefits for future pensioners still maintaining the DB formula, Italy introduced an NDC formula in its pension system in 1995. NDC systems usually replace a salary based formula for the computation of individual pension benefits with a (quasi) actuarial one, still maintaining the PAYGO structure, as far as the finance mechanism is concerned. With respect to a “theoretical” NDC scheme, the Italian one, at the beginning of the observed period in 2007, showed some notable peculiarities that jeopardized the internal consistency of the system, its neutrality and its capacity to cushion economic and demographic shocks. In particular: i) contribution rates were not equal across schemes; ii) the retirement age was not flexible; iii) the

frequency of the adjustment mechanism in the conversion factor that allows the system to be automatically insured against demographic and economic shocks was agreed to occur every ten years; iv) no adjustment in the indexation mechanism of pension benefits was foreseen.

As for the speed of transition to the NDC system two main aspects of the pension law were worth noticing. First, starting from 1995 the employed population has been split into two groups. Workers with more than 18 years of contributions in 1995 were allowed to compute their future pension benefits under the (more generous) old DB-salary based formula, while workers with less than 18 years of contributions accrued pension rights under the NDC system with a pro rata mechanism. Consequently future pension benefits for workers belonging to this second group will be either computed completely under the NDC rule only for those who entered in the labour market after 1995, while for the remaining workers future pension benefits was to be computed as a weighted average of a DB and a NDC pension, the weight depending on the period of activity before and after the 1995 reform. Second, a “double” exit route to retirement allowed workers in the old DB and in the mixed systems to either retire at the legal age (65 for men and 60 for women) or to anticipate retirement (once having fulfilled less binding eligibility conditions in terms of seniority at retirement and age).

Two priorities were underlined by scholars of pension systems and by international institutions: i) even if the Italian pension system was to be considered as financially sustainable in the long run (i.e. when the NDC system was expected to be completely phased in around in 2035), more troublesome was the financial perspective in the short and in the medium run, particularly because of the very slow transitional path designed in the former years; ii) important distortions in the choice of retirement were still embedded in the (DB) formula that allowed current workers to retire. The low average retirement age of current pensioners was a confirmation of it.

In order to better analyze what happened in the period 2007-2016 it is useful to take into account that, from an economic policy point of view, two different objectives have been pursued by policymakers. The first deals with the long term design of the NDC rule within the Italian pension system, while the second has to do with the speed of the transition from the (old) DB rule to the (new) NDC one. Both of them will have important financial, macroeconomic, microeconomic and distributive consequences.

Main legislative changes occurred in 2010 and at the end of 2011. The picture that emerges, in particular after the 2011 reform, is one of a public pension system that will maintain its centrality

in the financing of income during old age. At the same time new rules determine an unprecedented (at least for Italy) increase in the retirement age that seems, ex-ante, the only device that should allow the realization of a system that is both adequate and sustainable during the demographic transition that will end at around 2050. In fact short term result of the sudden raise of the retirement age realized in a period of severe recession seems to show that a substitution effect between young and old workers has frustrated Government aims, while the long term perspective of an ageing working force should solve the question about productivity of older workers.

Finally reforms, in particular the 2011 one, were approved during a period of severe financial stress for the public budget. This fact did not help a correct and complete communication of the financial and distributive effects of the reform. Complete informative campaigns, already foreseen in the 1995 reform, were not yet completely realized, even though they started in 2015 and should be completed before the end of the year 2017. Empirical research seems to confirm the poor level of information among workers with respect to their expected future level of pension benefits and, particularly worrying, with respect to the eligible retirement age.

2. An overview of the Italian social security system

The Italian public pension system is mandatory and financed through a pay-as-you-go basis. It covers practically the total of individuals above the legal retirement age, currently fixed at 66.7 years. In a broad term two different kind of benefits are provided by the National Social Insurance Institute: i) insurance based benefits which are paid to individuals (and their familiar) that contributed to finance the system when working. Among these the most important are old age, survival and inability pensions; ii) social allowances for the poorest part of the older population that did not participate to the labour market when adult. In particular a not contributory social allowance financed through general taxation and some additional lump sum payment are the principal benefits belonging to this second group.

Total public pension expenditure reached 15.9% of Gdp in 2016. Old age and disability pension benefits covers around 85% of the expenditure, while 10% is directed to finance survival pension benefits and 5% is used to finance social assistance transfers.

The systems has been radically reformed in the last 25 years, starting from first structural interventions in 1992. The crucial change occurred however in 1995 when an NDC formula was

introduced in the pension system for the computation of both old age and inability pensions. The basic idea of NDC schemes is to mimic a DC funded pension plan without setting aside reserves. Each worker who belongs to the system is credited a “notional” account where all social security contributions paid during active years of work are registered. Since the system is not funded and contributions are not invested into the financial market, they earn a rate of return that is defined by the pension law and that does not depend on the financial markets’ performances. At each point of his/her lifetime the value of the worker’s account is determined by the sum of past contributions and accrued yields. When the retirement age is reached a pension benefit is computed in such a way that the present value of all future expected pension benefits must be equal to the accrued value of the notional capital. Crucial variables in the determination of the first year pension benefit are the amount of the “notional” capital, the individual’s expected lifetime, a discount rate and the indexation rule for future pension benefits. Strict correlation between premium paid and benefits received allows the NDC system to permit a high degree of flexibility in the choice of the retirement age, making the system potentially neutral with respect to the choice of the age of retirement. A simplified version of an NDC pension rule can be synthesized as:

$$P_{\text{NDC}_{\text{age}}} = k_{\text{age}} MC_{\text{age} - 1}$$

As for the Italian system, retirement age flexibility was initially permitted in the age bracket 57 - 65. From 2004 this flexibility was suspended and a retirement age of 65 for men and 60 for women was reintroduced.

The term k was to be computed using gender weighted cohort based demographic projections of mortality of the insured and of the spouse and was to be expected to adjust periodically (every ten years) in order to take into account of longevity changes. The term MC was computed

Survivor’s pensions are acknowledged to the spouse and/or children of the deceased pensioner or contributor. They typically amount to 60% of the pension benefit, but this amount can be reduced in as familiar income of the survivor overcome certain thresholds.

A means tested social assistance benefits for older than 65 years individuals was provided in case of low (household) income, regardless of contributions paid during active lifetime. The old age

allowance equal to 5,600 Euro per year is increased with a lump sum transfer for the 70+ individuals. Also individuals aged between 65 and 69 can receive a lump sum transfer, but the amount of it is lower and depend also positively on the seniority at retirement.

Pension benefits were indexed to price inflation. Indexation was not complete as it decreased non linearly with the individual's pension income level.

Contribution rates were differentiated by employment sector. In particular private and public employees paid 33% of their gross labour income of which about 1/3 from the employee and 2/3 by the employer. The self-employed paid 20% of their net income. Atypical workers finally paid 18% of their gross income.

A double exit route to the retirement was allowed for workers which belong to the DB and the mixed systems. Eligibility conditions, which considered both an age and a seniority parameter, are described in the following table. Figures in the table allow to highlight that, before 2007, workers with a relatively high seniority at retirement were allowed to retire earlier than the "legal" age of retirement. This was particularly true for men, since their retirement age was fixed at 65 (60 for women).

Table 2

Eligibility condition for an anticipated old age pension before 2008.

	Only contributions (years)	Age and contribution (years)
Private employees	40	57 and 35
Public employees	40	57 and 35
Manual workers	40	57 and 35
Self-employed	40	58 and 35

3. Main legislative changes occurred in the period 2008-2016

The main legislative intervention into the Italian pension system during the last decade is the 2011 reform. This can be considered as the final point of the long and difficult process that, starting from 1992, radically modified the Italian social security system. Some important changes into the system were also realized also in 2008 and in 2010. In particular eligibility conditions to gain the right to a seniority or anticipated pension benefit, reported in the table 3, were progressively tightened and, starting from 2009 a third condition to be respected to retire earlier, defined by the sum of age and seniority, was introduced in the system. At the same time a peculiar legislative distinction between the age at which the right to retire was acquired and the age at which the pension benefit was supposed to be paid was introduced, determining de facto a delay in all retirement ages of 1.5 years on average. In 2010 the Government proposed and the Parliament approved the linkage of the retirement age to lifetime expectations at 65, implying an increase of around 3 years during the next decades, at least according to Government demographic projections. In the same year the age of retirement for women working in the public sector was raised to 65 years.

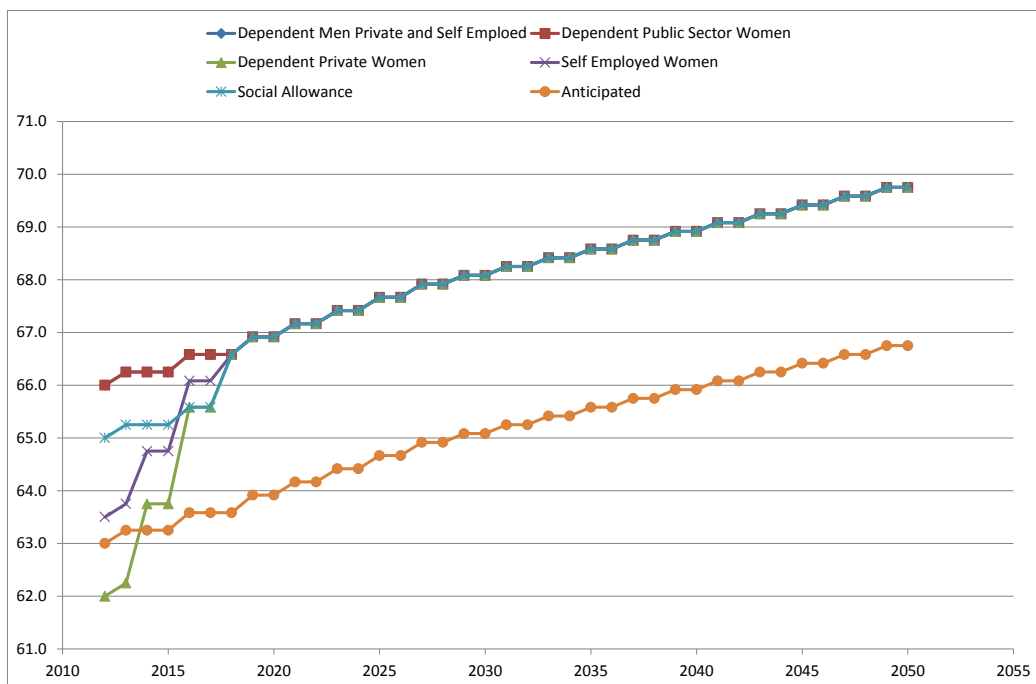
As stressed above however the main legislative intervention occurred at the end of 2011 when the Government, pushed by the financial crisis of the Italian public debt proposed a more structural set of changes in the Italian pension system. Main point of this reform can be summarized as follows:

- i. The contribution rates for self-employed and for atypical workers have been gradually raised to 24% and 27% respectively.
- ii. A (theoretical) bracket of ages, from 63 to 70 years substituted fix retirement age of 65 for men and 60 for women.
- iii. The “normal” retirement age was gradually raised for all categories of workers and for both men and women. Starting from 2017 legal old age pension benefits can be claimed at 67.6 years for all workers.
- iv. NDC future pensioners can retire at the “normal” age only if their accrued pensions is higher than 1.5 times the social allowance and having matured at least a contributory period of 20 years. If one of this conditions is not fulfilled they are supposed to work longer.
- v. An anticipated pension is possible three years before the normal age, but only if the accrued pension benefit is 2.8 time the social allowance. Anticipation is also possible

for individuals in the mixed and in the DB scheme with at least 42 years of contributions irrespective of effective age.

- vi. The frequency of the adjustment in the conversion factor k of equation (1) that contribute crucially to the computation of the final pension benefit is now foreseen every second year.
- vii. All age and contribution eligibility conditions for old age, anticipated and social allowance pensions will not remain constant in the future as they are directly linked to the evolution of lifetime expectation at 65. This means for example that, according to projections of the National Statistics Institute, the “normal” retirement age and the maximum retirement age could reach respectively 70 and 74 in 2050.

Figure 1
Age eligibility conditions to claim an old age or an anticipated pension. 2012 – 2050.



The main normative change which interests the transition to the NDC rule is that starting from 2012 the NDC formula will apply also to people that had more than 18 years of contribution in 1995, although only for their years of work starting from 2012.

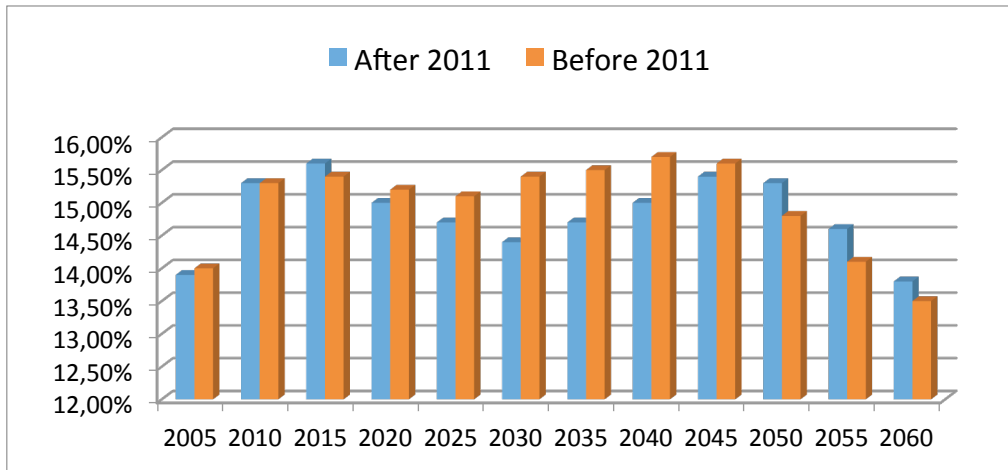
4. The financial and the distributive impact of the reform

The medium and the long run financial and distributive effects of the current arrangement of the pension system are monitored by different institutions and models. Pension systems' performances can be analyzed looking at them from different perspectives. In particular, using a widely used European classification, sustainability, adequacy and degree of modernity of the system, together with intra-generational and intergenerational distribution, are important perspectives through which a pension system can be evaluated.

The financial impact of the 2011 pension reform can be appreciated looking at the figure below, where the ratio between aggregate pension expenditure and Gdp for the period 2010-2060 as estimated by the Ministry of Economy forecast model, is reported. Both before and after the 2011 reform the ratio of pension expenditure over Gdp decreases in the final part of the simulation period, after 2040. The decreasing ratio in the final part of the simulation can be explained by the stabilization in the demographic ratios coupled with the complete phasing in of the NDC system. Important differences are however present in the pre and post reform scenarios as for the dynamic of the pension expenditure over GDP ratio in the short and in the medium run. The sudden and stringent restriction in the eligibility condition to claim a pension benefits is the main reason that explains the lower value of the sustainability indicators in the post reform scenario.

