

UNIVERSITY OF LJUBLJANA

FACULTY OF ECONOMICS

MASTER'S THESIS

**REFORMING THE PENSION SYSTEM OF SLOVENIA IN THE
LIGHT OF DEMOGRAPHIC CHANGES**

Ljubljana, June 2016

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TABLE OF CONTENTS

INTRODUCTION	1
1 PENSION SYSTEMS.....	3
1.1 Evolution of pension systems.....	3
1.2 Characteristics of different pension systems	4
1.2.1 Bismarck and Beveridge pension systems.....	5
1.2.2 Funded and unfunded pension systems	7
1.2.3 Defined benefit and defined contribution pension systems.....	10
1.3 Multi pillar pension systems	12
2 DEMOGRAPHIC TRENDS.....	13
2.1 Important demographic indicators	14
2.2 Demographics through the human history	15
2.2.1 Demographics prior and during the Industrial Revolution.....	16
2.2.2 European demographics in the 20th century	18
2.2.3 European demographic projections for the period 2015-2060.....	20
2.3 Demographics of Slovenia	25
2.3.1 Demographic projections for the period 2015-2050.....	25
3 DEMOGRAPHIC EFFECTS.....	27
3.1 Effects of changing demographics on the economy.....	27
3.2 Effects of changing demographics on the pension system.....	29
4 THE PENSION SYSTEM OF SLOVENIA IN THE PAST.....	30
4.1 History of the pension system of Slovenia.....	30
4.2 The global financial crisis in Slovenia	32
4.3 Past reforms of the pension system in Slovenia.....	32
4.3.1 The 1990 Reform.....	33
4.3.2 The 1999 Reform.....	34
4.3.3 The 2012 Reform.....	37
5 CURRENT CHALLENGES OF THE PENSION SYSTEM OF SLOVENIA.....	39
5.1 Main characteristics.....	40
5.1.1 First pillar	44
5.1.2 Second and Third pillars.....	45
5.1.3 Early retirement	51
5.1.4 Disability benefits.....	56
5.1.5 Disincentives and barriers to employment	59
5.1.6 Investment policy and regulation of pension funds.....	60
5.1.7 Tax rates and incentives	62
5.1.8 Transition period and the NDC system	63
5.2 Political feasibility of pension system reforms	64

6 RECOMMENDATIONS BASED ON PAST REFORMS IN OECD COUNTRIES.....	65
CONCLUSION	69
REFERENCE LIST	72
LIST OF APPENDIXES	i

LIST OF TABLES

Table 1. Differences between the Bismarckian and Beveridgean pension systems.....	7
Table 2. Typology of pension systems in different EU Member States.....	9
Table 3. Taxonomy of public pension schemes across EU Member States.....	11
Table 4. Demographic transition in human history	16
Table 5. Average life expectancy at birth for both male and female population in Slovenia and the European Union in 2013 and in 2060	22
Table 6. Age-related spending, percentage points of GDP in 2013 and the expected change until 2060.....	24
Table 7. Total population size and the size of the working population in Slovenia in the period between 2013 and 2060.....	25
Table 8. Projected change of main population groups in Slovenia over the period 2013-2060 (in percent)	26
Table 9. Key demographic parameters in EU and Slovenia, 2013-2060 (1).....	27
Table 10. Key demographic parameters in EU and Slovenia, 2013-2060 (2).....	27
Table 11. Parameters of the pension system of SR Slovenia between 1970 and 1898	31
Table 12. Eligibility criteria of the 1992 and 1999 PDIA	37
Table 13. Ratio of pension contributors to pension beneficiaries in Slovenia in the period 2001-2015.....	37
Table 14. Characteristics of Slovenia's pension system	41
Table 15. Number of pension contributors and beneficiaries and the corresponding system dependency ratio in Slovenia between 2006 and 2015	42
Table 16. Basic information of the coverage of the mandatory pension system in 2010	43
Table 17. Organization of the three pillar pension system in Slovenia.....	44
Table 18. Summary characteristics of Slovenia's Supplementary Pension System.....	48
Table 19. Contribution rates in the first and second pillar in Eastern European countries ..	50

LIST OF FIGURES

Figure 1. Population size of the World in the period 0-2050, in millions	17
Figure 2. Population size of Europe in the period 1750-2050, in millions.....	18
Figure 3. Strictly and total age-related expenditure in the EU Member States, 2013-2060, in percentage points of GDP	24
Figure 4. Male and female population composition by age group in Slovenia and EU 28 in 2013	26
Figure 5. The role of supplementary pension insurance within the public pension system	46
Figure 6. Number of participants in the supplementary pension insurance of Slovenia in the period 2001-2009.....	49

INTRODUCTION

In the last twenty years many developed countries have been faced with numerous challenges arising from the unsustainable pension provision systems. Demographic trends, the global economic crisis and migration processes have a profound impact on pension systems, especially in Europe, where those problems are most evident. Constantly increasing life expectancies at birth and decreasing fertility rates well below the natural replacement rate result in previously unseen population aging, leading to imbalances between the number of the young and the elderly. Those trends raise many relevant concerns regarding the financial sustainability of governmentally funded welfare systems and their impact on other socio-economic parameters: public finances and government debt, slowed economic growth, international competitiveness, taxation, social fairness, equality, living standards etc. All those facts emphasize the unsustainable nature of pay-as-you-go pension funds based on the principle of solidarity and underline the need for reform and modernization of the generous European pension systems.

The age structure of the population in every country has a profound impact on socio-economic parameters, as economic behavior of people changes with their age. As the group of the elderly continues to increase in the coming decades, key macroeconomic parameters will be increasingly influenced by their behavior. To minimize the negative impacts of those tendencies, countries have taken steps to reform their pension systems with mixed results. Some, including Slovenia choose the parametric reform approach and mainly changed the parameters of the traditional pay-as-you-go (hereinafter: PAYG) system by increasing contribution rates, eligibility criteria and eliminating early retirement options. Others have taken more drastic steps by implementing a systemic approach that has fundamentally changed the pension system by introducing a multi pillar system, mandatory or voluntary investment funds, move towards defined-contribution schemes etc.

Slovenia is among countries where the population ages most rapidly and the old-dependency ratio is constantly decreasing. Currently pensions provide social protection similar to those of wealthiest European countries, but faced with the problem of economic slowdown and pressure from the aging population, it needs careful modernization as past reforms have been significantly milder than in other countries in similar position. As the scheme becomes ever more unsustainable, a wider political and social consensus will be needed in order to implement measures that have been very effective in other European countries. There is a broad range of possible solutions including the introduction of a Notional Defined Contribution (hereinafter: NDC) system, mandatory participation in supplementary pillars, implementation of a fully funded system, increase of the effective

retirement age, closing the numerous paths to early retirement or changing the tight investment regulation.

The **purposes** of this master thesis are: to analyze the characteristics and evolution of European and Organization for Economic Co-operation and Development (hereinafter: OECD) pension systems, with a focus on Slovenia; with the help of projections based on statistical reports from domestic and foreign sources, to evaluate the impact of demographic changes on the pension system in Slovenia; to evaluate past reforms and identify their achievements and failures; to examine best practices from similar to Slovenia countries and to present possible alternative measures for increasing the long-term sustainability of the pension system.

The **objectives** of the master thesis are: to present the common features and differences between pension systems in Europe and Slovenia; to analyze and evaluate the impact of demographic change on the pension and disability systems; to demonstrate that the current pension system in Slovenia, faced with rapid population aging and slow economic growth is already unsustainable and in need for reform; to present, critically assess and compare possible measures and instruments already implemented by many European and OECD countries.

The basic hypothesis of the thesis is that Slovenian pension system is going to become increasingly unsustainable in the decades to come, endangering the standard of living of the future elderly and especially for the current young contributors. Without a comprehensive reform composed of several measures and based on a broad consensus, the generous welfare benefits upon which many Slovenians rely on will become an impossible task and a thing of the past.

At the beginning of the first part of this master's thesis, the reasons for the establishment and constant evolution of pensions systems since their introduction in 1889 are presented. A presentation of the main features of today's pension system follows. The prevalent in most European and OECD countries pension systems are categorized and explained according to the historical context, level of funding, method of financing, government involvement etc. In the second, the focus will be on demographic trends by examining the most important indicators in Europe and Slovenia. With their help, I will try to explain how they influenced pension systems from the Industrial Revolution until modern times. The decisive influence of population aging on pension systems and the economy are going to be examined next. At the end, I will present and compare demographic projections for both the European Union (hereinafter: EU) and Slovenia for the period up to 2060.

In the third part, the long history of pension provision in Slovenia will be presented, as well as the historical, social and political circumstances that have influenced its development. The three reforms of Slovenia's pensions system undertaken since its independence in 1990 are going to be examined and evaluated, presenting their successes and failures at the end of this part. The main characteristics of today's pension system of Slovenia will be presented in the fourth part: the multi pillar system and its strengths and weaknesses will be reviewed. Eligibility criteria, pension benefits, tax incentives and the problem of early retirement will be discussed in the light of recent pension reforms in other OECD countries, providing possible solutions for Slovenia. In the last, fifth part, the recommendations for possible future reforms will be summed and evaluated, using best practices and success stories mainly from Eastern European, but also from other OECD countries, faced with similar challenges and environments as Slovenia.

In the master's thesis I used different methods of scientific research. In the first part contains a theoretical review of professional literature, articles and reports on the subject of pension and the method of compiling and the descriptive method. In the second and third parts, the analytical and comparative methods are used as well as a thorough review of Slovenian and foreign literature. In the fourth part I use the Descriptive, Analytical and Comparative methods. In the last part I study best practices from other OECD countries by analyzing secondary sources and using the comparative method.

1 PENSION SYSTEMS

One of the most important characteristics of all pension funds is that they provide protection against poverty after the end of the working life of an individual. Pension systems can be public or private, mandatory or voluntary, organized as defined benefit or defined contribution plans etc. They are generally divided into three groups: public pension schemes, occupational pension schemes and individual retirement saving (Berk Skok, Musli, & Vovk, 2010, p. 2). Because pensions are very important for life after retiring and a sensitive social issue, both public and private pension systems have to be strictly monitored, regulated to protect against capital losses and in some cases are obliged to provide a guaranteed rate of return.

1.1 Evolution of pension systems

By the end of the 19th century the problem of providing adequate savings for old age, the strain placed on family support and than existing sickness support schemes, which covered

only a minor portion of the population, lead to a situation in which the elderly formed a vast majority of those living below the poverty line. At the same time there was much larger movement that recognized the need of greater government involvement in social areas in general: health, unemployment, pension and disability benefits etc.

Until the beginning of the 20th century the public sector has provided only the most essential functions: public works, law and order, national defense and legal system. First to appear in the late 19th century was a relief fund for the poor, followed by a public school program. Since those times the government has changed its role and has expanded greatly to include regulation of the economy and finances, provision of numerous social security services, development of the infrastructure etc. The greatest expansion of the public sector and its role happened during and after the Second World War and since then it has continuously expanded. Governments use taxes and other revenues to provide health, education, pensions and age-specific welfare services. The main factor behind these changes has been the rapid expansion of subsidies and transfers from below 2 % at the beginning of the last century to almost 25% of gross domestic product (hereinafter: GDP) in developed countries in recent years (Lee & Mason, 2013, p. 163). These transfers in practice divert public resources from one demographic group to others.

1.2 Characteristics of different pension systems

The design of pension systems varies significantly around the world and economists and prominent authors have not reached a consensus about the first-best design of relevant features. These discrepancies have arisen because of different socio-economic and historical backgrounds, collective agreements between the social partners, different needs and possibilities of every economy etc. They reflect the history of the pension system, society's sensitiveness to the need for social security and the welfare state, the length of the political cycle etc. While some retirement pension schemes are mainly designed to allow for smoothening of individual income over the life cycle, thus stressing the insurance aspect, others aim to provide adequate retirement incomes for everyone, implying considerable redistribution (Müller, 1999, p. 9). A pension system is actuarially fair when there are no net gains from participating in the scheme, i.e. when the present value of payouts equals the present value of lifetime contributions (Müller, 1999, p. 10). The pension system that contains a strong element of redistribution and is trying to equalize pension benefits is on the opposite end.

The systems that cover pension insurance in Europe are typically based as PAYG schemes, which mean that they are mostly financed by current taxation of the labor force and

expenses for pension funding form the majority of retirement insurance costs. They are continuously balanced: contributions are collected from the working-age population and these resources finance pension benefits which are strictly equal in every period to the paid contributions. When a system is balanced, it is often referred to as a zero balance system. In those cases, the pension system is independent from the rest of the government's budget and does not impose additional burden because the possibility of creating further deficit is ruled out. The inter-generational transfers, clearly represented in the PAYG systems are often seen as an implicit social contract between three generations. Each generation is projected to gain from such an agreement, but two criteria have to be fulfilled in order for it to function in a sustainable manner: sufficient productivity and population growth.

A tax-balanced system is one extreme as it sets the benefit rate at political grounds and the tax rates should be adjusted accordingly in order to provide the funds needed for the promised pension benefits. The opposite extreme is the benefit-balanced system, where the pension benefits are set on the bases of the funds collected from taxes on the working-age population. To prevent imbalances pension benefits are constantly adjusted to exactly match the taxes. In-between these two extremes the intermediate-balanced system is positioned, which keeps the pension system balanced by continuously balancing both tax rates and pension benefits.

An unbalanced pension system that generates surplus or deficit can transfer into being a surplus or deficit in governmental spending thus influencing interest rates on government debt and impacting key macroeconomic parameters. An unbalanced pension system which generates deficit for prolonged periods must be funded by the government, creating deficit in the budget. However, the logic of politics does not always follow the logic of economy: politicians may let pension systems to remain unbalanced over long periods of time as they prefer to postpone finding a solution for next generations. As population continues to age and the pressure on PAYG systems increases, a political and social consensus for increasing of tax rates or cuts in pension benefits or a combination of measures will be very hard to achieve.

1.2.1 Bismarck and Beveridge pension systems

In general, public pension systems can be divided into two major models that have developed in different ways under the influence of different historical conditions. The irreversible process of abolishment of informal provision of old-age support happened as a result of the Industrial Revolution in the 19th century. In the first half of it, the first privately operated schemes for stimulating good workers with old-age benefits started to appear. By the middle of the 19th century the first laws covering some basic types of

pension insurance were adopted in leading western countries. This resulted in the development of two different pension systems: the Bismarckian and the Beveridgean pension systems.

Benefits under the **Bismarck model** are dependent on the working age and contributions paid by every person and usually results in high pension benefits. Contributions are usually paid by both the employees and employers and benefits are capped: minimal and maximal levels of pensions are regulated. The first pension system managed by the government in the world was introduced by the German Chancellor Otto von Bismarck in 1889 to appease the arising social movement (Müller, 1999, p. 13). At that time, the government created a social protection legislation called invalidity and old-age insurance for the employees in the private sector. Since then, Bismarckian pension system has served as an example for other European countries that started creating their own old-age support systems: Austria, France, Italy etc. One of the most visible characteristics of the model is that membership is directly connected to the employment status and therefore benefits depend on contributions paid over the working life of an individual. All contributions are made with the idea of guaranteeing a normal standard of living for every individual eligible, thus contributions in the Bismarckian system are obligatory for all people participating in the labor market. Pension benefits are granted more or less on actuary bases and are designed to provide substantial replacement rate. In countries with pension systems based on the Bismarck model, usually the largest part of income of the elderly comes in the form of state pension. This model is prevalent in many European countries: Slovenia, Germany, Austria, Italy etc.

Parallel with this development, in Anglo-Saxon countries an alternative model for social security was established. It is usually attributed to the research work of Mr. Beveridge published in 1942 in the United Kingdom (hereinafter: UK) and it is the reason why it bears the name **Beveridge model**. In contrast to social insurance type systems, these flat-rate benefits systems do not limit membership to employees only. It is usually obligatory for all people in the working age, but in some countries it is compulsory for all citizens: every citizen above a certain age is entitled to certain benefits that cover only the essentials and is financed by the central state budget. Benefits are not closely tied to contributions paid, or the active time spent in the labor market. Therefore it needs to be combined with other sources of income, usually coming from the second and third pension pillars. In Europe the Beveridgean system is the base for the modern pension systems in countries such as the UK, Ireland and Denmark.

Table 1. Differences between the Bismarckian and Beveridgean pension systems

Parameter	Bismarckian	Beveridgean
Objective	Income maintenance	Prevention of poverty
Benefits	Earnings-related	Flat-rate
Eligibility	Contribution record	Residence or need
Financing	Contributions	Taxation
Administration	Tripartite	Public

Source: K. Müller, *The Political Economy of Pension Reform in Central-Eastern Europe*, 1999, p. 14, Table 2.1.

Recent reforms of the pension systems can be differentiated into three major sectors: the degree of actuarial fairness, the degree of funding and the organizational structure of the systems as either defined benefit (hereinafter: DB) or defined contribution (hereinafter: DC) schemes. Sometimes the last segregation cannot be made in a straightforward manner, since both the Bismarck and Beveridge systems have been evolving and moving towards each other. The most essential difference between both systems remains the degree of actuarial fairness: the smaller the gap between levels of contributions and benefits, the more actuarial fairness the system offers. The pure flat-rate benefit type version of the Beveridge systems stands at the totally non-actuarial end, while the social insurance type version of the Bismarck model contains more actuarial fairness. Funded type implies that contributions are invested in the capital market and yield the market rate of return, while unfunded systems are financed via the PAYG method and yield an internal rate of return that is equal to the growth rate of the wage sum. Both types are organized as unfunded pension systems, meaning that pension benefits of today's retired are paid by the current contributions of today's working-age population.

1.2.2 Funded and unfunded pension systems

As fertility rates continue to decrease and life expectancy increase, dependency ratios fall on dangerous levels, creating unsustainable situation of the PAYG systems. Smaller numbers of working-age individuals will have to pay for the pension and health care benefits for an ever-larger group of elderly people. Depending on the specific attributes of the pension system in different countries, the risk of low growth rate of the wage sum, which is the total sum of the transfers, whether as a consequence of low population growth or due to low productivity growth, is carried by contributors, pensioners or both. Most of the current PAYG pension systems are organized in a way that shifts the risk of rising financing costs to younger generations. All these factors increase the pressure to reform the pension systems towards more funded organizational structures, more actuarial fairness and a shift of the risk from the young to all generations across the life cycle.

Although every country has a specifically organized pension system, in general we can distinguish two main systems with regard to the way they are funded: unfunded pension systems, also known as PAYG systems and funded pension systems. The most striking difference is that unfunded systems hold no capital stock or any form of funds: pensions of today's retirees are directly financed by the contributions of today's workers. On the other hand, funded systems are based on individual or collective accounts in which every individual pays its contributions which are invested in the capital market to finance their own personal pension benefits in the future. With the notable exception of Chile, which had undertaken a bold reform since the 1980's, most of the other developed countries still have unfunded, PAYG pension systems. In some countries they are complemented by company or private pension plans whose importance and organizational structure vary greatly. The PAYG system is based on inter-generational agreement and solidarity, while in individually fully-funded schemes the insured accumulates a fund over the entire working period, which is converted into an annuity upon retirement.

As the name itself suggests, unfunded pension schemes do not hold any funds: incomes and expenditures, called contributions and benefits, have to balance out in every period creating a so called **budget constraint** which must be equal to:

$$\text{Contributions}_t = \text{Benefits}_t \quad (1)$$

$$\text{Contributions}_t (1 + r_{t+1}) = \text{Benefits}_{t+1} \quad (2)$$

Funded systems are based on a fund and contributions made at time t finance benefits at time $t+1$, which are often paid after many years. In (2) the budgets constrain for funded pensions system is presented. The r_{t+1} is the rate of return achieved by investing on the capital market. Contributions paid to the system at the time of contribution, are equal to the pension benefits paid. An important feature of the funded systems is that contributions and benefits concern the same individuals: the young at time t , which pay the contributions, are the old at time $t+1$ and are receiving the benefits, so there is no redistribution among individuals or across generations.

The internal rate of return of funded systems is equal to the market rate of return since all contributions are invested at precisely this rate. Contrary to unfunded pension systems, they do not provide possibility to increase the internal rate of return at the cost of other generations via an increase of the population, the age structure or the wages or by an increase in contribution rates. To sum up, the internal rate of return of unfunded pension systems equals the growth of the wage sum, and the internal rate of the funded systems is completely dependent on the market rate of return.

Uebelmesser (2004, p. 18) finds out that internal rate of return of unfunded systems of the average married man in Germany, born in 1930 was about 3,5 %, while the same rate for a married man born in 1980 falls to almost 0 %. A decrease in the working-age population could be compensated, at least partially, by an increase of productivity. On average, the rate of return of the funded systems has been exceeding the rate of return of unfunded pension systems in the last decades because the economy was in a dramatically dynamic and rare era of high growth in both developed and developing countries.

Table 2. Typology of pension systems in different EU Member States

Degree of funding	Country pension systems	
	funded, but not actuarial systems;	actuarially fair and unfunded systems; DK, S
	low degree of actuarial fairness and funding systems; UK	unfunded and actuarial systems; <i>ES, FR, GR, IT</i>

Note. bold – defined contributions; italic – defined benefit

Source: S. Uebelmesser, *Unfunded Pension Systems - Aging and Migration*, 2004, p. 65.

Reforms in the past decades have been moving towards more actuarial fairness, such as the reforms in Italy, Sweden and Denmark, and/or transition towards more funded systems, such as the reforms in Italy and Sweden. Many of the recent reforms in EU Member States have also been focused on tightening eligibility criteria. Public unfunded systems of some countries which are faced with less dramatic negative demographic changes will be affected comparatively less by it. For example, in the UK and Ireland the public pension systems are relatively insignificant and are focused mainly on providing a basic pension benefit, while most earnings-related pensions are covered by company and private pension plans. In Denmark the pension system has already been based on fully funded, defined contribution pillars. Expenditures for funding the public pension systems also vary greatly between the largest Member States: the UK has a relatively insignificant and already reformed public system only spends around 5 % of its GDP, Spain more than 10 %, France and Germany around 12 % and Italy with its rapidly aging population spends 14 %. Austria, Greece, Finland and Denmark also exceed the average for the European Union's countries 10 % spending rate (Uebelmesser, 2004, p. 57). Slovenia already spends between 11 % and 12 % of its GDP on the pension system, which is more than the EU average and is predicted to rise to above 17% in the next decades if reforms are not undertaken.

The factor, contributing to the increasing expenditures for unfunded pension systems is predominantly population aging as the number of contributors decline and the number of beneficiaries rise. However, there are methods to counteract those tendencies such as increasing the retirement age which increases the share of working-age population, serious tightening of the eligibility criteria, especially for early retirement and reduced generosity of pension benefits. Measures taken by other European countries for establishing funded pension pillars and stimulate greater participation rates are discussed in Chapter 6.

