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Analysis of Pension Reforms Establishing Multi-pillar Schemes: The Case of Estonia

Thesis in partial fulfilment of the requirements for the Master of Arts in Public Administration and Social Policy Degree

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University of Tartu 2004

Abstract

This thesis gives an overview of the theoretical discussion on combining public and private pension provision in the form of multi-pillar pension systems, followed by a description and analysis of the Estonian pension reforms, establishing a 3-pillar system completed in 2002. The new 3-pillar system features a first pillar of public PAYG pension consisting of different parts including a contribution-related part, a second pillar of partially mandatory privately managed funded pension, and a third pillar of voluntary pension savings. The analysis brings up a number of unsettled issues, points to potential problems that may arise from the new pension system, and looks at whether the system will be able to achieve the goals stated at the outset. Albeit the new pension scheme has been successfully implemented, it is excessively complex, certain groups could experience inadequate pension coverage, and public finances are in the short term adversely affected by lower payroll and income tax revenue.

Acknowledgements

Parts of this thesis have been previously published as an article:
Raudla, Ringa & Karsten Staehr (2003): "Pension Reforms and Taxation in Estonia", *Baltic Journal of Economics*, vol. 4, no. 1, pp. 64-92.
The article is added as appendix.

In this thesis ca. 15 % was written by Karsten Staehr.

This thesis is the result of a true co-operation with my supervisor, Karsten Staehr. The discussions with him added significantly to my understanding of the topic and the issues involved. I am very grateful for his patience and willingness to listen to my ideas and doubts. I really appreciated his valuable comments and helpful criticisms throughout the process of writing the article and the thesis.

I would also like to thank Prof. Wolfgang Drechsler for encouraging me throughout my studies and for his helpful comments on the thesis.

I would like to thank Dr. Tiina Randma for encouraging me to proceed with the thesis and supporting me during my studies.

I would like to express my gratitude to the EuroFaculty, since their Research Grant and Fellowship Grant made it possible to focus on my studies and research.

I am thankful to David Vivanco and Zebulin Porianda for their helpful suggestions on the wording and grammar of this thesis.

I am very grateful to Alex for his support and encouragement while I was writing the thesis and to my parents for their understanding, help and moral support whenever I needed it.

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1. Introduction

Pension systems are a challenging object of analysis. The systems are often very complex and a multitude of issues within social policy and economics are spanned. As Müller (1999:3) states: "[R]etirement pension schemes are among the most complex and multidimensional arrangements in modern societies".

The 1990s saw renewed interest in pension reforms in academic as well as policy circles. In its path-breaking publication on pensions, *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth,* the World Bank (1994) strongly advocated pension reforms in which traditional PAYG schemes were to be supplemented by funded systems. The main focus was initially on developing countries, but turned towards transition economies in the second half of the 1990s, cf. numerous contributions from the World Bank (Lindeman *et al.* 2000; World Bank 2000) and the International Monetary Fund (Branco 1998; Cangiano *et al.* 1998). The need for reform and the consequences of the World Bank's recommendations are, however, debatable. Many of the touted benefits from privately run funded pension schemes do not stand up to closer scrutiny.

After having established a market-based economy,[1] Estonia has recently embarked on "deeper" institutional reforms of e.g. education, health care, taxation and pensions. The pension system was completely overhauled by the introduction of a 3-pillar system, implemented in stages from 1998 and completed by mid-2002. The first pillar is a state pension financed from current contributions, i.e. the pillar relies on Pay-As-You-Go (PAYG) financing. The payouts from the first pillar are partly based on the pensioner's work and earnings history. The second pillar is a fully funded defined-contribution

[1] After regaining its independence from the Soviet Union in August 1991 Estonia embarked immediately on economic reforms with the explicit goal of creating an open and market-based economy (Laar 2002). Prices, industry and trade were liberalised at an early stage. Estonia restored its currency, stabilised inflation, privatised state-owned firms and commenced market-supporting reforms, e.g. restructuring the financial sector and enacting property and bankruptcy laws (Berengaut *et al.* 1998). Throughout the reform period Estonia has been among the most pro-market transition countries, witnessed by a virtual absence of trade restrictions, free capital movements, encouragement of foreign direct investment, a low flat-rate income tax and no corporate tax on reinvested corporate profits.

pension. Contributions based on the individual's earnings are assigned to his or her pension account, administered by private funds. Participation is compulsory for persons born in 1983 or later, but voluntary for older persons. The third pillar comprises additional voluntary retirement savings encouraged by preferential tax treatment.