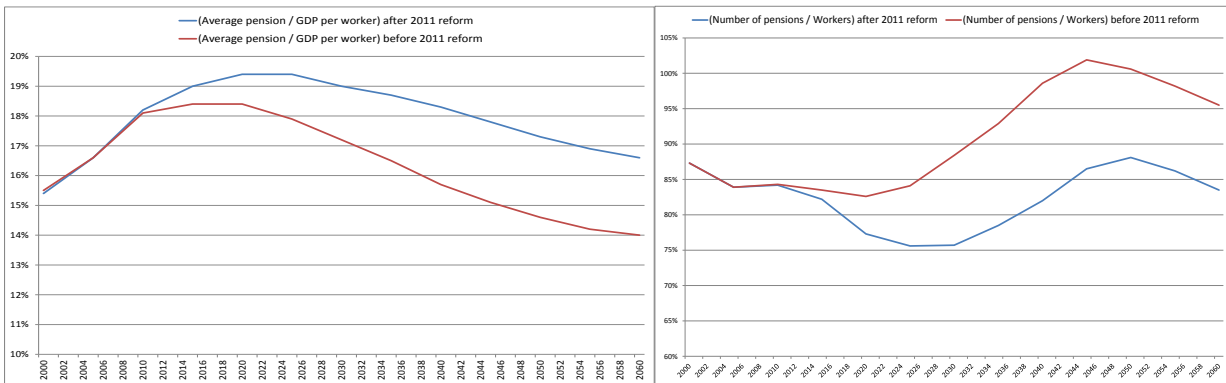
Figure 2

Ratio of pension expenditure to GDP before and after the 2011 pension reform.



The dynamic of the ratio between pension expenditure and GDP can be decomposed in an economic and a demographic component. The following two figures report the evolution of the average pension over GDP per worker and the evolution of the ratio between the number of pension benefits over the number of workers. Starting from the latter the implications of the restrictive nature of all the interventions on the retirement age for the future pensioners are evident. The raising path of the retirement age reduces considerably the impact of the ageing of the Italian population in the first part of the simulation. The difference between the situation before and after the reform is impressing in particular in the short and in the medium run. The consequence of a higher average retirement age on the level of future pension benefits (for a given value of Gdp per capita) contributes to explain the dynamic of the first economic ratio which sees a remarkable improvement of the relative conditions of average pension benefits with respect to Gdp per worker.

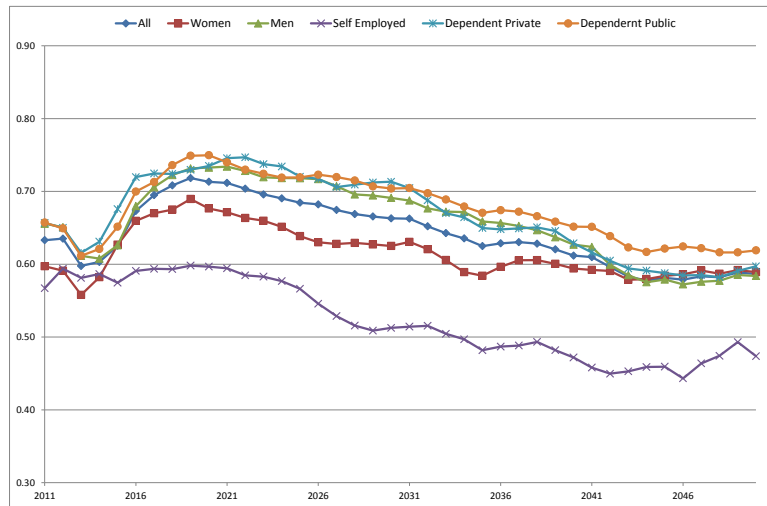
Figure 3
Demographic (left) and economic (right) components of the pension / GDP ratio before and after the 2011 reform.



Source: Rgs (2012)

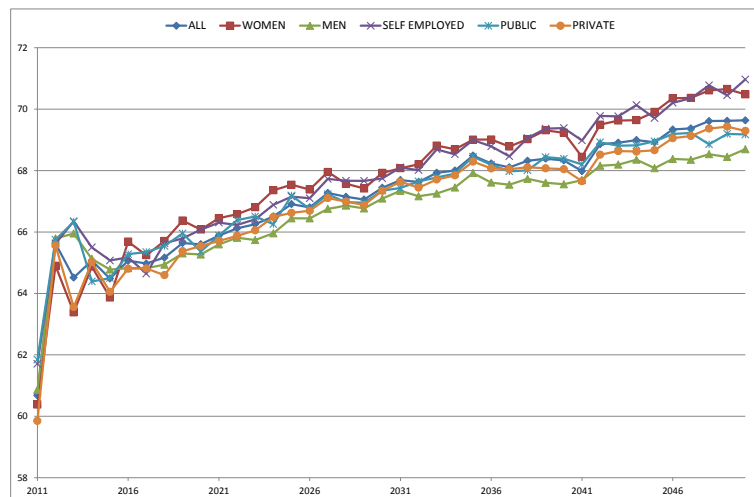
In order to evaluate the adequacy of the system the following two figures report the evolution of the replacement ratio (RR) and of the average retirement age derived from the simulation of a dynamic microsimulation model in the period 2011 – 2050. The RR is an immediate but imperfect indicator of the adequacy of a pension system. From one side it reports immediately the ratio between the first pension benefit and the last wage/earning of a pensioner, a quite intuitive measure. From the other side it does not report information on the familiar income situation before and after retirement and it does not take into account of the fact that the ratio, in particular under the NDC rule is “age sensitive”, as it changes remarkably with the retirement age of the pensioners. Accordingly results of the next two figures give a more complete picture of the likely evolution of the adequacy under the reformed pension system in Italy. On a nutshell we can affirm that the Italian pension system appears to be able to guarantee in the next decades similar level of adequacy, with respect to the performances reached in the past and notwithstanding the progressively increasing weight of the NDC rule, only thanks to a remarkable increase in the average retirement age which on average increases from 60-62 in the beginning of the simulation to 70-72 at the end of it.

Figure 4
Forecasted replacement rates between first year pension benefits and last year wages
after the 2011 reform



Source: CAPP_DYN

Figure 5
Forecasted retirement ages after the 2011 reform



Source: CAPP_DYN

Important differences are still on. In particular self-employed workers expect a lower RR because of their lower contribution rate, while shorter contributory periods and lower retirement age explain the worse performance of women with respect to men.

5. Pension system and information

A distinctive feature of the Italian pension reform process is that the main legislative changes in 1992, 1995 and 2011 were approved during periods of financial crisis, with the aim of reassuring the “financial markets” of the sustainability of the Italian public finance. Accordingly, there was a lack of debate before the approval of the reforms and little effort was expended by public institutions on explaining and describing their likely microeconomic and distributive effects, both in the short and in the medium-long run. In spite of this, the idea that the reform of the pension system was still incomplete and that “worse was still to come” was a constant refrain in media reports throughout the period.

Starting from the first two structural reforms of the pension system (in 1992 and in 1995) the Parliament divided the working population into two distinct groups: workers with more and with less than 15 years of seniority in 1992. Only for the second group new rules for the computation of the future pension benefits were applied according the pro rata mechanism. In fact following this policy Parliaments and Governments realized a generational split, which can be noticed not only in pension law modifications, but also in the creation of a labour market where flexibility and deregulation is much more pronounced among young workers. Some observers highlighted that this could be a consequence of the very high rate of participation of adult workers to national trade unions, which were called to discuss pension reforms, in particular the one of 1995, which introduced the NDC system in Italy. It is also important to remember that in 1993 trade unions and Government signed an important political agreement which introduced in Italy a long period of wages moderation. In this sense the generational split in the pension reforms and the wages’ moderation can be interpreted as two important components of the more general attitude of the Government, which was widespread in the Nineties of the last century, to involve the opposition and trade unions in the most important political decisions. Ex post this policy has had both advantages and costs: on one side it made possible the approval of the reform in the pension system, on the other hand, leaving older workers untouched by the restrictive impact of legislative changes had important financial costs in term of less saving for the public purse.

A second important point so stress is the opacity in the communication policies on the effects of the reforms. A notable example is the way the Government and trade unions decided to inform individuals about the likely effect of the reform. Choosing to concentrate attention only on the Replacement Rate as an indicator of the effect of the introduction of the NDC system they missed the opportunity to make clear the intertemporal implications both on the labour supply decision

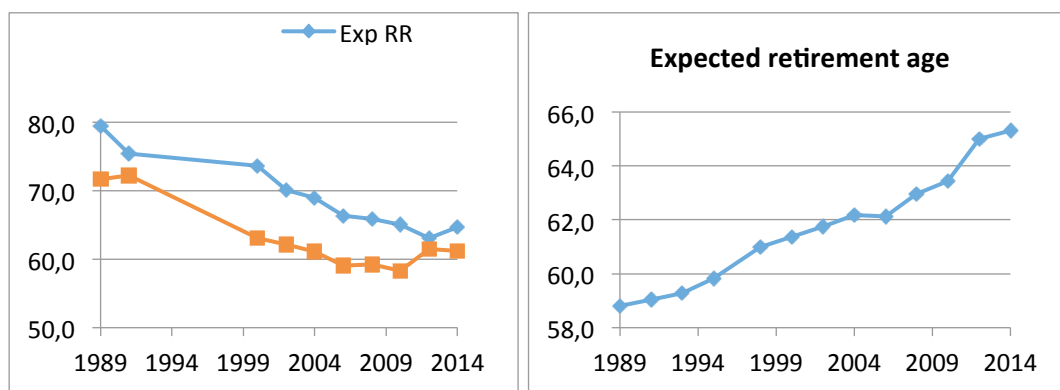
and on the long term (dis)advantage of the NDC system with respect to the DB one from the point of view of the worker.

As for informational policies it is also important to notice that the National Pension Institute (INPS) was supposed, starting from 1995, to inform each worker yearly about his/her prospective level of pension benefit and the age at which he/she would be able to claim the pension, but this legislative duty was constantly disregarded. It was only starting from 2015 that INPS promoted an information campaign called “La mia pensione” (my pension) with the purpose to fulfil this duty.

It is only with the 2011 reform that the generational split starts to end, but in a sense, this happens late since the majority of older workers of the 1992 are already pensioners.

Using various waves of the Bank of Italy’s Survey of Household Income and Wealth (SHIW), we study the evolution of the Italian population’s expectations on future level of pension benefits and retirement age between 2000 and 2014.

Figure 6
Statutory replacement rate, expected replacement rate and planned retirement age (1989–2012).
Average values over the survey’s population.



Average values reported in the Figure 6 above convey the idea that Italian workers revised downward their expected replacement rate and upward their expected retirement age in line with actual changes enacted in the pension reform process. However, matters are more complex than these statistics show.

Expected pension benefits and retirement age

Year	% anticipating the correct retirement age	% with expected pension <75% of the correct pension	% with expected pension within 75%–125% of the correct pension	% with expected pension >125% of the correct pension	% with correct retirement age + correct replacement rate
1989	88.6	4.0	71.6	24.4	63.4
1991	88.4	9.0	73.5	17.5	65.0
2000	77.7	9.0	52.1	38.9	41.9
2002	82.5	7.9	58.5	33.6	49.9
2004	84.8	8.7	56.7	34.5	49.8
2006	81.5	10.4	54.3	35.3	46.6
2008	87.5	8.8	58.4	32.9	52.9
2010	59.8	8.4	57.7	33.9	40.7
2012	60.6	14.3	61.6	24.1	37.7
2014	63.0	11.5	62.1	26.4	40.0
Gender					
Men	75.4	11.0	60.4	28.8	47.7
Women	76.8	7.8	52.2	40.0	41.6
Cohort					
Min/1950	71.9	10.5	61.9	27.6	45.1
1951/1960	75.3	7.5	62.9	29.6	49.4
1961/1970	78.7	9.5	52.6	37.9	44.0
1971/max	75.1	13.8	52.5	33.7	41.3
Geographical area					
North	76.4	11.0	61.9	27.0	49.2
Centre	74.8	9.4	54.9	35.7	42.6
South	76.0	7.6	50.9	41.5	40.9
Education					
Primary	75.74	10.1	60.1	29.7	47.7
Secondary	76.15	9.1	57.1	33.9	45.5
Degree	76.12	10.0	50.4	39.6	39.3
Pension regime					
Defined Benefit	74.0	10.5	78.3	11.2	58.8

Pro rata	77.9	8.6	54.2	37.1	44.8
Notional Defined Contribution	73.9	11.2	42.4	46.4	33.2
Single					
No	76.0	9.6	58.9	31.5	46.3
Yes	75.8	10.0	54.3	35.7	43.7
Occupational status					
Private employee	75.6	10.0	63.1	26.9	49.7
Public employee	73.7	4.8	57.8	37.4	45.0
Self-employed	80.8	17.1	38.0	44.9	32.2

Source: Baldini, Mazzaferro and Onofri (2017)

In order to analyse the level of knowledge about the future pension benefits and the retirement age in our sample and its heterogeneity Table 2 presents a more disaggregated evidence for the two variables. The first column reports the share of workers whose expected retirement age is consistent with his/her particular eligibility conditions. The following three columns refer, respectively, to (i) the proportion of workers whose expected pension benefit underestimates future statutory pension benefits by at least 25%, (ii) are within (+/-) 25% of their computed benefits and (iii) overestimate their benefits by at least 25%. Finally, the fifth column contains the proportion of workers who correctly report both the retirement age and the replacement rate.

In 1989, 88.6% of workers were able to correctly report their retirement age. The percentage of correct responses remains relatively high until 2008. It decreases abruptly in 2010 and still in 2014 the share of those who correctly anticipate their retirement age, at 63%, is abundantly below the level registered during the nineties of the last century. The ability to correctly predict the age of retirement emerges as a new source of uncertainty in the Italian social security system.

The ability to correctly predict a future value for the pension benefit was higher before the reform process began. Starting from a percentage of 71.6% of the sample before 1992, it dropped to 52% in 2000 and then increased more or less constantly. Similar to the case of retirement age expectations, it seems that workers, on average, need time to assimilate changes to the pension benefit formula progressively introduced by the reforms. At the same time an important cut point is the 2011 pension reform. Its impact on workers expectations is evident looking at the proportions of workers who underestimate and overestimate the pension benefit by year: moving from 2010 to 2012 the changes in the share of pessimists' increases from 8.4% to 14.3% and the share of optimists' decreases from 33.9% to 24.1%. Men seem to better predict their future

pension benefits than women. They are also much less optimistic. Controlling by cohort and by pension regime returns similar qualitative information: younger workers are much worse at computing their future pension benefits and are essentially either more optimistic or more pessimistic, denoting a higher dispersion of expectations. Looking at the educational level, a peculiar picture emerges, at least considering results from other countries (Barret et al. 2013; Finseraas and Jakobson 2014): better educated workers in Italy do not display a greater ability to predict either future pension benefits or retirement age. This result is consistent with the findings of Bottazzi et al. (2006) and this evidence can be explained by the fact that among the employed population, more educated workers are much more concentrated in younger cohorts and among individuals who will accrue their pension rights under the less generous and more uncertain NDC system. In fact, the ability to correctly compute the future level of the pension benefit is sensibly lower among NDC workers, who are also more optimistic. In terms of occupational status, the self-employed perform worse than dependent workers. Again, the transition from the DB to the NDC system might explain the difference between these two groups as the change in the computation rule hurts the first group more than the second.