Authors arguing for a systemic approach in reforming pensions systems state that the funded element has numerous advantages over unfunded ones. A mandatory funded pension system could increase the rate of savings, thus stimulating investments and leading to increased output. They could improve the efficiency with which capital is allocated, improving growth rates. Also, they could help develop financial markets, which are especially valid for the new Member States, as pension funds could quickly develop in major financial institutions creating demand for other financial services. More funding means lower dependencies across generation with respect to old-age security. Introducing funded pension systems however, has its own risks since this decision generally increases short-term pressures on the budget as contributions go to individual accounts instead in the first pillar pot. Unfunded pension systems on the other hand also carry some risks: future retirees have to rely on the continuity of the pension system. In other words, they have to hope that the inter-generational agreement that is in place now, will not change in any fundamental way and will continue to exist.

1.2.3 Defined benefit and defined contribution pension systems

Funded pension schemes can be divided into two major groups: defined benefit or defined contribution systems. The first one pays pension benefits, whose amount is defined in advance at the moment of entrance into the labor market and thereafter stay mostly unchanged through the entire period. The risk of collecting insufficient funds needed to make the payments is borne either by the pension scheme or by the employer. The amount of pension benefits depends on the number of contribution years and from individual earnings from work. By participating in the scheme, the system commits to make regular payments after retiring, which may or may not depend on the salary of the retired person, lasting until the end of his life. On the other hand, under the defined contribution system, the amount of the pension benefits paid is not pre-determined, but is directly dependant on the person's salary, contribution made as well as effective management of the funds and the administrative costs on the side of the insurer. Contributions of each worker are collected on individual accounts and the accumulated capital is converted into pension-

income stream upon retirement. The collected funds can be paid under a single payment upon retiring or as annuity payments. Pension funds working under this scheme in Slovenia are obliged by law to guarantee a minimum rate of return. This system also requires that the manager of the funds makes reservations (slo. *rezervacije za sedanjo vrednost pričakovanih obveznosti*).

Pension schemes in the first pillar around the world are mostly organized as defined benefit plans. Out of 25 OECD countries, 17 have public, defined-benefit plans making them by far the most common pension-insurance provision (OECD, 2005, p. 24). Since 2000 they came under increasing pressure for restructuring after being faced the need for ensuring financial sustainability. In many countries a gradual transition process has begun, shifting the focus towards the defined-contribution systems and not only in pioneering countries such as the UK, Ireland or the United States of America (hereinafter: USA). Defined contribution systems have many advantages such as lower risks for the fund manager, better investment opportunities and choice for the individual reflecting his own risk preferences, the possibility of higher returns and the potential to directly influence the management of a person's own finances. On the other hand, the defined benefit system is much more simple, clearer and straightforward for most of the citizens, resulting in higher contribution rates.

Table 3. Taxonomy of public pension schemes across EU Member States

Country	Type of pension scheme	Country	Type of pension scheme
Belgium	DB	Luxembourg	DB
Bulgaria	DB	Hungary	DB
Czech Republic	DB	Malta	Flat rate + DB
Denmark	Flat rate + DB	The Netherlands	Flat rate + DB
Germany	PS	Austria	DB
Estonia	DB	Poland	NDC
Ireland	Flat rate + DB	Portugal	DB
Greece	Flat rate + DB + NDC	Romania	PS
Spain	DB	Slovenia	DB
France	DB + PS	Slovakia	PS
Croatia	PS	Finland	DB
Italy	NDC	Sweden	NDC
Latvia	NDC	United Kingdom	Flat rate + DB
Lithuania	DB	Norway	NDC

Note. DB – Defined benefit; NDC – Notional defined contribution scheme; PS – Point system

Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 54, Table II.1.1.

1.3 Multi pillar pension systems

Systems providing retirement benefits vary widely among different countries: some are dominated by a publicly managed scheme, while others have very little governmental involvement and are mainly managed by private companies. State pension systems could be quite vulnerable if there is continuous fiscal irresponsibility, low contribution rates or inefficient contributions collection. At the same time private pension systems could be vulnerable too as they depend on the government's macroeconomic capacity and ability to effectively design, implement and monitor financial markets and institutions. Fiscal irresponsibility could lead to high inflation that can easily wipe out and decapitalize private pension funds. Privatization can offer substantial long-run economic gains, but those gains are not free, nor are immediate (Müller, 1999, p. 25).

In different countries private pension schemes can be very different in their organization, regulation and scope. In France for example, participation in mandatory, while in other countries such as Denmark, the Netherlands or Sweden almost universal coverage is achieved by collective agreements. Yet in the UK, the USA and Canada membership is not mandatory and collective agreements or occupational pension schemes cover around 50% of the workforce. In many countries especially in the developing world, informal arrangements are more dominant than state or private insurance plans. In the developed countries however, according to the World Bank, every pension system should be consisted of three pillars (Creedy, 1998, p. 159): the public pension pillar, managed by the government, or the first pillar; the occupational pension pillar managed by the private sector or the second pillar and the voluntary personal savings pillar - the third pillar.

The relative importance and even the existence of one or more of those pillars vary widely between countries especially between the developed and the developing countries. Countries with long history of state pension support such as the European have a predominant public pension system based on a PAYG basis. The relative importance of the state managed pension pillar often affects and pre-determines the significance of the second pillar (occupational pension schemes) managed by private companies. In countries of Southern Europe such as Spain, Italy or Greece, where the state pension system provides generous benefits, there is less need for additional occupational schemes. On the other hand, systems with relative smaller importance of the state pension system where contracting-out is permitted, such as the ones in the UK and Canada, occupational pension schemes are more important.

The prevailing pension system today in most of the developed and OECD countries is the **Multi pillar pension system**. It encompasses three pension pillars, but there are exceptions including systems which have a zero, basic pillar, or countries that have a fourth, non-financial pillar. At the same time, comparing countries that have established the three pillar system may be very difficult as they might not be implemented and regulated in a similar way. Pension systems sometimes are made of two different parts: the redistributive and insurance. The first is established to maintain some minimal level of income for the elderly and the other has an objective to supplement the redistributive and provide additional income according to different needs and contributions of the individuals. A multi-pillar system should be introduced mainly because of efficiency and growth considerations, referring to a better provision of old-age security as a mere secondary argument (Müller, 1999, p. 26). According to Berk Skok et al. (2010, p. 7), the OECD describes the multi-pillar system as:

- the first pillar (public pension), managed by the state with defined benefits and usually organized as PAYG; benefits depend on contributions paid during the working age;
- the second pillar (occupational pensions) is managed by private entities and pension benefits depend on the contract of employment;
- the third pillar is made up of individual retirement saving plans.

The Slovenian pension system is best described by the definition given by the OECD: the second pillar is comprised by collective pension schemes and the third is as an individual retirement savings plan. The definitions of the multi pillar system by the World Bank and the International Labor Organization (hereinafter: ILO) are given in Appendix A.

2 DEMOGRAPHIC TRENDS

During the 20th century, demographic changes and the age structure were favorable in most countries as the large baby-boom cohort became increasingly concentrated in the working ages. The old-dependency ratio, which measures the ratio of older adults to younger adults, has been increasing in the developed countries in the past 150 years. Those trends raise many concerns regarding the financial sustainability of publicly funded welfare systems and their social fairness, the resulting decline of economic growth, international competitiveness, living standards and overburdening of future generations. Addressing these problems is problematic from two perspectives: countries cannot rely solely on their own experience because such dramatic and negative changes in the population's age structure are happening for the first time. Second, the complexity and difficult predictability of future problems must be solved relying on partial or incomplete data, subject to various changes in numerous parameters.

2.1 Important demographic indicators

The old-age dependency ratio in the five major European countries today is comparable and around 0,40. By 2050, it is expected to rise dramatically, reaching 0,70 in the UK and France, 0,80 in Germany and 0,90 in Italy and Spain (Uebelmesser, 2004, p. 45). In other words, while today on average ten individuals of the working-age cohort support four pensioners, in the future they will have to finance the pensions of seven to nine individuals.

The **support ratio**, which is the inverse of the old-age dependency ratio, will fall dramatically: from today's average of around 2,5 people supporting every pensioner, by 2050 this ratio will be only 1,4 in the UK and France, 1,25 in Germany and 1,1 in Spain and Italy. The demographic situation in Slovenia, on the other, is already worrying: the support ratio as of 2015 was only 1,37, or below the predicted value of other major European countries in the next 35 years, which is a signal how unsustainable Slovenia's pension system even in medium-term is. The support ratio is the ratio of the effective number of producers to the effective number of consumers and is a summary measure of population age structure that incorporates how production and consumption vary by age (Lee & Mason, 2013, p. 13). The increase in the support ratio leads to phenomenon known as the **demographic dividend**: each percentage point increase in the in the support ratio allows for an increase of consumption, no matter the age group. The opposite is also true - falling support ratio lowers the rate of consumption by the entire population. The demographic dividend is a stage of the demographic transition during which, the working-age population increases faster than the young, reducing the burden on public finances. It is diminishing when population ages, as the elderly grow faster than the increase of the working population and public finances are subject to increased pressure.

Lee and Mason (2013, p. 26) have found that the demographic dividend can add between 0,5 % and 1 % annually to the growth rate of per capita income and consumption in the developing countries over the period of the next five decades. Developed countries already experienced similar effects in the second half of the 20th century with the entry of the baby boom generation on the labor market. In those countries the support ratio has already peaked and is now moving downward: the baby-boomers start to retire and the working-age population shrinks. Most affected by this negative process will be the countries of Eastern Europe such as Slovenia, Austria and Hungary, followed by Germany and Spain and some economies of Eastern Asia such as China, South Korea and Japan (Lee & Mason, 2013, p. 14). The demographic dividend will continue to have a major impact on the economic development of countries with growing young populations, mostly those in Africa and some parts of Asia.

Dependency ratios are often used as a tool to summarize the burden of different classes of dependants on the working-age population. There are four dependency ratios used in analyzing the increase of funds needed to finance the welfare system: the young, the old, the total and the effective dependency ratio. Most significant rise in the next decades is expected in the **old dependency ratio**, which measures the number of people over the age of 65 to the total number of employed. The **young dependency ratio**, which measures the number of people between the ages of 0 and 15 to the number of employed people, is expected to fall in the upcoming period in almost every European country as a result of falling birth rates. The **total dependency ratio**, which is the ratio of the sum of those under the age of 15 and those above the age of 65 to the total working population, is consequently expected to rise as there is a sharper increase in the number of the elderly, than decrease of the young. It can often contribute to misleading information when trying to project future government spending because government spending per capita for the elderly is much higher than for the young. The total **economic dependency ratio**, which measures the total inactive population to the total labor force, is projected to increase in all member countries of the OECD, with the notable exceptions of Turkey and Mexico, which are not faced with a population aging problem (OECD, 2006, p. 21). For more information on the factors influencing dependency ratios, see Appendix B. A comparison of the values of dependency ratios for Slovenia and other comparable EU Member States is given in Appendix C.

Increases in the **expenditures to GDP ratio**, emphasize on the necessary government revenue that will have to be raised in the future in the form of higher taxes. It is also important to make long-term projections of the sensitivity of this ratio to changes in the basic parameters influencing it, including: population size, which depends on fertility and mortality as well as migration; changes in social policy, which cause outlays in different public spending programs; real changes in outlays due to factors other than policy changes. The main drivers of pension expenditure are explained in Appendix D.

2.2 Demographics through the human history

World's population size throughout human history has been relatively static until the 18th century, as people were living in destitute conditions and had very short life expectancy. Since then, population structure and size have seen unprecedented changes adding three more decades in the average person's life expectancy. Total population of the world has passed 7 billion and is projected to rise even further, reaching between 9,5 and 10 billion by 2050 (United Nations, 1999, p. 8). Although birth and death rates, life expectancy and migration levels vary hugely between different countries and regions, it is predicted that the size of the total population aged 60 or more will quadruple by that same year. As a consequence of improved health care and accessibility, declining child mortality and better

sanitation the average life expectancy has more than doubled in the period between 1900 and 2000 (Sellon Jr., 2004 p. 9). The value of this parameter has reached 65 by 2000 from around 30 years in 1900 and it is projected to rise to 81 by 2050.

2.2.1 Demographics prior and during the Industrial Revolution

The pre-modern era was characterized by high fertility and even higher mortality rates. Life expectancy at birth was only about 25 years with very few individuals reaching the age of 60. Although this high birth rate had imposed a heavy burden on family life, especially for the women, the growth rate of the total population was only 0,5 %.

Table 4. Demographic transition in human history

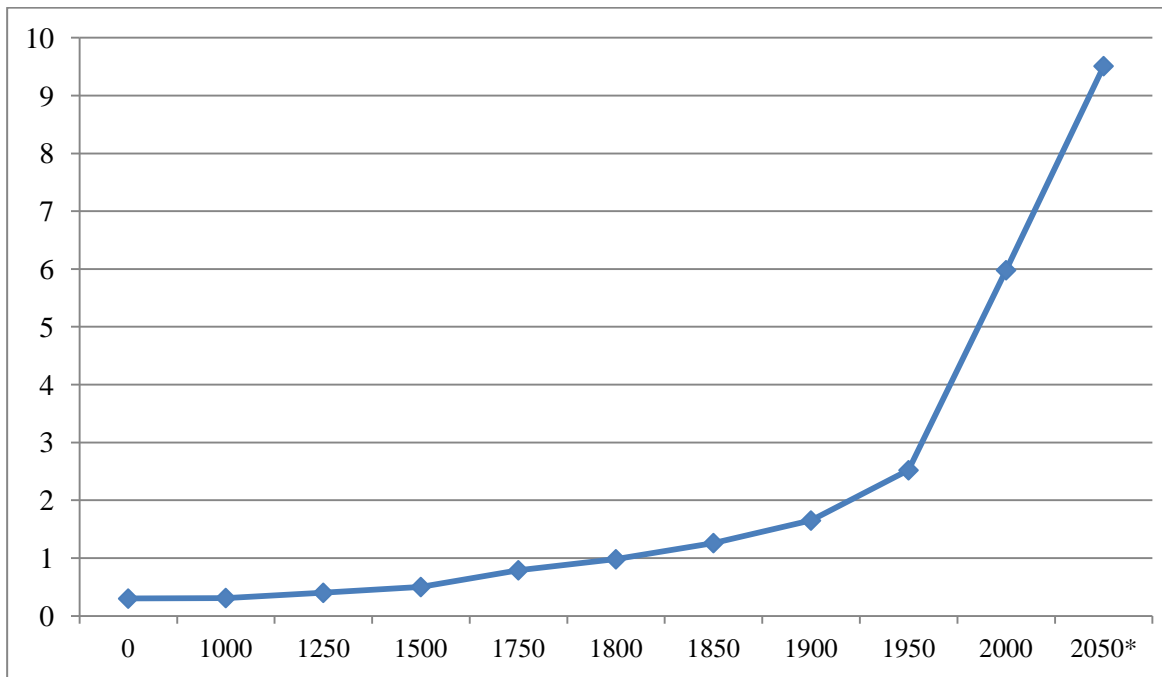
Parameter/Era	Pre-Modern	Early	Later	Modern
Births/1000	45	45	45	20
Deaths/1000	40	33	15	10
% of 15 or under	36	38	45	26
% 60+ years	2	5	5	15
Life exp. at birth	25	30	50	70
Pop. growth rate	0,5	1	3	1

Source: J. Creedy, *Pensions and Population Aging*, 1998, p. 4.

The early period distinct itself with the fall in mortality rates especially in child mortality, causing life expectancy to rise to just above 30 years. In the later period improved health conditions and sanitation contributed to even further decreases of mortality rates and increases in life expectancy, but the birth rate remained very high. As a result of these three factors the youth dependency ratio was very high - around 45 % of the population was under the age of 15, thus population growth increased. Such changes posed considerable strains on family support and gradual shift towards government support started with the end of the 19th century.

Before 1750 Europe was in equilibrium in which both birth and death rates were very high. As Sellon Jr. (in Livi Bacci, 2000, p. 58) observes, at that time population growth was slow, uneven and often reversed as the only effective measure for population control was delayed marriage. By 1750 population started to increase all over the continent, a process that continued until the 20th century, when it stopped. Fertility rates increased in some countries in the period between 1750 and 1850 but not everywhere in Europe. This rise and the following decline of population growth are known as the demographic transition.

Figure 1. Population size of the World in the period 0-2050, in millions



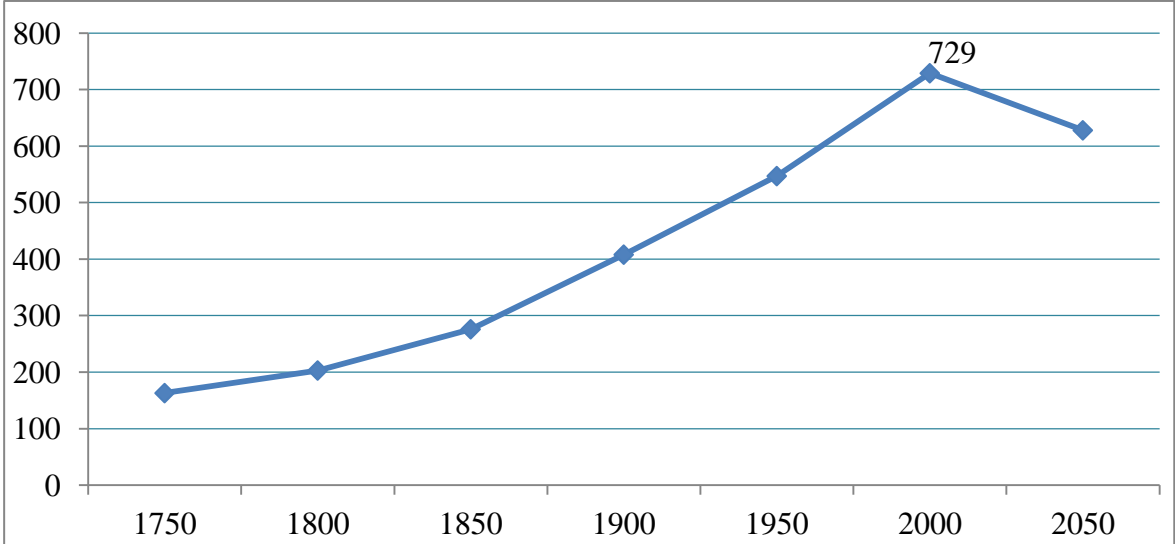
Source: United Nations, *The World at Six Billion*, 1999, p. 5, Table 1.

After this period, a decline in fertility rates sets in, which eventually affects all countries, but happens much earlier in some. Between 1850 and 1900 European population increased from 276 million to 408 million, which was in part due to falling mortality rates and in part to increased fertility, but the relative contribution of these two components vary considerably between countries, periods and between urban and rural areas (Sellon Jr., 2003, p. 58). Until the mid 20th century, the decline in mortality has been largely a consequence of the decline in infectious diseases and most of the gains in life expectancy due to a decline in infant mortality. On the other hand, the decline in fertility is partially due to better fertility control but mostly as a result of a decline in desired family size.

There may be a significant relationship between the demographic change and economic growth at the beginning of the Industrial Revolution as health improvements started to have significant impact and morbidity was declining. In the 19th century most diseases that have been dangerous to infants and adults such as smallpox or tuberculosis were in retreat. At around 1860, improved nutrition, housing conditions, hygiene and medical breakthroughs started to improve immunity and the general health of the population. One of sharpest declines in mortality is registered in the first two decades of 20th century as mortality rates in cities finally decreased and the so-called urban penalty was eliminated.

Many argue that the major factor that contributed to declining fertility rates was the increased knowledge and improved education towards the end of the 19th century. Modern technology opened the way for a rise in the rate of return to human capital and that effect offset the income effect. This meant that for parents it was more preferable to have smaller families with good upbringing and high-quality education provided for their children.

Figure 2. Population size of Europe in the period 1750-2050, in millions



Source: United Nations, *The World at Six Billion*, 1999, p. 6, Table 2.

Despite the fact that by the late 19th century Western countries were leading the technological and innovation development and were enjoying ever increasing living standards, people did not enjoy vast families as one could have expected. All European countries made transition from the high-pressure to low pressure regime after 1750, but they followed different trajectories. With the declining role of religion after 1800 there was less fatalistic approach to death and people started taking more active approach toward prevention and treatment of diseases. Although fertility rates have declined significantly in the past decades, only after the Second World War we observe major increase in women’s participation rates. This lead to an ever slower population growth, which is expected to turn negative by 2050, when the EU population will start to decrease as shown in Figure 2.

2.2.2 European demographics in the 20th century

During the first half of the past century a big gap opened between the developed and developing countries with regard to population trends. Industrialized countries experienced low infant mortality rates due to the development of good and accessible public health care

system, while developing countries continued to face sanitation and child mortality problems for many more decades. As a consequence of falling mortality rates, better family planning, female emancipation, education and participation in the labor market, fertility rates in developed countries started to decline.

If we concenter the entire world population, ageing started during the 1950s, but in most European countries this process has been active since the beginning of the 20th century. In the two decades after the Second World War, couples in Western and Eastern countries, on average had more children than before, which produced the baby boom generation. The average family size grew but more as a consequence of a decline in mortality rates than as a result of increased fertility. By the middle of the 20th century extensive health and pensions systems were introduced and continuously expanded that in time overtook public spending on education. The second half of the last century was marked by continuous expansion of health care coverage and pension benefits, especially in the face of rapidly aging population. In the second half of the 20th century the total world population more than doubled from 2,6 to almost 6 billion. The corresponding average annual growth rate was 1,7 % but it is expected to fall sharply to 0,8 % in the next half century, adding more than 3 new billion humans in the total population (Sellon Jr., 2004 p. 13). The changing population size was followed by significant changes in its structure as well.

In the USA the fertility rate has been declining after its peak in 1957 when it reached 3,5 births over an average women's lifetime. Since 1990 the fertility rate is at 2,1 or exactly at the natural replacement rate, which is the minimal level of fertility rate needed to keep the population constant in the absence of factors such as immigration and longer life expectancy (Sellon Jr., 2004 p. 2). European and Japanese fertility rates on the other hand, have fallen far below the replacement rate in recent decades. The **total fertility rate** (hereinafter: TFR) in Europe has been below the natural replacement rate for decades now: Western countries fell under the replacement rate in the 1970's and Eastern European countries faced the same trend a decade later. Without counterbalancing these demographic trends with adequate measures, the total pension spending could double by 2050. On the other hand, successfully aimed and executed reforms could increase participation rates, especially of women and older workers, improving the **system dependency ratio**, representing the ratio of beneficiaries to contributors, which could not deteriorate as much as the old-dependency ratio. Female labor participation rates in 2000 varied greatly among member states from 83 % in Denmark to just 53 % in Italy, but a further increase is predicted in all EU Member States (Barr, 2005, p. 148).

