

RETIREMENT PENSIONS IN LITHUANIA: 25 YEARS AND STILL IN TRANSIT?

LAS PENSIONES DE JUBILACIÓN EL LITUANIA: 25 AÑOS Y ¿TODAVÍA EN TRANSFORMACIÓN?

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Abstract

Adequate social security system is one of key elements of any modern society. Retirement pensions are usually attributed to the area of social security and – as such – pension system has multiple objectives, for example, to smooth income during lifetime of individual, to address poverty issues and similar. Due to ageing population and other circumstances many countries face difficulties when providing retirement pensions solely as part of social security system. Lithuania is not an exception, so – as in many other European countries – pension reform was implemented during the period of 2003 – 2004. Design of retirement pensions before and after reform is presented in this paper. Impact of reform for estimated amount of pensions and public finances as well as main areas of uncertainty are discussed.

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Keywords

Pension reforms; Retirement pensions; Social security; Sustainability of pension systems.

Resumen

Un sistema de seguridad social adecuado es uno de los elementos clave en cualquier sociedad moderna. Las pensiones de jubilación se vinculan normalmente a la esfera de la Seguridad Social y, como tal, el sistema de pensiones tiene múltiples objetivos: la distribución de los ingresos durante la vida de los individuos o hacer frente al riesgo de pobreza, entre otros. A raíz del envejecimiento de la población y de otras circunstancias, algunos países presentan dificultades cuando la prestación de las pensiones de jubilación se plantea únicamente como una parte de la Seguridad Social. Lituania no es una excepción y así –como otros países europeos- implantó una reforma de las pensiones durante el período 2003-2004. En este artículo se presenta el diseño de estas pensiones antes y después de la reforma y se discute su impacto en cuanto al importe estimado de pensiones y las finanzas públicas, así como se refieren las principales áreas de incertidumbre.

Palabras clave

Reformas de pensiones; Las pensiones de jubilación; Seguridad Social; Sostenibilidad de los sistemas de pensiones.

JEL: H55, O15, P35.

1. Introduction

Developed social security system is essential to ensure adequate standards of living for all citizens. Many developed countries provide, at least partially, retirement pensions as social security benefit. However, due to ageing societies, it becomes more and more difficult to provide adequate income in retirement solely from social security budget. During recent decades many emerging European countries implemented pension reforms which allowed to move from single pillar to multi-pillar system. Lithuania was not an exception and started pension reform in 2003.

Before reform pensions were paid on *Pay-As-You-Go* basis. Since Lithuanian citizens had very poor traditions to accumulate means for future retirement and little experience in investments, the essence of reform was to transfer some share of social security tax to Individual investment account (IIA), so pension system became partially funded. Though participation in reform was voluntary, participation ratio was very high. Reduction in share of social security tax which is used to finance current pension benefits led to higher deficit experienced by Social Insurance Fund. Such negative consequences may be admissible if financial situation of Social Insurance Fund is significantly better in the long term horizon and if replacement ratio of future retirees is higher than currently. Pension reform raised some important questions: Is funded approach an automatic solution to problems of ageing society? Is it enough to use small share of social security for investment to achieve adequate pensions? Did individuals fully recognize risks of funded system and – if no – what maybe consequences in the future of sub-optimal decisions made now? Finally, will reform help to achieve long term sustainability of pension system?

This paper is organized as follows. Overview of social security system in Lithuania is presented in section 2. In section 3 provision of old-age

(retirement) pensions in Lithuania is explained. Attention is paid to recent reforms of pension system which led Lithuania from single pillar to multi-pillar approach. Reasons for extremely high participation ratio and possible influence of reform to amount of pension benefits are discussed. In section 4 we address issues of short term and long term financial sustainability of pension system in Lithuania. Section 5 contains summary and conclusions.

2. Social Security in Lithuania

2.1. Overview of Social Security system in Lithuania

Foundations of current social security system were laid in 1990, soon after Lithuania declared independence from Soviet Union. First wave of reforms of pension system was carried out during 1994-1995, and new system replaced the one inherited from Soviet Union².

Social security in Lithuania is implemented mainly via public system; currently, the role of private system is not significant, especially if informal help from family members is disregarded. Ministry of Social Security and Labour is in charge of implementation of overall social policy (social security, labour relations, labour exchange), while State Social Insurance Fund Board, so called *SODRA* (Social Insurance Fund, or just *Fund*), is responsible for organization of social security system and social insurance (except health care services) in Lithuania. Health care is publicly financed by National Health Insurance Fund, but we will not consider health care services here. Benefits paid from Social Insurance Fund are:

² <http://www.sodra.lt/lt/socialinis-draudimas/sodros-istorija> (in Lithuanian).

- Retirement (old age) pensions (including earlier retirement pensions).
- Pension due to permanent (temporary) disability (paid until usual retirement age).
- Widow's / Widower's / Orphan's pension.
- Temporary disability allowance.
- Allowance for persons taking care of disabled family member.
- Maternity (paternity) allowance.
- Funeral and some other grants (allowances).

All kinds of pensions form major part of all benefits paid by Fund (about 74% during 2013 and 2014)³. We will limit our analysis only to old age (retirement) pensions.