Looking at the last column, it emerges that the proportion of workers who appear to have sound information on both the retirement age and the replacement rate is negatively influenced by the reform and by its duration.

Parametric Pension Reform in European Member States

Country Report Poland



Component 1

June 2017, v.2

POLAND. National pension schemes reforms between 2007 and 2016

Andrzej Szybkie, The Social Insurance Institution ZUS

BACKGROUND AND REFORMS

Pension system before 1999

Before year 1999 there pension system in Poland was complicated, with special provisions and pension privileges for specific sectors of labour market, like for railway staff, teachers, etc.

System was not based on contribution, but pension rights derived from work activity and amount of pension was related to salaries or wages of worker. A lot of non-contributory periods (without contribution paid to system) were taken into account for pension rights and calculation of benefits.

The main feature of the repatriation system was the lack of linkage between the amount of social security contributions paid and the amount of future retirement benefits.

In public opinion and opinion of experts, certain social groups were privileged towards others, which meant funding the system at one expense to others.

In 90s there was a problem with maintaining the financial liquidity of the Social Security Fund, from which pensions, pensions and various benefits are paid. The main reasons were:

- increase in the number of pensioners who were granted benefits after 1991, while the number of insured persons decreased;
- high social security contributions amounting to 45% of salaries in 1998.

The system was becoming increasingly inefficient due to the decline in the number of people working in relation to people receiving pensions.

According to experts, if pension reform was not carried out, then in 2020, expenditure on benefits would amount to 22% of GDP. It should be noted that in 2014 the share of social protection expenditure in Poland by COFOG was 16.1% of GDP in Poland¹.

The main disadvantages of the Polish pension system before 1999 were:

- lack of social security for insured persons, in other words lack of adequate income for old age,
- excessively high contributions, limiting the competitiveness of Polish companies,

¹ By EUROSTAT.

- lack of investment in contributions, but the issue of them used in full according to the PAYG system,
- no upper ceiling for contributions, as the premium accounted for 45% of earnings, regardless of the amount of earnings,
- lack of equal pension rights, due to the existence of numerous industry privileges,
- limited pension amount, because the amount of the pension could not exceed 250% of its basis for assessment,
- need to significantly subsidize the pension system from the state budget.

Reform from 1999

A new general social insurance system and universal pension system in Poland was introduced in January 1999², and it covered insured persons born after 31.12.1948.

By the pension reform in 1999 there were introduced III pillars of old-age pension system:

- 1st pillar (obligatory) – pay as you go system, based on contribution paid to Old-Age Pension Fund; common old-age pension in regular pensionable age is awarded basis on these contributions; contributions collected each month from salary are registered on individual pension account run from January 1999 for each insured person. Current contributions are immediately paid out for benefits (PAG system).

Amount of contributions registered on individual accounts in the first pillar is periodically indexed annually by the price index of total goods and services in the year preceding the indexation period (but not less than the inflation rate).

- 2nd pillar (obligatory at the starting moment of the reform in 1999, currently changed into voluntary pillar) – capital system based on contribution paid to open pension fund (so called “OFE”) chosen from several funds operating in Poland; at the beginning special capital pensions were supposed to be awarded based on these contributions; contributions paid to OFE are registered on individual account and are members of OFE.

Pension insurance contributions are invested in the financial market by private companies - pension fund management companies (PTEs) managing OFE assets.

Contributions in 2nd pillar are not indexed. Capital is increased by the return on investment or reduced to incurred losses.

1st pillar and 2nd pillar are together basic pension system, with the State responsibility for implementation and for financing benefits at guaranteed minimum level.

3rd pillar (voluntary) – capital system - Occupational pension schemes, founded by employers (currently very few programs are in run).

In addition to occupational pension schemes (PPE), the scheme (3rd pillar) offers individual retirement accounts (IKEs), and from 2012 also an individual pension insurance account (IKZE).

² In Poland there are also other special pension systems: for self-employed farmers, for military services, and for judges and prosecutors.

The State and public authorities have no responsibility for the financial results of the 3rd pillar and for level of benefits.

From 1999 each person working as employee or as self-employed (except farmers) is covered by universal social insurance system, as well as some of categories of non-working persons (non-active), like child-raising periods are covered by contributions paid by State.

The universal pension system in Poland is administered by the Social Insurance Institution (Zakład Ubezpieczeń Społecznych), ZUS.

Contribution for 1st and 2nd pension pillars is 19,52% of monthly income (gross).

This contribution refers only to old-age pensions, not disability and survivors' pension, which are financed by the separate contribution paid to so-called "rent fund".

Further changes in years 2007 - 2016

Part of the old-age pension contributions of 19.52%, starting from May 2011, are recorded on a sub-account in ZUS. Since May 1, 2011 the Social Insurance Institution (ZUS) has been running sub-accounts for insured persons. Indexation is the multiplication of the amount of premiums recorded on a sub-index by the annual index value equal to the annual average dynamics of the value of gross domestic product GDP in current prices for the last 5 years preceding the indexation period.

The 2nd pillar (capital) was in 1999 (when a new system was introduced) compulsory for persons born after 31 December 1968, who are subject to social insurance, but persons born after 31 December 1948 and before 1 January 1969 might individually decide to join 2nd pillar.

From 2016, every 4 years, the insured decide whether they will remain in the OFE and the premium will be shared between the ZUS and OFE sub-account or transfer all of our premium from the 2 pillar to ZUS. If they transfer, the sub-account will be discharged 7.3%, but if not the OFE will affect 2.92% of contributions and the sub-account still 4, 38%.

Further change in pension system was on 3rd of February 2014 amounts from all the OFEs corresponding to 51.5% assets were transferred to Old-Age Pension Fund and adequate sums were added to sub-accounts of individuals.

The sub-account stores information about:

- the amount of premiums paid, plus interest for late payment and prolongation fee,
- the amount of funds transferred by OFEs, which correspond to the value of 51.5% of the canceled settlement units deposited in your OFE account, as of January 31, 2014,
- the amount of funds that corresponds to the value of pension funds canceled by the pension funds due to your retirement age by 10 years of retirement age,
- the amount of premiums paid and paid.

Until 1 July 2014 a member of OFE may decide if he or she wishes to continue contributing contributions to the OFE. If you make a declaration of contribution to an OFE, contributions to the fund are 2.92% of the revenue). The subscriber is then credited 4,38% of the base. If a

member of the OFE has not made a statement, a contribution of 7.3% of the income is recorded on the insured sub-account.

From 2016, the change decision can be taken every four years.

The funds on the sub-account are shared if:

- divorce,
- annulling a marriage,
- cessation of property relations during the marriage,
- contractual exclusion or limitation of statutory,
- the death of the person.

Currently, it is stipulated by the law that the entire pension, based on contributions registered on ZUS account, ZUS sub-account and the OFE account is paid by ZUS. Ten years before the retirement age of a given insured person, a certain amount of funds accumulated on the OFE member's account will be transferred to the ZUS sub-account every month. In addition, for 10 years before the insured person reaches retirement age, ZUS will cease to pay contributions to OFE. Contributions in this period will be recorded on the sub-ZUS. At the time of reaching retirement age, there will be no funds available on the OFE account.

In order to ensure the security and protection of the funds accumulated in the OFE, a rule has been introduced that prescribes that 10 years before the statutory retirement age the funds deposited in the OFE account will be transferred to the Social Insurance Fund each and every month. Introduction of "slider" is to protect against so-called "the risk of a bad date", the effects of potential collapse of the financial markets in the immediately preceding time of retirement, which would result in a reduction in pension capital and consequently a lower pension amount.

The security "slider" will apply to those who have decided that part of the future contribution will be transferred only to the ZUS sub-account and those who have decided to transfer this contribution to the OFE and to the ZUS sub-account. With the gradual transfer of funds from the OFE account, at the time of retirement, all funds will be deposited into the ZUS sub-account, which will pay us a life-saving, adjusted retirement.

From the month in which ZUS safety slider is launched, the OFE contributions will cease to be released.

According to amending Act³ of December 2013, from 01.02.2014 for people born after 31.12.1968, the obligation to join OFE was abolished.

The first time a person subject to social insurance may enter into an agreement with an OFE within 4 months. If you do not enter into a contract, the part of the pension contribution in the amount allocated to the second pillar is transferred to the ZUS sub-account.

³ Ustawa z 6 grudnia 2013 r. o zmianie niektórych ustaw w związku z określeniem zasad wypłaty emerytur ze środków zgromadzonych w otwartych funduszach emerytalnych (Dz.U. z 2013 r., poz. 1717)

The person who, at the date of entry into force of the act, was a member of the OFE, might decide (from 1.04 to 30.07.2014) whether he wants ZUS to transfer contributions to the OFE starting with the contribution paid for 07.2014.

These persons have the possibility, starting from 2016, every four years between 01.04 and 31.07, declare to ZUS a contribution transfer from July to open pension funds (OFE) or a sub-account from the contribution for the month of filing the application.

Additionally, on 03.02.2014 OFE redeems 51.5% of settlement units recorded on the account of each OFE member at 31.01.2014. "Bond part". These funds will be saved on the sub-accounts. The remaining 48.5% will be gradually transferred so-called "slider".

1. BENEFIT FORMULA

Current pension system (new pension system) is NDC system. Right to pension does not depend on length of insurance periods. Amount of pension results from dividing of registered amount of contributions (indexed) by average life expectancy.

First old-age pensions from new pension system were awarded in 2009. In December 2016 there were 1 654 500 benefits being paid out monthly from new pension system by the Polish Social Insurance Institution ZUS.

The objective of the reform was to ensure the financial sustainability of the system and maintain its solvency despite a high system deficit at the starting point and a gradual aging population.

New pension system is based on principle of adequacy which means benefit reflects contribution previously paid in to the system (to Old-Age Pension Fund).

2. CREDIT PERIODS

Pension rights are based on insurance periods. In a new pension system only contribution has influence on the future pension rights and the amount of pension. Non-contributory periods are taken into account only for meeting the condition of sufficient periods qualifying for minimum guarantee pension amount.

A pension contribution of 19.52% is paid for pension insurance. Contributory basis is the taxable income, like gross salaries.

From 1 February 2014 until the end of June 2014, the pension insurance contribution amounted to:

- 12.22% was recorded on ZUS account,
- 4.38% was registered on ZUS sub-account,
- 2.92% was credited to the open pension fund account.

As of July 2014, depending on the insured person's choice, a portion of the pension insurance premium of 2.92% is paid by the Social Insurance Institution to the pension fund selected by the Insured (OFE) or registered on the Insured's subscriber in ZUS (total 7 , 3%).

By June 30, 2014, the division of contributions and the transfer of part to OFEs was mandatory for insured persons born after 31 December 1968, which meant that they were

obliged to enter into an open pension fund agreement. In the case of failure to do so within the statutory deadline, ZUS has indicated an open pension fund by lot. The last draw was January 31, 2014.

Insured persons born after December 31, 1948 and before January 1, 1969, with the exception of pensioners, may, at their request, join the selected open pension fund by way of a contract.

In the case of insured persons who did not join the open pension fund, the entire pension insurance contribution (19.52%) is transferred to the Social Insurance Fund and recorded on the individual account of insured person run by ZUS.

The rules have changed in recent years – see chapter 9 *EXPERIMENT WITH CAPITAL PENSIONS*.

3. BASIS FOR CONTRIBUTIONS

Gross salary, taxable income from employment, self-employment (fixed amount), other legal titles like child-raising, come civil contracts, maternity allowances.

4. MINIMUM PENSIONS

In a new pension system there is provided a minimum old-age pension amount, if amount of pension from 1st and 2nd pillar does not exceed legal pension minimum amount stipulated by Pension Act (and adjusted each year since March). Supplement to minimum is awarded to pensioners who meet condition of 20 years of insurance periods (contributory and non-contributory) for women and 25 for men and reach pensionable age.

Current amount of guaranteed minimum pension from March 2017 is monthly 1000 PLN, (equals about 233 EUR per month).

Recently there have been a big increase of number of pensioners who do not meet these conditions and receive pension amounts lower than guaranteed minimum pension. In December 2016 there were 95 400 of pensioners with pension amount below guaranteed minimum pension, which was 5,7% of pensioners of new pension system. The lowest pension amount in December 2016 was 0,04 PLN.

The total amount of pensions paid in December 2016 lower than guaranteed minimum pension to PLN 65.5 million (approximately EUR 15.2 million).

5. RETIREMENT AGE

In 1999 when the new pension system was introduced there was regular retirement age of 60 for women and 65 for men (pensionable age was actually maintained from previous pension regulations).

According to change of Pension Act of 11 May 2012⁴ there was introduced increase of pensionable age, from 60 / 65 to common age 67 for both: men and women. It was stipulated that the increase will take place for 1 month after each calendar quarter, which

⁴ Ustawa z 11 maja 2012 r. o zmianie ustawy o emeryturach i rentach z Funduszu Ubezpieczeń Społecznych oraz niektórych innych ustaw (D.U. z 2012, poz. 637)

means women would reach age of 67 in 2040 and men in 2020. The change came into force in January 2013. The idea behind increase of pensionable age was economy and future ability to bear costs of pension system by next generation of insured persons.

After few years it was stressed that the reform of increasing of pensionable age did not take into account the level of health and working abilities of the Polish society. In other words, those persons who get no pension because they do not reach age of 67, would have got invalidity (disability) pension instead of old-age pension as the comfort of living as old-age pensioner in a good health is very bad because of serious illnesses, disabilities and other health problems. In Poland there is also lack of complex system of long-term care for those who are not able to live independently without help of the other person.

After big public discussions in Poland, current Parliament approved in November 2016⁵ new law on decreasing pensionable age back to 60 for women and 65 for men, with legal effect from October 2017. It means from October 2017 again pensionable age will turn back to 60/65, as in 1999.

It means there will be more funds required to cover deficit of Social Insurance Fund (Pension Fund) within the next years.

On one hand, there is a huge expectation of many workers to maintain pensionable age of 60/65, and on the other hand huge pressure of some of economists and politicians to increase pensionable age to avoid financial problems for the budget in the next decades.

6. CONDITIONS FOR EARLY RETIREMENT

Current system does not provide early retirement pensions for common insured persons.

Early retirement is possible only when it comes to:

- a. Pensions for miners (special provisions, stipulating on special pensions)
- b. So called “bridge pensions” (for several categories of workers working in conditions harmful for health).
- c. Expiring early retirement for some categories of employees born before 1969, like teachers, railways workers, others.