The Estonian pension reforms are widely considered a success, mostly because participation in the second pillar has been much larger than anticipated (see e.g. IMF 2003). Still, participation rates are at best a rather narrow success criterion and provide little information about the societal welfare effects. The Estonian pension reforms also affect society in numerous ways; *inter alia*, the well-being of the retirees, the inter- and intra-generational distribution, the sustainability of the fiscal position and the long-term growth prospects.

This thesis has four aims. First, it seeks to give an overview of the theoretical discussion about pension insurance and pension reforms, with a particular focus on multi-pillar schemes combining public and private pension provision. Second, it gives an overview of Estonia's pension reforms put together from legal acts, regulations and other source materials. Third, it discusses the early experiences of the Estonian pension reforms, in particular the uptake and the risk profile of the preferred private pension funds. Fourth, in the light of the theoretical discussion and the stipulated goals the new Estonian pension system is meant to achieve, the paper raises a number of issues stemming from specific design elements, warranting further exploration. Public policy and public administration issues like consistency, simplicity and transparency of the entire pension reforms package are addressed. Other issues include the overall effectiveness of the reform in ensuring adequate pension coverage for future pensioners, possible effects on government finances, as well as derived effects on labour market, national saving, financial markets, and economic growth.

This study is mainly of a descriptive and exploratory character. This is partly dictated by the very short time span since the inception of reforms and consequently a lack of data. Still, it is plausible that the detailed presentation and examination of the reforms adds to the current debate on pension reforms – in Estonia as well as in other countries. The pension system's basic functioning, sustainability and distributional impact is determined by a myriad of detailed provisions and the interaction between these and the tax system.

These issues are of interest beyond the continuing policy debate within Estonia. Estonia is among the first countries in Central and Eastern Europe (CEE) to introduce a 3-pillar pension system and its experiences might be of interest to the others. Furthermore, the issues could be of importance to a wider set of countries. Estonia's reforms are characterised by partially voluntary participation, a diversion of tax revenues from the public pension system to privately managed funds and relatively "high-powered" incentives. Lessons from these particular design choices are also applicable for high-income economies facing crucial policy choices when reforming their pension systems.

A number of Latin American countries have more than a decade of experiences with funded pension systems, but the background in these countries is somewhat different from that in transition economies. Transition countries started out with a universal and relatively generous PAYG pension, while this is usually not the case in Latin American countries. Also, the population in most Latin American countries is younger than in transition countries. The reforms in Latin America started out at an earlier stage of the demographic transition towards a "greying" society. In these respects the transition economies, including Estonia, might be in a more challenging situation than the Latin American countries when reforming their pension systems, but at the same time in a position that more closely resembles the situation in the high-income countries.

Only little has been published on the Estonian pension reforms in the English language. The World Bank has made public the institution's view on the policy choices of Estonian pension reforms (World Bank 1999). Toots (2000) describes changes in the pension provision during the 1990s, the reforms up to 2000 and the plans for a second pillar. Leppik & Männik (2002) give an overview of the soviet pension legacy, describe in detail the reforms of the pension system before 1998 and discuss the factors that have driven those reforms. Reiljan & Kulu (2003) discuss the background for the choice of pension reform strategy in Estonia, but consider only briefly the impact of the reforms. Tavits (2003) discusses factors influencing the decision in Estonia to draw up and implement the pension reform independently instead of adopting a foreign blueprint.[2]

[2] The web page of the Pension Centre (2003) provides a useful overview (also in the English language) of the Estonian pension system after the reform.

The thesis is organised as follows. Chapter 2 discusses the rationale for public involvement in pension provision and the expected benefits of introducing a multi-pillar pension system. Chapter 3 describes the design of pension reforms in Estonia. Chapter 4 considers the early outcomes, i.e. until the end of 2003. Chapter 5 raises some unsettled issues regarding the design choices of the pension reforms and tries to address the question to what extent the new pension system is able to achieve the goals set out at the beginning of the reforms. Chapter 6 offers some conclusions.

2. Theoretical Discussion

This chapter focuses on the theoretical issues involved in pension insurance and the reforms establishing multi-pillar pension schemes. Section 1 outlines the arguments of social insurance theory pointing to possible problems that can arise from private old-age insurance and brings out the reasons for state involvement in old-age income provision. Section 2 gives a brief overview of the emergence and spread of the new multi-pillar model. Section 3 discusses the touted benefits of the multi-pillar system and section 4 concludes the theoretical discussion.