Social Insurance Fund is mainly financed from contributions made by employers and employees (self-employed persons). In some cases, contributions are made by State, for example on behalf of priests, military servants, persons who are on maternity (paternity) leave or taking care of disabled person (usually family member or relative). Each employer usually pays some percentage (28% in 2015) of employee' salary to Social Insurance Fund. Currently (2015) 23.3% is used to finance pension benefits; 3.4% - disablement and maternity (paternity) benefits; 1.1% - unemployment allowances and 0.2% - benefits for professional injuries and diseases (this part of tax may be higher for riskier sectors). Employer contributions make major part (84% - 88% in 2013, 2014) of all contributions paid to the Fund. Each employee pays 3% (2015) of his / her salary to the Fund and 6% - to mandatory public health insurance scheme, which is managed by National Health Insurance Fund, not by SODRA. Entire contribution made by employee (3%) is used to finance pension benefits, so other benefits paid by Fund

³ Source: website of Social Insurance Fund. <http://atvira.sodra.lt/lt-eur/index.html> (in Lithuanian).

(SODRA), e.g. disablement and maternity (paternity) allowances etc., are financed from payments made by employers. Contributions made by self-employed persons depend on type of self-employment and type of benefit that those persons are entitled to, for example, some self-employed persons may be eligible only for contributory basic pension. Please, refer to Appendix 4 for more statistical data about Social security in Lithuania.

Since the start of economic recession, in 2008, Fund experiences deficit; however, during the period of 2003 – 2007 it gained some profit. The peak of deficit was reached during 2009 - 2010 and amounted to about 800 million EUR, or 25%-27% of contributions (and other income) paid to Fund. Currently (2014) deficit is much lower – about 300 million EUR or 10% of contributions. Deeper analysis of the Fund performance is outside the scope of this paper. Interested reader may see Appendix 5 for more detailed information about Fund performance.

Demographic situation is very important factor for stability of any social security system, so we will analyse demographic trends in the next subsection.

2.2. Demographic situation in Lithuania

Lithuania –as many other European countries- experiences negative consequences of ageing society. Age structure of Lithuanian population is presented in Table 1. *Age structure of Lithuanian population*. Currently share of persons older than 62 is about 21% of total population of Lithuania, which is rapidly approaching advance stage of ageing. See, for example, Muhanna, I. (2013), where population is called *ageing* if share of inhabitants aged 65 and more is 11% and if share of such group is 21% stage of ageing is called *advanced*.

Table 1. Age structure of Lithuanian population

Age group	2005		2014		Change in population, %
	Number of inhabitants. Thousands	Percentage of population	Number of inhabitants. Thousands	Percentage of population	
New-borns	29	1%	30	1%	3%
1-16	644	19%	467	16%	-27%
17-24	396	12%	323	11%	-18%
25-62	1,683	50%	1,512	51%	-10%
Older than 62	602	18%	611	21%	1%
Total	3,355		2,943		-12%

Source: Official Statistics Portal, Lithuania. Data taken from <http://osp.stat.gov.lt/en/> (2015-04-30).

Figures are even more disturbing taking into account changes in population groups during last decade (2005 – 2014). Numbers of new-borns slightly increased but this increase is outweighed by huge decrease in population aged 17-62, that is, active workforce. Changes in population structure may be partially explained by increase in future remaining lifetime of older persons (longevity). During the period of 2005 – 2013 increase in expected future lifetime of individual aged 65 amounted to almost one year: from 16.05 years in 2005 to 16.95 years in 2013. Most probably, such significant changes in population structure happened due to emigration of active workforce. Indeed during the period of 2005 – 2014 about 438 thousand inhabitants left Lithuania and this number exceeded number of immigrants by almost 3.5 times (Official Statistics Lithuania⁴). Whatever the reason for changes is, population structure should be taken into account when considering stability of pension system. From now on we will turn our attention to old age (retirement) pensions only.

⁴ <http://osp.stat.gov.lt/en/>

3. Old age (retirement) pensions in Lithuania

3.1. Retirement pensions until 2003

In Lithuania, public pension system is unfunded and paid on Pay-As-You-Go (PAYG) basis. Since new pension system was introduced in 1990, old age pension provided by Fund consists of 2 main parts: basic pension and supplementary pension. Moreover, individuals with record of contributions longer than 30 years are eligible for so called *bonus pension*.

Basic pension is paid for those citizens who have at least 15 years of service (record of contributions), e.g. period during which contributions to Fund were paid. Amount of basic pension depends only on the length of record of contributions and attains its maximum when 30 years of contributions are reached, otherwise basic pension is reduced on pro rata basis. Barr, N. and P. Diamond (2009) call this type of pension *contributory basic pension*: “a pension paid often at a flat rate, to a person with a full record of contributions, or pro rata to a person with an incomplete contribution record”, so we will adopt this definition here. Amount of contributory basic pension (*CBP*) is determined by government of Lithuania, usually on annual basis, but it cannot be less than 110% of minimum standard of living (Law on State Social Pension Insurance Pensions, No. I-549). Currently (spring 2015) contributory basic pension is 105 EUR / month.

Bonus pension is calculated as 3% of basic pension for every year of contribution record exceeding 30. Amount of bonus pension does not depend on former salary of individual and, therefore, is regressive. Amount of supplementary pension (*SP*) depends on length of contribution record as well as salary of contributor during 25 best years. *SP* is calculated using formula (Law on State Social Pension Insurance Pensions, No. I-549):

$$SP = 0.005 \cdot S \cdot K \cdot D \quad [1]$$

Although the formal definition of variables S , K and D is quite complicated, one may assume that:

- S: Number of contribution years (usually years of service).
- K: Coefficient based on ratio of annual salary (pensionable earnings) of individual to annual insurable income in Lithuania averaged during 25 best years, however K must not exceed 5.
- D: Insurable income set for the month when pension is paid.

