THE PUBLIC DEBT AND THE PROBLEM OF POPULATION AGEING IN LITHUANIA

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Introduction

Pensions are one of the major disturbing issues in the ageing societies of industrial countries. Already ten years ago, the birth-rate indicators started declining steeply in these countries, the population pyramids tended to turn towards middle-aged people, now living the most productive period of their life and relatively free from the burden of growing their children. However, what is favourable today may become a problem tomorrow. The so-called baby-boomer generation is nearing the retirement age and the consequences of the generous burden of social obligations will fall on the future working generation (or the system will become less generous, this also causing numerous problems).

The problem is becoming still more urgent also due to the fact that in many cases we speak about the social obligations of the State, which already constitute the considerable portion of GDP in the European countries and threaten directly one of the key principles of the successful functioning of the Economic and Monetary Union: the requirement of the Stability and Growth Pact to maintain the public sector deficit and debt at the acceptable level. Some countries at least have already solved this part of the problem – shifted their pension burden to the private sector – the employers and the employees (known as the second and third pillars). The state left for itself only maintaining the minimum social security level, which ensures only a minimum standard of living.

In the context of the ageing Europe, Lithuania is not an exception either. If in the last decade demographers could still be delighted with a relatively favourable demographic situation and authorities did not care too much about changing the economic motivation system for the people to provide for the old age by themselves, today the situation has changed. Within the past years, the population of Lithuania decreased and the same tendencies are forecasted for the future. Moreover, the economic development and the improvement of social living will prompt the rising of life expectancy. As a result, the share of old people to people of working age is projected to increase sharply over the next decades.

This study is aimed at attempting to evaluate the risk of sustainability of fiscal policy in the long and medium term in tackling the issues of options relevant to the pension system reformation. The action plan for the pension system reform in Lithuania was approved in 2002. As of 2004, this system will allow people to switch a part of their pension contribution into private pension funds. Upon the rejection of obligatory participation in the new system, the reform was less radical than it was

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previously planned and by itself it does not ensure the sustainability of public finances (only a small part is allowed to be switched to private funds and this system is not mandatory) over the longer term as the population continues to age.

During transition from public to private pension schemes, at the beginning of the period of reforms that may continue for quite a long time, the state will inevitably face the need of additional financing. On the other hand, the current analysis of the Lithuanian State Social Insurance Fund (SSIF) shows that the coverage of the social insurance will be expanded and less painful variants are also possible.

In the first part of the study, the development of the public debt is discussed. The second part provides a brief overview of demographic problems in line with demographic forecasts of the Department of Statistics. The third part deals with the pension system in Lithuania and the consequences of the pension reform started. This part also provides an evaluation of the possible burden of fiscal policy with a view to the restructuring of the pension system and the deterioration of the demographic situation. At the end, a list of problems to be solved and possible proposals on the opportunities for reformation of the pension systems are provided.

1. The development of the public debt

Prior to studying the fiscal implications of the state social insurance system reformation, it would be useful to evaluate the trends of the public debt. The sustainability of public debt can be a key goal determining the medium-term fiscal policy strategy. At present, Lithuanian debt indicators comply with the Maastricht requirements (below 60 per cent of overall GDP) and demonstrate the sustainable level by international standards. The total public debt of Lithuania in absolute expression rose almost each year in the period under survey. From 1998 to end-2002, it increased approximately by 37 per cent. The year 2003 is exceptional in this sense. Following the decrease in government-guaranteed loans and due to the national currency appreciation against the USD dollar, the total public debt decreased by 0.2 per cent from 2002 to 2003.

The *public debt per capita indicator* also reflected similar trends. The growth rate of this indicator was faster than that of the gross public debt within the period under study; from 1998 to end-2003, public liabilities per capita increased by more than 40 per cent. The more accelerated growth of the public debt per capita may be explained by demographic factors (the decreasing number of the population).

The *public debt-to-GDP ratio* is one of the most popular indicators for measuring the amount of the public liabilities. This indicator reflects the Government's capability to pay the debt and the interest accrued. Contrary to the absolute size of the public debt or the indicator of the public liabilities per capita, the public debt-to-GDP ratio did not increase each year – it peaked during the economic decline in 1999 and in the recent years it has been declining constantly due to the accelerating economic growth and some tightening of the fiscal policy stance. It

Table 1

Lithuania: Dynamics of the General Government Debt
(non-consolidated; end of period)

	1998	1999	2000	2001	2002	2003
General government debt *(LTL million)*	9,614	12,069	12,725	12,904	13,162	13,137
General government debt per capita *(LTL)*	2,719	3,437	3,649	3,713	3,801	3,816
Interest payment *(percent of GDP)*	1.1	1.5	1.8	1.8	1.6	1.3
General government debt *(percent of GDP)*	22.4	28.3	28.2	27.0	25.5	23.9
Domestic debt *(percent of GDP)*	n/a	5.5	6.3	6.4	7.7	7.8
Foreign debt *(percent of GDP)*	n/a	22.8	21.9	20.6	17.8	16.2

The *Debt service indicator*, a ratio of interest payments and GDP, reflects the borrowing terms of the country and the level of solvency. Over the period under review, the public debt service indicator of Lithuania did not exceed 2 per cent of GDP. The lowest debt expenditure was recorded in 1998 (1.1 per cent of GDP), and the largest in 2000 (1.8 per cent). Currently, this indicator is gradually decreasing both due to the positive economic development and the reduced interest payments.

Source: Ministry of Finance.

should be noted that public debt-to-GDP ratio is not the only indicator reflecting that Lithuania suffered most serious financial difficulties in 1999. Both the overall public debt and its size jumped up most significantly. In addition, the public debt service indicator also obviously went up in said year and reached its highest level in 2000, reflecting the worsening government borrowing terms due to the poor financial situation.[1]

One of the factors that could cause a threat to the public finance is contingent government liabilities, comprised of domestic and foreign loans granted with the government guarantee to various economic entities and institutions. As of end-2003, the portfolio of loans with the government guarantee was reduced to 43 per cent, compared to 1999. As of 2003, the government fully suspended the granting of new

[1] This happened due to the impact of government loans of 1999, interest on which was paid starting with 2000.