7. BONUSES FOR DEFERRED RETIREMENT

In the Polish pension system there is no special bonus for deferred retirement, but the method of calculation of old-age pension encourages a longer stay in the labor market and contributing to the system, since the postponement of the retirement decision allows for an increase in benefits. The pension system is calculated on the basis of the quotient of the amount of eligible contributions (and for those who started work before 1999 – so called “initial capital”) and the average life expectancy at retirement years, common for men and

⁵ Ustawa z 16 listopada 2016 r. o zmianie ustawy o emeryturach i rentach z FUS oraz niektórych innych ustaw (Dz.U. z 2017 r., poz. 38)

women. The life expectancy is shorter if you are elder, and at the same time contributions paid to the system after reaching pensionable age increase basis of calculation of pension amount.

8. FRINGE BENEFITS

Health care for pensioners is provided basis on health contribution deducted from pension amount, each month, and transferred to Health Insurance Fund (9% of income).

Pension is subject to personal income tax.

A pensioner who has reached the age of 75 or is unable to live independently gets a care supplement to pension (this is not treated as Long Term Care under EU Regulation 883/2004).

Pension is paid each month, on bank account of beneficiary or by post.

9. EXPERIMENT WITH CAPITAL PENSIONS

When a pension reform was introduced in 1999 there were no provisions on pensions from 2nd pillar. There was no agreement on how the future benefits based on this contributions transferred to open pension funds (OFE) would look like. Different possibilities were taken into consideration, but for about 10 years no decisions were taken to implement appropriate institutions to pension system.

According to the amending act from November 2008⁶ since 08.01.2009 capital pensions were introduced. These benefits were suppose to be awarded basis on contributions transmitted to OFE (open pension fund).

The Act of 2008 stipulated that a capital pension is awarded as two types:

- a periodic pension, which can be charged from the 60th year of retirement age (transitional status) – so called EOK benefit, and
- a life-long retirement pension paid at the age of retirement.

Due to the above mentioned periodical capital pension (EOK) is a benefit addressed exclusively to insured / members of OFE-women.

According to this Act the 60-year-old member of the OFE acquires the right to EOK if the amount of funds deposited on his / her account at the OFE determined on the last day of the month preceding the date of the grant of the pension is ≥ 20 times the amount of the care supplement. The EOK is determined by dividing the amount of funds deposited into the OFE account by the average life expectancy. If the amount of funds deposited in the OFE account is less than 20 times the amount of the care supplement, the funds accumulated in the OFE increase the basis for calculation of the pension from the Social Insurance Fund (pension from the 1st pillar).

⁶ Ustawa z dnia 21 listopada 2008 r. o emeryturach kapitałowych (Dz. U Nr 28, poz. 1507)

The Act introduced the process of awarding 1st pillar and 2nd pillar pensions by filing a single pension application in ZUS. Under this pension claim, both pensions (from 1st and the 2nd pillar) were supposed to be awarded at the same time. Both benefits were to complement each other.

It was provided that the right to EOK expires:

- with death,
- upon reaching the retirement age
- after the funds accumulated at the OFE are exhausted.

According to amending Act of March 2011⁷ there were big changes implemented to the system with effect from 1 May 2011:

- reduction of part of contribution transferred to OFE, creation of a sub-account within ZUS within the ZUS insured account
- when determining the right to a periodic pension (EOK) for a member of an open pension fund, the sum of the funds is taken into account:
 - a) deposited in the account of an open pension fund
 - b) registered at the sub-ZUS.
- those who after 30.04.2011 are subject to the pension insurance, a sub-account in ZUS. If a member of OFE after 30.04.2011 was not subject to the above in the case of insurance, the right to a capital pension is determined taking into account the amount of funds deposited in an OFE

According to amending Act of December 2013⁸ big changes in the 2nd pillar pension system were introduced:

- changing the rules for setting a periodic capital retirement pension (EOK)

The law and the amount of the periodic retirement pension are determined by ZUS on the basis of the funds deposited on the sub-account (Article 14 (4) of the Pensions Act amended by the amending act).

- liquidation of lifetime capital pension from OFE

The law eliminates life-long retirement pensions at the regular retirement age for men. Therefore, the law determines the use of these funds. These funds will be used to determine the EOK or be taken into account when determining the retirement pension under art. 24 of Pension Act in pensionable age from the 1st pillar. The principle of determining the basis of the pension measure from the Social Insurance Fund is changing accordingly.

The pension from the 1st pillar will consist of 3 parts:

⁷ Ustawa z 25 marca 2011 r. o zmianie niektórych ustaw związanych z funkcjonowaniem systemu ubezpieczeń społecznych (Dz. U. Nr 75 poz. 398)

⁸ Ustawa z 6 grudnia 2013 r. o zmianie niektórych ustaw w związku z określeniem zasad wypłaty emerytur ze środków zgromadzonych w otwartych funduszach emerytalnych (Dz.U. z 2013 r., poz. 1717)

- the amount of premiums credited to the insured's account,
- the amount of initialed capital,
- amount of funds deposited on the sub-account.

10. INDEXATION OF PENSION

Indexation in 2006 and in 2007

Basis on legal changes⁹ in Pension Act price-salary indexation was run. According to Pension Act in 2007 no indexation was made.

The indexation rate was equal to at least the consumer price index for the period from the calendar year in which the last indexation was made to the year preceding the indexation, taking into account the real increase in the average remuneration.

The negotiating nature of increasing the indexation index above the price index has been introduced, within the framework of the Tripartite Commission for Socio-Economic Affairs.

Indexation was conducted from the 1st of March of the calendar year following the calendar year in which the index of consumer goods and services in the period from the calendar year in which the last indexation was performed was at least 105.0% (indexation could not be performed less frequently than once in 3 years).

Indexation in years 2008 – 2011, 2013-2014 and 2016

As a consequence of the next change in the pension law¹⁰, the annual pension indexation has been introduced back to 1 March.

This was connected with special separate regulations for the indexation of benefits in March 2008.

Indexation rate is the average annual price index of consumer goods and services in the previous calendar year increased by at least 20% of the real increase of the average remuneration in the previous calendar year.

Consumer price index is the consumer price index of consumer goods and services for households of pensioners or the total price index of consumer goods and services, if it is higher than the consumer price index of consumer goods and services for households of pensioners.

⁹ ustawa z 28.07.2005 r. o zmianie ustawy o emeryturach i rentach z FUS

¹⁰ ustawa z dnia 7 września 2007 r. o zmianie ustawy o emeryturach i rentach z Funduszu Ubezpieczeń Społecznych

Increasing the indexation rate by at least 20% of the real increase in average remuneration is the subject of annual negotiations within the Tripartite Commission for Social and Economic Affairs.

The indexation rate for pensions in 2008 was no less than the average annual consumer price index in 2007 compared to 2005, increased by at least 20% of the real increase in average remuneration in 2007 in relation to 2005.

The indexation rate for pensions granted or recalculated between 1.3.2007 and 29.2.2008 was determined by dividing the indexation rate (previously indicated) by the average annual consumer price index of goods and services in 2006, increased by at least 20% average salary in 2006.

Pensions are subject to annual indexation from 1 March.

Indexation in 2012

In 2012¹¹, the legislator implemented a quota indexation mechanism.

Indexation in 2012 was made by adding to the benefits of amount PLN 71 equal to everybody.

The above regulation was subject to evaluation by the Constitutional Court, which did not declared inconsistency with the Constitution¹².

Indexation in 2015

In 2015 r. it was again introduced¹³ separate mechanism of indexation of benefits so called mixed, quote/amount-percentage.

As a result of the indexation, the amount of the benefit was increased as at 28.02.2015 with the indexation rate of 100.68%, the amount of the increase could not be lower than:

- 36 PLN – as for old-age pensions, total disability pensions and survivors pensions,
- 27 PLN – as for partial disability pensions.

Indexation in 2017

In 2017 a special indexation mechanism was introduced.

As a result of the indexation, the value of the benefit was increased as at 28 February 2017 with a rate index of 100.44%, with an increase not lower than:

- 10 PLN - as for old-age pensions, total disability pensions and survivors pensions,
- 7,50 zł – as for partial disability pensions.

An increase of PLN 10 or more was not covered by pensions which, on February 28, 2017, amounted to PLN 882.56, to which the increase guarantee was not applied for the lowest benefit.

¹¹ ustawą z dnia 13.1.2012 r. o zmianie ustawy o emeryturach i rentach z FUS oraz niektórych innych ustaw

¹² wyrok TK z dnia 19.12.2012 r., K 9/12

¹³ ustawa z dnia 23.10.2014 r. o zmianie ustawy o emeryturach i rentach z FUS oraz niektórych innych ustaw

11. FINAL REMARKS

The Polish pension system reformed in 1999 is still under changes the recent changes include:

- 1) Implementation and liquidation of capital pensions
- 2) Changes in 2nd pillar, in percentage of contribution and implementation of voluntary participation in 2nd pillar.
- 3) Increase and decrease of pensionable age
- 4) Changes in indexation formula.

In Poland in recent years there have been several discussions on how to change pension system. Some politicians are opting for residence based pension system (universal pension), some for introducing again requirement of minimum period of insurance (like 5 years, 15 years), as in the current new pension system there is no such minimum qualifying period to acquire right to old-age pension.

Further proposals aim in totally abolishing the system of open pension funds (OFE). There was also prepared in 2016 The White Book for pensions by Social Insurance Institution (ZUS) and Government, in which there are several proposals of changing pension system in Poland. Those proposals are under discussions and research in Government and Parliament.

Useful links:

- Retirement review. Safety through liability. 2016. White Paper (Polish version) https://www.google.pl/?gws_rd=ssl#q=bia%C5%82a+ksi%C4%99ga+emerytalna+2016&spf=75
- Information on the Polish pension system (Polish version) - <http://emerytura.gov.pl/>
- Ministry of Family, Labour and Social Policy. Information on social insurance system (Polish version) <http://www.mpips.gov.pl/ubezpieczenia-spoleczne/ubezpieczenie-emerytalne/system-emerytalny/>
- Retirement calculator of the Polish Social Insurance Institution ZUS <http://www.mojaemerytura.zus.pl/>

TABLES

Table 1.
Retirement age in the Polish Social Insurance System

Date	Regular pensionable age	Retirement before regular age	Other systems
Before 1999	60y women 65y men	For many different groups, like miners, teachers, railwaymen, public service workers, special systems.	Different systems for different groups of workers, self-employed, working on civil contracts, self-employed farmers, military services, prosecutors and judges
Since 01.1999	60y women 65y men	Restricted to those who meet conditions for early retirement before 2009 or certain groups who meet conditions concerning periods on 01.01.1999. Still early retirement for miners. Still in special systems for military services.	Universal system for all the workers and self-employed except self-employed farmers. Different systems for self-employed farmers, military services, prosecutors and judges.
Since 01.2009	60y women 65y men	Restricted to those who meet conditions for early retirement before 2009 or certain groups who meet conditions concerning periods on 01.01.1999. Still early retirement for miners. Still in special systems for military services. Since 01.2009 special provisions on so called "bridge pensions" for certain workers working in harmful conditions.	Universal system for all the workers and self-employed except self-employed farmers. Different systems for self-employed farmers, military services, prosecutors and judges.
Since 01.2013	60y women increasing up to 67 – for months after each quarter, so 67y in 2040 65y men increasing up to 67 – for months after each quarter, so 67y in 2020	Restricted to certain groups who meet conditions concerning periods on 01.01.1999. Still early retirement for miners. Still in special systems for military services. Special provisions on so called "bridge pensions" for certain workers working in harmful conditions.	Universal system for all workers and self-employed except self-employed farmers. Different systems for self-employed farmers, military services, prosecutors and judges
Since 10.2017	60y women 65y men	Restricted to certain groups who meet conditions concerning periods on 01.01.1999. Still early retirement for miners. Still in special systems for military services. Special provisions on so called "bridge pensions" for certain workers working in harmful conditions.	Universal system for all the workers and self-employed except self-employed farmers. Different systems for self-employed farmers, military services, prosecutors and judges

Table 2.

Contributions for social insurance risks/benefits (percentage of basis o assessment)	1999	2017
For retirement pension:	19,52%	19,52%
a) from above: to chosen open pension fund (OFE)	7,3% (mandatory)	2.92% (voluntary)
b) from above: on pension account in ZUS	12,22%	12,22%
c) from above: on pension sub-account in ZUS	-----	<ul style="list-style-type: none"> • 4,38% if a person has chosen to pay on open pension fund (OFE) • 7,3% if person has chosen only pay to ZUS
For invalidity/survivors pensions	13 %	8,00%
For sickness/maternity/paternity allowances	2,45%	2,45%
For accidents at work and occupational diseases benefits	1,62 %	0,40% - 3,60%

Table 3.

Changes of percentage of contribution transmitted to sub-account in ZUS and to open pension fund (OFE)

Year	Part of contribution 7% of pension contribution registered on sub-account in ZUS	Part of contribution 7% of pension contribution transmitted to open pension fund (OFE)
2011	5,00%	2,30%
2012	5,00%	2,30%
2013	4,50%	2,80%
January 2014	4,20%	3,10%
Since February 2014	4,38%	2,92% (0%, if a person has chosen only sub-account in ZUS)

Parametric Pension Reform in European Member States

Country Report Sweden



Component 1

June 2017, v.2

PENSIONS
MYNDIGHETEN

The Swedish Pension Reform

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PENSIONS
MYNDIGHETEN

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Introduction

This report aims at in short describe the systemic Swedish national public pension reform that took place in Sweden roughly from 1991 to 1998 and the focus is on the earnings related pension. The background and the principles are outlined and then an overview of the previous and the current system is given. Some technical details and a few topics of public debate are also presented. For an extensive description please see the *Annual Report of the Swedish Pension System* [1] where the technical details are given.

Tax levels and occupational pension schemes obviously affect the individual's pension, this is however separated from the national public pension system and will not be covered in this report. The tax levels has been changed several times since the introduction of the new pension system. Before the reform pension was taxed at a lower rate than wage earnings, the reform aimed at and achieved for a short period to have the same tax scale for wage earnings as pensions. Now the situation is somewhat complex – low pensions are less taxed than equally low wage earnings. Normal and higher pensions are taxed at a higher rate than equally high wage earnings. Occupational schemes are adapted, by the social partner, to the national pension system in that the contribution rate is set in relation to the contribution ceiling where in general a larger contribution is paid for incomes above the ceiling. For high income earners the occupational pension can be the larger part of the total pension.

Background

In 1960 the *ATP system*, a *defined benefit pay-as-you-go* supplementary pension system, was implemented. In the early 1990s the deep recession resulted in that the savings rate fell to its lowest level since post World War II. Short-term variations between pension disbursements and contribution was however not considered as the threat of the long-term financial stability of the pension system. Temporary deficits between contributions and pension disbursements could be financed through the pension buffer fund. The instability of the pension system arose from the weak link between benefits to long-term changes in the growth rate of the economy.

The pension expenses were expected to rise by 2 percent per year in real terms under the coming decades and largely independently by the growth rate of the contribution base. Consequently, the savings rate in the national pension system would be highly dependent on the growth rate of the contributions. Projections at that time (in 1993) showed that with unaltered contribution rate the savings rate would soon be negative, the pension buffer fund would shrink and eventually deplete [2].