As the number of contribution years (S) and coefficient (K) are fixed variables, the only parameter affecting amount of individual pension month after month is the amount of insurable income (D). Amount of insurable income is determined by Lithuanian government on annual basis and is used to determine amount of various benefits paid by Fund. It is assumed (at least unofficially) that insurable income should be almost equal to average salary, though no exact rules for calculation of D are legally set. Moreover, Law on State Social Pension Insurance Pensions (1994) states that insurable income D is calculated taking into account income and expenditures of Social Insurance Fund, so in reality, in Lithuania D is used more for balancing cash flows of Fund rather than for adjustment of pensions to wages.

Since contributory basic pension and bonus pension do not depend on former salary, the only part of pension that is related to former wage is supplementary pension. Such design makes system of public pension regressive, e.g. those with higher former salary are eligible for lower pension in terms of replacement ratio. Currently (2014), average old age monthly pension is 240 EUR, while average net monthly salary is 527 EUR, so average replacement ratio is about 45%. But the most important issue is not average replacement ratio, but individual replacement ratio. For individuals with lower salaries (say, half of the national/country average) replacement ratio may be

significantly higher, about 60%, while for individuals with higher earnings replacement ratio is significantly lower and may be as low as 20%⁵. See Appendix 2 for illustrative calculations. Surely, since replacement ratio for majority of employees is quite low, alternative methods for financing retirement should be employed. Reform of pension system which was started in 2003, among other goals, was supposed to help individuals to have higher pension. Nevertheless public old age pensions are related to individual history of annual salary (pensionable earnings), so it is definitely *Defined Benefit* arrangement (Barr, N. & P. Diamond, 2009).

3.2. From one pillar to multi-pillar system

3.2.1. Initial reform 2003 - 2004

Up till 2004 old age pensions provided by Fund, or so called *1st pillar pensions*, were the only formal source of finance for seniors in Lithuania. Pension funds organized by employers were very rare and there were very little traditions and limited possibilities to save for future pensions during period of active career. In 2004 reform of public pension system was started. It was publicly alleged that ageing population in Lithuania was the main reason to start reform and introduce partially funded system⁶. Though funding in itself is not the best or absolute solution of demographic problems (see Barr, N., 2002) it was assumed that partial funding may lessen financial burden experienced by Fund in the long term horizon since pension benefits will be reduced in the future. Main point of reform was that the amount of social security contributions did not change and some part of contribution paid to the Fund may have been transferred to private investment funds (Individual investment account, or IIA) at the decision of person in exchange for lower public pension. Participation in new pension arrangement was voluntary,

⁵ Figures are very illustrative, calculations performed by author.

⁶ <http://www.pensijusistema.lt/index.php?-586352733#2>

however, once individual decided to participate in new scheme he / she could not revert his decision and return solely to *Ist pillar*. Initially transfers to private funds amounted to 2.5% of participant's salary (pensionable earnings), so contributions used by Social Insurance Fund were decreased appropriately. Transfers to private funds increased gradually and reached 5.5% in 2008. In 2009 – 2012 due to recession they were decreased to 3% (2009) – 1.5% (2012) by decision of government; this action helped to lessen deficit of Social Insurance Fund. Transfers to private funds (the share of social security tax) are set at 2% now (2015, see Appendix 1). At retirement, amount accrued in Individual investment account should be exchanged to pension annuity bought from insurance company (some exceptions exist). Insurance company may be chosen by participant. Soon after starting reform in 2003 government and media named investments in private funds "IInd pension pillar". It is widely agreed that best results are achieved when multi-pillar approach to financing of retirement pensions is adopted. However, to be successful it is very important how interaction between pillars is organized and even what arrangement is called *IInd pillar*.

Table 2. Multi-pillar approach to pension financing

Pillar	World Bank	OECD	Lithuania
I st	Mandatory Tax financed	Publicly managed Defined benefits PAYG Based (usually) on payroll tax	Mandatory Public Defined benefits PAYG
II nd	Mandatory Funded Private (personal savings or occupational pension plans)	Privately managed Provided as part of employment contract	Private Voluntary Funded Provided not as direct part of employment contract
III rd	Voluntary	Personal savings or annuity schemes	Voluntary

We will compare system introduced in Lithuania with the definitions adopted by World Bank (1994, page 48) and OECD (2005). Results are summarized in Table 2. Most definitions stress that IInd pillar pension arrangements are either provided on the basis of employment contract (fully / partially funded or not) or are mandatory savings outside the scope of employment agreement. It is easy to notice that savings, attributed to IInd pillar in Lithuania were neither mandatory nor provided directly as part of employment contract. The only link to employment was social insurance tax paid by employer. Self-employed persons also had possibility to participate in IInd pillar, however, those who paid lower contributions only for contributory basic pension had to pay (voluntarily) additional contributions to Individual accounts by themselves, so for this group arrangement more resembled IIIrd pillar. This reform, however, encouraged some big employers to set their own pensions schemes; unfortunately, statistical data how widely these schemes are applied are not available, but private employer arrangements are not very common. Despite some inaccuracies in definition, here we will use term IInd pillar when speaking about reformed pension system and Individual investment accounts in Lithuania.