Table 2

Lithuania: Contingent Debt
(end of period, percent of GDP)

	1999	2000	2001	2002	2003
Contingent government liabilities	5.9	4.9	4.6	3.5	2.6
Government guarantee for the obligations assumed under guarantee agreements*	0.1	0.2	0.4	0.3	0.4
*Government guarantees:***	5.8	4.7	4.2	3.2	2.2
central government	0.6	0.6	0.6	0.4	0.2
local government	0.2	0.2	0.1	0.1	0.0
social security fund	0.4	0.4	0.3	0.1	0.0
other	4.6	3.6	3.1	2.7	2.0

* In order to encourage the development of small and medium-sized businesses and to support the agriculture, the Government had established the Guarantee Institutions and Insurance Companies, which ensure, under the guarantee and insurance agreements, the repayment of loans taken from banks by the economic entities.

** Government guarantee on loans will be extended only for the infrastructure investment project of national significance that has been incorporated in the Public Investment Programme.

Source: Ministry of Finance.

guarantees for economic entities, attempting to create equal business and borrowing conditions for all enterprises and to encourage other, more efficient ways for financing business activity.

Despite the efforts by local authorities to improve the overall financial situation, the underlying problem has not been solved. As of 2003, the municipalities started to borrow abroad without the government guarantee (independently). This can induce the local authorities' demand for extending the borrowing limits. In 2002-03 the financial situation of the State Social Insurance Fund (SSIF) began to improve but, despite this fact, the SSIF still has room for further increase in public debt, especially within the context of the ageing of the population. Contrary to many EU candidate countries, Lithuania has just started the restructuring of its pension system.

In the context of international standards, the measures of Lithuania's public debt are at a sustainable level. IMF studies suggest that the sustainable public debt ratio for typical emerging economies is 25 per cent of GDP. At present, Lithuanian

public debt is slightly below this "safety" margin. On the other hand, an insufficient progress in tightening the fiscal stance and implementing structural reforms is the main risk for the further increase in Lithuania's public debt.

2. The demographic trends

Any social insurance system, whether the pay-as-you-go or fully funded, is subject to certain risk factors: political, economic or social. The objective of this study is to evaluate demographic risk factors in order to answer the question of how the increasing part of the population of pension age will affect the size of expenditure on old-age pensions.

The demographic situation in Lithuania started to get complicated since the beginning of the Nineties. The decline of the fertility rate from over 2 in the late Eighties to under 1.3 currently and the negative migration balance resulted in a reduction of the population of Lithuania from 1993 to 2003 by more than 6 per cent. Besides, the composition of population in term of age has changed significantly too. Low birth rate resulted in a smaller population of children, while the share of people of 60 and over started to grow.

The average life expectancy in Lithuania is still quite low, compared to the average in EU countries. In 1991-95, at the beginning of the economic transformation period, life expectancy for both men and women declined sharply. But as the health systems modernize and the standard of living increases, the average life expectancy for men grew from 62 in 1995 to 66 in 2003, while for women it increased from 75 to 77.

The Department of Statistics presented three scenarios of population projection in Lithuania for the period 2005-30: medium (most probable), optimistic and pessimistic. In this study, the medium scenario of population projection was used. Demographic projections were based on the assumptions regarding the forecasted fertility rate, life expectancy and immigration flows.

As indicated in Table 3, the total fertility rate will increase from 1.24 to 1.65. However, in the opinion of demographers, this does not ensure the change of generations. The demographers of Lithuania also feel concerned about the rapid increase of economically weak families, where children have only one of the parents. A trend in fertility rate, in fact, is very difficult to predict. This indicator cannot have a direct effect on the forecast of elderly persons, but it may have very sizable effects on the projected number of persons of young and working age.

Achievements in medicine and other sciences prolong the expectancy of life. Therefore the world society is ageing inevitably. It is predicted that, 30 years from now, the life expectancy of Lithuanian males will reach 73 years of age, an increase of 7 years compared to 2003, while that of females might even reach 82 years of age, 5 years more than at present.

Table 3

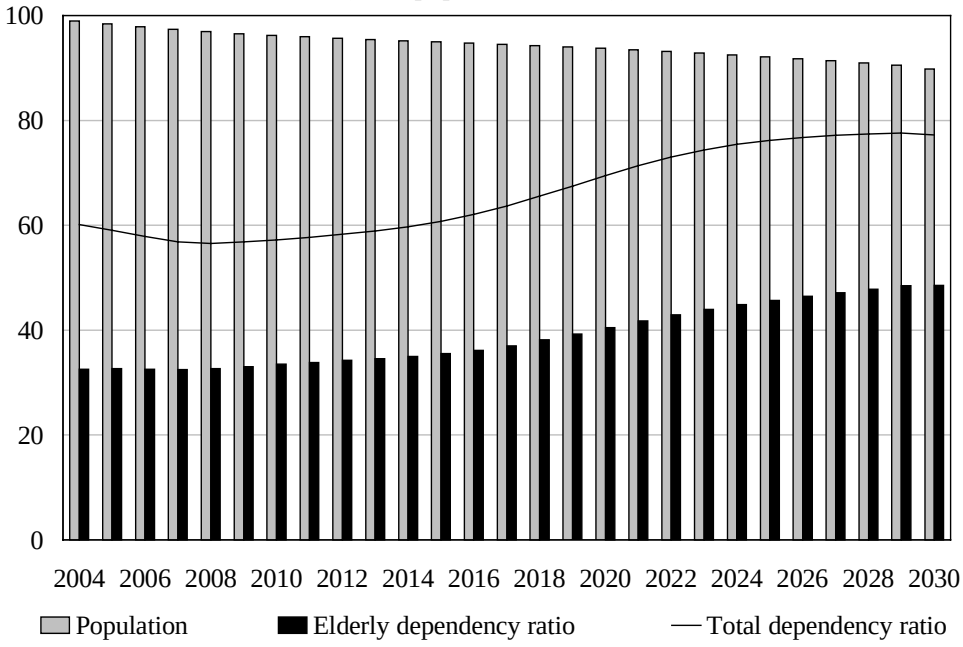
Lithuania: Demographic Projections
(medium scenario)

	1990	2000	2010	2020	2030
Population ratios:					
Population over 60 to working-age population	26	31	31	35	43
Population over 65 to working-age population	18	23	23	26	33
Fertility rate	2.0	1.4	1.5	1.6	1.7
Life expectancy *(years)*					
Males	67	66	69	71	73
Females	76	77	79	81	82

Source: Department of Statistics, author's calculation.