The first phase of the age transition in Western European countries started in the mid-1970s when the baby-boom generation was aged between 25 and 29 and started entering

the working force. Their numbers grew faster compared to the population of newborns. The second phase began 35 years later, when the working-age population started to surpass the combined population of children and seniors. In many countries the boom of the working-age population is drawing to a close and the future will be dominated by the growth of the 60 + population (Lee & Mason, 2013, p. 4). The third phase is unprecedented in human history as the future population of the world, on average, will be much older than ever before. The members of the large baby-boom generation will mostly contribute to this ageing structure, along with later cohorts, which have very low fertility rates.

2.2.3 European demographic projections for the period 2015-2060

The 21st century brings previously unseen and unprecedented demographic changes, which are the result of two parallel trends: increased life expectancy and lower fertility rates. These changes will slow down global population growth, transform the economy, put pressure on public finances and welfare systems and impact the living standards and growth potential. Although developed and developing countries are currently positioned at different stages of the demographic cycle, this situation will change over the next few decades, as the values of the demographic parameters are expected to converge.

The period of explosive population growth that lasted for many decades will come to an end with the expected slowdown of the global population increase. Parallel with this, many countries are faced with population aging and increased life expectancies at birth. The developed countries, which are further in the demographic transition, will see major increase in the share of elderly in the total population. On the other hand, the developing countries are at a much earlier stage in this transitional process and as a consequence of lower declines in fertility rates will continue to see an increase in their working age populations. Supply of labor, which is among the most important determinants of economic growth, is very significantly affected by demographic changes. Most of the developed countries will have to face the problem of slower labor force growth or even decline as in many European countries including Slovenia, Japan and South Korea. The shrinking of the workforce will become even more visible when the baby-boom generation retires and will be replaced by significantly smaller cohorts of workers. The only possible solution these countries have is to increase productivity high enough to offset the negative effects of decreased workforce and avoid economic slowdown. Countries need to address the economic and social consequences of population ageing sooner rather than later. In developed countries policies need to be aimed at increasing the labor force participation both of older workers and other labor groups whose participation rates are currently at low levels: women, the disabled, older men and the young (Sellon Jr., 2004, p. xxvii).

As smaller cohorts will produce even lower number of newborns the structure of population is predicted to change significantly. Thus all EU countries with the noticeable exception of Luxemburg, Ireland and Sweden will see a decline in absolute numbers of working age population. Germany alone will see a decline of some 11 million workers, while in percentage terms the biggest changes will occur in the Czech Republic, Poland and Latvia. A report of the European Commission gives some worrying data on the fact that all EU Member States will face a decline in the working age population between 2005 and 2050, while 13 of those countries will see a decline of at least 20 % (Vehovec, 2008, p. 19). With the exception of Italy, all countries are new Member States that joined the EU after 2004. As a combined consequence of declining fertility rates and increased life expectancy the share of older workers, those aged between 55 and 64, will rise to 23 % by 2025, from 18 % in 2006. In order to prevent a further decline of working age population, governments will have to find solutions to this problem and maintain economic growth.

The overall population decline will follow the years of decline in the working age population. The total population of the EU will be more or less stable until 2060, but there are significant differences between Member States: countries of Eastern and Southern Europe such as Slovenia, Greece, Spain, Poland, Hungary etc. will register significant population decline, while others such as France, Austria and the UK will see an increase in the total population. Most affected by population decline in the first period will be Italy, Germany and Spain, while Slovenia will see a population decline of around 100.000 citizens towards the end of the period.

Several years before the actual population decline, the countries of Europe will be faced with a decline in the working-age population. The **old-age dependency ratio** is projected to increase from 27,8 % to 50,1 % in the EU over this period (European Commission, 2015, p. 21). In the 1990's the total fertility rate of the EU-15 countries fell to 1,46, but recovered slightly to 1,55 by 2005, which is still below the natural replacement rate of 2,01. In 2050 the old-age dependency ratio is expected to be highest in Spain – 98 % followed by Italy – 96 % and Greece – 88 %. On the other end will be Luxemburg – 55 %, The Netherlands – 59 % and Denmark - 61% (Vehovec, 2008, p. 42). In terms of drivers of the population changes, **total fertility rates** are projected to rise in the EU, though remaining below the natural replacement rate. Parallel with this, a large and sustained increase in life expectancy at birth is expected in the period until 2060. In the EU28, life expectancy at birth for males is expected to increase by 7,1 years, reaching 84,8 in 2060. For females, average life expectancy at birth is expected to increase by 6,0 years, reaching 89,1 in 2060. The largest increases in life expectancies at birth, for both males and females, are projected to take place in the Member States with the lowest life expectancies in 2013.

Table 5. Average life expectancy at birth for both male and female population in Slovenia and the European Union in 2013 and in 2060

Parameter/ Year	Slovenia		European Union	
	Male	Female	Male	Female
2013	77	83	77	83
2060	85	89	85	89

Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 10, Table 2.

The proportion of young people aged between 0 and 19 is projected to remain fairly constant by 2060, while those aged between 20 and 64 will become a significantly smaller share, declining from 61 % to 51 %. Those aged 65 and over will become a much larger group rising from 18 % to 28 % of the population, and those aged 80 and over will represent 12 % from today's 5 %. In other words, they will almost become as numerous as the young population in 2060. Official projections generally assume that gains in life expectancy at birth will slow down compared with historical trends. This is because mortality rates at younger ages are already very low and future gains in life expectancy would require improvements in mortality rates at older ages, which statistically have a smaller impact on life expectancy at birth.

In the beginning of the 20th century the **net migration** flows to the EU countries increased significantly reaching 1,8 million in 2003 and staying at levels above or close to 1,5 million until the onset of the financial and economic crisis, when net migration in the EU dropped sharply to around 700.000 in the years between 2009 and 2011. In 2012 and 2013 net migration flows have increased again, reaching pre-crisis levels of around 1,7 million in 2013. Net migration inflows to the EU are expected to continue. In the first period until 2040 an annual inflow of 1.364.000 people is expected and thereafter declining to 1.037.000 by 2060 (European Commission, 2015, p. 21). The bulk is concentrated in the euro area – more than 40 million and Slovenia's net migration will be 10 % larger than in 2013, which is very close to the EU average (European Commission, 2015, p. 39). Although currently there is significant political and social resistance to longer working lives and large-scale immigration, the economic incentives and pressures on the welfare systems may grow very strong in favor of such measures. The existing huge gaps in wages, job possibilities and the quality of life between developed and developing countries means that there is large potential gains to migration for the migrants themselves. There are, however, negative externalities for both the receiving and sending countries.

Total labor supply or the population aged between 20 and 65 in the EU is projected to nearly stabilize between 2013 and 2023. In the following period up to 2060 it is projected to decline by 8,2 % or in absolute terms by about 19 million people. In the euro area, the projected fall in labor supply between 2023 and 2060 is 9,2 %, equivalent to about 14 million people (European Commission, 2015, p. 22). The **total employment rate** for the

group aged between 20 and 65 in the EU is projected to increase from 68,4 % in 2013 to 72,2 % in 2023 and further to 75 % in 2060 based on the projection of the total population growth, labor force expectations and unemployment rates (European Commission, 2015, p. 56). Projections show that total employment of those aged between 20 and 65 will peak at 215 million in 2022 and fall to 202 million in 2060 (European Commission, 2015, p. 22). In absolute terms, a decline of about 9 million workers is anticipated. The negative consequences from the rapid population aging will only be partly offset by the increase in female and older workers participation rates, migration inflows and the assumed decline in structural unemployment, leading to a reduction in the number of people employed during the period between 2023 and 2060 by 13 million. At the same time labor force projections underline a rise in overall **participation rates**, particularly evident for those aged above 50, reflecting the combined effect of the rising participation of younger women in the labor market and the expected positive effects of pension reforms. The most significant increases in participation rates are projected for older workers - around 21 percentage points for women and 10 percentage points for men. Consequently, the gender gap is projected to narrow substantially to 2060.

Demographic developments have a major impact on labor market conditions. Three distinct periods can be observed for the EU (The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060), 2015, p. 2):

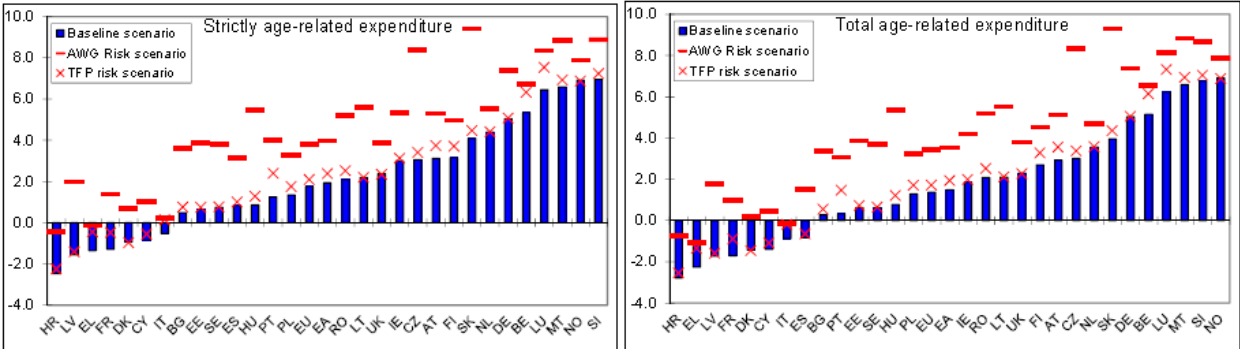
- 2007–2011, “demographic developments still supportive of growth”: the working-age population is growing, but employment is stagnant as the financial and economic crisis weighs on labor prospects during this period;
- 2012–2022, “rising employment rates offset the decline in the working-age population”: it starts to decline as the baby-boom generations retire. However, the assumed reduction in unemployment rates, the projected increase in the employment rates of women and older workers cushion the impact of demographic change, and the overall number of persons employed will start to increase during this period;
- 2023–2060, “the population ageing effect dominates”: the projected increase in employment rates is slower, as increases in female employment and the impact of pension reforms will be less visible. Hence, both the working-age population and the number of persons employed will start falling over the remainder of the period.

As a result, after an average potential **GDP growth** of 1.1 % up to 2020, a slight increase to 1.5 % is projected for the period up to 2060 (European Commission, 2015, p. 22). Drivers of GDP growth will change dramatically over the projection horizon: labor will make a positive contribution to growth in both the EU and the euro area up to the 2020s, but turn negative thereafter.

There is considerable variety across EU Member States with regard to long-term spending on age-related spending. According to the projections they can be divided into three groups (European Commission, 2015, p. 24):

- a fall in total age-related expenditure relative to GDP is projected in eight Member States including Croatia, Greece, France, Italy and Spain, where a decline in the pension-to-GDP ratio is projected in the long-term;
- for countries including Hungary, Poland, Romania, Sweden and the UK age-related expenditure ratio is expected to rise moderately by up to 2.5 percentage points of GDP;
- the age-related expenditure ratio will increase significantly in the remaining ten Member States. Among the countries with an increase of more than 3 percentage points is Slovenia, together with Austria, Czech Republic, Denmark and the Netherlands.

Figure 3. Strictly and total age-related expenditure in the EU Member States, 2013-2060, in percentage points of GDP



Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 4, Graph 2.

Figure 3 shows a very worrisome data about Slovenia. The predicted rise in both specific and total age-related expenditures is higher than all other Member States of EU, which will increase GDP expenditure by more than 6 percentage points. Table 6 shows that Slovenian spending on pensions will rise by 3,5 percentage points, which is in sharp contrast with the predicted decline in pension spending in EU28. Total age-related spending by 2060 in Slovenia will increase by more than three times compared to the average for EU28.

Table 6. Age-related spending, percentage points of GDP in 2013 and the expected change until 2060

Countries	Pensions	Health care	Long-term care	Education	Strictly age-related items	Unemployment benefits	Total age-related items
Slovenia	11,8 + 3,5	5,7 + 1,2	1,4 + 1,5	5,3 + 0,8	24,2 + 7,0	0,6 – 0,2	24,7 + 6,8
EU (average)	11,3 – 0,2	6,9 + 0,9	1,6 + 1,1	4,7 + 0,0	24,6 + 1,8	1,1 – 0,4	25,6 + 1,4

Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 10, Table 2.

Besides the worrisome tendency of population aging in Europe, at least some positive are expected in the future: around the middle of the 21st century the dependency ratio will become stable. Major reforms of the pension and health care systems in many European countries are already under way and the reform of the labor market has the potential to bring much needed incentives for staying into the workforce for as long as possible.

2.3 Demographics of Slovenia

2.3.1 Demographic projections for the period 2015-2050

Important demographic and pension parameters for Slovenia in the 20th century are explained in Appendix E. Slovenia's total population will roughly stay the same in the projected period to 2060, but the composition of the population will be very different. For example, the size of the working population will decrease by more than 21 %.

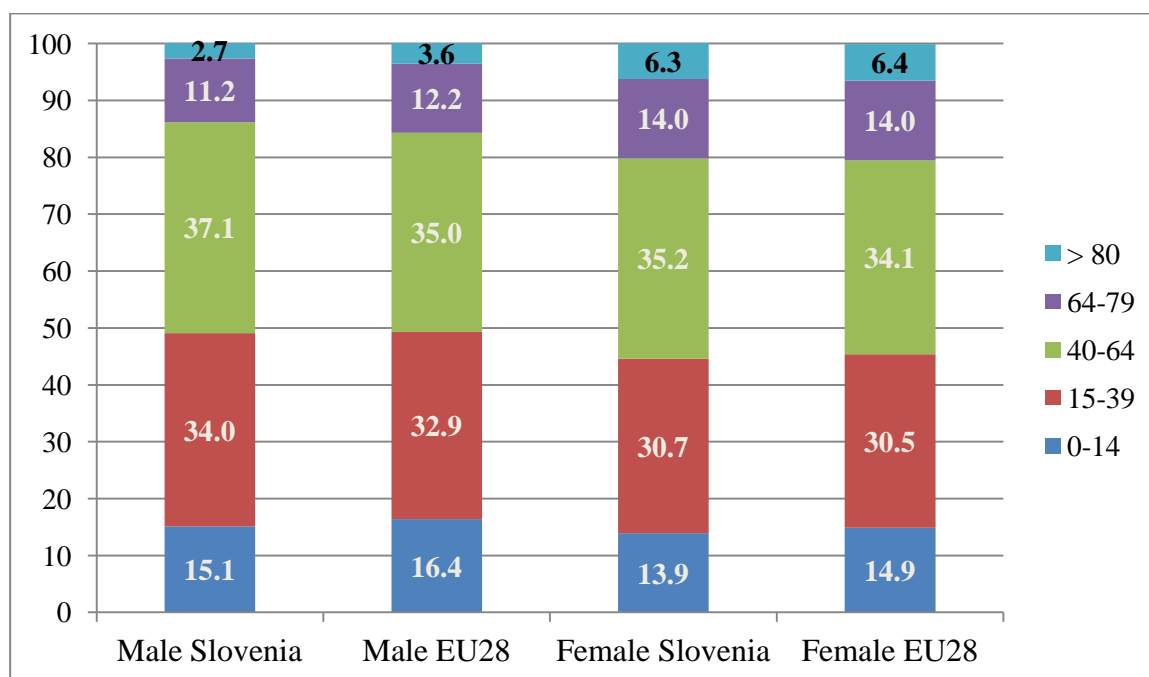
Table 7. Total population size and the size of the working population in Slovenia in the period between 2013 and 2060

Year and peak	Total population in millions (change)	Working population, 20-65, in millions (change)
2013	2,1	1,3
Peak (year, size, change)	2024: 2,1 (+1,6%)	2013: 1,3
2060	2.0 (-2,5%)	1,0 (-21,4%)

Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 22, Table I.11.

In general, Slovenia has a similar age composition in comparison with the other EU Member States, but this is predicted to change soon. As Figure 4 shows, the percentage of the younger age group in Slovenia is already smaller than in the EU28, but the share of the group aged above 80 years is also considerably smaller.

Figure 4. Male and female population composition by age group in Slovenia and EU 28 in 2013



Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 4, Figure 3-4.

Table 8 makes the situation very clear: in the decades to come, a significant increase in the size of the group aged above 80 is expected, followed by a noticeable increase in the group aged above 65. A change of -21 % in the size of the working age population will have profound consequences on the pension system of Slovenia until 2060.

Table 8. Projected change of main population groups in Slovenia over the period 2013-2060 (in percent)

Population group	Percentage change
Young (< 20)	+ 3
Working age (20-65)	- 21
Elderly (65 +)	+ 70
Oldest (80 +)	+ 170

Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 23, Graph I.1.13.

As shown in Table 9, the fertility rate in Slovenia is and will continue to be equal to the average rate on the EU. The same can be said about the movements of the life expectancy at birth for both genders. The differences arise in the demographic and total dependency

ratios, shown in Table 10. In 2013 the values of both ratios were below the EU average, but until 2060 it is predicted to rise considerably above that average.

Table 9. Key demographic parameters in EU and Slovenia, 2013-2060 (1)

Year	2013	2060	2013	2060	2013	2060	2013	2060
Parameter	Fertility rate		Life expectancy at birth (males)		Life expectancy at birth (females)		Net Migration (1000's)	
Slovenia	1,59	1,75	77,2	84,3	83,1	88,9	1	4
EU average	1,60	1,76	77,6	84,8	83,1	89,1	36	1037

Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 26, Table I.1.2.

Table 10. Key demographic parameters in EU and Slovenia, 2013-2060 (2)

Year	2013	2060	2013	2060
Parameter	Demographic dependency ratio		Total dependency ratio	
Slovenia	25,4	52,5	46,7	78,8
EU average	27,8	50,1	51,4	76,6

Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 27, Table I.1.3.

3 DEMOGRAPHIC EFFECTS

3.1 Effects of changing demographics on the economy

The unprecedented changes in the age structure brought by the demographic transition are putting public welfare programs under severe pressure by stressing some systems, for example health care and retirement provision, but relaxing others, such as education and child care. Different age structures in have strong influence on consumption and labor income: in countries with high portions of young populations, such as in India and most African countries the child deficit dominates. On the other hand, there are countries where the ageing population structure dominates, such as in Europe, Japan or South Korea, where the old-age deficit is more prevalent. As a result, the flow of resources and transfers in developing countries is downward from the elderly to the younger while in developed countries it is just the opposite: the flow is upward from younger to older generations.

Until the 1980s the role of population, its size and structure were seen as neutral to economic development and was neglected even by major world economic institutions such as the World Bank (Sellon Jr., 2004, p. 21). Changes in population size and structure are a

direct result of the demographic transition and as people's economic and social needs vary over the lifecycle, this leads to changes in the economy and growth rates. Thus population size and structure have a major role in economic development: as the dependency ratio falls, the base for economic development rises, creating a demographic dividend.

The process of population aging is influencing the basic macroeconomic indicators via the effects it has on the labor market, the production sector, technological development etc. Effects of demographic changes can be strongly influenced by the openness of the economy and its interactions with the rest of the world. Population ageing is going to change the composition of the population, increase the elderly ratio on behalf of decreased youth ratio and decrease the ratio of effective workforce to the entire adult population. These forces are especially influential on the basic determinants of macroeconomic outcomes in opened and global economies. Interconnected economies such as Slovenia, in effect foster the sharing of large demographic shocks between different countries and this help mitigate the adverse consequences of population aging on output and consumption.

The severity of the effects on basic macroeconomic indicators will depend on the source of the demographic change. When falling fertility rates are the main cause, this is going to be manifested with a shrinking workforce population entering the labor markets. On the other hand, if longer life-expectancy is the main contributor to population aging, than the elderly support ratio is going to decrease. In developed economies such as those of the EU, the population aging is a result of the mixture of both factors, but in the last decades it seems that decline in fertility rates has a more important role. The increased elderly dependency ratio will put pressure on public finances, welfare systems and may trigger higher debt.

With the predicted significant changes in the population age and size, pressures can add additional 6 % of GDP to the government deficit and lead to a 100 % increase in its public debt over the next 50 years (Maddaloni, Musso, Rother, Ward-Warmedinger & Westermann, 2006, p. 32). If current PAYG systems do not undergo a major reform, pension systems will be particularly vulnerable due to promised benefits and increasing dependency ratios. The European Commission expects that on average all-ageing-related burdens will amount to 4,0 percentage points of GDP by 2050 of which 2,2 percentage points for pension benefits. The OECD defines three major factors related to population ageing that influence the economy: population, productivity and participation or the 3 Ps (OECD, 2006, p. 25):

1. population – the principal reason for the negative impact of population ageing on GDP per capita growth is the decline in the size of the prime working-age population, aged between 20 and 64, relative to the population in the younger and older age groups.
2. productivity – an increase of the labor productivity can help offset some of the negative impact of population ageing on economic growth. As population ageing in practice means a decline in the number of workers relative to the total population, economic growth can be maintained only by growth in productivity.
3. participation – if labor supply can be fully mobilized, this would reduce economic dependency ratios, improve public finances and increase both short and long-term potential for economic growth. Currently there is a significant potential for increasing participation rates of the elderly in line with increases of the normal and disability-free life expectancy. It is important to stress however, that even large increases in participation rates of older workers will have modest impact on the economic growth in per capita terms, although the positive impact on public finances will be much larger.

3.2 Effects of changing demographics on the pension system

The age structure of a country's population has a profound impact on the economy and welfare systems as people's economic behavior changes along with their age. Costs of schooling, healthcare and pensions vary over time, together with saving and consumption rates. In the coming decades countries will be increasingly influenced by the economic behavior of the elderly – whether they work, whether they spend down their wealth, and whether they make large demands on health care systems (Lee & Mason, 2013, p. 7). Changes in the number and behavior of one age group influence the economic circumstances of all other age groups.

Countries with low fertility, such as the western countries are spending much more on education and health care per young person than developing ones. This fact is very important and has long-term positive implications for these societies: despite the fact that they will have fewer workers in the future, those workers will be much more productive as a direct result of the higher investment in human capital and life-long learning. What it matters is not the number of workers but what they can produce, which is determined by both the number of workers and their productivity (Lee & Mason, 2013, p. 19). Slovenia has among the highest rates of spending on education in the world, which is almost exclusively financed by public funds - 90,83 %. High spending on education is an encouraging signal, since education is the main channel for investment in human capital, which is very important for future productivity.

If we rank countries by total public transfers to the elderly and compare the data to the aggregate public transfer towards the children it is clear that the European countries and Japan have highest ratios. Germany comes first where public transfers to the elderly are 2,56 times that of young people. Slovenia is seventh among all OECD countries and sixth in Europe with a ratio of 1,58 (Lee & Mason, 2013, p. 179). A surprising trend has been present in all OECD countries in the past decades: despite constant improvements in life expectancies and longevity, the effective retirement age has been decreasing resulting in drastically higher number of years that people can expect to stay retired (OECD, 2006).