Supplementary pension is decreased for those who decided to participate in *IInd pillar*, while contributory basic pension and bonus pension are not. In general, decrease of amount of pension is implemented by applying multipliers when calculating coefficient *K* in [1]. Decrement of SP is calculated as relative decrease in social security tax used to finance pensions, e.g.

$$c = \frac{SSt - SS_{tp}}{SSt}$$

c Multiplier applied to coefficient *K* (decrement of pension is equal to 1-*c*)

SSt Amount of social security tax used to finance pension benefits (26,3% in 2015)

SS_{tp} Percentage transferred to Individual investment accounts (2% in 2015)

Multiplier c is applied for every year of participation in *IInd pillar*, so the longer participation period the lower pension is paid by Fund. Those individuals who decided to participate in *IInd pillar* implicitly assumed that reduced public pension plus amount of pension annuity will exceed pension paid solely by Fund (e.g. without participation in *IInd pillar*); however, the risk of such decision (directly related to investment risk) falls on the participant and in many cases may be groundless.

3.2.2. Second wave of reform

During 2012–2013 slightly different design of *IInd pillar* was introduced. New rules came into force on 1 January 2014. First of all, those participants who were unhappy with participation in funded system got provisional possibility to return to *Ist pillar*, that is amount already accrued in private account was left for further investment, but no further transfers to IIA were made. Decision to stop participation in *IInd pillar* had to be made until the end of 2013.

Those joining the system on or after 1 January 2013 had to adapt to new rules of participation: as earlier some percentage (2% during 2014-2015) of social security tax is transferred to Individual investment account, and additionally, each participant has to transfer some percentage (1% in 2014-2015) of his / her salary to his / her IIA and, finally, bonus payment equal to some percentage (1% in 2014-2015) of average salary in Lithuania is made by government (to IIA of participant). New system was named '2+1+1' due to the percentages ruling at the beginning. It is assumed that the system will become '2+2+2' during the period of 2016 – 2019 and '3,5+2+2' starting from 2020 (see Appendix 1).

Since bonus paid by government is dependent not on salary of individual but on average salary in Lithuania, transfers from government are

regressive, that is bonus is lower in relative terms for those with higher salaries. Those who joined *IInd pillar* until 1 January 2013 had to choose one of 3 possibilities:

- 1) To stay in *IInd pillar* under rules used at the beginning (during 2003), that is, some percent of their social security tax will be transferred to IIA without additional payments made by individual and government (default option).
- 2) To return to *Ist pillar* (see text above).
- 3) To employ new system - '2+1+1'.

Individuals had to make their decisions until the end of 2013. It is worth noting that decrease in pension paid from *Ist pillar* depends only on the duration of participation in *IInd pillar* and the difference of amount of percentage of social security tax transferred to IIA and social security tax itself. Public pension is not decreased any more if rule '2+1+1' is applied. So, definitely, rule '2+1+1' is better than earlier system: if other parameters are the same, total pension will be higher if new design is used.

3.2.3. Participation in *IInd pillar*

Participation ratio was quite high even during initial phase of reform. At the very beginning of reform in 2004, decision to participate in *IInd pillar* was made by 442 thousand individuals (about 37% of those covered under public system). Participation ratio increased constantly and amounted to almost 97% in 2013 (see Table 3). Such high percentage is even more impressive keeping in mind that default option was not to participate in *IInd pillar*.

Table 3. Participation in *IInd pension pillar*

Period	Number of participants, in thousands	Participation ratio %
Initial period (until 2004 01 01)	442	36,6
2003 – 2005	681	54,8
2003 – 2009	998	74,5
2003 – 2013	1.099	96,8

Source: Ministry of Social Security and Labour. *Excel* sheets downloaded from <http://www.pensijusistema.lt/index.php?881949814> on 2015 06 20 (in Lithuanian).

Most probably high participation ratio was influenced by several major assumptions/perceptions:

- 1) That participation in *IInd pillar* may help overcome demographic problems of ageing society.
- 2) That participation in *IInd pillar* *does not cost anything*, but may increase future pension.
- 3) That solely investing in personal accounts will increase future pension.
- 4) That amount accrued in IIA is inherited in case of death of individual while contributions made to Social Insurance Fund are not.

All points were highly supported by media. Even Ministry of Social Security and Labour admitted in official website dedicated to pension reform⁷ that: *Lithuanian society, just like in other European states, is getting older. (...) State constantly faces a problem of welfare of the elderly people, because the*

⁷ <http://www.pensijusistema.lt/index.php?-586352733>.

“pie” of the contributions paid by the present taxpayers has to be divided among the increasing number of elderly people. This problem should be solved by introducing a pension accumulation system, when the person himself/herself would accumulate money for his/her own pension. Surely neither of mentioned advantages were absolutely true. Let's look at each of assumptions in greater detail.