Figure 1

Lithuania: Demographic Trends
(1995 population = 100)



Note: The *elderly dependency ratio* is defined as population aged 60+ as a percent of the population 15-59. The *total dependency ratio* is defined as the population aged 0-14 and 60+ as a percent of the population 15-59.

Source: Department of Statistics, *Population projections 2004-30*.

The negative migration balance had a sizeable effect on the decline of the population. It is forecasted that the future membership in the EU will determine the negative migration balance and, with the opening of the EU labour market, about 100,000-150,000 residents will leave Lithuania. Each year, until 2010, about 15 thousand people will leave the country, later this number is going to decline, while the number of those arriving from abroad will be steady (about 10 thousand).

Given the assumption about fertility, life expectancy and immigration flows, the age structure of population is projected to change. According to the medium scenario, the population in Lithuania in 2030 will be slightly more than 3 million people, 11 per cent less than in 2003. According to the forecasts, the population structure will undergo changes: the population aged 0-14 will decline by 26 per cent, the population of the working age (15-60) will shrink by 17.5 per cent, only the number of people over 60 will increase (see Figure 1).

The elderly dependency ratio – defined as a ratio of population aged 60 and over to the population aged 15 to 59 – was around 30 per cent in 2001; by the year 2030 this ratio is projected to reach almost 50 per cent. Figure 1 shows that the projected dependency ratio starts to increase around the period of 2010-13. This reflects the general tendency – passage of the post-war baby-boomer generation into retirement (IMF, 1996). The total dependency ratio – defined as the population aged 0 to 14 and 60 and over to the population aged 15 to 64 – is projected to rise considerably less than the elderly dependency ratio.

3. The State Social Insurance Fund: the current situation and long-term perspectives

3.1 Pension system

The Lithuanian pension system is administered by the Board of the State Social Insurance Fund (SSIF) and operates on the so-called PAYG (pay-as-you-go) principle, *i.e.* one year expenses of pensions, benefits and compensations are covered by the contributions of the same year. Four principal State social insurance types are enforced: *pension insurance*, *illness*, *maternity* (*paternity*) *insurance*, *unemployment insurance* and *health insurance*. The pension system of Lithuania is functioning on social security contributions paid by the employers and employees, with a special arrangement for farmers[2] and the self-employed. In both cases the size of contributions, generally a certain percentage on wages, is fixed by the State (by the common case, 31+3 per cent).

For the old-age pension a *defined benefit scheme* is applied. The size of benefits is associated with the earnings history and the contribution period. Pensions have two components: 1) *B*, the basic pension (46 per cent of the average pension); 2) the supplementary components (*P*):

[2] 50 per cent of the basic pension rate. Since April 1, 2003, farmers are insured on voluntary basis.

$$P \equiv 0.005 * S * K * D$$

where *S* represents the years of contribution, *D* the average coverage wage and *K* the worker's individual wage coefficient. The basic pension is indexed to inflation, and supplementary components are indexed to the average wages. Given the ceiling on the supplementary components of the pension, the average replacement rate is very low (approximately 36 per cent).

During the last few years the PAYG system started to improve, partly as a result of a favourable demographic situation and partly due to the implementation of a number of measures:

- increase in social insurance rate (in 2000, the general rate of state social insurance contribution increased from 31 to 34 per cent);
- raising the retirement age for both men and women (since the beginning of 2001 the old age pension age increased annually by 6 months both for females and males). Males will reach the established age for receiving old-age pension in 2003 (62.5), females in 2006 (60 years);
- temporary freeze of pension payment to working pensioners;[3]
- revising of maternity and sickness benefits;
- some improvement in revenue collection.[4]

But in the future, this "improvement" can easily disappear due to changes in the demographic situation (the population is ageing and shrinking). As a result, this will decrease the *support ratio (the ratio of contributors to beneficiaries)* and require an increase in the contribution rate or the decrease of the size of pensions. Those actions are difficult to implement. It is calculated that the life expectancy of a person does not suffer, if upon reaching the retirement age he/she receives the income amounting to 70-80 per cent of the size of his/her last wages, whereas the existing SSI system guarantees only less than 40 per cent of the size of his/her last salary. Regarding the social contribution rate, there is no substantial reserve left in the tariff growth, as the burden of payroll tax is high even by international standards.

3.2 Reforming the PAYG

Starting from 2004, people in Lithuania may accumulate a part of the State social insurance contributions in private funds: –2.5 percentage points in 2004 and

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[3] Pension limitation to working pensioners was declared illegal by the Lithuanian Constitutional Court in 2002.

[4] With regard to the budget development of the SSIF in 2003, there was some acceleration in social contributions. A part of this acceleration is explained by the decline in the number of unpaid vacations. Previously, a popular practice was to provide the unpaid leave for the tax avoidance purpose. Now, according to the new Labour Code, the possibility to provide the unpaid leave is restricted (only for a certain purpose).

Table 4

Lithuania: State Social Insurance Fund, 1994-2003
(percent of GDP)

	1998	1999	2000	2001	2002	2003
Revenue	9.5	9.9	9.9	9.3	9.0	8.8
Social contributions	9.3	9.5	9.6	9.1	8.8	8.7
Employers	8.9	9.0	8.6	8.2	8.0	7.8
Employees	0.3	0.3	0.8	0.8	0.8	0.8
Compulsory social contribution by self-employed persons	0.1	0.1	0.1	0.2	0.1	0.1
Voluntary contributions	0.0	0.0	0.0	0.0	0.0	0.0
Other revenue	0.3	0.4	0.3	0.2	0.2	0.1
Expenditure	9.6	10.7	10.2	9.4	8.8	8.4
Old age pensions	5.2	5.7	5.4	5.0	4.7	4.6
Other	4.4	4.9	4.8	4.4	4.1	4.2
Deficit/surplus	0.0	–0.8	–0.4	0.0	0.2	0.3

Source: Department of Statistics, Ministry of Finance.

additionally 1.0 percentage point in each further year, up to 5.5 per cent in 2007. In 2004, the new pension system will cover about 32 per cent of employment. The private pension fund analyses predict that, within the immediate several years, about 75 per cent of employment will participate. In this case, too optimistic forecasts in respect of the SSIF expenses, relevant to the pension reform, seem to be somewhat risky. In the first draft of the SSIF budget for 2004, the funds allocated were six times lower than it would be needed, taking into account the number of participants and the average wages. At end-2003, the pension reform costs were revised, but taking into consideration that the wages of the participants of the second pillar were higher than the average in the country, the need for additional funds may be also higher. Thus, in mid-2004 it is planned to revise the need of additional funds for the pension reform by updating the State budget. In 2004, the central and local

government budget deficit is planned to reach about 3 per cent of the projected GDP, therefore such policy may induce additional strain to the public finance.