The direction of intergenerational flow of transfers depends heavily on the development patterns of different countries. Western economies have short arrows pointed to the right which means that the young part of the population is making net transfers to the elderly. This is especially true for Slovenia and other European countries: Germany, Austria, Hungary, Sweden and Spain. The age distribution in those countries is among the oldest in the world, so we find a strong prove that the direction and intensity of both public and private transfers is heavily influenced by the age distribution in a society. By 2050, as population ageing continues to increase, a greater increase in the intensity of rightward pointed arrows could be expected, signifying even greater transfers from the fewer younger working-age individuals to the growing number of seniors.

The **fiscal support ratio** is equal to aggregate taxes to aggregate benefits. If governments did not have the possibility for borrowing, this ratio would be precisely 1 as the aggregate taxes must be exactly the same as the aggregate benefit payments. With the rapid decrease of the working population, especially after the retirement of the baby-boomers and the decline of the number of taxpayers, the fiscal support ratio is falling. In order to return its values to the previous position drastic and unpopular measures have to be undertaken: a cut in the social benefits or increase in taxes. Taking measures to cut back the public financing of pensions can take decades and is a very complex reform, as proven by countries that have implemented it, such as Chile (Lee & Mason, 2013, p. 176). In time, we can expect a shift from publicly financed pensions towards private transfers and asset-based allocations, which is going to ease the burden on public finances and the fiscal support ratio.

4 THE PENSION SYSTEM OF SLOVENIA IN THE PAST

4.1 History of the pension system of Slovenia

Social insurance in Slovenia has a long history that begins in 1854, while the country was part of the Austro-Hungarian empire, when the mining act introduced for the first time

health, accident and insurance for old age. No general old-age schemes were available at that time, but in 1906 a scheme for civil workers was also introduced. In 1922, when Slovenia was part of the Kingdom of Serbs, Croats and Slovenes a general health and accident scheme was introduced, followed by the first old-age scheme in 1937. After the Second World War assets and funds of the former pension scheme were nationalized and the system was organized as a PAYG. The system was significantly reformed in 1983, when indexation completely depending on wage growth was introduced together with back payments, which were intended to compensate pensioners for the delayed adjustments. Eligibility criteria were generous, as the pension age was 60 years for men and 55 for women with 20 years of qualifying period. The new system in addition with the following socio-economic crisis, lead to rising replacement rates, number of pensioners, mass early retirements and an increase in GDP expenditure for age-related welfare systems.

Table 11. Parameters of the pension system of SR Slovenia between 1970 and 1989

Year	Insured person per pensioner	Pension expenditure (% of GDP)	Replacement rate (% of average wage)
1970	3,32	/	62,6
1975	3,51	/	67,8
1980	3,66	7,3	73,5
1985	2,94	6,8	66,5
1988	2,68	7,8	80,4
1989	2,52	8,7	80,0

Source: International Labour Office, *Pension Reform in Central and Eastern Europe Vol. 2*, 2002, p. 22.

The pension system of Slovenia during communism had the following characteristics: entitlements to pension benefits were based on employment usually in state-owned companies and individual records of contributions were weak or nonexistent. Generous pensions, combined with low effective retirement age, different retirement ages for different occupations and easy access to disability benefits were seen as victory for socialism. Pension benefits were not clearly connected to contributions and were financed on PAYG basis. This system was designed for the socialist era characterized by stable life-long employment in state-owned companies and was incompatible with the new socio-economic reality of market economy.

With the fall of socialism and the breakup of Yugoslavia, the economy of Slovenia suffered: in 1991 alone the economic growth has shrunk by 9,1 %, followed by a 5,2 % decline the next year (Barr, 2005, p. 33). These decrease lead to an almost immediate fall of the real value of pensions, which was smaller in size than the fall in wages. Rising unemployment has resulted in falling contributions and rising nonparticipation in the labor market. All of this exerted downward pressure on pension benefits and upward pressure on

already high contribution rates, overburdening the economy and public finances. After the initial shock the government started to slowly take steps to limit labor market distortions and reduce the number of pensioners by increasing the minimum age needed for retirement and increasing the number of years upon which pension benefits were calculated. Later on, steps were taken to strengthen administrative capacity of the institutions managing the pension system by establishing, regulating and supervising financial and pension insurance.

4.2 The global financial crisis in Slovenia

The global crisis in Slovenia caused one of the deepest recessions in the euro zone with real GDP plunging more than 10 % which also caused considerable deterioration of public finances. Six of the major banks required state aid with total fiscal costs of around 10 % of GDP. The fiscal deficit rose from around 0 % in 2007 to the staggering 14% in 2013 and the total public debt quadrupled in the same time, reaching 80 % (IMF, 2015, p. 3).

The major cause of Slovenia's fiscal deterioration was the high and rising public spending, which is estimated to have increased by more than 5 percentage points in the period 2007-2013, reaching 14 %, which is among the highest in Eastern Europe. Expenditures were increasing fast, while the revenues stayed practically on stable levels. Major contributor to rising expenditures were the rising costs of social spending, which had increased by more than 3 percentage points in the period 2007-2013 to around 18 % of the total GDP (IMF, 2015, p. 4). Roughly two thirds of the social spending is accounted to pension benefits and the other third was spent mostly on education and health care. This is the reason why many researchers and international organizations see the pension reform as the most important tool for decreasing budget deficit and slowing down of governmental borrowing.

4.3 Past reforms of the pension system in Slovenia

Modernization of social welfare systems is a crucial aspect of the reform of the European social model. Long-term sustainability and quality of social protection, particularly in the face of an aging population is crucial (Barr, 2005, p. 144). Sustainability of pension systems is in of the focus points of the Stability and Growth Pact and of the Lisbon Strategy, under which pension should encourage employment, prolonged working life and consolidate public finances. Adequacy is one of the core objectives agreed by the Lisbon Summit, which states that pension systems should support competitiveness and core social objectives: assisting labor mobility, different employment patterns and accommodating fluid family structures (Barr, 2005, p. 150).

In general there are two very different approaches to pension reform: the parametric and the systemic. A parametric reform tries to rationalize the pension system by increasing revenues, decreasing expenditures and set the bases for participation into private pension plans. It could include measures such as increasing of contribution rates, cutting benefits, raising the minimum retirement age, less generous indexation of pension benefits, abolition of privileges for different occupations etc. Besides Slovenia, this type of reform was introduced in countries such as Germany, France, Greece and the Czech Republic. Most of the reforms in Western Europe were limited to parametric changes within the public PAYG scheme: extension of the working life, strengthening the contribution-benefit link and cutbacks of benefits (Müller, 1999, p. 16). The systemic approach was preferred in most post-socialist countries that needed a more radical reform such as Estonia, Hungary, Poland and Croatia. It is based on the introduction of a second pillar with voluntary participation and a comprehensive reform of the PAYG pension system.

4.3.1 The 1990 Reform

After decades of communist rule where the state provided free social protection, generous pensions and short working-ages, many Slovenians are very sensitive to social inequality. Most of the inequality was created during the privatization process in the first half of the 1990's and since then it has not seen a major change (Stanovnik & Verbič, 2005, p. 340).

Shortly after declaring independence, a period of essential restructuring of the socialist economy started. Among major objectives of this process was laying off numerous workers in an effort to make the companies more effective and competitive. In order to maintain relative social stability, the government allowed early retirement as a major instrument for reducing unemployment, especially among young graduates. The transition and restructuring in the early 1990's lead to a steep rise in unemployment rates: the number of unemployed climbed from 34.000 before the breaking of Yugoslavia to 137.000 in the matter of only four years (Lee & Mason, 2013, p. 346). The early retirement solution was introduced as a short-term measure to ease social problems, but it had and still has long-term consequences for the budget and the economy. Numerous early retirement options in combination with high education expenditures and late entry to employment confine the working period in Slovenia mostly between the age of 25 and 55. As Slovenia's population continued to age and working population decreased with every generation, it was clear that bold reforms needed to be undertaken in order to ensure the future stability of public finances and to stimulate economic development.

The first reform of the 1990's was introduced in 1992 was aimed at stabilizing the rising expenditures of the pension system. It was not ambitious, eligibility criteria were mildly tightened and failed to establish second or third pillar pension systems. Retirement age before the Pension Act of 1992 was set at 55 years for men and 50 years for women. Afterwards it had increased by six months each year, reaching 58 years for men and 53 years for women in 1998 (Lee & Mason, 2013, p. 349). Stanovnik (2002, p. 26) has described the reform as too little too late, since it fails to significantly cut expenses and the system continued to be used as a buffer against the adverse consequences of the country's economic transition. The new Act did not represent a radical departure from the previous law, but was aimed at stabilizing the pension system (ILO, 2011, p. 305). Slightly higher retirement age imposed by the 1992 reform was not able to slow down the influx of new retirees into the public pension system, as the price of additional years of working was very low and not consistent with actuarial principles. This resulted in a mass practice of purchasing additional years of pension insurance.

Until 1996 the ever increasing expenditures of the pension system were covered by increases of the contribution rates. As a result, pension contribution rates increased dramatically from 22,55 % in the time prior to the break of Yugoslavia to 31 % of the gross wage in 1995 and started to adversely affect the competitiveness of Slovenia's economy. The following year the government decided to start covering the deficit created by the pension system and lowered contribution rates to 15,5 % and 8,85 % of the gross wage for employees and employers respectively in a bid to boost economic development and achieve more sustainable pension budget. Government expenditures intended to cover the rising deficit of the pension system meant fewer available funds for research, development, long-term investments and other social services. The first pillar of Slovenia has been under increasing pressure in the past 25 years, which is expected to increase even further due to the simultaneous development of several adverse trends: aging population, decreased fertility rates, increased life expectancy, increasing share of recipients of pension and other social benefits and decreasing number of active contributors.

4.3.2 The 1999 Reform

The talk of a new reform started in 1996 with the work on the White book on pension reform. The new Pension and Disability Insurance Act (hereinafter: PDIA) was passed in 1999 and its implementation started on January 1st 2000 with the plan to be fully enforced by 2024. The transition period is very lengthy so the actual values of the parameters upon which this reform was based could drastically change over time and the end results will be achieved very gradually. In short, the new reform introduced a system of penalties and bonuses for early and delayed retirement, increased pensionable age, decreased accrual rates and tightened eligibility (OECD, 2004, p. 19).

The system was made rather complex as a result of the heavy negotiations between different government parties and between the government and social partners. Statutory retirement age under the new PDIA depended only on the number of working years: 63 for men and 61 for women after the full implementation of the new retirement criteria. This eligibility criterion is planned to rise from 58 years and 6 months in 2000 by 6 months annually for men and from 53 years and 4 months in 2000 by 4 months annually for women. However, an individual can retire as early as 58 and receive full pension benefits if he or she has fulfilled the full pension qualifying period, which is 40 years of service for men and 38 years of service for women. The transitional period terminates at the end of 2008 for men and at the end of 2022 for women.

The 1999 PDIA introduced more actuarial fairness as a system of incentives and disincentives was adopted intended to be used when people retire earlier or later with regard of the retirement eligibility criteria. All insured persons without a full pension qualifying period, who have retired before 63 years of age for men and 61 for women, have to bare pension decreases accordingly, for every month until the minimum retirement age for full pension benefits. The insured can either buy insurance for the missing years, which is capped on a maximum period of five years, or the pension benefit will be permanently cut by a variable amount, capped at 18 %. The reform also introduced bonuses: when the actual retirement age is higher than minimum age required for full pension benefit, each month increases the pension by a percentage of 0,3, up to a maximum of 18 % (European Social Observatory: Country Report Slovenia, 2010, p. 3). The reform proposed in 1999 and introduced in 2000 also included targets to reduce pension entitlements by tightening the eligibility criteria, increasing the length of the period upon pension benefits are calculated from 10 to 18 of the best consecutive years, lowering the assessment base and accrual rates to 38 % and 35 % for men and women respectively in the first 15 years of the contribution period and additional 1,5 % for every following year.

This reform also improved horizontal equity: the large gender gap in eligibility criteria between men and women was substantially narrowed and the accrual rates were equalized. Furthermore, it introduced better vertical equity: the ratio between the highest and lowest possible pension was changed to 4:1, which is considerably less than the previous ratio of 4,81:1 (Stanovnik, 2002, p. 31). In 2005 the government of Slovenia adopted a new rule for indexation of pension twice per year: in February and November each year in order to increase the pension benefits. These provisions, especially the introduction of full indexation of pensions, will undoubtedly have substantial negative long-term effect on the deficit of the pension system and public finances.

The 1999 PDIA introduced a new social assistance benefit - the zero tier **State pension** to provide basic protection for those not covered by the first pillar nor entitled to a social insurance pension and have incomes below the threshold. The **zero pillar** is organized as a non-contributory scheme aimed at alleviating poverty among older people (OECD, 2005, p. 22). The 1999 PDIA also preserved the pension income supplement, a form of social assistance benefit payable to pensioners with low pensions (ILO, 2011, p. 309). According to the Slovenian Ministry of Labour, Family and Social Affairs (2009, p. 8) the main changes of the first pillar after the 1999 reform are:

- retirement conditions are stricter and the difference between both genders is narrowed;
- for claiming retirement benefits two conditions must be fulfilled simultaneously – higher minimum age and the longer working life;
- longer retention of employment is rewarded, while retirement before the minimum age for retirement brings reductions to the pension benefits;
- the period for calculating the level of pensions benefits is longer;
- a State pension is introduced for those with no income.

However, the most drastic and important change introduced by the than new PDIA was the new form of private pension provision: the supplementary pension insurance for the working age citizens already covered by the mandatory state managed first pillar. The main objective for this new, second pillar was to provide adequate supplement to old-age income for the elderly and thus relieve the first pillar which has come under great burden as a consequence of the aging population and the generosity of pension benefits. The supplementary pension insurance is a voluntary, defined contribution system as the insured person assumes the investment risk at the minimum guaranteed rate of return on the premiums paid. In that way the pension benefit is dependent on two factors: the premiums paid in the form of contributions and the performance of the investments managed by the pension fund. However, the role of the first pillar was reduced, but not removed as participation in it continues to be the precondition for pension benefits from other pillars (OECD, 2004, p. 167).

The 1999 PDIA was aimed at reforming the pensions system very gradually until 2024 and has given limited stabilizing effects of the share of GDP Slovenia is spending on pension benefits. As population aging is projected to continue, it was clear that this gradual reform will not be enough to stabilize governmental expenditures in the years to come.

Table 12. Eligibility criteria of the 1992 and 1999 PDIA

Parameter	1992 PDIA	1999 PDIA
Eligibility	M: age: 58; p.q.p.: 40 W: age: 53; p.q.p.: 35	M: age: 63; p.q.p.: 40 W: age: 61; p.q.p.: 38
Min. insurance period	15 years	15 years
Pension base	Best 10 year average of net wages	Best 18 year average of net wages
Pension indexation	Growth of net wages	Growth of net wages
Early retirement	M: age: 55; p.q.p.: 35 W: age: 50; p.q.p.: 30	M: age: 58; p.q.p.: 40 W: age: 53; p.q.p.: 35
Reductions for early retirement	1% per year	Between 1,2% and 3,6%

Note. M – men, W – women, p.q.p. – pension qualifying period.

Source: International Labour Office, *Pension Reform in Central and Eastern Europe Vol. 2*, 2002, p. 32.

4.3.3 The 2012 Reform

Past pension reforms failed to achieve a significant improvement in the sustainability of the Slovenian pension system, which can be clearly seen by the continuous deterioration of the ratio between contributors and beneficiaries. As Table 13 shows, the most visible decline came as a result of the global economic crisis, when both employment and contributions fell. In 2015 the number of contributors was 840.588 and 612.018 was the number of pensioners (Ministry of Labor, Family and Social Affairs, 2016, p. 4).

Table 13. Ratio of pension contributors to pension beneficiaries in Slovenia in the period 2001-2015

Year	2001	2003	2005	2007	2009	2011	2013	2015
Ratio	1,77	1,70	1,67	1,69	1,66	1,53	1,38	1,37

Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 54, Table II.1.1.

The financial crisis had an important impact on shaping future pension reforms in Slovenia, as almost all pension funds recorded negative rates of return in 2008, resulting in a drastic reduction in the holding of stock. Total public pension-related expenditures rose from 2,53 billion € in 2008 to 2,84 billion € in 2010, which is an increase of 12,2% in just two years (Berk Skok, 2012, p. 3). Furthermore, projections show that pension expenses will rise from 9 % of GDP in 2010 to 17 % in 2050, requiring additional 3 billion € annually for financing the pension system. On the field of demographics, significant changes continued to happen: the ratio between contributors and pensioners worsened from 3,6:1 in 1980 to 1,55:1 in 2010 which is among the worst in the whole Europe (European Social

Observatory, 2010, p. 2). In response to the unsustainable demographic and economic parameters, in 2012 a reform was undertaken aimed at slowing the inflow of new retirees and cutting expenses, introducing the following basic changes:

- gradual increase of the retirement age to 65 for both men and women and stricter eligibility criteria for early retirement by increasing the earliest possible retirement age by one year; revision of some of the occupations for which early retirement is possible;
- introduction of early retirement penalties for the remaining occupational categories;
- the period over which the pensions are calculated is prolonged from 18 to 24 years;
- pension benefits are to be indexed by a combination of two parameters: 60 % from average wages and 40 % from average consumer prices, similar to the Swiss rule;
- temporary freezing of indexation in 2014 and 2015 in order to achieve short-term stabilization of the pension system finances.

As an outcome of the 2012 reform, the replacement rate is expected to gradually decrease to 50 % over time, while the employment ratio and compensation share in GDP are kept constant over this period: 63 % and 74 % respectively. The total expenditure for the pension system is expected to rise from 11 % of GDP in 2013 to almost 13 % in 2030 finally reaching 17,5 % in 2050 (IMF, 2015, p. 8). The reform also changes some of the rules regulating the second pillar system. The most important ones include:

- company owners can be enrolled into the private insurance system and abolishment of the “at least 51 % of workers must join to be enrolled into the collective schemes” rule, as anew all workers will be required to participate, except those who explicitly do not want to enroll;
- multiple pension providers will be allowed to offer services under a single company;
- introduction of lifecycle funds, which is a step away from the current minimum guaranteed rate of return. Minimum rate of return will continue to be obligatory for workers nearing retirement, but two additional funds have to be established in every pension plan for the younger and mid-life participants. Young ones usually prefer higher risk taking and higher returns, while the older participants value stability and a guaranteed rate of return;
- reduction of the asset management fee to 1 % in order to promote competitiveness and efficient asset management;
- measures aimed to discourage early lump sum withdrawals: reduction of the exit fee from the current 1 % to 15 €, aimed at encouraging members to switch between providers more often according to their preferences and fund’s performance;
- improved regulation environment and strengthened administrative capacity: if a company fails to make the payments due, it could be fined by the labor inspection.

The 2012 reform is predicted to have short-term fiscal consolidation effect, as the freezing of indexation is planned to end in 2016, and a limited long-term impact because it fails to significantly reduce the number of new entries into the pension system. Nearly all OECD countries now link pension to consumer prices as pension adjustments in line with average earnings may cost more than 20 % of total pension expenditure. Only Belgium, France and Spain valorize past earnings with consumer prices as wages usually grow faster than prices, thus price valorizations leads to lower replacement rates – in some cases even by 40 % (OECD, 2005, p. 17). According to the IMF (2015, p. 7) other main issues that this reform fails to address are:

- generous pension benefit indexation based on both wages and prices, while most countries are now aiming to calculate indexation mostly or exclusively from prices;
- the annual pension bonus remains in place and in 2013 it amounted to 0,35 % of GDP and almost 3 % of the total expenditures for the pension system;
- with numerous tax exemptions there is a generous tax treatment of pensioners: over 98 % of all old-age pension benefits fall into the first two categories which offer large tax benefits and all retired are entitled to 13,5 % reduction of assessed tax.

5 CURRENT CHALLENGES OF THE PENSION SYSTEM OF SLOVENIA

In Slovenia macroeconomic risks are driven by the process of population aging and the changing demographic structure. Those risks result in an unsustainable first pension pillar, which endangers the fiscal stability of the country, imposes high taxes on the population and is contributing negatively to the competitiveness of the economy. The government has a set of mechanisms in its possession that although unpopular, can stabilize public finances and the pension system, including lowering pension benefits by gradual indexation, which shifts the costs of stabilization of the system on current retirees, but a significant increase of taxes paid by the working population is not necessary. If the government does not take all necessary measures to increase participation in the second and third pillars, including with tax incentives, the costs of stabilization the pension system will be carried mainly by the current working population, which is already paying high contributions. They will also be faced with low pension benefits because of unfavorable demographic trends. Policymakers have another possible option: with the postponing of the reform, the pension system will continue to create ever larger deficit, which has to be paid by the government, creating larger public debt and transferring the problem to next generations.

The United Nations predicts that Slovenia will be among the worst-affected countries in the world by the process of aging population. The old-age dependency ratio is expected to more than double by 2050 reaching 53 % (IMF, 2015, p. 7). Parallel to this, the number of people in the workforce has shrunk, so the contribution's base has been declining. The share of contributors to the population aged between 15 and 60 has also been in decline: in 2013 coverage among the working age population was only 88 % of the levels in 2008 (IMF, 2015, p. 5). This situation has led to chronic deficit in the pension system: in 2013 less than 75 % of the expenditures were covered by contributions, while the rest of the funds came from the state budget, amounting to 3 % of the total Slovenian GDP. If these demographic processes continue, in 2060 the costs of funding the pension system will rise and claim additional 6 % of the country's GDP (IMF, 2015, p. 7).

The rise in pension spending was mainly the result of two parallel factors: changes in demographics and the generosity of the pension system. The share of individuals older than 60 in the total population increased from 21,5 % to 23,8 % as Slovenia is faced with one of the most rapidly aging populations in Europe (IMF, 2015, p. 5). At the same time, the pension system is very generous, even by the standards of many European countries, with low effective retirement age, numerous early retirement options, high ratio of pensioners to the elderly or the **coverage ratio** and the rules for indexation. Slovenia had one of the highest **replacement ratios**, representing the ratio between pension and wage, among both developed and emerging European countries. This replacement rate however is continuously falling and is now below the OECD net replacement rate. A target net replacement rate for Slovenia should be reaching the average OECD net replacement rate of around 70 %, but in a sustainable manner facilitated by the additional pension pillars.