Participation in *IInd pillar* may help overcome demographic problems of ageing society. It is now widely accepted that funding is not an automatic solution of problems of ageing population (see Barr, N. 2002; Brown, R.L. 2013). As indirect recognition of this is the fact that official retirement age is increased also for those who participate in funded system. Moreover if the reason for population ageing is not only reduction in younger population cohorts (say, due to decreased birth rate) but also the increase in life expectancy (longevity), then it is naive to assume that insurance companies will not account for this risk when selling pension annuities. There is very limited annuities market in Lithuania, so it is impossible to do deep research; however, examples from developed markets may be used. Brown, R.L. (2014) states that huge proportion of the population is not able to buy life annuities at a fair market price due to a long-held axiom that if a person voluntarily wishes to buy a life annuity, he/she must be in very good health. Surely, this more applies to voluntary market while participants in *IInd pillar* in Lithuania are required to purchase pension annuity (mandatory market), but still the risk of 'overpriced' annuities exists.

Participation in *IInd pillar* does not cost anything. As soon as contributions to IIA are made, investment management (administrative) fees apply. Maximum amount of such fees is determined by law and currently are: 1% of each premium (this fee is reduced regularly until it will reach 0% in 2017) and 0.65% - 1.00% (per annum) of value of assets. Moreover, remember that public pension is reduced due to participation in *IInd pillar*. Retired individuals

are obliged to buy pension annuity, so administrative fees will again be applied to lump sum insurance premium (actually sum accrued in IIA). All variables – administrative fees and public pension reduction – affect amount of pension, so should be taken into account. In fact, most important is not the cost itself but the difference between two alternatives – pension accrued under single pillar (public pension) or pension from multi-pillar system (public pension plus pension annuity). This brings us to the next implicit assumption that investing as such may increase pension in the future.

Investing in personal accounts will increase future pension. Higher income in retirement if individual participates in *IInd pillar* is determined not solely by investment and funding but depends on investment results and – even – year of retirement. To be fully successful and gain maximum benefits from system of Individual investment accounts one must choose optimal investment strategy. Good knowledge of investment possibilities, anticipation and estimation of associated risks is an absolute must. Though Ministry of Social Security and Labour warned about the risks that all participants in *IInd pillar* will inevitably face⁸ and investment funds are legally obliged (Law on Accumulation of Pensions) to inform that “investment results are not guaranteed”, most probably investment risks were not accepted as serious and not appropriately accounted for. There are still very little investment traditions in Lithuania and education of majority of individuals in the area of finance and investment is inappropriate. Even in countries with significantly more developed financial markets lack of basic understanding of investment options and differences between them is present. Orszag, P.R. and J.E. Stiglitz (1999) cited A. Levitt, Chairman of the Securities and Exchange Commission in USA that: “... *more than half of all Americans do not know the difference between a stock and a bond*”. Brown, R. (2013) also admitted that it is false to assume that workers without specific training or education are

⁸ <http://www.pensijusistema.lt/index.php?1605788083#a> (in Lithuanian).

capable to optimally invest and manage their assets. There is no reason to believe that Lithuania is an exception, so majority of participants in *IInd pillar* rely more on chance than on rational investment strategy.

Amount accrued in IIA is inherited in case of death of individual while contributions made to Social Insurance Fund are not. This statement is only partially correct. Yes, the sum accrued in IIA goes to heirs of deceased owner of account. But widow's (-er's) / orphan pension is paid by Fund, so some financial support in case of death of wage earner is provided by public social security system also. Moreover, either pension system – whether funded or not – should not be viewed as a source of unexpected enrichment, but rather as means of provision of financial support during retirement. If money accrued in pension account is paid to heirs it is impossible to employ positive effect from mutuality, or so-called, mortality drag (Pitacco, E. *et al.*, 2009). One more possible merit of inheritance – financial support due to loss of the breadwinner – is also only partially grounded. Amount accrued in IIA depends on many variables, such as duration since the start of engagement, salary of individual, investment return. There is no guarantee that the sum in Individual account will be sufficient to at least partially replace lost income from wage of deceased, so ordinary life insurance policy would be much better solution.

Summarizing, neither of arguments used for marketing of *IInd pillar* system is absolutely true and there are no evidence that investments in Individual accounts as such yields better financial support in retirement. Our perception that high participation ratio was more influenced by emotions and not rational arguments may be at least partially supported by quite low number of individuals who have voluntarily chosen to participate in the scheme '2+1+1'. Remember that, during the period of 2003 – 2013, number of participants in *IInd pillar* amounted to 1,099 thousand, giving participation ratio of 96.8% (see Table 3). According to data provided on website of Social

Insurance Fund⁹ about 56 thousand of individuals joined *IInd pillar* in 2013, so new system – ‘2+1+1’ – was mandatory for them. Additionally, 352 thousand of participants have voluntarily chosen formula ‘2+1+1’ and this is slightly more than 30% of all participants in *IInd pillar*.

As it was mentioned earlier, new system necessarily yields better results and higher pension, but it explicitly ‘costs’ 1% (2%) of individuals salary. Clearly, if individual is satisfied with expected investment results without paying his / her share, then it is understandable that he / she may decide not to forego 1% (2%) of salary today in exchange of higher pension in the future. However, recent study performed by Central Bank of Lithuania (Skarnulis, A., 2013) shows that if individuals refuse to invest 1% (2%) of their salary and rely only on contributions to IIA from social security tax, then benefits of participation in *IInd pillar* are questionable. The only possible exception are those employees whose salary is greater than country’s average at least more than 3 times.