The government's proposal was to conduct an in-depth reform of the national pension system. The aim of which to make it more adaptable to changes in economic growth rate as well as demographics. Another goal was to achieve a closer link between contributions paid and benefits received from an individual's perspective.

It was considered that a preservation of the current pension scheme would in the future result in drastic changes with retroactive effects. Limiting the reform to minor changes would mean that the problems to a great extent would remain. The new rules of the system was intended to be as stable as possible.

In 1991 a Commission was set up and in 1992 a draft of a new pension plan was presented. In 1994, the *Riksdag* (Parliament) adopted the fundamental principles of the new pension plan. The main legislation of the system passed *Riksdag* in 1998 and in the 21st century the first pension disbursements from the new system were made.

Principles of the Reform

This section and the opinions stated are those of the bill decided on by the *Riksdag* in 1994. The bill *Reforming the National Pension System* (Proposition 1993/94:250) [2] contains the essential features of the new national public pension system and the year 1994 became a milestone of the reform.

The government proposed that a national mandatory pension system would continue to be the foundation of the individual's pension. By reasons of effectivity and the inability of some to properly save for themselves, a mandatory system would be the best option. The national public pension should continue to contain an economic protection for those who have had low or no incomes.

The reform should focus on the younger generations, retired and soon to be retired should not be affected. For the in-between generations the transition should be smooth. The youth should know the conditions that will be applicable for them.

Insurance risk of old age pension namely longevity is of a different sort than that of early retirement. Administration and control necessary for early retirement was also considered greater. The old age pension would therefore be more suitable for actuarial principles and the reform should strive for the creation of an independent old age pension system of which recurring decisions would not be necessary.

The old age pension should be a separate branch financed in full by a specially designed contribution rate. Elements of redistribution should be explicit and financed continually, as *pension credit* accrued, by contributions from the central government budget.

The government found it neither possible nor desired to reform the pension system to a fully funded scheme. Advantages with a funded system in the sense of an increased savings rate on an individual basis rather than a further growth of the pension buffer fund were put forward. The reformed pension system should largely be a *pay as you go* system with a complement of individual premium reserves.

Another argument was the spreading of risks; the new system would be affected of the economic growth rate as well as the development of the financial market.

According to the *life income principle* of the reformed pension system all incomes below a certain ceiling should carry the same weight no matter when it was earned. For administrative reasons however it is unavoidable to have a certain income threshold for earning *pension credit*. There should not be an upper age bound for earning *pension credit*.

In the *life income principle* proposed *pension credit* can be earned not only by gainful employment but also at times of sickness and parental leave as

well as times of unemployment. It was however not considered a task for the pension system to compensate for the income differences in society.

The accrued *pension credit* should be indexed by the growth of the pensionable incomes. A pension system where benefits follow the general income development and not to a great extent be dependent of the rate of return of the financial market must be organized as a collective and mandatory scheme.

The Political Process

The following is based on the experience of Bo Könberg who was Chairman of the parliamentary Working Group on Pensions [3]. Könberg strived not to invite social partners and pensioner interest groups into the Pensions Working Group. Könberg had previous experience with tough negotiations where participants in the room were not actively engaged in the discussion but rather watching over different special interests. Another important element was to have few members from the political parties and have them appoint high profile politicians within their respective parties. Within the group Könberg strived to achieve an open discussion.

The actual people involved in the process was according to Könberg very important for the success of the reform. An important external factor was the financial crisis of the 90s in Sweden, which probably led to the political ability of making tough decisions.

The hardest issues in the process was the issue of introducing a funded part (*premium pension*) and the contributions above the contribution ceiling.

The Old System

The pension system now phased out consisted of two main parts; a universal minimum pension (*folkpension*) and a *general supplementary pension (ATP)*. The two systems combined are also referred to as the *ATP system (or supplementary pension)*, which was a *DB (defined benefit)* scheme. *ATP pension* also included early retirement pension as well as survivor's pension.

The foundation of benefits paid are *pension points*, which are determined annually as the *pensionable income* reduced with the *higher price-related base amount* that is then divided by the *higher price-related base amount*.

At the year the cohort reaches the age of 65 years, pension points can no longer be credited. In order to be credited a *pension point* the *pensionable income* must be greater than the *higher price-related base amount*. A full pension requires a record of 30 years of *pension points*. If a person has 28 years of *pension points* the pension will be 28/30 of what it would have been if the person would have had 30 or more years.

At the time of retirement which is (and was) flexible with the anticipated age of 65 years, earned *pension points* are converted into a pension. The pension is determined as the average of *pension points* for the best 15 years multiplied by 0.6 and the *price-related base amount* of the current year. The *folkpension* is then added as 96 percent of the *price-related base amount* for an unmarried and 78.5 percent for a married person.

The ATP system was financed through the central government budget but had substantial funded assets in a trust fund.

The New System

The new system consists of two earnings related components *inkomstpension* and *premium pension*. The *inkomstpension* is a *pay as you go NDC (Notional Defined Contribution)* system and the *premium pension* is a *FDC (Funded Defined Contribution)* system. The earnings related pension can be claimed at the age of 61 and with no upper limit, *inkomstpension* and *premium pension* both increase for each month of postponement. There is an option of drawing part pension at 25, 50 or 75 percent.

Basic security in the form of *guaranteed pension* and *housing supplement* and *maintenance support* to pensioners is available from the age of 65, a postponement of these benefits will not yield a higher amount. The basic security is tax financed through the central government budget. The *housing supplement* and *maintenance support* are means tested benefits and the details of these will not be covered here.

Contribution Rates

The contribution to the national public pension is 18.5 percent of the *pension base*. Contribution is divided between an individual contribution and an employer's contribution.

The *pension base* is maximum 7.5 *income-related base amounts*. The individual's contribution is 7 percent of his or hers income and it is not included in the *pension base* and the *pension base* is therefore 93 percent of the individual's income. Contributions on incomes up to 8.07 *income-related base amounts* is thus paid together with the withholding tax on earnings.

The insured pays an individual pension contribution of earnings and any benefits received from the social insurance and/or unemployment insurance schemes. Annual earnings are pension-qualifying when they exceed the minimum income for the obligation to file a tax return, which as from 2003 is 42.3 percent of the current *price-related base amount*. When an individual's income has exceeded this threshold, it is pension-qualifying from the first krona.

The total employer's contribution is 31.42 percent of the individual's earnings, out of this the old age pension contribution is 10.21 percentage points. This contribution is also paid on earnings exceeding 8.07 *income-related base amounts*. Since there is no *pension credit* for earnings above 8.07 *income-related base amounts*, these contributions are in fact a tax, and such contributions are transferred from the pension plan to the government budget. For recipients of pension-qualifying social insurance or unemployment insurance benefits, the central government pays a contribution of 10.21 percent of these benefits to the pension system.

The total pension contribution is thus 17.21 percent of the individual's earnings, whereas the *pension credit* and the *pension contribution* are 18.5 percent of the *pension base*.

For persons credited with *pension-qualifying amounts*, the central government pays a contribution of 18.5 percent of the *pension-qualifying amount* to the pension system. These central government contributions to the old-age pension system are financed by general tax revenue.

Guaranteed Pension

The *guaranteed pension* provides basic social security for individuals with little or no income and is financed through the central government budget. Residents of Sweden are eligible for a *guaranteed pension* beginning at age 65. The qualifying criteria is primarily years of residence. *Guaranteed pension* is financed through the central-government budget.

The indexation of the *guaranteed pension* follows the price indexation. The amounts received differs between a single and married pensioner, where the former receives 2.13 *price-related base amounts* and the latter 1.90 *price-related base amounts*.

The guaranteed pension is reduced in respect to the earnings-related pension. For (low) earnings related pension the *guaranteed pension* is reduced by the full amount up to 1.26 *price-related base amounts* and is then reduced by 48 percent in the span between 1.26 and 3.07 *price-related base amounts* for a single pensioner. The corresponding numbers for a married pensioner are 1.14 and 2.72, for a graphic illustration see Figure 1.

When calculating the *guaranteed pension* the *premium pension* is excluded from the earnings-related pension, instead the *inkomstpension* is calculated as if it had been earned at 18.5 percent of the *pension base*, rather than 16 percent.

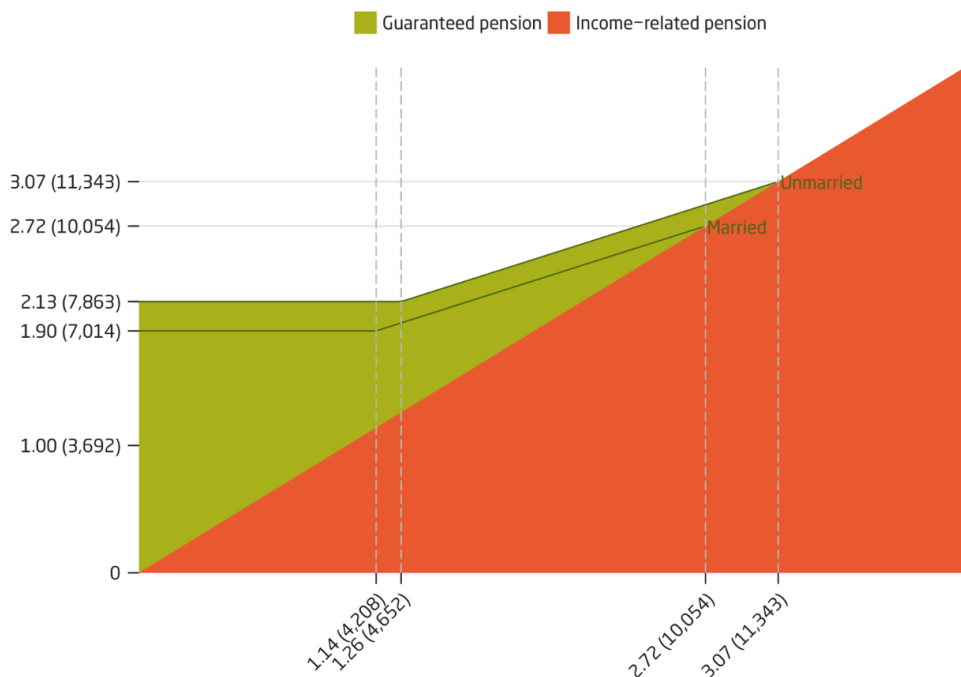


Figure 1. The figure shows the reduction of guaranteed pension in relation to income-related pension. Values represent price-related base amounts and (monthly pension in SEK, 2016). Source: Orange Report 2016.

Inkomstpension

The *inkomstpension* is the largest part of the income related pension and it is a *NDC (Notional Defined Contribution)* scheme. From the contribution of 18.5 percent of the *income base*, 16 percentage points are deposited into the buffer fund. The monthly pension payments of the *inkomstpension* come from this fund.

Pension credit earned is registered on the individual's account in the same way as in a funded scheme with the difference being that the contribution is used to finance today's pension disbursements.

Each year (in December) *pension credit* is accredited to the individual's personal notional account. Before new *pension credit* is added, the previous year's value is multiplied with an *inheritance gains factor*. The *inheritance gains factor* redistributes capital of the deceased to the survivors of the same cohort. For ages up to the age of 60 it is the actual accumulated capital that is redistributed whereas it from the age of 60 and above is based on the life expectancy of the total Swedish population, which is the same data used for the calculation of the *annuity divisors*.

Total capital is indexed with the change of the *income index (balance index* in a balancing period) over the year-end. To cover administrative costs an *administrative-cost factor* is applied to the account balance. For pensioners no administrative cost is deducted. These statements are distributed to each individual each year in the *Orange Envelope*.

Upon retirement, the accumulated notional capital is converted into a monthly pension by the usage of the *annuity divisor*. The *annuity divisor* is the life expectancy at the given age with consideration given to the advance interest of 1.6 percent. The application of the advance interest rate raises the initial pension payment at the expense of a reduced indexation. At the year the individual turns 65 the *annuity divisors* for that cohort will be fixed for all ages. Increases in longevity will therefore put a strain on the system. The *annuity divisors* are calculated on period data for the latest five-year period available and it is unisex.

Indexation is normally the growth of the average income measured by the *income index*. As of 2017, the *income index* of year t measures the change in average income between years $t-2$ and $t-1$. If assets are less than liabilities the indexation is reduced and pensions and account balances are then indexed by the *balance index*. *Adjustment indexation* is used for pensions, which is indexation with the reduction of the advance interest of 1.6 percent.

The quotient between assets and liabilities is termed the *balance ratio* and a ratio less than unity results in reduced indexing. A *balance ratio* less than unity triggers the *automatic balancing mechanism* and a balancing period is activated and remains until the *balance index* reaches the *income index*. During this period the indexing will be greater than that of the *income index* when the *balance ratio* is greater than one and reverse if it is lower.

As of 2017 (calculated in 2016 based on data up until the year 2015) a *damped balance ratio* was introduced which mitigates the impact to one third.

Liabilities are divided into economically active and pensioners, for the active the liabilities are the summation of their account balances at the year-end. The liability of the pensioners are estimated as the lifelong value of current pensions, this is done by multiplying the pension disbursements of December with the *economic annuity divisor* of the same cohort and the factor 12 (number of months). An estimation of earned *pension credit* during the year (which is not yet known) is also added to the liability.

Assets are divided into funded assets (buffer fund) and the *contribution asset*. The value of the buffer fund is the market value per 31 December of the five AP-funds. The *contribution asset* is the *contribution revenue* multiplied by the *turnover duration*. The *contribution revenue* is the total pension contributions paid to the *pay as you go* system during the year. The *turnover duration* reflects the expected time from the earnings of *pension credit* to the time of pension disbursement.

Premium Pension

The allocation to the premium pension is 2.5 percentage points of the 18.5 percent of the *pension base*. The credit is invested in interest-bearing assets until the final tax settlement, when each individual's credit is known.

The first *pension credit* for the premium pension was earned in 1995 but was invested in funds in the autumn of 2000. At the time, the importance of making an active choice was conveyed. Consequently about two thirds made an active choice of the about 450 funds available.

The *premium pension* is a fully funded premium savings scheme. Each person has his or her own personal savings account and each year (in December) new *pension credit* is deposited into the account. The individual can choose up to five funds at a time for investment of their capital. Placement changes are free of charge for the individual and can be made at any time. A default state-owned fund is available (*AP7 Såfa*). The Pensions Agency acts as the owner of fund shares and is a single client in respect to the fund.

The capital is once a year multiplied with an *inheritance gains factor* (just like in the *inkomstpension*). The application of the *inheritance gains factor* redistributes the capital of the deceased to the survivors, the computation is different from the one used in the *inkomstpension* but with the same concept. An administration fee is deducted from all accounts. The fee is proportional and the average fee of 2015 was 0.07 percent with a ceiling of 120 SEK.

The individual also indirectly pays a fee to the fund management; this fee is taken from the fund and thus lowers the rate of return of the fund. The Pensions Agency has a fee ceiling for the funds, which is 0.89 percent for equity funds, 0.62 for mixed and generational funds and 0.42 percent for bond funds. If the fund fee is larger than the ceiling (which is not uncommon) the fund management will have to reimburse the Pensions Agency which in turn distributes the capital to the fund savers the following year. The average capital weighted management fee as of 2016 was gross 0.72 percent and net 0.23 percent.