5.1 Main characteristics

The generous welfare protection system is a legacy of the socialist system and the reason why many Slovenians, especially the elderly expect the state to take care of their needs. Slovenia's welfare system provides social protection similar to those of most developed and wealthy European countries. Faced with the problem of economic slowdown and pressure from aging population and recent economic crisis it needs serious revising and downsizing as it is already inefficient and unsustainable in long term. Publicly funded pensions are assigned to virtually every citizen above the age of 65 and its costs amounted at 12,7 % of GDP in 2006 (Lee & Mason, 2013, p. 343). Disability benefits account for 10 % of the total pension expenditure. In 2006 only about 72 % of all pensions were financed by taxing the working-age population via social contributions, while the other 28 % came directly from the state budget (Lee & Mason, 2013, p. 343). Public consumption consists of large transfers to the young and the elderly because education, health and pension services are predominantly financed by governmental spending. Private financing on education is

very small, but somewhat more substantial for the health care system. Compared to other European countries, public consumption in Slovenia is very high on the expense of private consumption, which is unusually low. The important role the state is playing can be attributed both to the socialist past of the country and the typical generous welfare systems found in many European countries.

Table 14. Characteristics of Slovenia's pension system

Public pensions					Private pension schemes		
Min. pension	Old-age pension	Early retirement pensions	Disability pensions	Survivors pensions	Occupation pension schemes	Mandatory private individual	Voluntary private individual
X	ER	ER	ER	ER	V	X	Yes

Note. X – Does not exist; ER – Earnings related; V – Voluntary

Source: European Commission, *The 2015 Aging Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 58, Table II.1.2.

Population ageing presents tremendous challenges and puts strains on public finances and welfare systems, but at the same time present big opportunities if longer and healthier lives are matched by longer working lives. Countries can more easily afford to pay a higher replacement rate at retirement if the retirement age is higher and benefits are paid for a shorter period: longer life expectancies increase the burden on pension systems. Setting the retirement age at 64, instead of 65 years for example increases the long-term costs of the pension system by 3,5 % (OECD, 2005, p. 60). On the other hand, a retirement age of 67 years will decrease the costs of funding pension benefits in the long run by 7 %. Strong financial and other incentives have to be established for continuing on working, while pathways to early retirement need to be closed. Incentives are also needed on the demand side: firms have to be supported in order to hire and retain older workers. On the supply side workers have to be provided with institutional help for education, training and re-qualification in order to improve their employability and stay competitive on the labor market. Unfortunately for Slovenia, much needed reforms were time and again heavily diluted, postponed or even abandoned in the period between 1990 and 2015 as a result of clashes with unions, interest groups or lack of political will. These issues have partially been addressed by a progressive taxation system, social contributions without ceiling, state benefits and social transfers.

Table 15. Number of pension contributors and beneficiaries and the corresponding system dependency ratio in Slovenia between 2006 and 2015

Year	Contributors	Beneficiaries	System dependency ratio
2006	854.606	510.795	1,67
2007	879.090	518.805	1,69
2008	904.084	527.933	1,71
2009	894.886	538.455	1,66
2010	881.992	552.561	1,60
2011	869.869	569.951	1,53
2012	855.542	585.408	1,46
2013	833.121	602.311	1,38
2014	831.880	608.885	1,37
2015	840.588	612.018	1,37

Source: ZPIZ [Pension and Disability Insurance Institute of Slovenia]: Letno poročilo [Annual Report], 2016, p. 23, Table II.10.

The most important characteristics of Slovenia's pension system as of 2015 are defined in an IMF Country Report (2015, p. 20):

- the public pension system is established on PAYG basis, it is mandatory and organized as a contributory defined benefit system. It pays retirement, disability and survivor pensions as primary benefits. Primary benefits may be supplemented by secondary pensions. Besides the mandatory defined benefit scheme - the Compulsory Pension and Disability Insurance, the system includes Compulsory (Occupational) Supplementary Pension Insurance for people performing hazardous or strenuous work, and Voluntary Supplementary Pension and Insurance;
- the most important eligibility criterion is the individual's age and contribution history. In 2013 the retirement age that includes full pension benefits was 63 for men and 61 for women as well as at least 20 years of insurance period. Early retirement is possible up to 5 years prior to reaching the minimum retirement age, but it comes at the cost of 0,3 % of deduction for every month prior to the normal retirement age, capped at 18 %;
- the amount of pension benefits is based on a person's past wage history: pension benefits are calculated on the base of the best consecutive 18 years of insurance and it is capped between the low and high ceilings: 76,5 % and 306 % of the previous year average wage respectively;
- the pensions system has almost total coverage: in 2013 the eligibility ratio, which measures old age pensioners as a percentage of people aged 65 and above was 120 %;
- compliance rates have been declining: time spent working prior to retirement has declined from an average of 38 in 2010 to 36 years in 2013. This trend is especially worrisome as it exposes the pension system to risks: revenues from contributions will start to decline before its expenditures start to decrease, contributing to higher deficit of the system and further compromise its ability to provide adequate old-age security.

Table 16. Basic information of the coverage of the mandatory pension system in 2010

Total labor force	Employer/Self-employed	Included in the mandatory pension insurance
932.772	864.361 (92, 7% of total labor force)	889.724 (95,4 % of total labor force)

Source: OECD, *Slovenia: Review of the Private Pension System*, 2011, p.78.

The base upon which pension benefits is calculated was prolonged from 10 of the most favorable and consecutive years in 1999 to 18 years in 2008 and to 24 in 2012, resulting in lowered base for calculating benefits. Individual earnings usually increase with the worker's life and using only the few last years will result in higher pension benefits. Out of a total of 25 OECD countries with earnings-related schemes, 20 use a life-time average meaning that all earnings in the early years are taken in the account (OECD, 2005, p. 32).

The average pension paid in 2000 reached the generous levels of 75 % of the average wage, but continued to decrease, reaching 67 % in 2007 and is predicted to fall even further: by 2060 it could reach only 57 % of the average wage of Slovenia (OECD, 2011, p. 17). The net replacement rate in most OECD countries is around 70 % on average, which is considerably higher than the replacement rate in Slovenia of around 60 % and decreasing (OECD, 2005, p. 16). The countries with basic pension pillars have lower net replacement rates, among which Ireland has a rate of only 40 %, but is supplemented by strong additional pillars. If future pensioners want to have higher pension incomes, contributions to additional pension pillars will be needed. If further serious reforms are not undertaken, the share of GDP going to financing pension benefits could rise from just over 10 % in 2007 to almost double of that by 2050: 18,3 % of the total GDP.

The pension system in Slovenia is a combination of mandatory pension plan based on the PAYG system and a supplementary pension insurance system. There are two different types of supplementary pension insurance: the mandatory supplementary pension insurance under the second pillar and the voluntary supplementary pension insurance under the third pillar. The first one is designed to cover people working in difficult and demanding sectors where due to the specifics of their work they are not expected to work until reaching the full retirement age. The second one is established in order to motivate primarily younger workers to contribute in order to guarantee a normal level of their future old-age benefits with regard to falling replacement rates in the first pillar.

In Slovenia there are four different types of supervisory authorities with overlapping jurisdictions, responsibilities and roles, which sometimes create confusion and non-optimal environment for the effective functioning of the pension system, especially of

supplementary funds. For more information about the about the supervisory institutions, please see Appendix F.

5.1.1 First pillar

The first pillar is the mandatory, publicly managed pillar. The system is financed by the contributions of both employers and employees with contribution rates of 8,85 % and 15,5 % respectively. It offers earnings-related pension benefits related to employment. The first pillar is financed on PAYG basis, by contributions of employers, employed, self-employed and a significant compensatory contributions by the state budget. In general eligibility rules of this system are both complex and very flexible.

Table 17. Organization of the three pillar pension system in Slovenia

Pension Pillar	Basic characteristics
First Pillar	State managed pension system
Second Pillar	Individual accounts Voluntary pension insurance: collective and individual Mandatory pension insurance (employed in the public sectors and hazardous occupations)
Third Pillar	Voluntary, privately managed, individual pension system

Source: M. Ekard, *The supplementary pension insurance in Slovenia – a brief overview of the current situation*, 2011, p. 3.

Established in 1999, Kapitalska Družba is a 100 % state-owned company that enjoys privileged status in Slovenia. Besides being granted a special role in managing the second pillar, it plays a very strong supportive role for the first pillar. According to Stanovnik (2002, p. 35), it manages four different pension plans:

- the First Pension Fund of the Republic of Slovenia is a closed-end fund for exchanging pension coupons for insurance policy points, a result of privatization imbalances;
- the Capital Mutual Pension Fund was established in 1992, but never achieved its full potential and intended results as many participants opted out;
- the Closed-end Mutual Fund was established for the employed in the public sector, where participation is mandatory. It works as a supplementary fund for its members;
- the Mandatory Supplementary Pension Insurance Fund is intended to be a supplementary pension insurance fund for covering of those employed in certain sectors, which are considered risky or unhealthy. Its members are obliged to contribute further payments as a compensatory measure for the right to early retirement.

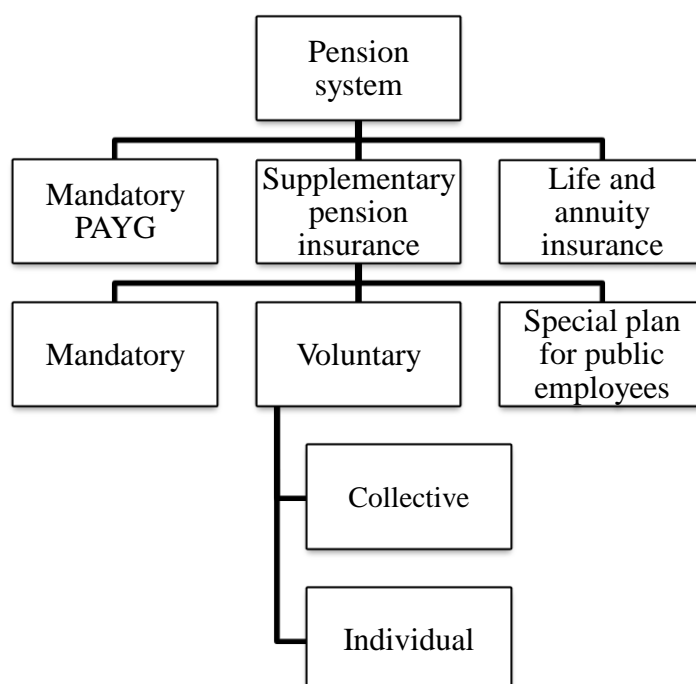
Transparency within the first pillar is problematic. As stated by the Ministry of Labor, Family and Social Affairs (2009, p. 17), the current non-transparent regime arises mainly due to the fact that the principle of solidarity between individuals or redistribution within a generation is strongly present in the system, otherwise typical of social transfers. In other words, the pension system incorporates vertical solidarity between the active and the retired generations as contributions are compulsory and proportional according to the contribution base. Horizontal solidarity between pensioners is also present as the maximum ratio between pensions for equally long insurance periods is 1:4. In order to ensure more transparency, it is essential to divide the pension and disability insurance and separate rights from pension benefits and rights from the disability insurance. Furthermore, a clear connection has to be established between the levels of contributions paid and acquired benefits. The pension system must be simple and understandable to the ordinary person in order to increase transparency, coverage and participation.

5.1.2 Second and Third pillars

In the past decades pension reforms in countries in transition had given a much larger role to the second pillar, either in the form of mandatory fully funded and privately managed pension funds, or in the form of voluntary collective pension schemes (OECD, 2004, p. 209). Although the original proposal for the pension reform in Slovenia included a mandatory fully funded pillar, because of strong opposition from the trade unions and political parties, a voluntary pension scheme was established.

The beginning of the voluntary supplementary pension system of Slovenia date back in 1999 when the Pension and Disability Insurance Act was passed and the way for establishing a second and third pillar schemes was paved. The 1999 PDIA (slo. *Zakon o pokojninskem in invalidskem zavarovanju, ZPIZ-1*) organizes the second and third pillars in a way that complements the first, PAYG public pension fund. Pension plans can be established by banks having a license to manage pension funds, or by insurance and pension companies having a license for pension funds management. These schemes can be called supplementary schemes, as they are intended to complement the decreasing levels of benefits gained by the first pillar. Employers' contributions to these schemes were exempt from corporate tax income, social security contributions and personal income tax (ILO, 2011, p. 310).

Figure 5. The role of supplementary pension insurance within the public pension system



Source: M. Berk Skok, *Health and Pension Reforms in Central Europe. System of Private Pension Provision – Case of Slovenia*, 2008, p. 3.

The second pillar in most OECD countries is aimed at ensuring that pensioners have adequate replacement rates, which means that retirement incomes are close to earnings prior to retirement, not just poverty-preventing levels of pensions. The second pillar in Slovenia is both publicly and privately managed system, mandatory for the employed in the public sector as well as some occupational categories and voluntary for employed in the private sector. Occupational pension schemes can be either open-ended or close-ended and are separated from individual pension schemes that comprise the third pillar. Besides the public pension institution *Kapitalska Družba*, private companies also offer private pension plans under the forms of mutual pension funds, pension or insurance companies.

The voluntary supplement system is organized as a defined contribution only as defined benefit plans are not allowed to exist by the law. The supplementary pension plans has two types: occupational or collective, where contributions are fully or partially covered by the employer and individual. Tax incentives for collective enrolment in pension plans are very favorable, but only under the condition that at least 51 % of the workers are enrolled. As employers are reluctant to pay the whole contribution, they usually demand that a certain percentage is paid from the wages. Employer's contributions to supplementary pension funds are deductible for purposes of both corporate and personal income tax and social security contributions.

Two types of private voluntary supplementary pension plans exist in Slovenia: the occupational or collective can be fully or partially financed by the employer and where employees can be included and the individual or personal, where contributions are made by the individual on individual accounts. As of 2011, 92,4 % of the total number of people insured under the system were members of collective pension plans (OECD, 2011, p. 18).

The law obliges pension plans to provide a minimum rate of return, linked to the rate of return on government bonds: the minimum guaranteed rate of return on the net premium paid should be no less than 40 % of the average annual interest of government securities with maturity over one year. It has to be guaranteed over the whole period of active contribution in the supplementary pension plan. The Slovenian law does not allow underfunding and in the case of shortfall, the pension provider has to use his own funds or assets to guarantee the minimum return. There are major differences between the public and private pension plans with regard to the investment policy. Pensions from the compulsory first pillar are paid from the current contributions of the insured (PAYG system), while the additional pillar is based on the principle of investment: savings are made on individual pension accounts and the provider of the fund is responsible for its sound management.

Slovenia's supplementary pension system is organized as a defined contribution one and with a guaranteed minimum return. In 2006 the participation rate in the second pillar was around 53 % of all citizens, but it represented only around 1,5 % of the capital market funds in the whole country (Berk et al., 2010, p. 20). In the same year, 92 % of all funds were invested in government bonds or deposits showing a very conservative investment policy by fund's managers and risk preferences of the general population. The portion of shares was only 4 %, which is a stark difference compared to countries that have developed financial markets, such as the UK or the USA, where this share is above 50 %. In 2009 the average monthly contribution to the private pension system made by employees was only 28 € for the employed in the public sector and around 33 € for the ones employed in the private sector (OECD, 2011, p. 18). In total, this amounts to around 2 % of the average salary in Slovenia for that period which is well below the levels necessary so that private pension funds could seriously supplement the public pension plan. The contributions premium is set by the government to a maximum rate of 5,84 % of the gross salary, but not more than 223 € per month.

Table 18. Summary characteristics of Slovenia's Supplementary Pension System

The Supplementary Pension System	Characteristics
Pension plans	Collective (contributions paid by the employer) or individual
Design of the pension plan	Defined contribution with guaranteed minimum rate of return
Financial vehicles	Funded with property units or insurance with technical reserves
Number and types of providers	6 Mutual funds 3 Insurance companies 3 Pension companies

Source: OECD, *Slovenia: Review of the Private Pension System*, 2011, p. 18.

As of 2008, 55.19 % of all insured persons of the active population under mandatory pension system were covered under voluntary supplementary pension insurance. Most of them were insured under collective insurance established by their employer – 52 % and only 3.5 % were insured by individual pension insurance (OECD, 2011, p. 23). Most plan members belong to the demographic group between 30 and 50 years of age. As of 2010 average savings in the voluntary pension funds amounted to only 40 € per participant per month, which will not be enough to sustain a replacement rate of 70 %, which is the average rate in OECD countries (Berk Skok, 2012, p. 4). From the transition countries, Slovenia had the lowest pension savings in investment pension funds – only 2,5 % of GDP. By comparison Poland had 14 % and Hungary had 13% (Berk Skok, 2012, p. 19).

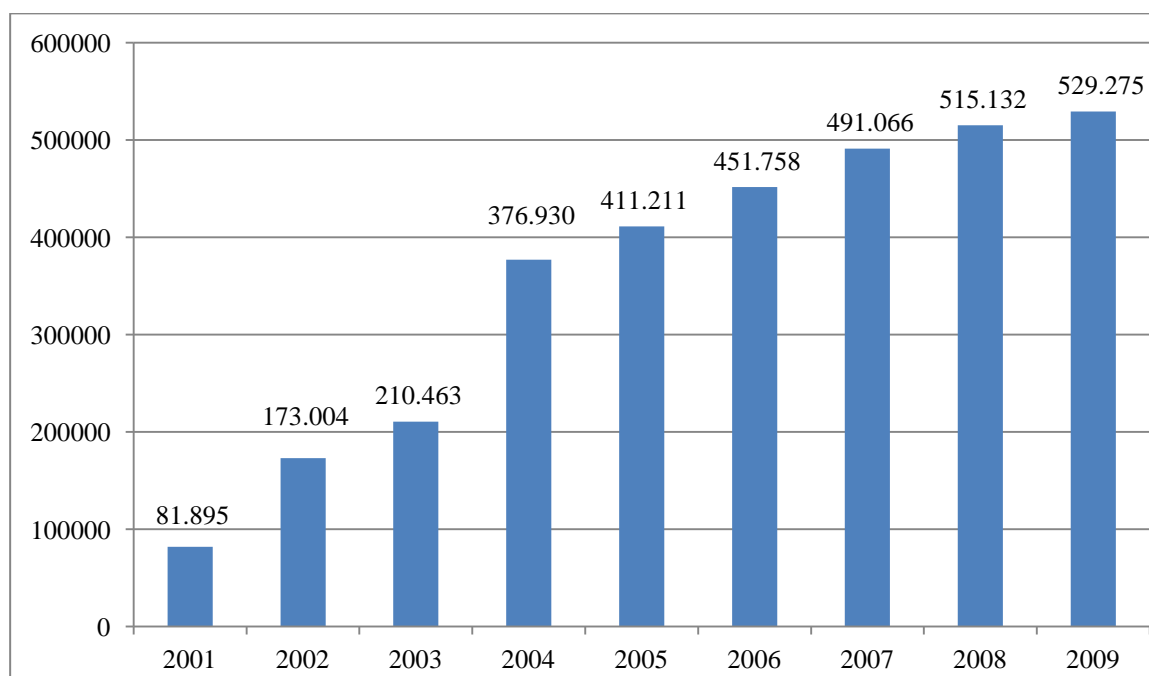
There are two types of mutual funds: opened ones are founded either by an insurance company or a bank and offers unrestricted membership, while the closed mutual funds are established by an employer in which only the employees of that particular company can contribute. The only closed fund in Slovenia is established and managed by Kapitalska Družba, the Slovenian agency for privatization which has a special public corporation status and also operates an opened mutual pension fund. Insurance and pension companies must finance the guaranteed minimum rate of return either from the reserve funds that are usually piled in times of high returns or by its own assets.

There are strict rules that regulate asset allocation by imposing ceilings, as defined by the ILO (2011, p. 322): up to 70 % of the funds can be invested in stocks and corporate bonds traded on organized markets; up to 30 % of the funds can be invested in investments not traded on organized markets; up to 30 % of the investments can be denominated in currencies other than the euro. There is no limitation for securities issued by the Republic of Slovenia, the Bank of Slovenia, a Member State of the EU or OECD, an international financial organization or an entity for which one of the above acts as guarantor. Those

quantitative limitations only play secondary role, as investments decisions are mostly affected and influenced by the guaranteed minimum rate of return. With both types of restrictions, asset allocation is directed towards investments bearing low risk but also a much lower rate of return than some contributors would prefer. Slovenian law, under the previous reform, also imposed a maximum enrolment fee of 6 %, a maximum withdrawal fee at 1 % of the insured persons' total personal funds and a maximum 1.5 % fee for management based upon the yearly average net assets of the pension plan.

The third pillar is privately managed and owned and it is purely voluntary. Individuals can save in pension and life insurance vehicles on individual accounts. Premiums paid from this pillar are subject to tax relive and preferences, which are lower than similar incentives of other occupational schemes. Tax incentives for individual pension insurance include only the personal income tax relief, but not other social contributions, although tax incentives intended for supplementary pension insurance are the biggest motivator for participation in the pension insurance system.

Figure 6. Number of participants in the supplementary pension insurance of Slovenia in the period 2001-2009



Source: M. Ekard, *The supplementary pension insurance in Slovenia – a brief overview of the current situation*, 2011, p. 4.

In 2003 all of Slovenia's employed in the public sector, or around 150.000 individuals entered the system at once, as shown in Figure 6. Since the total number of employed

people in Slovenia is around 850.000, we can conclude that around 60 % of them are covered by the supplementary pension insurance system. At the end of 2009, the total accumulated assets by these funds amounted to only 1,25 billion € or around 3.000 € per insured person on average (Ekard, 2011, p. 4). This contribution level is not sufficient and will not allow for real supplementary pensions to be paid out upon retirement. It can safely be said that the 1999 reform did not achieve significant long-term results in any field other than lowering the average first pillar pension compared to the average wage. Among the transition countries of Eastern Europe, only Slovenia and the Czech Republic have not set at least a partial mandatory contribution rate in the second pillar.

Table 19. Contribution rates in the first and second pillar in Eastern European countries

Country	First pillar (%)	Second pillar (%)
Slovenia	24,35	/
Bulgaria	18,00	5,00
Croatia	15,00	5,00
Hungary	18,50	8,00
Poland	12,22	9,00

Source: A. Berk Skok, *Predlog zasnove in uvedbe P-računov v tretjem pokojninskem stebru*, 2012, p. 12, Table 1.

To better regulate differentiated fields of pension insurance, a separation between the second and the third pillar should be done. Different regulation will give more flexibility, acknowledging the differences between both systems: the second pillar is intended to compensate the anticipated income loss from the first pillar (Berk Skok, 2012, p. 14). Another reason for separate treatment is the need for differentiated tax treatment: countries which have already established such tax encouragement stimulate participation in additional pension schemes for both individuals and employers. By establishing a third pillar based on investment and risk taking, additional diversification could be achieved, thus efficient regulation and environment are crucial. Berk, Musil & Vovk (2008, p. 49) propose that every individual should be allowed to invest in at least two different pension plans at the same time, allowing the creation of investment policy which reflects personal needs and levels of risk-awareness. As the additional second and third pillars are established to support and complement the first pillar, best practices indicate that it is necessary to implement at least a partial obligatory contribution in the additional pension plans. By adopting legislation that gives incentives for better coverage of the population by the supplementary pension plans, the government could ease the pressure on the first pillar and ensure decent retirement to a larger portion of the population.