On the other hand, new system may be favourable even for employees with low salaries, e.g. salaries equal to 50% of average salary provided that participant is sufficiently young when joining the system. So, for majority of participants their decision not to employ new system is unfavourable and, therefore, irrational. Keeping in mind, that default option was not to change anything, either individuals exhibited inert behaviour – phenomena widely found among individuals when facing complex decisions (see Barr, N. & P. Diamond, (2008); Tapia, W. & J. Yermo, (2007)) or simply they (participants) did not understand possible risks and benefits of Individual accounts system well. Anyway sub-optimal decisions made by majority of participants will hardly lead to acceptable results in the future.

⁹ <http://www.sodra.lt/lt/situacijos/statistika/pensiju-kaupimo-sutartys>.

4. Long term sustainability of Lithuanian pensions system

Every pension system has multiple objectives (Barr R. and P. Diamond) and two main stakeholders – individual and government – have slightly different interests. Individuals are mainly concerned about adequate financial support in retirement, e.g. consumption smoothing, savings and investment, insurance against early exhaustion of funds, alternative sources of financing. Governments seek to provide financial support for those in need and effectively address poverty, so at least some degree of redistribution is required. Design of *Ist pillar* pension system in Lithuania is suitable to provide for basic needs of retiree, surely, under assumption that retiree has contribution record of at least 15 years. However, despite the fact that replacement ratio may be quite high for individuals whose pre-retirement income was lower than average, additional financial support is usually needed. Amount of basic pension is related to minimum standard of living, so, taking into account, for example, that health usually deteriorates quite significantly in older ages, public pension may not be adequate to support even minimum standards. Therefore, government additionally provides significant discounts for medicines for older persons and some other financial support, e.g. compensation for heating during winter period or so. On the other hand, adequate consumption smoothing is not achieved if only *Ist pillar* is taken into account, so individuals need to use alternative sources of retirement financing. *IInd pillar* may be beneficial, however, usually still not adequate, so additional investments during period of active career, e.g. *IIIrd pillar*, may help.

Whatever pension system should be financially sustainable in the long term horizon; some deficit is acceptable in the short term, but not in the long term. Usually government is responsible for assurance of sustainability of pension system. Sustainability of Lithuanian pension system is addressed using quite naive methods. Social security tax – main source of funding – is fixed by laws, so cannot be increased at the demand. On the contrary,

amounts of contributory basic pension and insurable income are set by government on regular (usually annual) basis. Amount of contributory basic pension cannot be less than 110% of minimum standard of living (MSL); but then MSL is defined by government. Amount of insurable income is defined taking into account income and expenditures incurred by Social Insurance Fund, so exact calculations rules are unclear. On one hand, government may regulate amount of benefits, so achieving financial sustainability. On the other hand, since public pension is the most important financial source for majority of retirees, both variables become very socially sensible and significant decrease of pensions even during recession is unpopular and, therefore, undesirable. Employment of some kind of automatic balancing mechanisms (ABM) when amount of pension benefits is adjusted to, say, some factual index, would be highly reasonable.

One more variable directly related to stability of pension system is *retirement age*. Currently (2015) retirement age is 63 years and 2 months for males and 61 year and 4 months for females. According to rules set by Lithuanian government, retirement age is increased gradually and is supposed to reach 65 for both sexes in 2026 (see Appendix 3). Constant (not sudden) changes in retirement age are, by no means, beneficial for future retirees since it is easier to adapt to new rules. Though not all individuals are satisfied with prolonged working career, most probably the impact of mentioned changes is much less painful to all age groups than, say direct increase in contributions or decrease in pension benefits. Later retirement age means that active workers pay contributions to Fund longer while retired persons receive benefit during shorter period, thus effect of change is experienced by almost all age groups. Moreover, retirement age is, probably, the only variable which pattern of change is known and defined by clear rules, however, retirement age is still not directly related to projected longevity.

All mentioned measures may help to ensure sustainability during short term period, but more complex approach is needed to address the issue of long term financial sustainability. Recent pension reform was supposed to help to achieve sustainability in the long term horizon. Surely, during short term period Social Insurance Fund will experience additional financial strain since some share of social security tax is used to finance *IInd pension pillar*. Transfers to Individual investment accounts should be considered as an investment which should lead to better financial situation of Fund in the future if other variables, e.g. pension benefits, amount of social security tax etc., remain equal. Detailed analysis of the impact of *IInd pillar* reform to sustainability of public pension system is outside the scope of this paper. Since pension systems have multiple objectives, there are significant number of variables that should be taken into account, for example among others, *replacement ratio; poverty issue; insensitivity of pension benefits to changes in inflation* and other economic and demographic variables; *ability of active workers to save for retirement* and so on. Ideal comprehensive analysis must consider all these and many more variables. Quite detailed analysis of impact of *IInd pillar* reform to public finances was carried out by Central Bank (Skarnulis, A., 2013). Report on results of this analysis states that, taking into account replacement ratio and possible performance of Fund, symbiosis of public system and *IInd pillar* will yield better results by 2036 than solely public system.

Currently new debates of how to shape social security in Lithuania are going on. Shortcomings of social security system were analysed jointly with peculiarities of legislation system as well as other social problems, such as poverty and unemployment. Detailed analysis was performed by professionals representing different fields of activity and proposals how to

change legislation and social security system were formulated. Among other suggestions main points related to social security are¹⁰:

- To finance payments of contributory basic pension from state budget, not Fund.
- To use system of points when calculating amount of supplementary pension and to replace insurable income by official average salary.
- To take into account number of active workers and their salary when indexing amount of pension benefit and to set clear indexation rules, e.g. to use some factual index.
- To relate pension benefits to projected remaining lifetime.
- To significantly reduce exemptions when social security tax is not paid in full.
- To set equalization reserve at Social Insurance Fund.