The European Commission and the IMF are apprehensive of the pension reform under way in Lithuania being insufficient. With the currently existing favourable economic and demographic situation, the restructuring of the PAYG system could be more radical. According to this, it would be better to make participation in the second pillar mandatory for younger cohorts. In the neighbouring countries (Poland, Estonia) the reform was mandatory in part – for the younger cohorts. The middle-aged working people were able to choose whether to trust only the state social insurance system, or to accumulate a part of the pension privately.

The State Social Insurance Fund (SSIF) budget and labour market analysis of the past period show that already at the present stage, after evaluating the existing demographic tendencies, the SSIF faces financial difficulties. On the other hand, the SSIF still possesses huge "internal" resources for tackling problems related to the increase of expenditure for pensions.

A unique situation has formed in the income taxation system in Lithuania. Income of different type is taxed with a very different burden of taxes. Wages are taxed by income tax (33 per cent) and social insurance tax (34 per cent). Upon adding them up together, the efficient tax rate is more than sixty per cent of earnings. Meanwhile, income according to a business licence (efficient social contribution rate –3 per cent) and authors' agreements (not insured compulsorily at all) is taxed only by 15 per cent tariff, *i.e.* four times less than wages. Therefore, the part of wages in the national accounts almost does not change (the share of compensation of employees in the GDP amounted to 39 per cent, while in developed countries it made up almost the 60 per cent of GDP), whereas the part of other types of income increases. Simultaneously, it means that the taxation base for the social contribution becomes narrower. As a result, the SSIF is facing increasing financial strain.

Table 5 presents selected indicators of the labour market. Only less than 80 per cent of total employment is currently paying 34 per cent of social contribution tax and 39 per cent of them are public sector employees. Therefore, workers in the private sector have little incentive to participate in the social insurance system.

Under the present situation, 20 per cent of employment will not qualify for a future pension even at the relatively low replacement rate. A part of them, self-employed, will acquire basic pension (46 per cent of average pension) coverage only. So, in contrast with the previous Soviet period system, reflecting full employment participation in the social security system, the net social safety target is not maintained completely (IMF, *Country Report, 2003*).

The role of the state in the pension system remains important due to the inability of a person to take care of his/her old age individually. The right to receive a pension is essentially a political right, therefore, there is no doubt that upon reaching the pension age the present-day employees, which do not pay social

Table 5

Lithuania: Labour Market and SSIF Indicators

	1998	1999	2000	2001	2002
Annual population *(thousands)*	3,536	3,512	3,487	3,476	3,463
Labour force *(thousands)*	1,660	1,687	1,671	1,636	1,630
labour force participation rate	47	48	48	47	47
Employment *(thousands)*	1,547	1,538	1,398	1,352	1,406
Covered workers *(thousands)*	1,246	1,201	1,137	1,112	1,127
as a share of total employment	81	78	81	82	80
Self-employed covered workers *(thousands)*	99	120	162	162	179
as a share of total employment	6	8	12	12	13
Average effective contribution rate	32	35	37	37	37
Average effective contribution rate of self-employed workers	3	4	3	4	3
Average monthly wage in the whole economy *(LTL)*	930	987	971	982	1014
Average covered wage *(LTL)*	845	886	886	886	901
as a share of monthly wage	91	90	91	90	90
Average old-age pension *(LTL)*	291	319	314	309	320
Average basic pension *(LTL)*	136	138	138	138	147
Number of pensioners *(thousands)*	1,024	1,043	1,060	1,068	1,068
old-age (thousands)	648	645	645	637	625
Support ratio*	1.2	1.2	1.1	1.0	1.1
Support ratio**	1.9	1.9	1.8	1.7	1.8
Support ratio***	1.2	1.1	1.1	1.1	1.1
Average replacement ratio	34	36	35	35	36

Note: The *average contribution rate* is the contribution rate excluding net budget transfers (as a percent of covered wage bill). *Support ratio** is defined as the ratio of covered workers to pensioners (including disability, survivors and other). *Support ratio*** is defined as the ratio of covered workers to old-age pensioners. *Support ratio**** is defined as the ratio of covered workers (excluding public sector employees) to old-age pensioners. *Average replacement rate* is defined as the average of pension benefit (excluding disability and survivors' benefits) as a percent of covered wage.

Source: Department of Statistics, Ministry of Finance and author's calculation.

insurance contributions, or those paying incomparably lower contributions, will seek to realize their "political" right to receive an adequate pension.

Ensuring sustainability of the pension system, the authorities have to take a step to make the coverage of the pension system as broad as possible.

3.3 Projected state social insurance fund budget balance under the various reform options

This part of the study presents projections for several variants of the SSIF balance on the basis of demographic and macroeconomic forecasts performed by the Department of Statistics.[5] Also, an evaluation is given of the impact of the SSIF budget balance on the dynamics of the State debt. The horizon of forecasting for the period of 2004-30 was selected taking into account demographic forecasts. On the other hand, the selected period probably is not optimal for carrying out the cost/benefit analysis; however, it is limited by the existing forecasts of demographic indicators.

According to the definition of PAYG, two indicators predetermine the SSIF balance: 1) support ratio, 2) average replacement ratio. In the period under forecast, an assumption was made that the average projected replacement ratio and the projected contribution rate will not change. Those indicators will be fixed at the level of 2002. For separate scenarios the sustainable contribution rate will be calculated, showing the contribution rate to be used in order to ensure the balance between the SSIF revenue and expenditure.

The main financing source of the SSIF is social security contributions. For the sake of simplicity, in this study, workers under the special social contribution arrangement were excluded from projection because of insufficient low effective contribution rate (0.4 per cent) and, on the same basis, those acquiring basic pension coverage only.

In forecasting the SSIF budget expenditure, a presumption was applied that expenditure, not related to old-age pensions, will be fixed as a percent of nominal GDP at the level of 2002 (Table 4). The same assumption was made for the other revenue (basically, budgetary transfers); it will be fixed as a percent of nominal GDP at the level of 2002.