5.1.3 Early retirement

Demographic changes in different countries pose various challenges as some are faced not only with more rapid population ageing, but also with low participation rates in the workforce especially by older workers. The most serious changes will come in the next few decades as the baby boom generation moves into the age group 65 years old and over and becomes retired. Individuals reaching the retirement age are faced with a dual decision problem regarding both the age for leaving the labor market and the manner in which to allocate accumulated assets and savings. Currently in Slovenia, there is little incentive in the tax and pension systems that would encourage individuals to use their assets to purchase pension annuities. Working an additional year also means giving up on leisure and free time in favor of working that will enable higher levels of consumption during retirement, as a result of higher accumulation of assets.

In almost all countries early exit from the labor market tends to be a one way street, with diverse methods of retiring: provision in the pension systems, formal early retirement schemes, disability benefits etc. Lack of training, depreciation of human capital, ill-health and unsuitable working conditions are also major causes among older workers. As the reform of the pension system alone will not bring sufficient results, it is very important that older workers at least do not face a large implicit tax if they chose to continue working. The experience of the countries that have already reformed their pension systems, suggest that reforms are also needed to ensure that unemployment, disability and other welfare benefits are not used as alternative pathways for early exit from the labor market. These programs should be used for their original purpose of helping overcome short periods of time, rather than to facilitate prolonged periods of unemployment or early retirement. Instead of special employment protection rules and quotas that ultimately makes hiring and laying off workers very costly, the best protection for older workers should be to continually improve their employability via trainings, renewing and updating their skills. There should also be increased investment in lifelong learning at mid-career, adapting teaching methods and techniques to the needs of the elderly and raising the potential return on the investment in education by ensuring longer expected pay-off times.

The effective retirement age, or the age at which workers withdraw from the labor market is an important indicator of retirement behavior. If the effective retirement age is close or even lower than the minimum retirement age, this should be a signal that a pension reform is needed in order to preserve the sustainability of the system. In most countries including Slovenia, the effective retirement age is well below the official age for receiving full pension benefits. On average, women withdraw from the labor market two years earlier than men. The average participation rate of older workers (those above the age of 50) in all OECD countries in 2006 was only 50 %, although this rate varies from less than 50 % to

more than 70 % in different ones (OECD, 2006, p. 31). The number shows a significant unused potential, although since the 1970's it has been steadily rising. During that period, participation rates of males declined, especially the low-skilled, but overall participation rates have been rising steadily, mostly as a result of higher women participation.

Research shows that labor market participation of the elderly is quite responsive to social security incentives. Such incentives to retire earlier with implicit tax rates are especially visible in some European countries such as Slovenia, Italy and Germany. **Implicit tax on continuing to work** is the extent to which the pension system and various early retirement options provide incentives to retire and discourage working beyond a given age (OECD, 2006, p. 62). On the other hand, Japan, the US and Sweden have lower tax rates and higher participation. Making European systems more actuarially neutral with the objective workers that decide to work longer to receive higher pension benefits upon retirement can result in significant differences in labor participation rates and ease the fiscal pressures on the welfare system. One factor for the lower hiring rate of the older workers is the fact that older workers cost more to employ than their younger colleagues. The productivity decline after a certain age is connected to the physical and mental abilities of the human nature. On the other hand, some abilities such as verbal expression and communication skills remain mostly unchanged - the productivity of an average worker increases as they gain experience, but stagnates or even declines after a given age, while the earnings of an average worker in most countries rise all along their working career. This falling ratio between productivity and wages is the most logical explanation why older workers cost more. Population ageing and demographic transition in developed countries, means that increasing numbers of older workers are paid above their marginal productivity and decreasing numbers of younger workers are paid below their marginal productivity.

Labor force participation rates at different age are determined by the individual's choice between leisure and working. There are three main demographic groups that future pension reforms should focus on to rise the average retirement age (Lee & Mason, 2013, p. 111):

- older men and the possibilities for early retirement, especially in developed countries. This decision is heavily influenced by government policies, employer's ethics, legislation and unions. It is agreed that PAYG systems encourage early retirement. Choices made by individuals depend on promised pension benefits after retirement, the work position, the level of their skills or education and current market conditions;
- young adults also have a big role in determining the average retirement age, as they choose between joining the workforce and continuing their education. Youngsters in developed countries have strong incentives to continue investing in human capital as there are increasing returns from education;

- women often chose between staying at home and working. With the declining birth rates and education possibilities in western countries, women have more free time and as a consequence they enter the labor force earlier and stay in it longer.

Vehovec (2008, p. 45) presents the findings of Vegard, which indicate that productivity tends to fall from the age of 50, while wages continue to rise over the whole working period of the individual. Fall in productivity is especially visible and problematic on job positions where speed, problem-solving and learning skills are required. The practices of mass laying off workers at the beginning of the transition period in Slovenia also had negative influence on the public perception of older worker's abilities, knowledge, production capabilities and experience.

With the increasing of the old-dependency ratio, the elderly will have to take a different, more engaging role in the labor market. In today's world, knowledge is among the most important factors contributing to the economical development and rise of productivity. Because people will have to work longer, life-long learning will become even more important. Employers will also have to adjust the working space and tasks, attitudes and expectations accordingly to the new reality of higher share of elderly at work.

Vehovec (2008, p. 47) underlines that in 2002 the European Commission and the European Employment Strategy proposed several policy goals and guidelines to facilitate and guarantee the achievement of those objectives and discourage early retirement: ensuring best use of older workers' productivity, updating the work ability of older workers by life-long learning, creation of more flexible jobs, implementation of the right mix of incentives and disincentives in the tax system etc. The EU has set two major objectives regarding early retirement and participation of the elderly in the labor market: the Stockholm objective adopted in 2001, aimed at increasing the employment rate of the elderly (the age group between 55 and 64) by 50 % until 2010. The Barcelona objective adopted a year later is aimed at increasing the average age at which workers withdraw from the labor market by five years until the end of 2010. These objectives could be partially achieved by introducing a set of measures (Ministry of Labor, Family and Social Affairs, 2009, p. 13):

- closing the gender gap by increasing maximum and minimum retirement age with narrower conditions for women and men and shortening the transitional period for the retirement of women;
- incentives for longer retention in employment and participation in the labour market;

- abolition of the time bonuses such as added qualifying period, lowering of pensionable age limit by virtue of children etc.;
- smoother exit from the labour market and transition into (partial) retirement.

Over the next four decades the share of those aged above 65 in Slovenia will more than double, affecting the labor market in a very profound way. The Stockholm target rate of 50 % employment of those aged above 50 will be very hard to achieve without serious reforms and change in expectations in the society, especially having in mind low participation rates prevalent today. As shown in the Appendix G, in addition to having lower participation rates of older women in the labor market, Slovenia also has much and lower average exit age from the workforce for both genders.

There are a number existing of pathways for exiting the labor market by older workers: sickness or disability when someone is considered not capable of working, retirement when a person permanently withdraws from the labor market, other reasons that include household or caring roles which prevents a person from participating in the workforce and unemployment when an older person is actively seeking work but is unable to find one.

The share of people above the age of 65 in 2005 in Slovenia was 15,2 % but it is predicted to rise steeply by 2050, reaching 31 % of the total population (Vehovec, 2008, p. 65). This shows that the number of the elderly will be three times higher than the number of young bellow the age of 15. The ageing index represents the number of people aged 60 and over per 100 citizens under the age of 15, is an important ratio that indicates future demographic movements: it was 148 in 2008, but is expected to double to 300 by 2050. The total number of dependent population, comprised of the youngsters bellow the age of 15 and the elderly above 65, will continuously increase: by 2050 the number of persons between the ages of 15 and 65 will be larger than the number of dependant persons by only 230.000 (Vehovec, 2008, p. 68).

The direction which the labor market movements are going to take will depend on the actions of those aged 50 and above. In 2005 the share of those aged above 50 out of the total population was 34,1 %, by 2010 this share has risen to 37,2 % and by 2035 it is projected to reach 49,5 % or almost the half of the total population of Slovenia (Vehovec, 2008, p. 72). Because the current regulation of the labor market is already problematic, population ageing can only aggravate these problems, as the employment rate of those aged 50 and above in Slovenia is far below the European average, especially for women.

A study presented by Vehovec (2008, p. 27) shows that when employers in Slovenia make a decision on hiring a person aged above 50, they put more emphasis on expert knowledge and experience rather than educational certificate. The survey also points out that the costs of retaining older workers can be modest, suggesting that the assumption that retaining older workers is costly is rather a myth. Older employees perform better in: willingness to work hard, reliability, attentiveness, professionalism, decision-making, loyalty and honesty and integrity. The same study strongly suggests that the attitude towards older workers change with the firm size: in smaller firms negative stereotypes are often present, while larger firms are more flexible to older workers: they generally have more equal-opportunity policies and formal processes, allowing them to more easily implement changes demanded by the legislation. Overall, several factors seem to determine the employer's preferences, practices and policies concerning the older workforce: firm size, ownership (public or private), economic cycle (growth or depression) and sector (service or manufacturing). Possible solutions for the early retirement problem include (Vehovec, 2008, p. 30):

- the pension system should stimulate workers to work longer: long-term stability is the primary concern for every government. In conditions of reduced fertility and longer life expectancy it can be sustainable only if working life is considerably prolonged. This can be achieved by raising the minimum required retirement age, placing incentives for voluntary prolongation of retirement, financial discouragement of early retirement;
- retirement bonuses for longer careers: incentives for longer work include higher pension benefits for every additional month or year above the minimum retirement age. This can be a good motivating factor, but flexibility is of crucial importance: workers should be able to re-enter the labor market even after retirement. Older workers will also benefit from flexible contracts and working hours and a variable pay;
- incentives are also needed for the employers in order to hire more elderly workers or keep existing ones at work with the help of lowered taxes or social contributions. Financial stimulations from the government for hiring, retaining and re-training of the elderly can make a big impact on the motivation of firms;
- public information and promotion of older worker's employment: anti-discrimination campaigns and adequate legislation, supporting institutions and clear guidelines are needed to facilitate the process;
- ensuring life-long learning opportunities and developing a training culture: training programs stimulate acquiring of new and required for today's economy skills, so that individuals can effectively work for longer periods as they are expected to do.

In Slovenia unemployed benefits are so high that discourage active seeking of working opportunities, especially for the people aged 50 or above. Instead of helping people to overcome short periods of unemployment, the government benefits system discourages them from participating in the labor market and motivates them to remain unemployed for

as long as possible. Removing barriers faced by older workers will also be important, since it could bring triple benefit: boost the labor force growth and help offset the negative impact of population ageing on economic growth, improve public finances by reducing the cost of the pension system and smoothen the replacement of older workers.

5.1.4 Disability benefits

Eligibility criteria and the amount and generosity of disability benefits in every country will be of crucial importance for the long-term sustainability of welfare systems and public finances. An important feature of all European welfare systems is that the main factor driving public spending is not revenue or balanced fiscal policy, but entitlements to welfare benefits. This is the reason why it is extremely difficult to manage and respond to short-term cyclical downturns or mid-term depressions and the government's only solution is financing that deficit by issuing debt. Furthermore, as the status of disabled is associated with generous state benefits and rights such as vocational training, medical assistance etc., it may attract people without a real need for this kind of help such as those having partial disability and could continue working. Besides this, instead of serious cuts in spending for disability and other benefits, in the past decades we have witnessed large increases in public spending in almost all European countries.

Improvements in technology and scientific breakthroughs in the past decades have made life easier for a significant portion of the disabled. Improved mobility and accessibility, health aid and assisting devices, adaptations of workplaces to suit the needs of the disabled etc., have lead to improved access to the labor market and greatly facilitated re-integration. Disabilities in OECD countries however, are almost doubling with lower educational attainment, lower social status and lower income (Prinz, 2003, p. 28).

Overly generous disability policies can have a major contribution in depressing labor force participation rates and shrinking of the absolute numbers of workers that pay taxes. Low participation rates mean that fewer numbers of workers will have to support large portions of inactive people such as the elderly and those awarded with the disabled status. They require higher taxes for social security, worsening of the business climate and competitiveness of the country, creating a vicious circle called **trap of socio-economic underperformance**, loss of competitiveness and social welfare deterioration. This phenomenon is especially dangerous for countries with PAYG systems and various early retirement possibilities, which combined with easy access to disability benefits, can encourage economical restructuring, hide unemployment and be used by leaders for short-term political gains on behalf of the long-term sustainability of the welfare system.

As a result of the presence of the subjectivity factor, disability is very problematic to diagnose, measure and define. It cannot be observed directly but must be inferred from presumed causes with distinct consequences: a restriction or incapacity to perform normal work roles (Prinz, 2003, p. 26). It is therefore crucial that assessing disability includes a measure of the severity, curability or irreversibility and causes limitations in a person's capacity for physical or mental work. Thus, the number of disability benefits awarded for mental conditions is constantly rising, reducing the period in which middle aged citizens participate in the workforce and pay contributions for the welfare system, endangering their normal functioning. Many authors have proposed alternative methods of assessing disabilities and handicaps. The medical profession still has a significant monopoly over the methods for assessing the legitimacy of the claims for disability benefits. Broadened criteria and numerous new psychological conditions underline the need for a new multidisciplinary method. Therefore it is necessary to create teams of experts that have knowledge in vocational rehabilitation and training, occupational therapy, work organization, psychology, psychotherapy etc. This will ensure teams that are significantly better equipped with knowledge and skills needed for good assessment of individual and specific conditions, ensuring that state benefits are awarded to those that really need them.

Modern disability policies are problematic as they result in many disability claims, waste of public resources, stimulates continuous abuse of public resources, opportunistic behavior, moral hazard and exclusion or inclusion of the wrong people due to assessment capacity deficits. The most important issue that needs to be addressed is the failure of the system to target those people most in need of support, as the severely disabled, instead of wasting the resources on non-deserving cases. According to the OECD (2003, p. 49) millions of Europeans, which are not yet qualified for regular or early retirement without deductions from pension entitlements, are using the disability track as the easiest or most attractive exit-path from the labor market under conditions of chronic stress, dissatisfaction at work, structural unemployment or preferences for lasting leisure. There is widespread misallocation of benefits, lack of focus, non-standardized and subjective applying and awarding procedures etc. Besides supporting those with severe and irreversible working limitations, an important aim should also be promoting self-sufficiency, integration in the society and the workplace, additional training, medical and mobility assistance etc.

According to Prinz (2003, p. 104) five different exit paths exist that workers may choose from following the onset of a disability:

- the work path which encompasses measures for re-integration into the labor market: rehabilitation, job protection and anti-discrimination legislation etc.;
- the disability path that provides a range of services that include work injury compensations, short-term sickness pay, long-term disability benefits and health care;
- the unemployed path, including unemployed insurance benefits;
- the early retirement path, which especially in transition economies, is used as an exit by older and disabled workers from the labor market;
- the welfare path designed for workers with no earnings and which are not eligible for disability or employment benefits.

In 1999 the percentage of disability beneficiaries as a percentage of the total working population aged 20–65 in Slovenia was 8 % (Prinz, 2003, p. 82). This rate is more than double compared with percentages in countries culturally similar and geographically close for example Austria, Germany or Italy. The consequences of disability far outreach the direct loss of productivity and costs of disability pensions, as they also include medical expenses, costs for social and psychological well-being of the disabled and of others from their surroundings. Thus modernization of the disability policy is necessary.

The reform of the disability benefits system must be aimed at making it more employment-oriented, thus creating equal opportunities for all. It is necessary to re-shape the policy away from awarding lifelong disability benefits and instead focus on the returning to work, job search and re-integration programs. Except for few OECD countries, namely Sweden and South Korea, almost 60 % of the disabled population is completely excluded from work (Prinz, 2003, p. 55). The new disability policy should be motivating two groups of people to re-enter the workforce: people with partial disability or disability not preventing them from participating in the labor market, especially under suitable working conditions and individuals able to find employment at acceptable income and working environment but prefer to receive the disability benefits instead of at least partial wages.

As long as disability benefits are paid not as in-work compensation for lowered productivity, the system will continue to generate unsatisfactory results and the number of disabled people excluded from work will grow. A good starting point is improvement and strengthening of training and skills courses, educational and job-finding programs in order this to become a preferred option for the disabled and making them more attractive to employers. Another complementary measure is either cutting down disability benefits or to continue paying benefits but only in the form of a reward for activity instead of inactivity. Disabled persons should be entitled to assistance for re-integration to work and income supplements and not to replacement income benefits (Prinz, 2003, p. 65).

5.1.5 Disincentives and barriers to employment

Most studies on the subject agree that the decision between staying in the workforce and retiring is complex and depend on numerous factors that include institutional settings and socio-economic characteristics. Old-age pensions and parts of the tax and welfare system often provide financial incentives for older people to leave and disincentives to remain or return to work. Another factor motivating individuals to retire is via the income effect: the higher the old-age pensions compared to the average wage, the more attractive retirement is. The second is the substitution effect that measures how much an additional year of work affects the flow of income both from earnings and from pension benefits. All things equal, high pensions increase future income of older workers and encourages early retirement through the income effect. Retirement decisions will also be significantly influenced by the possibility and flexibility in combining income from work with pension benefits.

There are two types of factors driving work and retirement decisions: pull and push factors (OECD, 2006, p. 53). Pull factors are primary driven by financial incentives that are pulling older workers into retirement. Financial incentives can be part of the pension systems and early retirement possibilities that have significant influence over retirement decisions. The minimal retirement age, the generosity of the replacement rates, the implicit tax imposed on those wishing to continue working etc. are also factors that influence the decision making process. Push factors consist mostly of factors that restrict the available set of attractive and suitable job opportunities open to older workers, pushing them into retirement (OECD, 2006, p. 54). This has two important and distinctive sides: employers could have negative perception about the capabilities of older workers, labor costs and productivity related questions and the difficulties that a firm must solve to provide suitable working conditions for the older workers. Technological change and other structural changes in labor demand could cause some workers to experience a depreciation of their human capital and obsolescence of their skills. If the change in the net present value of pension wealth from working an additional year is negative, it acts as an effective tax on working and will further discourage later retirement.

Barriers on the side of older workers also exist. As a result of the fast technical development and the transition of the economies from manufacturing and agriculture towards a service-based economy, job requirements and skills needed are constantly changing. This means that workers are required to constantly update their knowledge and skills to stay competitive on the labor market. It is therefore essential for older workers to have easy access to vocational training: improved education opportunities have been identified as a key area for improving their employability. Unsuitable working conditions

also play a very important role in pushing older workers into early retirement. Flexible working hours, part-time jobs and easy change between dependent employment and self-employment are major areas, which can increase the motivation of older workers to remain longer on the labor market. The **cliff-edge scenario** of retirement, where older workers go from working full-time to not working at all should be minimized as much as possible (OECD, 2006, p. 101). Furthermore, in Slovenia explicit rules exist that prevent pensioners from combining pension benefits and part-time work. Removing barriers to part-time work can lead to a significant increase in the effective retirement age.

Governments must remove employment barriers by ensuring that strong financial incentives to remain in the working population for as long as possible exist. Wage-setting practices and employment protection rules must be adapted to guarantee that employers have stronger incentives to both hire and retain older workers. In the face of significant technical and organizational change, older workers must be given appropriate help and encouragement to improve their employability. A shift in attitudes towards working at an older age is required for both employers and older workers, especially in countries with entrenched early retirement culture (OECD, 2006, p. 81). Two institutional instruments for minimizing the negative employer's attitudes towards older workers exist: information campaigns and legislation to protect against age discrimination in employment. Cooperation between the government, employers and trade unions is needed to change the attitudes towards the employment of older workers and promote best practices.

5.1.6 Investment policy and regulation of pension funds

Some authors recommend that a new organizational structure for regulation of pension funds needs to be established. A possible solution is to permit pension funds to have the option to manage their products in a mutual fund program, either in the form of a pension mutual fund or umbrella pension fund with many different sub-funds, all representing different plans with differing conditions, investment policies and benefits. By allowing this organizational form, one fund manager can manage investments in specific investment lines. For example, separate funds for European shares, a fund only investing in American shares, another one could invest only in (government) bonds etc. This organizational structure gives the needed flexibility and freedom of choice so that every contributor saving for retirement can adapt its investment preferences to the changing global economic and financial situation. It should represent a simple structure, easy to understand and use and could significantly increase participation levels. Investment policy statement (*slo. načrt upravljanja individualnega pokojninskega premoženja*) could be the contract signed between the pension insurance provider and the insured person, which regulates the conditions for cooperation. Individual retirement accounts (hereinafter: IRAs) will enable people to individually manage their investment decisions by investing directly into

securities, bank deposits or investment funds. The individual makes the investment decision based on his own needs and preferences and the pension institution takes the role of managing those investments.

Berk Skok et al. (in Kremers, 2002, p. 305) argue that the fundament of every effective pension system is the freedom of choice to invest in whatever investment plan a person sees as suitable. The trend of liberalization of the financial market is most visible in the developed countries, where policymakers seem to be going towards full liberalization of the freedom of choice in investment policies. Less developed countries on the other hand, seem to be limiting investments by posing upper limits on investments in shares, investment funds or properties. Because of the limitations of the Slovenian market, authors (Berk Skok et al., 2010, p. 61) propose that the new 2003/41/EC Directive, which allows for up to 30 % investments into venture capital, be introduced gradually into the legislative of Slovenia. Investment policy of every company managing pension funds should be clearly visible by its strategic allocation of investments according with current market conditions, risk exposure and sound managing, as transparency is an important factor influencing the public trust in the financial market. This would result in higher participation rates especially by the young and skeptical individuals.

The imposed minimum guaranteed rate of return is by far the most important feature influencing the investment policy. Investors take investment risk for the premium paid, that as stated by the law, must be above the minimum guaranteed rate of return. It is set by the Ministry of Finance twice per year and applies for the following six months. If a company providing pension insurance fails to meet its investment goal it is obliged to cover the loss from its own capital. With this set of mandatory regulations in mind, companies cannot afford to undertake serious investment risks such as increasing the percentage of stocks in their portfolio. Minimal guaranteed return is typical for countries that have not yet completed the process of transition from the defined benefits schemes to defined contribution ones or in countries where additional pension saving has recently been introduced. The Slovenian government has introduced guaranteed return with the aim to stimulate participation and under significant pressure of social partners, especially the trade unions. If a system limits the guaranteed return to some downward levels, they also limit the upward potential returns. Feldstein and Siebert (2002, p. 305) talk about empirical findings that the rate of return in systems with guaranteed rates of return, on average perform worse than those without such limitation. The legislation proposed above does not automatically imply that all pension funds should stop offering a guaranteed rate of return, but rather it gives flexibility and a free choice for companies and their clients. Both collective and individual pension schemes should have the choice whether they offer plans with or without guaranteed rate of return so that clients can make an informed decision to

invest their retirement savings in a plan that best suits their personal needs, in a system supported by adequate tax incentives. If this solution is implemented, it is very important that current participants in the additional pension schemes are given the possibility to choose from a pension plan with or without a guarantee rate of return.