If proposed changes will be implemented pension benefits will be more related to former salary and contributions paid; possibilities to manipulate amount of pension benefits will be reduced and assumptions for increasing sustainability of overall pension system will be set. These and other changes are currently discussed by politicians and general public. So Lithuanian social security system is still in transition.

¹⁰ <http://www.socmodelis.lt/> (in Lithuanian).

5. Summary and conclusions

Lithuania, as many emerging European countries underwent pension reform during the period of 2003 – 2004. Pension reform was supposed to lead to higher pensions and more financial soundness in public pension system. Reform was very popular among citizens of Lithuania and extremely high participation ratio was achieved. However, projections of future pension benefits, if individual participates in reform are not so optimistic. Only those who decided to invest some amount of their salary may expect to get higher pension, otherwise only those with high salaries may benefit from reform. On the other hand, calculations performed by Central Bank show that reform is beneficial to public financial system. Currently many changes in legislation of social security system are proposed and discussed, so one more wave of reforms is coming.

Main conclusions:

- Lithuania experiences negative consequences of ageing population. Main reason for ageing is emigration of active workforce and –to some extent– increase in lifetime of individuals.
- Though design of retirement pensions is supposed to be defined benefits arrangement, public pension system is regressive, e.g. those with higher salaries are eligible for lower replacement ratio.
- Long term sustainability is now achieved using quite naive methods, e.g. adjusting pension benefits to projected contributions. Only changes in retirement age are defined in advance. No automatic balancing mechanisms are employed.

- Pension reform was started in 2003, main aim of reform being to lessen financial burden which Social Insurance Fund is supposed to experience in the future due to effect of ageing society. Though reform may be beneficial for public finances in the long term horizon, Social Insurance Fund experienced additional difficulties at the initial stage of reform.
- Participation ratio (*1st pillar*) was very high but probably due to erroneous assumptions that participation in reform costs nothing but may lead to better pension. Participation ratio of those who decided to invest additional share of their salary was significantly lower. Decision not to invest percentage of salary is, most probably, sub-optimal and may lead to even lower pensions that would be provided by Social Insurance Fund alone.
- One more wave of reforms is anticipated in the future and broadly discussed now. If proposed changes will be implemented pension system, will become more transparent and less dependable on decisions made by politicians.

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Appendix 1. Contributions to Individual investment accounts (source – Ministry of Social Security and Labour)

Year	Total contribution to Social Insurance Fund¹¹	Share of salary paid from social security tax	Share of salary paid by individual	Bonus paid by Government¹²
Until 2004	34%	-	-	-
2004	31,5%	2,5%	-	-
2005	30,%	3,5%	-	-
2006	29,5%	4,5%	-	-
2007 – 2008	28,5%	5,5%	-	-
1 January 2009 – 30 June 2009	37%	3%	-	-
1 July 2009 – 31 December 2009	38%	2%	-	-
2010 – 2011	38%	2%	-	-
2012	38,50%	1,5%	-	-
2013	37,50%	2,5%	-	-
2014 – 2015	38%	2%	1%	1%
2016 – 2019	38%	2%	2%	2%
2020 and later	36,50%	3,50%	2%	2%

¹¹ Total contribution, including shares of employer and employee as well as administrative costs.

¹² Calculated from average salary in Lithuania.

Appendix 2. Illustrative calculations of replacement ratio

Assumptions used:

- Length of contribution record (S): 30 years.
- Average salary did not change during the entire career of individual and was equal to 431 EUR, e.g. quantity in force in 2015.
- Insurable income (D) is equal to average salary.
- Salary of individual did not change during entire working period.
- Amount of contributory basic pension is 105 EUR, e.g. quantity in force in 2015.

Salary of individual	D	K	Contributory Basic pension	SP	Total pension	B
215.50	431	0.50	105	32	137	64%
431	431	1.00	105	65	170	39%
862	431	2.00	105	129	234	27%
1,293	431	3.00	105	194	299	23%
2,155	431	5.00	105	323	428	20%

K: Coefficient based on ratio of annual salary of individual to annual insurable income

D: Insurable income

SP: Supplementary pension $\rightarrow 0.005 \times S \times K \times D$

B: Replacement Ratio

Appendix 3. Projected retirement age (source: Ministry of Social Security and Labour)

Males

Retirement year	Retirement age	Year of birth
2012	62 years and 8 months	1 July 1949 – 30 April 1950
2013	62 years and 10 months	1 May 1950 – 28 February 1951
2014	63 years full	1 March 1951 – 31 December 1951
2015	63 years and 2 months	1 January 1952 – 31 October 1952
2016	63 years and 4 months	1 November 1952 - 1 August 1953
2017	63 years and 6 months	1 September 1953 – 30 June 1954
2018	63 years and 8 months	1 July 1954 – 30 April 1955
2019	63 years and 10 months	1 May 1955 – 28 February 1956
2020	64 years full	1 March 1956 – 31 December 1956
2021	64 years and 2 months	1 January 1957 - 31 October 1957
2022	64 years and 4 months	1 November 1957 – 31 August 1958
2023	64 years and 6 months	1 September 1958 – 30 June 1959
2024	64 years and 8 months	1 July 1959 – 30 April 1960
2025	64 years and 10 months	1 May 1960 – 28 February 1961
2026	65 years full	1 March 1961 or later