At retirement the accumulated capital is divided by an *annuity divisor*, the divisor is computed in a different way than in the *inkomstpension* and it is recalculated each year for all cohorts. The pension can be drawn as either traditional insurance with profit annuity or fund insurance. Except for the guaranteed amount in the traditional insurance, there are no guarantees within the *premium pension* system. The individual bears the full risk in terms of longevity and the rate of return on capital.

Transition Rules

The introduction of the new system also led to changes in the *ATP system*. The indexation of pensions is the same for *ATP* and *inkomstpension*. The *adjustment indexation* is a consequence of the advance interest in the *annuity divisor* used in the *inkomstpension*, which does however not affect the ATP-pension.

The ceiling for earning *pension points* in the *ATP system* is the same as the ceiling for earning *pension credit* in the new system. The maximum number of *pension points* per year used to be 6.5 but with the income indexation of the ceiling, this number is no longer fixed.

Pension credit has been credited retroactively as far back as 1960, this also applies for childcare years. *Pension credit* for compulsory national service and for studies has been retroactively calculated back to 1995. These conversions were made in the year 2000 [4].

The *income index* also had to be retroactively calculated in order to index *pensionable incomes*.

With the separation of the old age pension from the state budget costs of early retirement is still financed through the central government budget. As a consequence financial transfers from the AP-fund to the central government budget were made.

For the transitional generations a special guarantee rule also applies, ensuring that they will not receive a pension lower than the one they earned in the *ATP system* up to 1994. The transitional generations are cohorts 1938-1953, where those born in 1938 have 4/20 in the new system, this proportion is increased by 1/20 per cohort and consequently cohort 1953 have 19/20 and the rest in the *ATP system*.

Details

In an autonomous system, which in principle is self-regulating according to set rules largely based on data and formulas, the details are important (and interesting). The following is just some of the details that can be of interest.

Indexation of contributions and benefits are an obvious such case after the principle has been set as to what the index is to mimic. The method for calculating the *income index* was changed for the computation of the index of 2017. Extensive research on how the previous index had performed especially in terms of volatility found that a simplification of the formula improved the result in that respect [5] (DS2015:6).

In the *premium pension* system the resolution is daily (transactions and valuation of assets) whereas it is monthly or yearly in the *inkomstpension* system. Indexation is a yearly operation in the *inkomstpension*. The date of the indexation is in some respect fictional but basically the indexation occurs over the year-end. The valuation of the liability will therefore be different whether it be measured prior to or after the indexation and it could still be considered to have been measured at the year-end. In fact the valuation of the liability for the economically active was measured after the indexation up to and including 2014 when it was changed to be measured prior to indexation. The change also led to that the liability in respect to the economically active and the retired were inline in terms of indexation.

The exchange rate for one SEK to one *pension credit* was originally one-to-one and still is except under a balancing period. Under a balancing period, the one SEK will get less than one *pension credit* because of the “accelerated” indexing that will follow (given that, the *balance index* reaches the *income index*). This was a known fact from the beginning but was not implemented until 2015 [6] (SFS 2014:1548).

How should the buffer fund be valued? Initially the market value was based on the 31 of December, this was then changed to be an average over the last three years in order to mitigate the balancing effects for the calculation of the balance ratio of 2010 [7] (proposition 2008/09:219). This was changed to the previous definition for the balance ratio of 2017 [5] (DS2015:6).

Life expectancy can be measured in many ways and within the national public pension system there are three types of measures in terms of *annuity divisors*. In the *inkomstpension* and *premium pension* there are different formulas as well as underlying data *for annuity divisors* used in order to determine the benefits. There is also an *economic annuity divisor* used for determining the liability in the *inkomstpension* system. The *contribution asset* is also affected by the change in life expectancy. In the

premium pension the underlying data is based on a prognosis whereas historical data is used within the *inkomstpension*.

Public Debate

The existence and the form of the *premium pension* have been a topic for debate over the years. Common topics and criticism have regarded the large number of funds (currently more than 800), the low level of activity and interest from the average person and the exploitation of a compulsory saving system by some companies. The *premium pension* is more volatile but have in general (up until now had) a higher return on invested capital; in Figure 2 the average rate of return on invested capital in comparison to if the capital had instead been invested in the *income/balance index* is presented.



Figure 2. Average Capital-Weighted Rate of Return for All Premium Pension Savers up to Different Points in Time during the Years 2000–2016. Each point on the curve shows the average annual internal rate of return (after 1995) until the time concerned. Source: Orange Report 2016.

Over the years some companies have specialized in *premium pension* telemarketing often with high fees. Currently there are even criminal investigations and over a billion SEK is currently missing in the Falcon Funds case. Over the years there have been several reports on the *premium pension* and the most recent *Official Report of the Swedish Government* was published in 2016 [8] (SOU 2016:61). The report did not cover the more recent problems such as Falcon Funds and more work in this area can be expected [9].

Recently (March 1, 2017) the prime minister of Sweden Stefan Löfven said that no one should risk being deceived within the public pension system [10]. He continues to suggest that the *premium pension* system is in need of changes. Usually these statements are not that common and discussions are kept within the *Pension Group*.

The *automatic balancing mechanism* (the “brake” as it is commonly referred to) have been a topic of debate and is generally disliked by pensioner interest groups. In a report from 2013, five major pensioner interest groups publicized a report with a suggestion of how to abolish the mechanism while maintaining financial stability [11]. A dismantling of the

premium pension is the main suggestion of how to achieve this and the full contribution should be credited to the *inkomstpension*. There are however support of the mechanism as well and as a general statement Robert Holzmann have written “Any reserve fund smoothes the impact of shocks across cohorts and generations but does not eliminate the need of a well designed balancing mechanism working through the notional interest rate and indexing mechanism.” [12].

In the comprehensive report *The pension system in Sweden* [13] by Nicholas Barr from 2013 a number of interesting aspects of the pension system is covered. The author’s view of the system is in general positive but possible improvements and topics of discussion are brought up. It is pointed out that financial stability have precedence over adequacy of benefits in the current system and that this may have been a natural choice at the time of the reform but it may not be the optimal solution today.

The possibility of drawing only a part of pension is praised and the benefit tie to longevity (annuity divisor) is considered necessary in terms of sustainability, the author however mention concerns on adequacy. There is international experience that many people retire as soon as possible whether or not it is in their own long-run best interest or not, therefore a raise of the earliest eligible age of pension withdrawal need to be considered. This work is currently ongoing and possibly a *riktålder* will be introduced which will be connected to changes in life expectancy and which will gradually raise the age of earliest pension withdrawal (currently 61), the minimum age for *guarantee pension* (currently 65) and the age of protection of employment (currently 67) [14]. In Figure 3 the proportion of individuals who for the first time are granted full national pension per age and cohort is shown. As can be seen the age 65 still dominates but the spread over ages have increased.

Birth cohort	61	62	63	64	65	66	67	68	69	70	71-	Total	Avg age
1938	3.6	2.3	2.3	2.1	77.3	4.1	3.2	0.8	0.3	0.3	0.6	97	64.9
1939	3.9	1.9	2.1	2.3	75.6	6.5	2.3	0.8	0.3	0.3	0.7	96.7	64.9
1940	3	2.1	2.5	3.1	75.8	5	2.6	0.8	0.4	0.5	0.6	96.5	64.9
1941	2.9	2.2	3	3.7	73.1	6.3	2.8	0.8	0.5	0.4	0.6	96.4	65
1942	3.4	2.9	3.4	3.9	70.8	6.2	3.4	1.2	0.5	0.4	0.7	96.6	64.9
1943	3.9	3.1	3.6	5.3	66.4	7.1	4.4	1.2	0.4	0.5	0.7	96.5	64.9
1944	4.7	3.4	4.7	5.9	63.1	7.9	4	1.1	0.5	0.5	0.7	96.5	64.8
1945	5.1	4.2	5.3	6.1	61.6	7.2	4	1.3	0.5	0.5	0.8	96.4	64.8
1946	6	4.8	5.4	6.7	59.2	6.7	4.2	1.2	0.5	0.6	0.9	96.2	64.7
1947	6.3	4.6	6	7.4	56.8	7	4.7	1.3	0.6	0.6	1	96.2	64.7
1948	6	4.9	6.7	7.9	54.7	7.4	5.1	1.5	0.6	0.6	1.1	96.3	64.7
1949	5.8	5.4	6.9	8.7	52.4	7.9	5.4	1.7	0.7	0.6	1.1	96.6	64.7
1950	5.9	5.5	7.8	9.2	50.3	8.6							
1951	6.6	6.4	8.1	9.4	48.1								
1952	6.9	6.9	8.5	10.5									
1953	7.8	6.6	9.5										
1954	7.5	7.1											
1955	7.5												

Figure 3. Proportion Granted a National Pension at Ages 61–75. The proportions are for new retirees in relation to the potential number of retirees as of December 2016. Ages are as of December 31 of the year when the pensioner began drawing an *inkomstpension/guaranteed pension*. Forecast for the highest age groups, forecast in italics. Source: Orange Report 2016.

It is pointed out that the *balancing mechanism* may be too sharp and that a balancing period may benefit the active population. These areas have been remedied by the introduction of the *damped balance ratio* and by reducing the *pension credit* earned during a balancing period as described under the section *Details*.

Barr points out indexation as a topic of debate, and he argues that the risk exposures of the retirees is too great by facing the full yearly variation of wage changes in the economy reduced by the advance interest rate of 1.6 percent. A mixture of price and wage indexation is presented as a possible alternative. In Figure 4 the *price indexation* is shown together with *income and balance indexation* as well as *adjustment indexation* that is used for economically active and pensioners respectively.

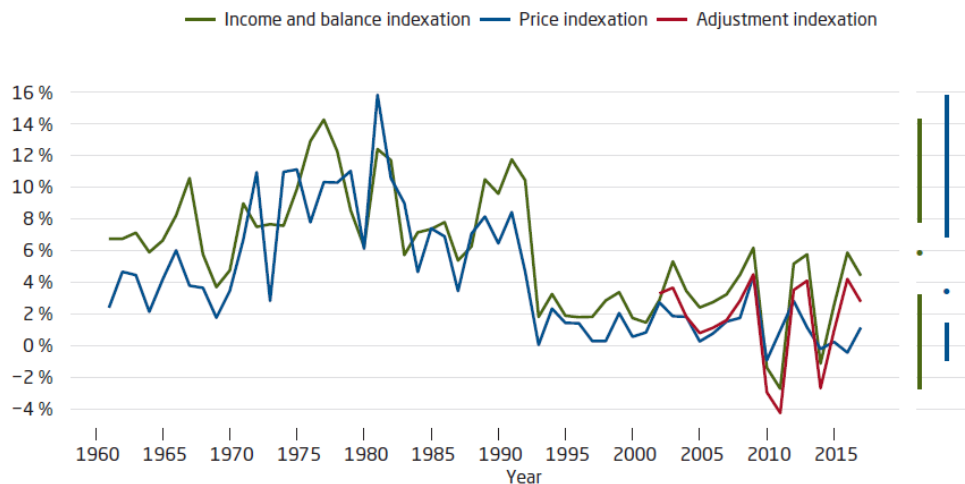


Figure 4. Yearly indexation. The point between the vertical lines is the median value. The starting point for the upper vertical line is the 75th percentile; the ending point is the maximum value. The starting point for the lower vertical line is the 25th percentile; the ending point is the minimum value. Source: Orange Report 2016.

Evaluation

Quite some time has passed since the reform and there has been changes since but the basic design of the system remains. The idea of a self-regulating system is largely true even though there have been changes in tax levels for pensions, which can be seen as political interference (a negative indexation can be compensated by a lower tax rate).

A negative indexation of the *inkomstpension* system will reduce the liability and thus strengthen the autonomous system, the central government budget will however bear some of the burden as the *guaranteed pension* will limit the decrease for those with lower pensions.

In a recent report [15] from 2017 the transitional generations with benefits from both system are analyzed. The *ATP system* have for most been more beneficial and especially for women. The change in life expectancy is a main source as it did not affect benefits of the old system. When the life expectancy at the time of the reform is used (cohort 1930) both systems provide approximately the same for men whereas the old system is still more beneficial for women. The rise in life expectancy is not unexpected.

Short-term financial forecasts can be found on the *Swedish Pensions Agency's* webpage currently up until 2021, the balance ratio is predicted to be slightly above one but the risk of a new balancing period remains [16]. Long-term scenarios where demographic development, change in income and rate or return and its effect on the financial stability of the system is published in chapter 7 of the *Annual Report of the Swedish Pension System* [1].

Since the reform there have been changes in the pension system and perhaps evaluation and modification will be an ongoing process. It is hard to foresee the issues that can arise in the future.

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Adapting to Changes in Life Expectancy in the Finnish Earnings-Related Pension Scheme

芬兰收入型养老金制度在预期寿命变化背景下的适应性发展

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This paper was translated into Chinese language following authorization by the authors. It was initially submitted to the International Actuaries Association IACA Pension Benefits in Social Security Colloquium (PBSS) held in Cancun (Mexico) from 4 to 7 June 2017, under the title “Adapting to Changes in Life Expectancy in the Finnish Earnings-Related Pension Scheme”»

Abstract
摘要

In this article we discuss the policy choices made in order to adapt to changes in life expectancy in the Finnish earnings-related pension scheme and study different adaptation methods by using a rule-based simulation model.

为适应预期寿命变化，相应地，芬兰收入相关型的养老金制度进行了政策决策。本文讨论了这些政策决策，并通过基于规则的模拟模型，研究了不同的适应策略。

An automatic balancing mechanism called the life expectancy coefficient was introduced in the reform of 2005 to combat increasing pension expenditure. The life expectancy coefficient automatically adjusts the level of beginning pensions to changes in life expectancy. If life expectancy increases, monthly pensions are decreased and if life expectancy decreases, monthly pensions are increased.

2005 年的改革引用了名为预期寿命系数的自动平衡机制，以期抑制养老金支出增加。根据预期寿命的变化，预期寿命系数会自动调整养老金的起始水平。如果预期寿命延长，每月的养老金会相应减少；反之，如果预期寿命缩短，每月的养老金会相应减少。

In 2014 the social partners reached an agreement on the content of the pension reform, which came into effect in 2017. One of its main goals is to increase the effective retirement age and lengthen working careers by introducing a link of the general retirement age to life expectancy. This link is also taken into account by mitigating the life expectancy coefficient, which will raise the size of future pensions if the prevailing trends in mortality continue.

在 2014 年，各方社会合作伙伴就养老金改革的内容达成协议，协议于 2017 年开始生效。2014 年养老金改革的主要目标之一是，通过将一般退休年龄与预期寿命挂钩，提高有效退休年龄并延长工作年限。在限制预期寿命系数方面，也可将两者挂钩。如果死亡率持续当前的普遍趋势，未来养老金规模将扩大。

We have simulated three mortality scenarios (baseline, low and high mortality) and two legislation scenarios (with and without the link of the retirement age to mortality) to assess the effect that mortality has on the effective retirement age, pension benefit levels and pension expenditure. According to our simulations, the link postpones retirement as measured by the effective retirement age and increases the pensions of future retirees. As the effective retirement age rises, the size of the workforce and the wage sum also increase. The link of the retirement age to life expectancy reduces the effect that life expectancy has on benefit levels and the financial sustainability of the earnings-related pension scheme.