When forecasting the changes in labour force, population projection and expert evaluations were taken into account as well as the increase in the retirement age. From January 1, 2001, the retirement age for males and females has been extended by 6 months. In 2003, males have already reached the old-age pension age established by the law: 62 years and 6 months. Females will reach the old-age pension age of 60 years in 2006.

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[5] A broader description of methods underlying the projections of the SSIF revenue and expenditure is given in Annex.

Macroeconomic forecasts are provided in Table 6. Forecasts were performed by applying the LITMOD primary version. However, taking into account that this model is better suited for short and medium term forecasts, consideration was taken of expert evaluation. During the period 2004-30: 1) real GDP will grow, on average, by 5 per cent; 2) the number of employees, considering demographic forecasts, will decrease by about 0.6 per cent.

A question may arise: how will Lithuania maintain the stable and sufficiently high growth of GDP with the decreasing number of employees? As shown by the research of the economic growth of the Baltic States and its factors of change,[6] the economic growth of Lithuania in 1995-2003[7] was primarily predetermined by the increase of the capital stock and/or the total factor productivity (TFP). In the period of 1995-2002, the breakdown of GDP of Lithuania by contribution of production factors into economic growth shows that the GDP of Lithuania increased due to the change in capital stock by 15 per cent and the TFP by 30 per cent, and decreased due to the labour factor by 5 per cent. Upon the evaluation of research results, we shall make an assumption that the future impact of the labour factor on GDP will not be very significant. Meanwhile, the key role will belong to the increase of investment into the fixed capital and the stable growth of factor productivity.

Table 6

Projections of Averages of Macroeconomic Variables, 2004-30
(percent)

Employment growth	GDP growth	Real interest rate	Inflation rate
–0.6	5	3	2

Source: Bank of Lithuania staff estimates.

The main objective of the study is to give an evaluation of fiscal consequences:

1) growing expenditure for old-age pensions,
2) parametric reforms,
3) passing over from PAYG to the private funded pension system.

Therefore, in this study four possible forecast variants will be presented. In the first variant *(I)* the SSIF budget balance and the public debt are presented, with

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6 See, for a more in-depth analysis, Vetlov, I., *Economic Growth Accounting in the Baltics* (2003).

7 With the exception of effects of a crisis in Russia, 1999.

an assumption that the situation in the social insurance system is not changing, *i.e.* only the PAYG system is functioning.

The second *(II)* variant shows the SSIF budget balance after the start of the pension reform. As mentioned, in 2003, Lithuania launched the pension reform, though quite a conservative one. The present Law on Pension Reform foresees the option to transfer voluntarily the appropriate part of the social contributions. Based on an expert evaluation, up to 80 per cent of all working people will participate in the pension reform within several forthcoming years.

The results of the third variant *(III)* show the changing position of the SSIF, in line with the extension of the insured workers with the uniform social insurance contribution rate up to 93 per cent of the employment. In the variant III forecasts we will see that upon expanding the coverage of the pension system (including self-employed persons and those working under authors' agreements) by paying the uniform social insurance contribution rate, the SSIF situation will improve considerably.

Variant IV shows fiscal implications in gradual transition from PAYG to the fully funded (FF) system, simultaneously expanding the coverage of the pension system. This variant presents a gradual transition on the basis of the Law on Pension Reform adopted in 2003, *i.e.* providing an opportunity to additionally transfer 1 percentage point yearly to the private accumulation fund. Thus, in 2030, 9 per cent will remain for the SSIF, whereas the remaining part will be transferred to the private accumulation funds.[8] This variant foresees that up to 90 per cent of all working people will take part in the private FF system.

A simple analytical approach was applied to determine whether the current primary SSIF balance would lead to the increase or decrease in the ratio of public debt to GDP[9] (IMF, 1997).

3.4 Comments on empirical results

Figure 2 shows three variants of the SSIF balance as a percentage of GDP. The variant I presents the balance of the SSIF under the unchanged pension arrangement. The SSIF problems related to the ageing of the population would be faced practically from 2016, when the surplus of the SSIF would turn into a substantial deficit. Taking into account that until that period the SSIF excess was in surplus, the public debt (in Figure 3 denoted respectively as I) remains at a low and acceptable level.

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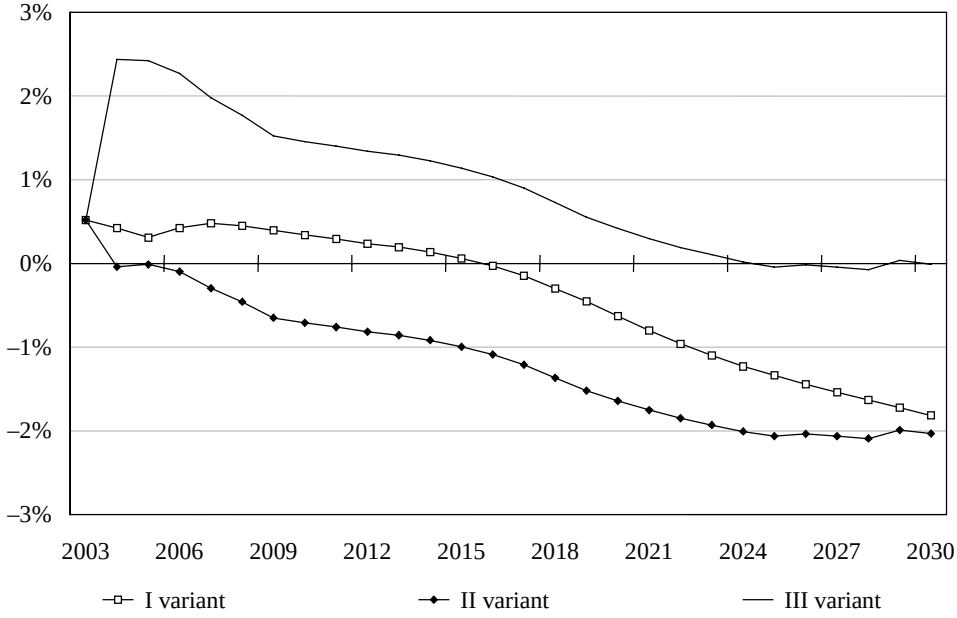
[8] In this projection scenario, the loss of SSIF revenue is likely to be underestimated.