Another serious problem that pension insurance companies are facing is the easiness with which money can be withdrawn prior to retirement. In some companies around 30 % of the total funds are withdrawn early, which makes asset management very difficult as it forces companies to invest only in short-term instruments with very low yields. Poor investment results and low payouts may motivate further withdrawal of funds. Other reasons for such high percentage of early withdrawals are the absence of culture for saving for the old-age, low premiums paid by the second pillar, the state pension coming from the first pillar is still generous and low savings in the second pillar do not make a crucial difference etc.

In Slovenia, retirement contributions can be withdrawn prior to retirement as a lump sum payment, but only if a person has been a member for at least ten years. Then, a personal income tax of 25 % is imposed with a possible additional rate of 15 % making a total of a 41 % tax rate, as a 1 % exit fee is also paid to the fund's manager upon withdrawal. If members decide to go for pension payments, instead of a lump sum, 90 % of the pensioners are likely to pay between 0 and 3 % tax rate and only people with the highest pensions are paying a tax rate of 20,5 % on their additional pension benefits. The additional pension contract may be terminated if all of these conditions are met simultaneously: at least 58 years of age, retirement possibility and at least 10 years of participation in the system.

5.1.7 Tax rates and incentives

Public pensions are in most cases not subject to taxation. Only around 27.000 pensioners or approximately around 5 % of all pensioners were subject to a withholding tax which is partly a consequence of generous tax relief in the form of tax credit of 13,5 % (OECD, 2011, p. 326). Contributions to the public pension system are also exempt from taxation both at corporate and personal levels. The IRAs are entitled to special tax treatment called tax deferral (slo. *odlog plačila davka*), which is not connected to the type of income received. On the other hand, premature drawings of the funds are taxed with a 10 % tax penalty (slo. *davek na predčasno črpanje*) in addition to regular tax rates.

In most OECD countries contributions made to pension plans by both employers and employees are tax-deductible and are not subject to any form of taxation when received by

the pension fund (Creedy, 1998, p. 159). Furthermore, the investment income earned by the pension fund is also exempt from taxation. At the last step however, funds received by the pension fund in the form of pension benefits are usually subject to taxation at income tax rates. This taxation policy is referred to as the Exempt-Exempt-Tax (hereinafter: EET), where taxation is postponed until the moment pension benefits are received. Besides Slovenia, the EET system is also in place in countries such as Poland, Latvia and Lithuania, while Hungary and Cyprus are the only European countries which do not impose any taxes either on contributions made to the pension system, or to benefits gained upon retiring. Benefits taken in the form of lump sum are usually taxed at special tax rates. The tax rate and tax exemptions differ between countries together with pension systems. In 2010 the tax relief in other European countries and the USA was considerably higher than in Slovenia which had a rate of only 5,844 % of an individual's gross salary. For example in the United States of America, the tax relief for contributing in defined contribution plans financed by the employers is 25 % of the annual income up to 30.000 \$ (Berk Skok et al., 2010, p. 61).

All European countries move toward a pension system with increasing tax benefits and reliefs because of the urgent need citizens to accumulate more funds in private pension insurance funds in order to sustain their income during the time of retirement. This is especially important, as governments want to make the public pension systems more sustainable and encourage people to rely less on it. Tax incentives, together with information campaigns and a simplified pension system could significantly increase participation rates in the second and third pillars. At the same time, tax benefits and incentives cause significant revenue losses for the government. Usually an individual is entitled to tax reliefs in the whole period of accumulation of the pension savings, so the government is paying for this up to the point when that person retires. On the other hand, the funds needed to finance the public pension system could be even greater. For example the government of the UK in 2004 spent almost 20 billion £ financing tax incentives to motivate people to invest in the second pillar plans, which was around 10 % of the total public expenses and 1,8 % of the total GDP (Berk Skok et al., 2010, p. 65).

5.1.8 Transition period and the NDC system

The Notional Defined Contribution (hereinafter: NDC) pension system is organized on a PAYG basis, but mimic defined contribution plans and pensions benefits bear an actuarial relationship to contributions. It “imitates” the private pension system by establishing notional individual accounts but imposes a rate of return set not by the market, but by the government (OECD, 2004, p. 210). The NDC system could reduce overall pension spending if it is designed to decrease pension benefits. Projections from some countries

that have already introduced this system, namely Poland show that such reform even if implemented very gradually it can reduce future deficits. The predictions for Poland show that a transition to a NDC system will bring pension spending from 10,8 % in 2000 to 8,3 % of GDP in 2050 (Barr, 2005, p. 153). The NDC has four central elements:

1. a contribution of some percent of an individual's earnings is credited to a notional individual account and the state pretends that there is real accumulation of assets;
2. the cumulative contents of the account are credited periodically with a notional interest rate, usually equal to the rate of growth of the wage sum;
3. upon retirement the notional account is converted into an annuity;
4. the value of a person's annuity is calculated based on his or her accumulation of notional capital and on the cohort's life expectancy at the age of retirement.

Berk Skok et al. (2010, p. 66) propose a gradual transformation of Slovenia's first pillar towards a NDC system, which is already in place in countries such as Sweden, Italy or France, with the following characteristics: it is organized in a way to guarantee clear relation between contributions and benefits; transition towards an investment system is not necessary, it could stay as PAYG; it enables different forms of investing in order to increase the value of the assets; it allows adjustments to current demographic conditions via the sustainability factor; it is flexible with regard to the age of retirement and it enables partial transfer of the longevity risk from the first pillar.

The NDC system has three very important implications with regard to the public pension system: transparency to enable constant monitoring of the obligations the pension system has at any time and measuring the rate of risk exposure on changes in different market and demographic parameters; simplicity in the form of elimination of unnecessary and non-transparent parameterization of the system and flexibility which helps to establish a sustainable pension system in the long term, which is suited for the needs of the society and adjusted to its financial realities. This kind of system would minimize future macroeconomic risks for Slovenia; it will distribute the weight of the problem evenly among all citizens, without transferring the burden on future generations. It is hoped that a tighter link between contributions and benefits and respect to actuarial fairness, will reduce pressures for early retirement (OECD, 2004, p. 210).

5.2 Political feasibility of pension system reforms

Usually reforms of the pension system aimed at reducing the size and importance of the unfunded pension plans are supported by the younger part of the population and opposed by the older individuals. As long as the young form a majority of the voters, such reform is possible under the democratic voting system. On the other hand, such reform is impossible when a country becomes a gerontocracy and the older hold the majority of the votes.

If the number of individuals that are close to retirement or are already retired is higher than the number of young individuals, it is very hard for politicians to change the PAYG model. This can result in an increase of the dependency ratio and decrease of the internal rate of return. In a situation of slowed population growth and change of the age structure, the identity and preferences of the median voter also change. Demographic projections for the EU show that by 2050 the median voter in the Member States will increase by 10 years compared with 2010, reaching 48 years (Berk Skok, 2012, p. 6). Opposing interests of two distinct groups have to be taken into account: on one hand there is the impact of decreasing rate of return of the pension system, but on the other the aging median voter prefers more generous pension benefits. This is the reason why pension reforms usually have very long horizon for implementing new eligibility criteria and the only option is policymakers to shift the burden of the reform on future generations so planned effects are fully implemented 15 to 25 years from the date of approval.

As pension reforms significantly influence individuals depending on their age, they can only be undertaken if the median voter votes in favor of it. The indifference age is defined as the cohort with exactly this age, which is not affected by the proposed reform in any way and it loses as much on pension benefits as it gains on savings from contributions. In Germany the median age in 2010 was 50, but is projected to rise to 55 by 2023. The Italian median voter was 50 years of age in 2010 and will reach 55 in 2023 with further aging projected until 2030 when the median voter will be 58 years old (Uebelmesser, 2004, p. 152). In all those countries and Slovenia rapid aging of the median voter is forecasted and if major reforms are not undertaken soon, most of the people would vote for preservation of the current unfunded pension system, eligibility criteria and benefits.

6 RECOMMENDATIONS BASED ON PAST REFORMS IN OECD COUNTRIES

As the very large cohort of baby-boomers relative to the number of new labor market entrants, which replace them retires, the number of labor market exits could rise from 8,5 million between 2000 and 2005 to around 12 million by the period 2025-2030 (OECD, 2006, p.23). Over the same two periods, the annual number of new labor market entrants

could decline from around 13 million to 12 million. This gap will be especially unfavorable in Europe, reaching over a million people annual deficit in the labor market by 2030.

The most efficient reforms are ones that are Pareto-improving, which means they can increase efficiency on individual level, such as changing today's practice that implicit debt falls on future generations. Other reforms focus on a transition towards defined-contribution systems, redistribution of pension burden across generations and improving the actuarial fairness in order to lower distortions of the labor-leisure decisions. In recent years, most European countries, including Slovenia, have introduced penalties and rewards for earlier or later retirement. In general the penalty rate is always lower than the benefit rate, but countries differ greatly by the incentives their pension systems provide for working an additional year. Pension reforms are phased over a number of years and usually are long-term process. This characteristic endangers the reform process because savings needed to make the entire system sustainable may not come at the needed time or the assumptions upon which the reform is based can prove to be wrong over greater periods of time, resulting in incomplete or inadequately reformed pension system.

The EU proposes the implementation of three policy directions at strategic level that need to be bore in mind when undertaking pension reforms. The most important aim should be ensuring the adequacy of state pensions because they also have the role of reducing poverty and consumption smoothening as pension benefits are the dominant source of income for most pensioners in Europe. At the same time the pension system should be designed in a way that will not make future fiscal demands on the state budget. Pension systems should also include incentives for longer participation in the labor market and more gradual retirement possibilities. A crucial part of every pension reform must be the establishment, regulation and monitoring of private pension plans and insurance companies. At least some of the people will wish to make additional voluntary provision for their old age and private institutions could assist consumption smoothening, especially if encouraged by an effective tax incentives system. In addition, the Slovenian Ministry of Labor, Family and Social Affairs has presented the White Book on Pension Reform in Slovenia, which is discussed in greater detail in Appendix H.

Although many countries have implemented some reform measures, the process of reform is very long as it should not affect greatly the rights of current seniors and working population. A good example of this is Chile, which started reforming its pension system in the mid 1980s is still gradually moving from reliance on public transfers toward asset-based relocation. In Germany, the 2001 Reister Reform included partial transition towards a funded pension system combined with a decrease of the non-funded part. The optional private savings pension schemes were going to be subsidized with around 10 billion € per

year starting from 2008 in order to make it attractive and motivate higher participation rates so citizens can save for a supplement to their reduced non-funded pension benefits. The aim is to keep the contribution rate below 22 % until 2030 and at the same time keep the benefits not lower than 67 % of the net wages (Uebelmesser, 2004, p. 63).

Until 20 years ago, Sweden had a typical for the Nordic countries mixed pension system: a tax-financed basic pension scheme which covered everyone and an additional pension scheme financed by the employers on the basis of unfunded and defined-benefit system. As it became clear, that the system is financially unsustainable, a reform was negotiated which makes benefits dependant on contributions. Benefits grow in accordance with the growth rate of the wage-sum and annuities, designed to reflect increases in life expectancy. Both pillars are based on individual accounts and contributions and the only difference is that the first one is unfunded and the internal rate of return corresponds to the growth of GDP, while the second one is funded and contributions are invested on the capital market. In both pillars individual accounts are illiquid and benefits can only be claimed upon retirement.

Because of the high expenditure, future reforms should be aimed at cutting the expenses of this generous by international standards pension system, especially as contribution rates and taxes are already high, impacting the international competitiveness of Slovenia and imposing heavy burden on its citizens and business. Bringing expenses under control can have significant positive effect on the GDP: by 2050 those measures could add up to 2,6 % of the GDP and curb the projected increase of costs by 40 % (IMF, 2015, p. 10). This could be achieved by implementing a combination of the following proposed measures:

- if the pension bonus is abolished it could add to savings of approximately 0,2 % of GDP annually. This measure however, will impose heaviest burden on the low income pensioners and will compromise the system's progressivity;
- a decrease of the generous tax exemptions for the retired could lead to significant savings for the system: immediate fiscal effect of 0,5 % of GDP rising to 0,7 % in the long-term. By eliminating the general tax-relief for all pensioners, the system could save up to additional 0,8 % of GDP annually;
- abolishing indexation to wages and instead adopting indexation to prices only could yield around 2 % of GDP by 2050. This measure would set the pension benefits as a share of GDP on a stabilizing downward path;
- elimination of the numerous possibilities for early retirement. The 2012 reform increased the retirement age to 65, but the effective retirement age is still very low. This can be improved by a set of policy measures: increase of the early retirement deduction from 0,3 % to at least 0,5 % per month, limiting of the possibility to

purchase insurance periods to up to two years, reducing non-contributory service time recognition such as maternity or army service, occupational hazards etc.

The guidelines proposed by the OECD on reforming the regulation of the occupational pension system and compliance with its Core Principles are discussed in Appendix I. The OECD (2011, p. 11) further recommends implementation of the following measures:

- facilitate the expansion of private pension systems by using tax incentives, automatic enrolment into the pension plans and increasing of the contribution rates in order to provide a true alternative and relieve to the public pension system as soon as possible;
- changes in the law and better monitoring in order to ensure timely payment of contributions by all parties, especially employers;
- enhancement of monitoring systems by creating a single supervisory institution for all private pension providers. This institution should be outcome-focused with adequate independence, resources and powers as well as strong and independent management;
- better management of all pension funds: public or private;
- standardized procedures and methods for valuation of the funds, more transparency and disclosure of information on subjects such as fees, management, performance, efficiency etc.;
- allow for members to choose the plan they invest their pension savings in accordance to their needs, preferences and risk-awareness.

The Ministry of Labour, Family and Social Affairs (2009, p .12) proposes the introduction of changes aimed at making the supplementary pension system more attractive and increase participation rates in order to lower the burden on the first pillar:

- giving the option to freely choose the investment policy in the supplementary system. Every individual could choose where to invest his own personal savings in line with their own personal needs and preferences;
- introducing additional incentives for including employees with low wages into the supplementary pension system;
- promoting a greater participation in the individual supplementary pension insurance.

All challenges posed by population aging, lower fertility rates and longer life expectancies cannot be solved successfully and completely only with a reform of the pension system only. Serious adjustments will be needed in other social security sub-systems: the labour

legislation, health and safety at work and most importantly a comprehensive strategy for active employment policies. A reform of the pension system only will not be sufficient if not accompanied by simultaneous structural changes of the economic and the public sector.

A set of policies is necessary in order to establish incentives for extended working age of those nearing retirement age, change people's attitudes to work and to active spending of the later life period, raising awareness about the qualities associated with older workers of both employers and colleagues, campaigns designed to promote working at older age increase the productivity of those people especially in some sectors of the economy, by creating suitable jobs, working conditions, investing in human capital and lifelong learning.

The comprehensive work on changing the attitudes of society, employees and employers will have to be accompanied by the adjustment of the working environment and conditions to rapid technological and organizational changes, since the longevity significantly changed the physical and mental fitness of the population. In the future, high quality and suitable jobs for the elderly will reflect their long experience, developed social network and communication skills, other competencies arising from the work experience etc. Such adequate working environment can be created only by simultaneous improvements of the health care, flexibility of the working environment and working hours, provision of career development, and greater access to further training and lifelong learning.

As concluded by Barr (2005, p. 167): “Ultimately any reform will be judged in hindsight: a well-designed, well-timed and well-executed controversial reform will over time lose its controversial edge. In contrast, a poorly designed, badly timed and inefficiently executed noncontroversial reform may eventually show the reformers as irresponsible. In the case of pensions, perhaps more than in other areas, the choices are wide.”

CONCLUSION

Ensuring adequate pensions for the elderly is especially important in European countries, where the majority of the benefits come from the first pillar, which is the result of historical, social and economic conditions. These, usually defined benefit pension systems, have come under growing pressure in the past decades as a consequence of population aging and low birth rates, much under than the natural replacement rate. The projections for Slovenia until 2060 show a small increase in birth rates, which will not be significant enough to soften the imbalances in the demographics and the pension system. Parallel with

this, a significant increase in average life expectancy has been recorded for both genders, a trend which will continue. In the decades to come this factors will change the demographic structure of Slovenia, which will register ever smaller cohorts of young and active contributors and ever larger generations of old-age support receivers, leading to imbalances and even to an absolute decrease of the total population.

In addition, the undesired position of the pension systems has been further endangered by other socio-economic trends: the global crises lead to higher unemployment rates and lower contributors base, late entry on the labor market by the younger generations, the widespread culture of early retiring and the non-transparent nature of the system, where the link between individual contributions and benefits is not clear. The combination of those trends forces governments to take reforms to neutralize those negative effects and smooth out differences between contributions and benefits. A balance between ensuring a normal retirement income for the elderly and establishing real incentives for continuing to work must be achieved to guarantee the financial sustainability of the pension system and to protect one of the fundamentals of the welfare state – the inter-generational fairness.

Because of the high expenditure, future reforms should be aimed at cutting the expenses of this generous by international standards pension system, especially as contribution rates and taxes are already high, impacting the international competitiveness of Slovenia and imposing heavy burden on its citizens and business. Bringing expenses under control can have significant positive effect on the GDP and could be achieved by implementing a combination of these proposed measures.

The most important aim should be maintaining the adequacy of state pensions because they also have the leading role in reducing poverty and consumption smoothening: pension benefits are the dominant source of income for most pensioners in Europe. At the same time the pension system should be designed in a way that will not make large future fiscal demands on the state budget. Thus a crucial part of every pension reform must be the establishment, regulation and monitoring of private pension plans and insurance companies.

In recent years Slovenia has established some mild parametric changes by introducing penalties and rewards for earlier or later retirement, which will have to be strengthened even further. With longer life expectancy, people have a simple choice: work longer or consume less. The logical institutional response should stimulate a longer working life combined with higher savings in both the public and private schemes. Financial incentives to remain longer in work must be significantly strengthened, but also disincentives in other

welfare systems and private pension arrangements that may act as a path to early retirement must be removed. Older people will also have to be given better working opportunities, requiring a range of measures taken by institutions, employers and trade unions. Policies that remove barriers to employment and stimulate participation of older men and women are essential to the effective response to population ageing. Other instruments that should be taken into consideration are a transition towards defined contribution system, redistribution of pension burden across generations and improving the actuarial fairness in order to lower distortion of the labor-leisure decisions.

Different countries have successfully implemented a wide range of solutions that could significantly improve the sustainability of the pension system in Slovenia. Policymakers should facilitate the expansion of private pension systems by using tax incentives, automatic enrolment in supplementary pension plans, especially stimulating greater participation in the individual schemes; allow members to freely choose the plan they invest their savings, in accordance to their needs, preferences and risk-awareness; soften the tight investment rules imposed on supplementary funds and decreasing the generous tax exemptions. The abolishment of indexation to wages and instead calculating indexation to prices only could yield additional savings. Such set of measures could stabilize the expenditures of the pension system in both mid and long-term. In any case, all challenges posed by demographic changes cannot be solved successfully with a reform of the pension system only. Serious adjustments will be needed in other social welfare sub-systems: the labour legislation, health and safety at work and most importantly a comprehensive strategy for active employment policies.

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APPENDIXES

LIST OF APPENDIXES

Appendix A: Definitions of the multi pillar pension system by leading international organizations.....	1
Appendix B: Factors influencing the dependency ratio	1
Appendix C: Dependency ratios for Slovenia and other comparable European countries.....	2
Appendix D: Drivers of pension expenditure.....	2
Appendix E: Demographics in Slovenia in the 20th century	3
Appendix F: Supervisory authorities of the pension system in Slovenia.....	4
Appendix G: Average predicted exit age from the labor force in 2060 in Slovenia and chosen EU countries for men and women	5
Appendix H: Key findings and an analysis of the White Book on Pension Reform in Slovenia	6
Appendix I: OECD Core Principles of Occupational Pension Regulation	10

Appendix A: Definitions of the multi pillar pension system by leading international organizations

The World Bank:

- the first pillar (public pension) is managed by the state and provides only the basic support in the form of defined-benefits and organized as a PAYG system;
- the second pillar represents an investment, privately managed system with obligatory contribution, mostly organized as a defined-benefit system;
- the third pillar is consisted of many privately managed individual retirement saving plans, whose common characteristic is that participation is voluntary.

The International Labor Organization:

- the first pillar is financed by general taxation, designed to provide minimum support in time of retirement and mostly to prevent from falling into poverty;
- the second pillar is made by a public pension fund in which participation is obligatory and works as a PAYG system. It guarantees retirement benefits on actuarial basis and its function is to protect against loss of purchasing power and fall of living standard after retirement;
- the third pillar is made up by different and numerous collective or individual saving accounts, which may be voluntary or obligatory for some part of the population.

Appendix B: Factors influencing the dependency ratio

With regard to the dependency ratio, the relationship between the number of current dependants (P) and that of current workers (E) is determined by two parameters: μ is a survival parameter governed by the expected average duration of retirement of each retiring cohort. The second one is θ or the proportion of the labor force (L) that participates in paid work.

$$P = \mu L \quad \text{and} \quad (1)$$

$$E = \theta L$$

The overall tax rate needed to finance pensions is equal to the replacement rate multiplied by the dependency ratio:

$$\tau = \frac{\beta(\mu \div \theta_{-1})}{(1+n)(1+g)(1+\varepsilon)} \quad (2)$$

In the equation, n is the population growth per annum through labor force entry, g is the growth of productivity and ε represents the growth of the participation rate. The average

tax rate needed to finance pensions is determined by the fraction of earnings replaced (β) and the ratio of survivors to previous workers (μ/θ_{-1}). The higher the second parameter, the higher the level of current taxes needed to finance the pension benefits for the survivors. The value of τ is reduced if any of the three growth rates in the denominator are positive.

Appendix C: Dependency ratios for Slovenia and other comparable European countries

Table 1. Dependency ratios for Slovenia and other comparable European countries, 2015

Country	Old-age dependency ratio	Child dependency ratio	Total dependency ratio	Support ratio
Slovenia	26,7	22,0	48,7	3,7
Italy	35,1	21,5	56,5	2,9
Austria	20,8	21,2	49,2	3,6
Hungary	26,3	21,5	47,9	3,8
Poland	22,3	21,5	43,8	4,5
Sweden	31,8	27,5	59,3	3,1

Source: United Nations Population Division, *World Population Prospects: The 2015 Revision*, 2015.