我们模拟了三种死亡率水平（基准线、低死亡率、高死亡率）以及两种立法方案情况（退休年龄与死亡率挂钩、退休年龄不与死亡率挂钩），评估死亡率对有效退休年龄、养老金福利水平和养老金支出的影响。根据模拟结果，将两者挂钩将提高有效退休年龄，增加未来退休人员的养老金水平。随着有效退休年龄提高，劳动力规模和工资总额也相应增加。退休年龄与预期寿命挂钩，降低了预期寿命对养老金收益水平以及收入相关型养老金制度的财政可持续性的影响。

Adapting to Changes in Life Expectancy in the Finnish Earnings-Related Pension Scheme

芬兰收入型养老金制度在预期寿命变化背景下的适应性发展

In this article we discuss the policy choices made in order to adapt to changes in life expectancy in the Finnish earnings-related pension scheme and study different adaptation methods by using the rule-based long-term planning model of the Finnish Centre for Pensions (Tikanmäki et al, 2017). We compare the automatic mechanism (the life expectancy coefficient) that adjusts pension levels to the mechanism that alters both pension levels and the retirement age, thus promoting later retirement. The latter mechanism replaced the first mentioned as the latest pension reform (see e.g. Reipas & Sankala, 2015) came into effect in 2017.

为适应预期寿命变化，相应地，芬兰收入相关型的养老金制度进行了政策决策。本文讨论了这些政策决策，并通过芬兰养老金中心开发的基于规则的长期规划模型，研究了不同的适应策略（Tikanmäki et al, 2017）。我们将调整养老金水平的自动机制（预期寿命系数）与调整养老金水平与退休年龄的机制进行对比，结论是退休年龄提高。后者替代了前者，这一举措被称为最新养老金改革，并于 2017 年生效（见例，Reipas & Sankala, 2015）。

The defined benefit (DB) benefits of the Finnish earnings-related pension scheme are partially funded. About a quarter of accrued pension entitlements are pre-funded and the rest are financed through a pay-as-you-go (PAYG) system. These elements (DB and PAYG) combined call for a balancing mechanism that adjusts pensions as life expectancies rise.

芬兰收入型养老金制度采用确定型收益（defined benefit），收益中的一部分由缴费构成。约四分之一的应计养老金权益是预先缴费的，其余权益通过现收现付制度提供（pay-as-you-go system）。这些要素（确定型收益和现收现付制度）都追求平衡机制，随预期寿命延长对养老金水平进行调整。

1. Adapting to changes in life expectancy 适应预期寿命变化

Demographic changes have been playing major role in the Finnish earnings-related pension reforms over the past two or three decades. The partial funding of the pension scheme has made it easier to adjust and prepare for fluctuations of the pension expenditure or contributions (caused e.g. by economic recessions or the retirement of the baby boomer generation).

在过去的 20 至 30 年间，人口变化在芬兰的收入相关型养老金制度改革中发挥了重要作用。部分由缴费构成，这使得养老金制度更易调整，防范养老金支出或缴费剧烈波动（如经济衰退或婴儿潮一代退休等因素）。

After a long post-war period of economic growth it became apparent in the early 1990s that the Finnish earnings-related pension scheme needed reforms to battle the ever-growing expenditure levels and adapt to the persisting trend of rising life expectancies. After cutting back early retirement options, an automatic balancing mechanism called the life expectancy coefficient was introduced in the reform of 2005. The introduction of the life expectancy coefficient helped stabilize the projected ratio of the earnings-related pension expenditure to the wage sum (pension expenditure ratio).

在漫长的战后经济增长期之后，20 世纪 90 年代初，芬兰与收入相关的养老金制度的改革需求愈发凸显，从而应对不断增长的养老金支出水平，适应预期寿命持续增长的趋势。提前退休这一可能性被取消。此后的 2005 年改革引入了名为预期寿命系数的自动平衡机制。预期寿命系数的引入有助于稳定与收入相关的养老金支出与工资总额的预期比（即养老金支出比）。

The flexible retirement age of 63-68 was introduced together with the life expectancy coefficient in the reform of 2005. This means that old age retirement is possible at age 63 but employees can keep working until 68 if they wish. The flexible retirement age gave an option to insured persons to retire a bit earlier or to compensate the effect of the life expectancy coefficient by working and thus accruing pension longer. This gives an incentive and an opportunity to extend careers as life expectancy increases. The downside of this chosen mechanism is that if people retire too early, they might end up with an inadequate pension. This applies especially to those who end up retiring on a disability pension since the life expectancy coefficient decreases their pensions while they have no possibility to keep on working. The possibility for early retirement could also have a decreasing effect on the size of the workforce and the wage sum.

在 2005 年的改革中，除了引入了预期寿命系数以外，还采用了灵活的退休年龄，区间为 63-68 岁。这意味着老年退休可能在 63 岁，但劳动者可自愿工作到 68 岁。灵活的退休年龄使投保人可以选择提前退休，或通过工作抵消预期寿命系数带来的影响，延长应计退休金的期限。随着预期寿命的增加，这种机制使人们有动力、有机会延长自己的职业生涯。这种选择机制的缺陷是，如果人们过早退休，他们

可能会面临退休金不足的问题，尤其是领取伤残抚恤金退休的群体。这部分群体的预期寿命系数将使其养老金减少，同时他们不具备继续工作的可能性。提前退休也可能使劳动力规模和工资总额不断减少。

1.1. The goals of the pension reform of 2017

1.1. 2017 年养老金改革的目标

The economic downturn of 2008 escalated discussion concerning the earnings-related pension scheme and in particular, the incentives it offers employees to extend working careers. It was seen that people should work longer in order to expand the tax base and also accrue larger pensions at the same time. Also, the previous population forecasts had underestimated the rise of life expectancy. The government and the social partners reached a consensus regarding the main goals of the upcoming pension reform in agreements made in 2009 and 2012.

2008 年的经济低迷引发了公众对芬兰养老金制度越发热烈的讨论。讨论尤其集中在养老金制度激励劳动者延长职业生涯这一点。人们认为，人们应当延长工作年限的目的是，扩大税收基数，同时延长应计养老金的期限。此外，之前的人口预测低估了预期寿命增长带来的影响。政府和社会合作伙伴就即将到来的养老金改革的主要目标，于 2009 年和 2012 达成了共识。

The main goals of the pension reform were:

- The effective retirement age for a 25-year old should increase by three years in the next 17 years. The effective retirement age is a measure developed in the Finnish Centre for Pensions. The measure is analogous to life expectancy, and reacts to changes in the retirement risk. Furthermore, it is independent of the age structure of the population. For more details, see Kannisto (2016).

养老金改革的主要目标是：

25 岁群体的有效退休年龄应在未来 17 年内增加三岁。有效退休年龄是芬兰养老金中心制定的一项措施。这一措施类似于预期寿命，并根据退休风险相应作出变化。此外，有效退休年龄与人口的年龄结构相独立。更多详细信息，请参阅 Kannisto (2016)。

The fiscal sustainability of the government should be aided such that the fiscal gap decreases by one percentage point. The fiscal gap is measured by using the S2 sustainability indicator of European Commission.

政府的财政可持续性应得到资助，从而使财政缺口减少一个百分点。利用欧盟的 S2 可持续性指标来衡量财政缺口。

Other goals included stabilizing pension expenditure ratios and setting pension contributions to a sustain-able level.

其他目标包括稳定养老金支出比、将养老金缴费设定在可持续水平。

1.2. The pension reform of 2017

1.2. 2017 年养老金改革

In 2014 the social partners and the government reached an agreement on the details of the upcoming pension reform. In order to increase the effective retirement age, it was agreed that the general retirement age¹ will be raised by three months per birth year (cohort) for those born in 1955 and later, until it is 65. As of 2027, the general retirement age will be linked to life expectancy so that the ratio of the theoretical working career to the theoretical time spent at retirement remains unchanged. In this context, the theoretical working career is defined as the time between the age of 18 years and the general retirement age and the theoretical time spent at retirement is defined as the life expectancy at the general retirement age.

2014 年，社会合作伙伴和政府就即将进行的养老金改革的细节达成了协议。为提高有效退休年龄，人们一致认为，对 1955 年及以后出生的群体而言，出生年龄每推迟一年，一般退休年龄¹将上调三个月，直到 65 岁。到 2027 年，一般退休年龄将与预期寿命挂钩，从而使理论工作生涯与理论退休期之比比例保持不变。在这种情况下，理论工作生涯被定义为 18 岁与一般退休年龄之间的期限。理论退休期的定义是一般退休年龄到达后的预期寿命年限。

The link between the life expectancy and the general retirement age mean that the amount of projected pensionable service (see Appendix) and the level of disability pensions increase if life expectancy in-creases.

预期寿命和一般退休年龄挂钩，意味着如果预期寿命延长，预计应计养老金服务的数额（见附录）和伤残养老金水平增加。

The link is also taken into account in the formula of the life expectancy coefficient. Technically this is done by defining the longevity indicator as the capital value of a unit pension beginning at the general retirement age (see box 1). In practice, this mitigation increases the average pension for people born in 1970 by 1.8 percent and for people born in 1980 by 4.2 percent, as compared to the pre-reform definition.

预期寿命系数公式中参考了这一联系。技术上看，这是通过将寿命指标定义为从一般退休年龄开始的单位养老金的资本价值（见图表 1）。实际上，与之前的定义相比，这种缓解措施增加了平均养老金水平，1970 年出生群体增加了 1.8%，1980 年出生的群体增加了 4.2%。

Box 1. The life expectancy coefficient

图表 1：预期寿命系数

The life expectancy coefficient is an automatic balancing mechanism that is applied to a beginning pension. The purpose of the life expectancy coefficient is to limit the growth in pension expenditure due to the rising life expectancy. It also contributes to prolonged working lives by lowering the incentives to retire early.

预期寿命系数是一种自动平衡机制，适用于初始养老金。预期寿命系数的主要目标是限制预期寿命增加引发的养老金支出增长。这也有助于延长工作年限，减少

¹ In this article, we use the expression “the general retirement age” to describe the lowest age when a person is eligible to the old age pension.

本文中，我们使用“一般退休年龄”这一短语描述人们符合领取养老金条件的最低年龄。

提前退休的诱因。

Before the reform of 2017, the life expectancy coefficient for a given year i is defined by the formula $E(2009,62)/E(i,62)$ where $E(i,62)$ is the longevity indicator, defined as the capital value of a unit pension beginning at age 62 using the mortality of the 5 previous years. This way the effect that changes in longevity have on the capital values of pensions is neutralized in the long run. If life expectancy increases, monthly pensions are decreased and if life expectancy decreases, monthly pensions are increased.

2017 年的改革之前，特定某年的预期寿命系数 i ，通过 $E(2009,62)/E(i,62)$ 这一公式定义，其中 $E(i, 62)$ 是寿命指标。寿命指标的定义是从 62 岁开始的单位养老金资本价值，基于此前五年的死亡率计算。

In the reform it was decided that as of 2027, the life expectancy coefficient is defined by $(E(2009,62)/E(2026,62))*(E(2026,65)/E(i,x))$ where x is current general retirement age. This results in a mitigation of the life expectancy coefficient so the rise in life expectancy is not taken into account twice. It follows from the formula that the mitigation is slightly undercompensating in terms of the capital value of the old age pension.

改革决定，从 2027 年起，预期寿命系数的定义是

$(E(2009,62)/E(2026,62))*(E(2026,65)/E(i,x))$ ，其中 x 是指目前的一般退休年龄。通过这个公式，预期寿命系数降低，并且预期寿命延长不会被重复计算。从公式上看，缓解措施对养老金的资本价值的补偿不足。

As a result of the reform, earnings-related pension will accrue as of age 17 at an annual accrual rate of 1.5 per cent. For persons aged 53–62 years, however, pension will accrue at a rate of 1.7 per cent during the transition period until the end of the year 2025. If the pension is deferred past the earliest eligibility age for old age pension, the pension will be increased by 0.4 per cent per each deferred month.

改革之后，收入型的养老金将从 17 岁开始累计，每年的应计比率为 1.5%。对于 53-62 岁的人来说在过渡期，养老金将以 1.7% 的比例累积到 2025 年底。如果养老金领取推迟，超过养老金的最早合格年龄，养老金每推迟一个月，将增加 0.4%。

2. The baseline simulations

基准线模拟

We assess the effects of the link of the retirement age to life expectancy in the long term by comparing the results of two simulated scenarios: one corresponding to the valid legislation after the reform (Tikanmäki et al, 2017) and an alternative scenario, where the link of the retirement age to mortality is not made and hence the retirement age stays at 65 years indefinitely. This is automatically taken into account in the formula of the life expectancy coefficient, so the life expectancy coefficient is not mitigated and decreases faster than in the reform scenario. The simulations are based on the long-term planning model of the Finnish Centre for Pensions and the

simulation horizon extends to 2085. The model is a rule-based deterministic average

Birth year 出生年份	General retirement age 一般退休年龄		Life expectancy coefficient 预期寿命指数	
	No link 不挂钩	Reform 改革	No link 不挂钩	Reform 改革
1950	63 岁	63 岁	0.984	0.984
1960	64 岁 6 个月	64 岁 6 个月	0.935	0.935
1970	65 岁	65 岁 8 个月	0.886	0.905
1980	65 岁	66 岁 7 个月	0.846	0.888
1990	65 岁	67 岁 5 个月	0.813	0.874
2000	65 岁	68 岁 1 个月	0.786	0.861

aggregate model and does not incorporate behavioural equations. The model is described in more detail in Tikanmäki et al (2017).

通过比较两种模拟方案的结果，我们评估了将退休年龄与预期寿命挂钩的长期影响：其中一种情况与改革后的有效立法相对应（Tikanmäki 等，2017），另一种情况下，退休年龄与死亡率之间没有挂钩，因此退休年龄无限期地停留在 65 岁。预期寿命系数公式自动将这种情况纳入考量，因此预期寿命系数被抑制，并比改革情况中下降地更快。以上模拟方案采用了芬兰养老金中心的长期规划模型，模拟期覆盖到 2085 年。该模型是基于规则的确定性平均累计模型，不包含行为方程。要了解与该模型相关的更详细的描述，请参阅 Tikanmäki 等（2017）。

Table 2.1. The general retirement age and the life expectancy coefficient

表 2.1 一般退休年龄和预期寿命指数

The rise of the general retirement age leads to a rise in the effective retirement age. In the first years, each rise of the general retirement age by one year leads to a rise of the effective retirement age by about half a year. Also, the higher the general retirement age rises, the smaller the effect on actual retirement is. There are several reasons for this: firstly, disability pension risks rise with age which leads to a larger portion of people retiring on a disability pension before the general retirement age. Secondly, the number of people postponing retirement beyond the general retirement age is assumed to decrease and postponement durations shorten as the retirement age rises.