[9] $\Delta d \equiv p_d + (r - g)*d$, where Δd is the rate of change in the debt-to-GDP ratio; p represents the ratio of primary balance to GDP, d is the ratio of debt-to-GDP in the previous period, r is the nominal interest rate and g is the nominal growth of GDP.

Figure 2

Projected Balances of the State Social Insurance Fund, 2003-30
(percent of GDP)



Notes: The balance of the SSIF is defined as a difference between the projected SSIF expenditure and the projected revenues from contributions and other revenues, which are kept constant as a percent of GDP at 2002 level. Data for 2003 are preliminary.

Source: author's estimates.

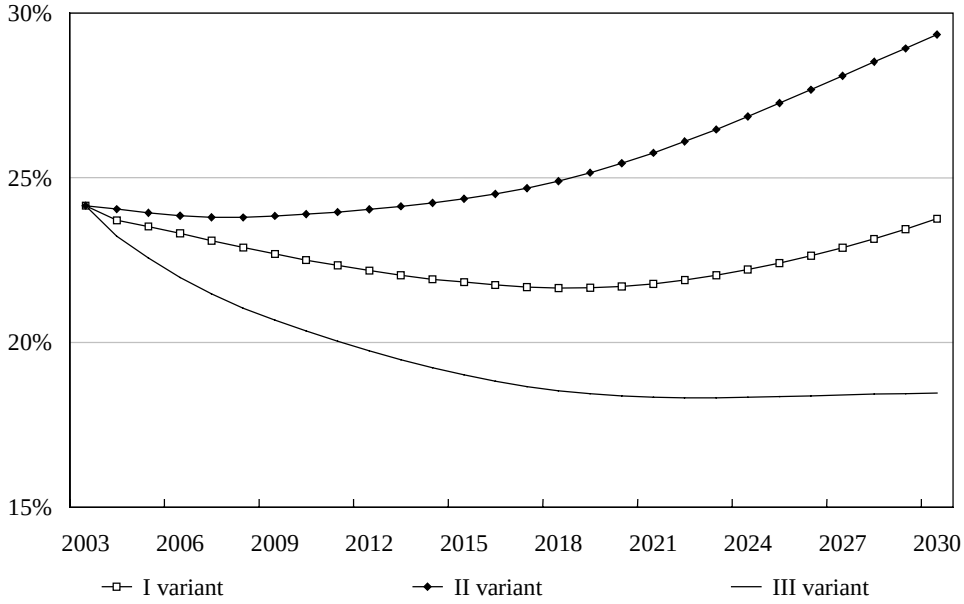
However, in this case it is necessary to take into account that an assumption on expenditures not related to old-age pensions fixed at the level of 2002 becomes not very realistic. In structural terms, those expenditures amount to about a half of the total SSIF expenditure. As experience shows, if SSIF expenses for old-age pensions are decreasing (for example, due to the extension of the pension age), in parallel, expenses for other social needs are increasing. Therefore, in fact, in variant I of forecasts, the situation in the SSIF budget balance may be considerably worse.

The second pillar of the pension system will start functioning in reality in 2004. The effects of this reform on the SSIF budget balance and on the debt are estimated in variant II of forecasts (deficit and debt are denoted as II).

As shown in Figures 2 and 3, even though the started pension reform is conservative enough, the implementation of the funded second pillar system is related to substantial fiscal costs. In 2003, the employees of Lithuania took an active part in the funded second pillar pension system. On the basis of forecasts by private pension fund management, within the immediate several years it is expected to

Figure 3

Implications of Projected State Social Insurance Fund Balance for Public Debt, 2003-30
(percent of GDP)



Notes: Total public debt in Lithuania was calculated according to the conservative approach, *i.e.* including government guarantees, until the beginning of 2004.

Source: author's estimates.

efficient social insurance tax rate of about 3 per cent. In addition, the third group of income exists – income according to authors' agreements (royalties) – which is not taxed at all with the social insurance tax. In forecast variants I and II, with account taken that the efficient social insurance tax rate for the second (discussed above) income group is incomparably lower than the main rate (for wages), we presumed that the group of employees receiving the mentioned income does not participate at all in the social insurance system (therefore, the part of the insured employees in the total number of those employed is less than 80 per cent).

In variant III, the number of the insured employees was extended by including self-employed persons, farmers (having increased the portion of the insured employees to 93 per cent of the total number of those employed) and by fixing the same uniform average social insurance contribution rate. As seen in Figures 2 and 3, such reform of SSIF parameters, though not very radical, improves the SSIF position significantly in the short and long term.

attract more than 70 per cent of all those employed to private pensions funds. Remembering a somewhat aggressive advertising campaign of private pension funds in 2003 and low trust of the population in the SSIF, the above forecasts are realistic.

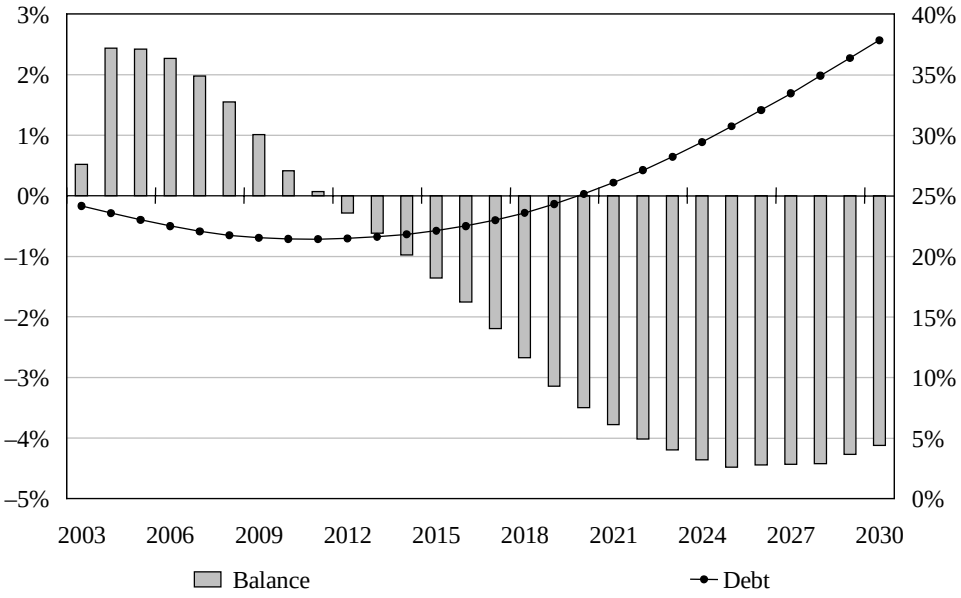
As already mentioned, the present system of income taxation with social insurance taxes is highly disproportionate. The wages are taxed at a rate of 34 per cent of social insurance taxes and the income of the other group is taxed with theIn forecast variant IV, the SSIF budget balance and public debt dynamics are given by further continuing the gradual transition from PAYG to the FF system. In addition, foreseeing the possible growth of costs, the extension of the coverage of the social insurance system became crucial. As seen in Figure 4, at the end of the forecast period, the SSIF deficit is becoming stabilized and may start to decline afterwards with the reduction of the SSIF obligations to the pensioners according to the PAYG system. The debt in 2030 reaches almost 40 per cent of GDP.