Appendix D: Drivers of pension expenditure

The overall change in gross public pension expenditure over the horizon until 2060 is decomposed into four drivers: dependency ratio, coverage ratio, benefit ratio and the labor market effects. The labor market effect itself is further decomposed into three drivers: employment, labor intensity and career shift effects (The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060), 2015, p. 103).

$$\frac{\text{Pension Expenditures}}{\text{GDP}} = \frac{\text{Population 65+}}{\text{Population 20-64}} \times \frac{\text{Number of Pensioners}}{\text{Population 65+}} \times \frac{\text{Average Pension}}{\frac{\text{GDP}}{\text{Hours Worked 20-74}}} \times \frac{\text{Population 20-64}}{\text{Hours Worked 20-74}} \quad (3)$$

The four drivers are presented in greater detail below:

- 1) the dependency ratio effect quantifies the impact of demographics on the pension to GDP ratio. An increase in the ratio indicates higher proportion of older individuals with respect to working age population and intensified process of population aging;
- 2) the coverage ratio effect is defined as the number of pensioners of all ages to the population over 65 years. As the coverage ratio increases, pension expenditure to GDP ratio also increases;

- 3) the benefit ratio effect indicates the development of the relative value of the average pension to the average wage;
- 4) the labor market effect describes the effects of labor market behavior on pension expenditure.

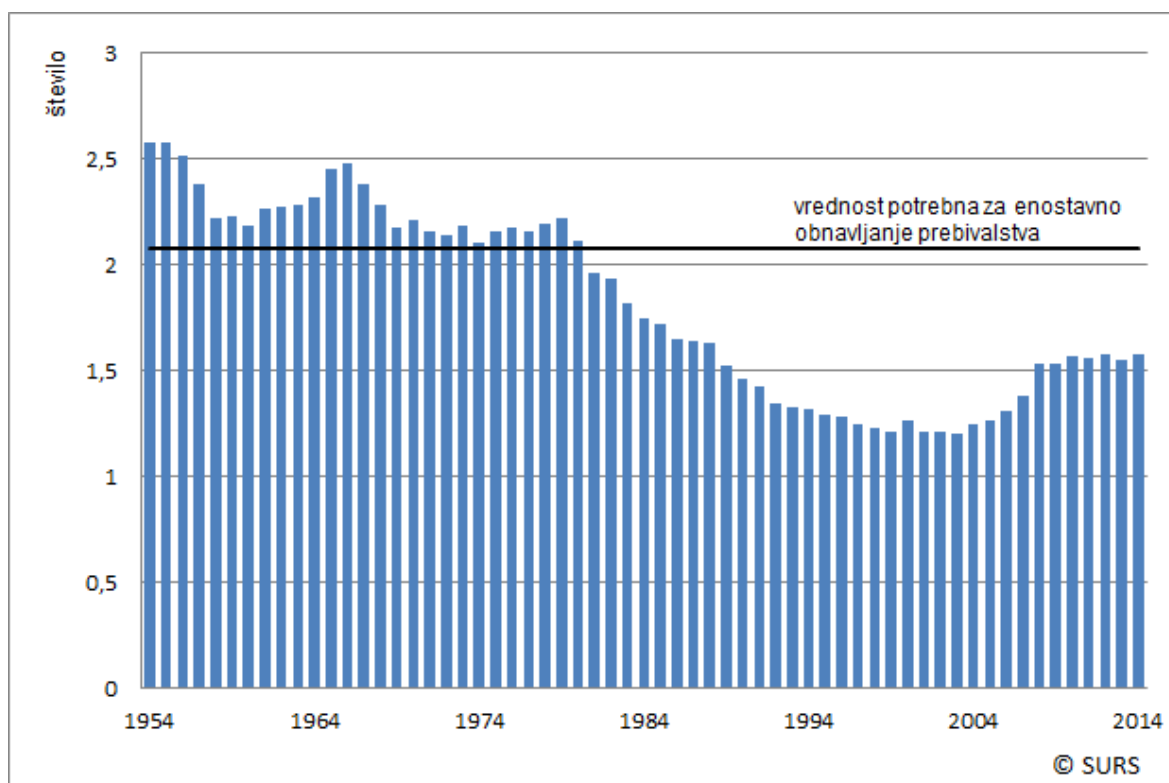
Appendix E: Demographics in Slovenia in the 20th century

Table 2. Key population indicators for Slovenia in the period between 1924 and 2014

Year/Parameter	Total population	Live births	Natural growth (per 1000 inhabitants)
1924	1.323.284	40.215	12,8
1934	1.413.017	33.373	9,7
1944	1.436.368	27.397	0,5
1954	1.515.228	31.828	11,1
1964	1.626.000	29.184	7,6
1974	1.773.809	28.625	6,4
1984	1.937.588	26.274	3,1
1994	1.989.408	19.463	0,1
2004	1.996.433	17.961	-0,3
2014	2.061.085	21.156	1,1

Source: *Statistical Office of the Republic of Slovenia, Število prebivalcev in naravno gibanje prebivalstva*
[Number of citizens and natural population movements], h.d.

Figure 1. Average number of live births per woman in fertile age in Slovenia between 1954 and 2014



Source: Statistical Office of the Republic of Slovenia, *Povprečno število živorojenih na žensko v rodni dobi* [Average number of live births per female in fertile age], h.d.

Table 3. Life expectancy at birth for both genders in Slovenia

Parameter/Year	1960	1990	2000	2010	2014
Men	66,11	69,54	72,13	76,30	77,97
Women	71,96	77,28	79,57	82,65	83,68

Source: Statistical Office of the Republic of Slovenia, *Pričakovana življenska doba v Sloveniji* [Life expectancy in Slovenia], h.d.

Table 4. Total expenditure for the public welfare system in Slovenia in the period between 1997 and 2013, in millions €

Year	1997	2001	2005	2009	2013
Expenditures	2.334	5.062	6.612	8.587	8.959

Source: Statistical Office of the Republic of Slovenia, *Celotni izdatki za socialno zaščito* [Total expenditures for social protection], h.d.

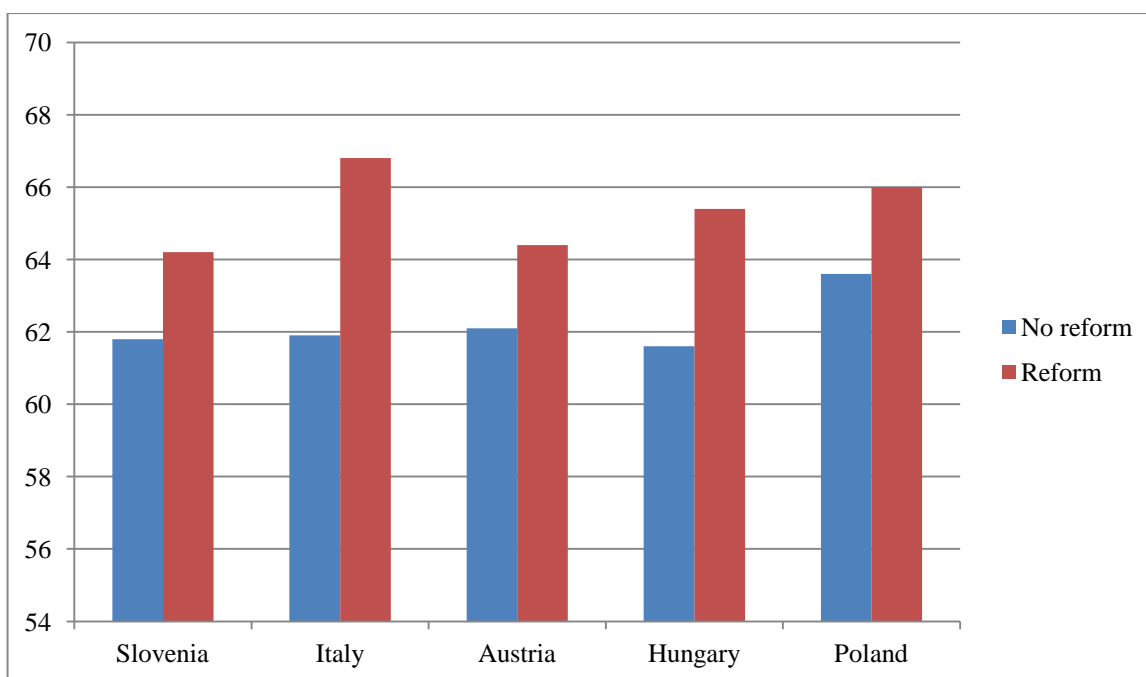
Appendix F: Supervisory authorities of the pension system in Slovenia

- the Ministry of Labor, Family and Social Affairs is responsible for approving the pension plans and monitors over the rights of employees. It also screens if plans are in accordance with the minimum criteria set by the law;
- the Insurance Supervision Company monitors the operation of pension and insurance companies that offer voluntary supplementary pension insurance;
- the Securities Market Agency provides a regulation framework and supervises the operation of mutual pension funds;
- the Tax Authority supervises the implementation of the provisions with respect to the acquisition of tax and other relieves and benefits. (Berk Skok, 2008, p. 3)

The Institute for Pension and Invalidation Insurance (slo. *Zavod za pokojninsko in invalidsko zavarovanje Slovenije, ZPIZ*) is an autonomous public financing agency and a monolithic institution which is almost entirely responsible for the sound management of Slovenia’s public pension system. Slovenia overall has a good regulatory and supervisory framework which is in compliance with OECD Core Principles (OECD, 2011, p. 12).

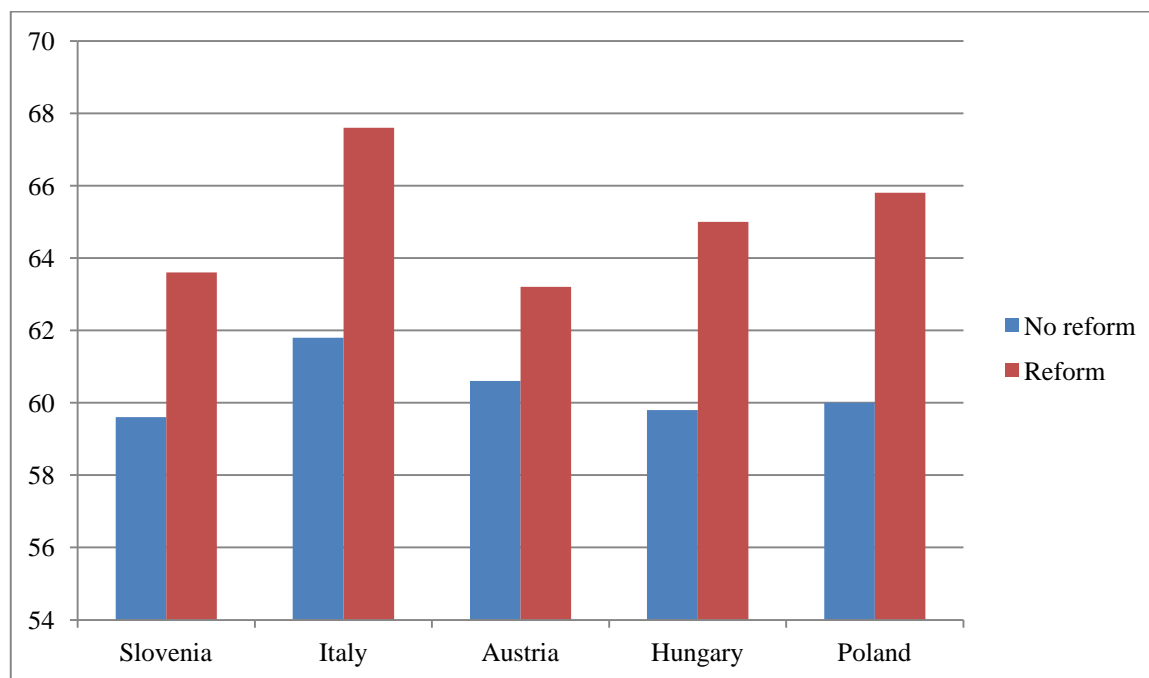
Appendix G: Average predicted exit age from the labor force in 2060 in Slovenia and chosen EU countries for men and women

Figure 2. Average predicted exit age from the labor force in 2060 in chosen EU countries, men



Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 51, Graph I.2.1.

Figure 3. Average predicted exit age from the labor force in 2060 in chosen EU countries, women



Source: European Commission, *The 2015 Aging Report: Economic and Budgetary projections for the 28 EU Member States (2013-2060)*, 2015, p. 51, Graph I.2.1.

Appendix H: Analysis and key findings of the White Book on Pension Reform in Slovenia

The aim of the changes of the pension system in Slovenia proposed by the White Book on Pensions (hereinafter: the Book) is to provide an adequate income at old age for all generations of pensioners. At the same time a balance between revenues and expenditures should be maintained in order to keep government spending under control. The major objective of the Slovenian Ministry of Labour, Family and Social Affairs (2016, p. 18) is to maintain the first pillar pension insurance as the basic insurance to individuals and a major source of old age income, but a wider social consensus is needed to agree its organizational structure, role and fundamental principles. In the future, it will be necessary that all social partners and the society as a whole find a consensus on the following important issues: further increase of the effective retirement age, increase of the insurance and contribution period if individuals want to retire earlier than the minimum retirement age, changes in the assessment method for pension benefits and a transition to a point-based system. Simultaneous introduction of these measures could guarantee the long-term sustainability of both the pension system and public finances under a relatively acceptable and painless reform process.

In Slovenia, the absolute number of the elderly, compared to the number of working population, will more than double by 2060: the elderly aged above 65 in total population will rise from 17,3 % in 2013 to 29,4 % in 2060 (Ministry of Labour, Family and Social Affairs, 2016, p. 1). This is even truer for the share of those aged above 80, where the most significant increase is expected. The main contributor to such significant rise is increased longevity: for the period up to 2060, an average increase in life expectancy of 7 years for both men and women is expected. This will result in growing costs of financing social benefits for the elderly from today's 24,7 % to 31,5 % of GDP in 2060, of which the costs of pension benefits will rise from 11,8 % to 15,3 % of GDP, the highest rise among all other 27 EU Member States. This is the reason why the primary objective of the government should be to guarantee long-term sustainability of public finances.

With longer life expectancy, it is logical to expect an increase in the number of years an average person spends in retirement or after the age of 65 in the future: compared to 2007, the average time spent in retirement will increase by additional 6 years: for men it will rise from 16 to 22 years and an increase from 20 to 26 years for women is predicted.

The Book claims that the current pension system of Slovenia, after the reform introduced in 2013 is financially sustainable and will continue to be until 2022 or 2023. This claim does not take into account the fact that since 1996, the government is covering around 27% of all expenses of the pension system financing it from the state budget via general taxation. The report takes this significant deficit for granted and does not try to introduce measures aimed at lowering the contribution that the government makes to the budget of the state pension system, a considerable amount of above one billion euro annually.

The Book suggests implementation of a set of measures intended to make the system more stable, resistant and actuarially fair. Applying the principle every work counts could increase contribution and participation rates. This principle ensures that pension benefits will be assessed upon all income earned and contributions paid during a lifetime. The Book further suggests that benefits should be granted on the basis of the 34 best consecutive years of work, instead of today's 24. As described in the thesis, most OECD countries already take the whole working period as a base for pension's calculation. This change will certainly make pension benefits more modest because earnings usually increase as the person is moving closer to retirement age. It also recommends the introduction of the double status, which exploits the possibility to work after reaching full retirement age, and at the same time be eligible to acquire full pensions.

A comparison with foreign legislation on the field of pension insurance shows, that a gradual increase of the minimum pension age is unavoidable and in line with longer life expectancies. This measure is the cornerstone of every reform that aims at making the public pension system more sustainable. Parallel with this, a gradual increase of the minimum insurance period should also be discussed. However, the Book warns that future reforms should take into account the principles of intergenerational solidarity and

intergenerational equality, suggesting that retirement age should be increased gradually and pension benefits should provide adequate living standards for the elderly (Ministry of Labour, Family and Social Affairs, 2016, p. 7).

Continuing on the topic of legislation, the current differentiated treatment for men and women in the pension system is very problematic. Beside the clear unequal treatment, earlier pension age for the women is against the principle of solidarity and is reinforcing the already strong redistribution effect. Future reform should address this question by gradually closing the gap between pension ages for the two genders.

One of the most profound changes the Book proposes is the introduction of a points system for assessing pension benefits, which would depend only on the amount of contributions paid and time spent working and would make the system more transparent and understandable for the public. The point system measures individual earnings in relation to the average earnings in the economy (Ministry of Labor, Family and Social Affairs, 2016, p. 9). According to a previously agreed ratio, the number of individual points awarded to each contribution period is determined. The Book recommends that the lowest average value of one point should be 0,75 and the highest no more than 3,75. The benefit of more transparency is that the insured will know exactly the amount of pension benefits they could expect and will further motivate people to participate by contributing. Motivation for higher contribution is especially necessary for younger generations, which seem to have lost confidence in the ability of the public pension system to provide old age benefits in the next decades and to participate in inter-generational solidarity.

The Book also supports the introduction of adjustments of pension benefits, which is one of the main instruments for safeguarding the stability of the public pension system. At the same time it also protects the elderly from loss of income and guarantees a normal living standard at old age. A gradual change of the formula for calculating pensions is also suggested: after a 20 year transition period, all pensions will be adjusted only by the growth of the average consumer prices as it is already the case in many European countries (Ministry of Labor, Family and Social Affairs, 2016, p. 12).

On the subject of disability benefits, the new disability regulation should be based on short vocational training and rehabilitation programs and better synchronization with labor market conditions and needs (Ministry of Labor, Family and Social Affairs, 2016, p. 13). The category III disability status with full working hours should be abolished and replaced with vocational training in order to facilitate reintegration and motivate individuals to return to work as fast as possible. Disability benefits should be a measure of last resort and entitled only to severe cases and those in real need.

With regard to the second and third pillars, the current ZPIZ-2 law, which regulates supplementary pension insurance, often refers to other older laws and legislation, thus not contributing to a transparent business environment for the pension insurance companies. It would make sense to regulate all supplementary pension insurance providers, governmental institutions, regulators and other stake holders in a new legislation, which could contribute to more efficient monitoring, better flexibility and transparency.

Currently only about 5 % of all insured people in Slovenia make savings in supplementary individual pension plans, which is insufficient if a real relieve on the public pension fund is to be achieved (Ministry of Labor, Family and Social Affairs, 2016, p. 16). In order to stimulate higher participation and contribution rates, the Book suggest that individual investment accounts should be established under the third pillar. Those accounts could offer a more flexible investment policy with riskier investments allowed, to suite different needs and preferences of different population groups, especially the young. The insured would be entitled to tax relief if they allocate the funds raised for a lifetime pension annuity.

One additional step, designed to include more people in the supplementary pension insurance funds and relieve the pressure from the public pension system, is to make contributions to the second pillar mandatory. This could lead to additional benefits such as diversification of risks between various forms of pension insurance and providers. It has already been established in countries such as Sweden, Hungary, Poland etc. It is also known in Slovenia since 2003 with the introduction of the KDPZJU law, which obliges all civil servants in to participate in a mandatory contribution system. The key problem with the establishment of this form of insurance is the transition period, in which the first, public pillar is faced with lower contributions and decreased inflow of finances as a consequence of lowered contribution rates. As long as the mandatory second pillar pension insurance system does not start to pay off sufficiently high pensions, which could be decades away, the state must find additional sources to financially support the first pillar. Raising overall contribution rates for employers and employees is not an option, since Slovenia is already faced with uncompetitive and overburdened economy. A partial solution to this problem could be mandatory participation by individual industries or occupations if the social partners negotiate between 60 and 70% inclusion of the people employed.

At the end, the Book presents different scenarios of the future movements of the average replacement rate for new retirees, which is the ratio between the first pension and the last salary, with regard to different pension reform propositions. Under different reform scenarios, the replacement rate would range between 55 % and 60 % at the end of the examined period (Ministry of Labor, Family and Social Affairs, 2016, p. 19). If the current situation is maintained and no reform is undertaken, the replacement rate is projected to be

around 52 %, meaning that in any case, the new pension reform will provide slightly higher pensions. The Book also makes projections that at the end of the projected period, in 2060, an average retirement age between 65 and 67 years will be achieved.

Appendix I: OECD Core Principles of Occupational Pension Regulation

- Core Principle 1 - Conditions for effective regulation and supervision: current structure of Slovenia's regulatory system could lead to regulatory arbitrage and create confusion among both providers and all other stakeholders. The two agencies that operate at the moment have different focus as the securities market agency is focused on investments and the insurance supervisory agency monitors the solvency of the company providing pension insurance. Because mutual pension funds have to maintain and guarantee minimum rate of return the securities agency is also responsible for ensuring sound and adequate reserving policies.
- Core Principle 2 – Establishment of pension plans and funds: having sound regulatory framework is essential for establishing an effective and competitive private pension system. Also, maintaining a fast and efficient licensing framework is very important for the competitiveness of the market. Basic risk control mechanisms have already been established requiring internal auditing and risk-management plans that incorporate management of operational and governance risks.
- Core Principle 3 – Pension plan liabilities, funding rules, winding up and insurance: the Slovenian law does not permit the establishing of defined benefit plans, so consequently all private pension schemes are organized as defined contributions with pension assets legally separated from the sponsor's. There are some unresolved issues as well, such as the case when unpaid contributions by employers are not entitled to priority in bankruptcy proceedings and there is no regulation in place on late payment of contributions.
- Core Principle 4 – Asset management: the law regulates and ensures that providers align with diversification requirements and limit their exposures to individual issuers. This tight regulations impose some challenges too, so measures in the direction of giving more options to the providers: the possibility to invest freely in regulated markets of the euro zone as the decisions to allocate investments are guided by the obligation of minimum guaranteed return which direct investments towards low-risk assets such as Slovenian government bonds and bank deposits.
- Core Principle 5 – Rights of members and beneficiaries and adequacy of benefits: as of now, the regulation does not allow individuals to privately choose investment option with regard to their personal preferences and needs. All contributors are members of one plan with same investment strategy and rate of returns, regardless of age or risk profile. The levels of contributions in 2013 were fairly low with around 2% of the average wage which is insufficient to maintain retirement benefits at the current level, especially because the predicted weakening of the public pension plan.

- Core Principle 6 – Governance: the law defines rules for both supervisory agencies and provider’s management as well as requirements for stability and financial soundness that have to be met. This includes internal and external auditing and certified actuary services.
- Core Principle 7 – Supervision: one of the major problems is that both supervisory agencies do not pursue outcome-orientated objectives. Another is the gap in the law that agencies do not have powers to solve issues such as late payments of contributions by the employers and one of the agencies has no reporting duty specific to pensions (OECD, 2011, p. 12).