一般退休年龄提高使得有效退休年龄提高。在前几年，一般退休年龄每提高一年，有效退休年龄将提高约半年。此外，一般退休年龄越高，对实际退休的影响就越小。有以下几个方面的原因：首先，残疾养老金风险随年龄增长而上升，导致在一般退休年龄之前领取残疾养恤金退休的人的比例加大；第二，随着退休年龄的增加，将退休年龄推迟到一般退休年龄之后的群体数量可能减少，推迟期限缩短。

The effective retirement age in Finland was 61.1 years in 2015. In both scenarios, the effective retirement age is 62.7 years in 2025, as the mortality link has not yet had any effect. In the no link scenario it rises to 63.9 years and in the reform scenario to 64.9 years by 2085, hence we can say that the effect of the mortality link on the effective retirement age amounts to one year by 2085 while the effect on the general retirement age is over three years. However it is worth noting that the future realizations of retirement risks and employment rates probably have a high impact on the outcomes. (Figure 2.1)

2015 年，芬兰的有效退休年龄为 61.1 岁。在以上两种情况下，2025 年的有效退休年龄为 62.7 岁，因为与死亡率挂钩尚未产生任何影响。在不与死亡率挂钩的情况下，有效退休年龄延长到 63.9 岁。改革情况下，到 2085 年有效退休年龄延长到 64.9 岁。因此我们可以说，关于有效退休年龄，与死亡率挂钩带来的影响到 2085 年可以达到 1 年，对一般退休年龄的影响超过三年。然而值得注意的是，未来退休风险和就业率可能对结果产生很大影响。（图 2.1）

Figure 2.1. The expected retirement age for a 25-year-old person, years

图 2.1: 25 岁人群的预计退休年龄，单位：岁。

The average pension, including the national and guarantee pensions in addition to the earnings-related pension, was 1613 € in 2015. It increases to 1782 € by 2025 (at 2015 prices) in both scenarios. In the no link scenario it is projected to rise to 3270 € by 2085 (at 2015 prices), with the increase mostly due to increases in real wages both in the past and in the future. In the reform scenario it is 11 % or 336 € higher in 2085 (at 2015 prices), with the increase mostly due to the mitigation of the life expectancy coefficient and longer working careers. (Figure 2.2)

在 2015 年，除了收入相关型养老金以外，养老金还包括国家退休金和保障养老金。2015 年的平均水平为 1613 欧元。到 2025 年，两种情况下的养老金水平增加到 1782 欧元（基于 2015 的价格水平），增长的部分主要是由于过去及未来实际薪资增加。在改革情况下，比 2085 年高出了 11%（约合 336 欧元），增长部分主要是由于预期寿命系数的缓和和工作年限延长。（图 2.2）

Figure 2.2. Average pension, €/month.

图 2.2: 平均养老金，单位：欧元/月。

	2015	2025	2045	2065	2085
Effective retirement age, years					
有效退休年龄，岁					
Reform 改革	61,1	62,7	64,0	64,7	64,9
No link 不挂钩	61,1	62,7	63,3	63,8	63,9
Effect of mortality link 与死亡率挂钩的影响	-	-	0,6	0,9	1,1
Average pension, €/month at 2015 prices					
2015年的物价水平下的平均养老金（欧元/月）					
Reform 改革	1613	1782	2109	2743	3658
No link 不挂钩	1613	1782	2064	2553	3270
Effect of mortality link 与死亡率挂钩	-	-	44	190	388

的影响					
Pension expenditure (% of wage sum)					
养老金支出（占工资总额的比例）					
Reform 改革	30,4	33,3	29,3	31,5	33,4
No link 不挂钩	30,4	33,3	29,8	30,8	31,6
Effect of mortality link 与死亡率挂钩的影响	-	-	-0,5	0,7	1,8

The mortality link has a two-fold effect on the expenditure ratio of the earnings-related pension scheme. As the mitigation of the life expectancy coefficient is slightly undercompensating in terms of the capital value of the old age pension, and the rising retirement age has a positive effect on the wage sum, the expenditure ratio decreases in 2030-2050. In the long run, the development of the expenditure ratio is heavily influenced by the disability pension risk as well as the unemployment risk of the elderly workers. In the reform scenario, the number of people drawing a disability pension grows much larger than in the no link scenario. This leads to a situation where the mortality link actually increases the expenditure ratio in the long run. (Figure 2.3)

与死亡率挂钩对收入型养老金制度的支出比例有双重影响。在养老金的资本价值方面，预期寿命系数缓和带来的弥补效应不足。退休年龄提高对工资总额有积极影响，支出比率在 2030-2050 年之间有所下降。长期而言，支出比率受到伤残抚恤金风险及老年劳动力失业风险的严重影响。在改革的情况下，领取残疾养恤金的人数比不挂钩情况下的人数要多得多。结果是，与死亡率挂钩实际从长期提高了支出比例（图 2.3）。

Figure 2.3. Earnings-related pension expenditure relative to the sum of earned income 2015–2085.

表 2.3: 2015-2085 年，收入相关型养老金支出相对与收入总额的变化情况

Table 2.2. Results from the baseline simulations.

图 2.2: 基准线模拟结果

2.1. Sensitivity analysis on the effect of mortality

2.1.对死亡率影响的敏感性分析

We have conducted a sensitivity analysis on the effect of mortality in both the reform and the no link scenarios. This analysis is based on separate simulations done with high and low mortality assumptions. These roughly correspond to the 50 per cent confidence interval for Finnish mortality forecasts given by Alho and Spencer (2005). By 2085, life expectancy at birth reaches 90.5 years in the baseline projection, while in the high and low mortality projections it reaches 88.7 and 95.0 years respectively.

Life expectancy at birth in Finland was 81.4 years in 2015.

在改革以及不与死亡率挂钩的两种情况下，我们对死亡率带来的影响进行了敏感性分析。这种分析基于高死亡率和低死亡率两种假设进行的，对两种死亡率水平进行了单独模拟。这大致对应了 Alho 和 Spencer（2005 年）给出的芬兰死亡率预测的置信区间的 50%。到 2085 年，出生时的预期寿命在在基准线预测中可达到 90.5 岁，在高死亡率和低死亡率预测中，分别达到了 88.7 岁和 95.0 岁。2015 年，芬兰的出生预期寿命是 81.4 岁。

In the reform scenario, the difference in the effective retirement age in the high and low mortality simulations is about 4-5 months in 2045 and 7 months in 2085. In the no link scenario, mortality has practically no effect on the effective retirement age.

在改革情况下，有效退休年龄在高死亡率和低死亡率的模拟方案中的差距在 2045 年是 4-5 月，2085 年是 7 个月左右。在不与死亡率挂钩的情况下，死亡率对有效退休年龄没有实质性影响。

Table 2.3. Comparison of the different mortality scenarios.

图 2.3：不同的死亡率情况对比

In the no link scenario, the only mechanism that explicitly reacts to mortality is the life expectancy coefficient. Hence, mortality has a substantial effect on the size of pensions. In the low mortality projection the average pension in 2085 is 8.4 per cent lower than the baseline, while in high mortality projection it is 4.7 per cent higher. Most of this difference is due to the life expectancy coefficient. Indexation and wage growth also play a minor part, as each birth cohort is likely to have a larger pension than the previous and the indexation is only partially tied to wage growth.

在不与死亡率挂钩的情况下，唯一受到死亡率有显著影响的机制是预期寿命系数。因此，死亡率对养老金的规模有很大的影响。在低死亡率预测中，2085 年的平均养老金低于基准线 8.4 个百分点；在高死亡率预测中，2085 年的平均养老金高于基准线 4.7 个百分点。这种差异的主要原因是预期寿命系数。指数化和工资增长也起到的作用很少，因为每个出生的群体都可能有更高的养老金，那么此前的养老金和指数化与工资增长仅部分相关。

In the reform scenario, mortality affects both the retirement age and the life expectancy coefficient. Due to the mitigation of the life expectancy coefficient, the difference in the average pension in the high and low mortality variants is smaller than in the no link scenario. In the low mortality projection the average pension in 2085 is 4.9 per cent lower than the baseline, while in high mortality projection it is 3.0 per cent higher.

在改革方案中，死亡率会影响到退休年龄和预期寿命系数。由于预期寿命系数降低，在高死亡率和低死亡率两种情形下，平均养老金的差异比不挂钩的情况下要小。在低死亡率预测中，2085 年的平均养老金比基准线低 4.9%；在高死亡率预测在中，2085 年的平均养老金比基准线高 3.0%。

Even though the life expectancy coefficient is designed to theoretically neutralize the

effect of mortality on pension expenditure, mortality still has an effect on the expenditure ratio. In the no link scenario, the difference between the high and low mortality expenditure ratio is about one and a half percentage points in the long run. The main reason for this is that the life expectancy coefficient only affects beginning pensions and hence reacts to changing mortality with a delay.

尽管预期寿命系数的目的是从理论上抵消死亡率对养老金支出的影响，但是，死亡率对支出比率仍有影响。在不挂钩的情况下，高死亡率和低死亡率的支出比率差额从长期看约为1.5个百分点。主要原因是，预期寿命系数只影响初始养老金，因此死亡率的变化带来的影响会有所延迟。

In the reform scenario, the effect of mortality on the expenditure ratio is slightly smaller before the second half of the century. Especially in the low mortality simulation, the expenditure ratio enters rapid growth after 2060 as a consequence of the effective retirement age failing to keep up with the statutory age limit.

在改革方案中，本世纪下半叶前，死亡率对支出比率的影响相对较轻微。特别是在低死亡率模拟方案中，由于有效退休年龄与法定年龄限制相匹配，2060年以后，支出比率进入了快速增长的阶段。

3. Conclusions

3. 结语

Different balancing mechanisms react differently to the changes in mortality. The risks of longevity fall mainly on individuals if the balancing is done by altering the pension levels. In comparison, when the balancing is done partially by linking the retirement age to mortality, the risk of drawing an inadequate pension is reduced.

死亡率变化对不同的平衡机制有不同的影响。如果通过改变养老金水平进行平衡，那么寿命风险主要由个人承担。相比之下，如果平衡是通过将退休年龄与死亡率挂钩来进行，那么养老金不足的风险将有所降低。

The mechanism that links the retirement age to life expectancy pushes the people to work longer if the life expectancy increases. This improves the adequacy of the future pensions and increases the wage sum of the economy. It could also lower the pension expenditure in relation to the total sum of earned income. However if the people don't have the possibility to continue working to higher ages for example due to disability or unemployment, this kind of an automatic mechanism could increase the total pension expenditure and can be costly to the pension scheme.

将退休年龄与预期寿命挂钩的机制促使人们在预期年龄延长的情况下工作年限延长，这提高了未来养老金的充足率，增加了经济工资总额。这种机制还可以使养老金支出相较于收入总额有所降低。然而，如果人们因残疾或失业等原因，无法继续工作到更高的年龄，这种自动机制会增加养老金的总额，对整个养老金制度会带来高昂的成本。

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APPENDIX: The Finnish pension system²

附件：芬兰养老金制度²

The statutory pension system in Finland consists of a defined benefit earnings-related pension which is in some cases supplemented by a residence-based national pension and a guarantee pension that ensure minimum security. Nearly 90 per cent of all paid pension expenditure was paid from the earnings-related pension scheme, ten per cent from the national and guarantee pension schemes and only 2 per cent from voluntary pension schemes in 2015.

芬兰的法定养恤金制度包括一项收益确定的收入相关型养老金，在某些情况下，还有居民国家养老金、最低保障养老金。2015 年的所有付费性养老金支出中，将近 90%是由收入型养老金制度给付的，10%由国家和保障养老金制度给付，只有 2%是自愿给付。

The Finnish earnings-related pension scheme was established in the 1960s when the majority of the pension acts came into force. The coverage of the pension scheme extended to self-employed persons and farmers in 1970 and is nowadays practically universal.

芬兰收入相关型养老金制度建立于 20 世纪 60 年代，多数的养老金法案在那时开始生效。1970 年代，养老金制度的覆盖面扩大到自营职业者和务农人员，现在已经基本实现全覆盖。

The most important pension benefits in the earnings-related pension scheme are the old-age and disability pensions. Also survivors' pensions and some rehabilitation benefits are paid.

收入相关型养老金制度中最重要的养老金福利是养老金和残疾养恤金。同时该制度还资助遗属抚恤金和部分康复津贴。

The amount of earnings-related pension is determined based on annual earnings until retirement. In addition to earnings, some unpaid periods like periods of social benefits (unemployment, child care etc.) and study are taken into account when the total amount of accrual is calculated.

收入相关的养老金金额是根据年收入确定的，直到退休前。除了收入，一些未缴费的期限在计算应计总额时也会被考虑在内，如社会福利时期（失业、育儿期等）以及接受教育时期。

When determining the earnings-related pension, the earnings and income from the insured person's employments are adjusted with the wage coefficient to the level of the starting year of the pension. Thereafter, the pension in payment is adjusted annually with the earnings-related pension index. In the wage coefficient, the share of change in price level is 20 per cent and the share of wage-earners' income level is

² More information about the Finnish earnings-related pension scheme is available on the website of the Finnish Centre for Pensions at <http://www.etk.fi/en/>.

了解更多芬兰收入型养老金制度相关的信息，请访问芬兰养老金中心网站 <http://www.etk.fi/en/>。

80 percent. In addition to the change in price level, the wage coefficient thus compensates 80 per cent of the real change in wage-earners' income level. In the earnings-related pension index, the share of change in price level is 80 per cent and the share of wage-earners' income level is 20 percent.

在确定收入相关型养老金时，被保险人的收入随着工资系数相较于养老金起始年的水平进行调整。此后，支付的养老金每年根据收入相关型养老金指数进行调整。在工资系数中，物价变动的比例是 20%，劳动者的收入比例占 80%。除了物价水平变化外，工资系数也抵消了劳动者收入水平实际变化的 80%。在收入相关型养老金指数中，物价变化的比例是 80%，劳动者收入水平的比例是 20%。

After the accrued pension is calculated from the index-adjusted earnings and incomes the pension is adapted to the extended life expectancy with the life expectancy coefficient. The life expectancy coefficient is described in more detail in Box 1.

在应计养恤金根据指数调整后的收入进行计算后，养老金根据延长的预期寿命和预期寿命指数进行调整。预期寿命指数在图表 1 中有详细描述。

The disability pension consists of the pension accrued during the work history and the accrued pension for the projected pensionable service, which is calculated from the beginning of the year of the pension contingency to the general retirement age. The accrual for the projected pensionable service is determined on the basis of earnings prior to retirement and is more significant the younger the pensioner is.

残疾养恤金由工作期间应计养恤金和预计应计养恤金服务的累积退休金组成，也就是养恤金应急年份开始到一半退休年龄。预期应计养恤金服务的累计是基于退休前的收入决定的，养恤金领取人年龄越小，应计部分金额越大。