Examining the *equilibrium contribution rate* and *support rate* can help assessing the implication of a parametric reform of the PAYG system.

Figure 4

Projected Balances of the State Social Insurance Fund and Public Debt on the Gradual Transition to a Fully Funded System, 2004-30

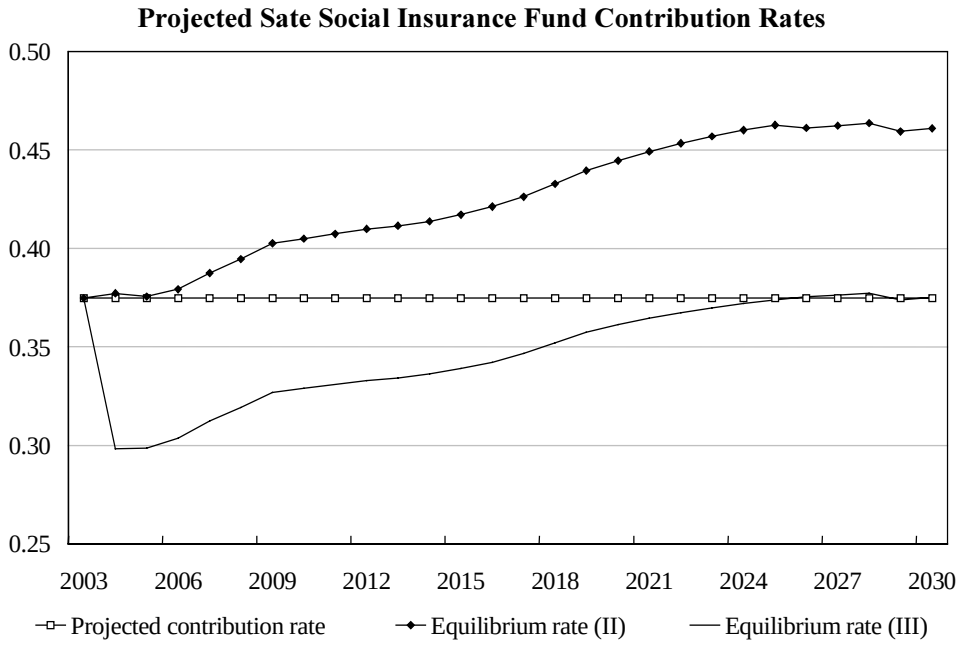
(percent of GDP)



Notes: the right side scale is for public debt, the left side for the SSIF balance.

Source: author's estimates.

Figure 5



Notes: In this study, the equilibrium rate refers to the contribution rate, which could change from year to year, for the SSIF flows to be in balance. *Equilibrium_r_II* is the contribution rate on the II projection scenario (current pension system reform); *Equilibrium_r_III* is the contribution rate on the III projection scenario (current pension system reform together with the extension of the coverage of the pension system). *Projected rate* is the projected contribution rate[10] that is assumed to be constant.

Source: author's estimates.

Figure 5 shows the movements of equilibrium contribution rate or the proportion of covered wage that has to be contributed to cover the SSIF expenditures as determined by replacement rates and the support ratio. The decline in the support ratio (see Figure 6), under the assumption about the constant replacement rate, determines that the equilibrium contribution rate continues rising. The extension of the coverage of the pension insurance system would allow a lower equilibrium rate (*equilibrium_r_III*).

The possibility to lower the statutory contribution rate is being of special importance for the labour market of Lithuania. On the other hand, it is not to be forgotten that pressure on further implementation of the pension reform will persist

[10] This study is isolated from the social insurance policy applied in respect of the self-employed persons and employees in the system of defence, security and similar authorities, which also are taxed at a lower rate (23.4 + 2.5 per cent). Therefore, the calculated average efficient social insurance tax rate applied in the study is higher than statutory.

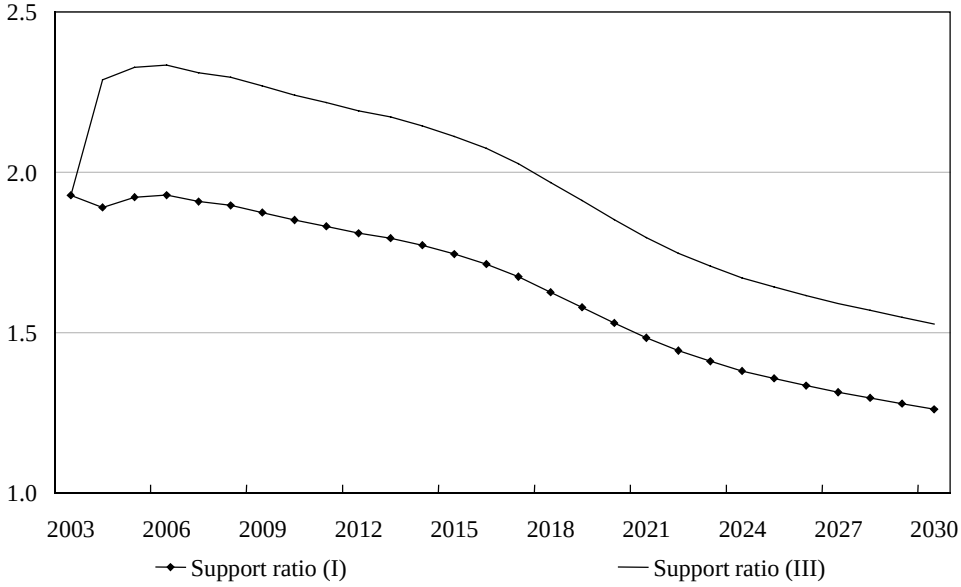
intensively. Pressure will be made on the part of the lobbyists of private pension funds and on the part of the international organizations as well. Therefore, thinking soundly, the reduction of the social insurance rate may be made just for a short period.