Females

Retirement year	Retirement age	Year of birth
2012	60 years and 4 months	1 January 1952 – 31 October 1952
2013	60 years and 8 months	1 September 1952 – 30 April 1953
2014	61 years full	1 May 1953 – 31 December 1953
2015	61 years and 4 months	1 January 1954 - 31 August 1954
2016	61 years and 8 months	1 September 1954 – 30 April 1955
2017	62 years full	1 May 1955 – 31 December 1955
2018	62 years and 4 months	1 January 1956 – 31 August 1956
2019	62 years and 8 months	1 September 1956 – 30 April 1957
2020	63 years full	1 May 1957 – 31 December 1957
2021	63 years and 4 months	1 January 1958 – 31 August 1958
2022	63 years and 8 months	1 September 1958 – 30 April 1959
2023	64 years full	1 May 1959 – 31 December 1959
2024	64 years and 4 months	1 January 1960 – 31 August 1960
2025	64 years and 8 months	1 September 1960 – 30 April 1961
2026	65 years full	1 May 1961 or later

Appendix 4. Social Security in Lithuania. Some statistics (2015 or latest available data; source: Ministry of Social Security and Labour; Social Insurance Fund)

A) Implemented / administered by:

- Ministry of Social Security and Labour.
- Social Insurance Fund.
- National Health Insurance Fund (administers mandatory public health insurance only).

B) Financing / Contributions

1. Pay-As-You-Go basis.
2. Major source – social security tax; mandatory health insurance tax.
3. Rate of employers contributions - 31% of employees salary:

23.3%	Used to finance pension benefits.
3.4%	Disablement and / or maternity (paternity) allowances.
1.1%	Allowances for (temporarily) unemployed.
0.2%1.8%	Professional injuries and diseases (depend on riskiness of activity).
3%	Mandatory public health insurance (benefits administered by National Health Insurance Fund).
4. Rate of employees' contributions – 9%:

3%	Used to finance pension benefits.
6%	Health care benefits.
5. Special rates for self-employed persons may be applied.
6. Government pay contributions on behalf of priests, military servants, persons who are on maternity (paternity) leave, persons taking care of disabled person, etc.

C) Expenses / Benefits (National Health Insurance Fund, additional conditions must be fulfilled)

1. Health care services provided in public primary, secondary and tertiary levels of health care providers and private providers in some cases. Full or partial reimbursement.
2. Full / partial compensation for medication and medical aid equipment in cases defined by law, e.g. for seniors, for those seriously ill etc.
3. Medical rehabilitation if required due to specific diseases.
4. Nursing care and other benefits.

D) Expenses / Benefits (Social Insurance Fund)

1. Old age (retirement) pensions:
 - 1.1. Contributory basic pension. Minimum contribution record: 15 years, maximum: 30 years. Currently 105 EUR / month. No less than 110% of minimum standard of living.
 - 1.2. Supplementary pension. Depend on salary of individual during 25 best years and insurable income during the month when pension is paid. Ceiling is applied.
 - 1.3. Bonus pension. Paid for those with contribution record longer than 30. 3% of contributory basic pension for every year exceeding 30.
 - 1.4. Average retirement pension: 240 EUR / month.
2. Early retirement pension. No more than 5 years should be left till normal retirement age. 30 years of contribution record required. Average pension: 175 EUR / month.
3. Pension due to permanent (temporary) disability. Depend on level of disability, length of contribution record and salary before disability. Average pension: 167 EUR / month.

4. Widow's / Widower's pension. Paid for widow / widower who attained retirement age or, in some cases, are permanently disabled. 21 EUR / month for all.
5. Orphan's pension. Paid for orphans till they attain 18 years or 24 in case of studying in educational institutions. Average pension: 32 EUR / month.
6. Other kind of pensions, e.g. for famous scientists, distinguished persons, etc.
7. Temporary disability allowance. 80% - 100% of average salary of individual for first 2 days of disability (paid by employer); 80% of average salary of individual starting from 3 day of disablement (paid by SODRA).
8. Allowance for persons taking care of temporarily disabled family member (including sick children). 85% of salary; minimum daily allowance: 5 EUR, maximum: 56 EUR.
9. Maternity (paternity) allowance. May be paid from 30 week of pregnancy till second birthday of children. Amount depend on various circumstances, for example, length of payment, e.g. 1 year or 2 years, etc. May range from 40% to 100% of former salary.
10. Funeral grant: 304 Eur.
11. Other allowances, e.g. for professional rehabilitation; due to accident at workplace, etc.

Appendix 5. Performance of Social Insurance Fund (all data in million EUR; source: Social Insurance Fund)

Year	Income	Expenditures	Result
2003	1,415	1,362	53
2004	1,611	1,543	69
2005	1,851	1,775	76
2006	2,259	2,098	161
2007	2,826	2,689	138
2008	3,249	3,665	-416
2009	3,289	4,123	-834
2010	3,037	3,842	-805
2011	3,218	3,796	-579
2012	3,363	3,902	-538
2013	2,895	3,253	-358
2014*	3,059	3,372	-312

* Preliminary data