As shown in Figure 6, according to demographic projections, the coming decades entail a decline in the number of retirees per workers. The situation could be substantially improved by increasing the coverage of the system as well (*variant III*).

Another option of parametric reforms in the social security system is further increasing the retirement age. Preannounced increase in the retirement age has already been taken into account in all projection scenarios. However, the pension age in Lithuania is still low by international standards. Previously, one of the arguments against rising the pension age was low life expectancy. In accordance with population projection, given the longer life expectancy, a further increase in the retirement age will allow a less distortional equilibrium contribution rate, especially on the IV projection scenario.

Figure 6

Effect of Extending the Coverage of the Pension System on Support Rate



Notes: *Support ratio_I* is defined as a ratio of covered workers to old-age pensioners on the *I projection scenario*, *Support ratio_III* is defined as a ratio of covered workers to old-age pensioners on the *III projection scenario (*current pension system reform together with the extension of the coverage of the pension system).

Source: author's estimates.

4. Conclusions and proposals

Summarizing the results of the study, we may draw the following conclusions. The importance of the potential fiscal challenge related to the ageing society is very much dependent on that country's public debt position. Examination of the Lithuania's public debt dynamics denoted that this issue does not raise a significant concern. But the uncertainty surrounding debt target is increased by challenges facing the pension reform, primarily related to population ageing.

There seems to be no doubt that not only the advanced countries will face negative shift in their demographic structure in the nearest future. In accordance with the demographic forecasts made by the Department of Statistics, in the period 2004-30 the population age structure will change to a considerable extent. The number of older people, especially females, will increase.

According to the projections of the SSIF balance, the following conclusions could be made:

- favourable situation for the SSIF under the PAYG pension scheme is to continue until about 2016,
- introduction of a funded second pillar will bring quite a high loss to the SSIF,
- the government has properly extended the coverage of the pension system as broadly as possible,
- with the currently existing favourable economic and demographic situation, the restructuring of the PAYG system could be more radical.

Increase in expenditure for an old-age pension is a shock of permanent type. The social security system will not be able to return to balance independently. For that purpose, long-term reforms are needed. The new pension system in Lithuania by itself does not ensure the sustainability of public finances over the longer term as the population continues to age. In this case, an important role in restructuring the state pension insurance system belongs to the assurance of system universality.

The extension of the coverage of the system is important from the social safety target as well, in spite of the statement of the authorities that persons not covered by compulsory state social insurance or only partially insured (for the so-called basic pension) lose their right to receive the respective part of social guarantees (certainly, if persons do not undertake voluntary insurance additionally). However, practically it is difficult to imagine such situation.

One of additional problems typical of the Lithuanian social insurance system is a low replacement rate. Replacement of a part of the pension of fixed benefits by the private accumulation pension of fixed contribution will not increase old-age pensions considerably. The third pillar of the pension system based on voluntary accumulation for the old age in pension fund and tax incentives could serve this purpose.

Transition from PAYG to the FF system may be quite costly in fiscal terms. In spite of the rapid growth of economy, the budget deficit of the general government sector fluctuates at approximately 2-3 per cent of GDP, thus we are close to the critical limit. Therefore the assurance of fiscal discipline in the central and local government sector will be of special importance.

The authorities should adequately assess the risk related to the deterioration of the demographic situation and the increasing expenditure for the social sphere. It is necessary to formulate long-term strategies, with the account taken of what we want to achieve.

ANNEX [11]

Projection of State Social Insurance Fund Revenue and Expenditure

Revenue of the state social insurance fund (*SSIF*) is defined as the sum of social insurance contributions of insured workers (*REV1t*) and other revenue (*REV2t*) (fines on late payment, transfers from other budgets):

$$REV\ t = REV1t + REV2\text{t} \tag{1}$$

The other revenue of the *SSIF* is kept constant as a percent of nominal GDP at its 2002 value. The projected social insurance contributions of insured workers (*REV1t*) are derived from:

$$REV1t = NCt*Wt*\alpha \tag{2}$$

where *NCt* is the number of contributors, *Wt* the average covered wage and α the effective average contribution rate.

The number of contributors is calculated as:

$$NCt = POPt*LFPt*(1 - Ut)*INSt \tag{3}$$

where *POPt* is the number of average annual population, *LFPt* the labour-force participation rate, *Ut* the unemployment rate and *INSt* the share of employers contributing to the pensions.

Expenditure of the state social insurance fund (*SSIF*) is the sum of old age pension expenditure (*EXPoldt*) and other expenditure (*EXPt*). The other expenditure is kept constant as a percent of nominal GDP, at its 2002 value.

The old-age pension expenditure (*EXP old t*) in a given year is the sum of expenditure for the pensioners who retired during the given year (*EXPold_1 t*) and expenditure for pensioners who retired during the previous years (*EXPold_2 t*):

$$EXPoldt = EXPold\_1t + EXPold\_2t \tag{4}$$

The pension expenditure for new and preexisting pensioners is defined as:

$$EXPoldi,t = NPit*Wt*\beta \qquad i = 1, 2 \tag{5}$$

where *NPit* is the number of new and preexisting retirees, *Wt* the covered wage and β the average replacement rate.

$$NPit = POVt*ELit \qquad i = 1, 2 \tag{6}$$

where *POVt* represents the population over working age and *EL* the share of new and preexisting pensioners.

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[11] See Chand *et al.* (1996).

Projection of Macroeconomic Variables

Projections of macroeconomic variables (growth rate of GDP, gross wages) are based on a small-scale quarterly structural macroeconomic model for the Lithuanian economy (LITMOD[12]) and expert judgments.

The growth rate of employment is derived from exogenous assumptions about labour force participation and unemployment rates.

Projection of Demographic Variables

Data on the future population trend required to calculate the number of covered workers and pensioners in equation (3) and (6), respectively, are taken from the Department of Statistics Population projection 2005-30 (2004). One of the inaccuracies of the study performed is that the impact of the different expectancy of life of males and females on the projected expenses for old-age pensions was not evaluated.

[12] See Vetlov (2003).

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