2.1. Insurance Theory and Pension Provision

Historically, retirement income provision has evolved from support by other family members (primarily children) as the main source of old-age income to the responsibility of the government. While the earliest government programmes focused on means-tested assistance programmes, further developments gave rise to government-sponsored social insurance (Gillion *et al*. 2000:454). By today, pension insurance has become one of the important functions of the state.[3]

[3] Hinrichs (2001:158) distinguishes between "the old" and "the new" social insurance countries. The old social insurance countries (the so-called Bismarck countries) include those in which right from the start the development of modern social policy was founded on the principle of insurance, and, being employment centred, status maintenance preceded poverty prevention (e.g. Germany, Austria, Italy, France, and Belgium). The new social insurance countries (the so-called Beveridge countries), influenced by the poor law tradition, established beforehand the system of universal, tax or contribution-financed basic (people's pension) (e.g. UK, the Netherlands, Denmark, and Canada).

In the context of social insurance, it is important to distinguish between the different meanings of "insurance". According to Barr (1992:743) "insurance" can be defined either as "a device, which offers individuals protection against risk" (with the focus on objective) or an "actuarial mechanism" (with the focus on the method by which the objective might be pursued). Therefore, even when institutions do not satisfy the actuarial mechanism they might still be regarded as insurance in terms of offering protection against risk.

When placing the matter of old-age pensions in the framework of insurance, the theory points to several issues that are pivotal when discussing the choice between private and public provision of retirement income. In particular, there are several arguments that help to explain why public involvement in pension insurance may in fact be more efficient (in addition to being more equitable) than relying purely on the private insurance companies in securing retirement income.

The mechanism of insurance is "based on" the law of large numbers and gains from trade: the relative certainty about the aggregate probability resulting from the law of large numbers enables individuals to exploit gains from trade by agreeing to pool risks. Annuities (i.e. annual income streams) could be seen as a form of pooling in the sense that all retired persons put their lump sums into a pool and draw the average income, the size of the annuity depending on applicants' life expectancy and expected interest rate. Consequently, those who live longer draw more than those who die younger, but the fund can pay for the long-lived because it is based on average life expectancy. (Barr 1998:111-112)

However, the provision of private insurance requires that the two following conditions are satisfied: first, the probability of the insured event for any individual has to be independent of that for anyone else, and second, the probabilities have to be known. The former condition is necessary because insurance depends on the existence of a given period of predictable numbers of winners and losers. Actuarial insurance can cope with individual shocks, but not with systemic shocks. The latter is necessary because insurance addresses risk, but cannot cope with uncertainty.[4] If the insurer does not know the probability, it is

[4] With risk, the probability distribution of future outcomes is known or estimable, while with uncertainty it is not (Barr 2000:5). The difference between risk and uncertainty, and that insurance is only possible against

not possible to calculate a premium, making private insurance impossible. (Barr 1998:114-115)

Given that satisfaction of these conditions is problematic in the case of retirement pensions, the private market may fail to provide adequate pension insurance. Private insurers are generally unable to offer contracts, which index pensions against future inflation, because it is not possible to estimate the probability distribution of different levels of inflation (violating the second condition described above) (Barr 1998:115). Even if private insurance can cope with inflation during the contributor's working years and with anticipated inflation after retirement, unanticipated inflation during retirement constitutes a serious problem. Further, because inflation is a common shock, pensioners all face broadly the same rate of inflation i.e. the probabilities are highly interdependent (violating the first condition) (Barr 1992:768). As Barr (1992:769) concludes, since inflation over an extended period is not a risk against which private insurance in an actuarial sense is possible, the protection against inflation must come from the government either in the form of indexing private pensions (e.g. by indexed government bonds or direct budgetary transfers),[5] or organising the entire pension system itself.[6]

The provision of pension insurance by private insurers is further aggravated by asymmetric information leading to the problem of adverse selection. Since life annuities are income payments contingent on the annuitant's survival, the price for the annuity (the premium) depends on the insurance company's assessment of the probability of longevity. Asymmetric information, however, implies that risk properties of an annuitant may be unknown to the insurance company while being known to the annuitant. The adverse selection problem in pension markets can lead to the collapse of demand as a result of

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risk but not against uncertainty was already brought out by Frank Knight (1921) in his *Risk, Uncertainty, and Profit*.

[5] Empirically, however, hedging against unanticipated post-retirement inflation is generally incomplete, expensive or both (Barr 2000:21-22). Although it is possible to construct quasi-indexed investment portfolios, the real rates of return on such portfolios can be very low, and sometimes negative, implying that pension funds do not invest heavily in such assets even when they are available (Hemming 1998:13).

[6] PAYG systems are largely protected from inflation because the inflated pensions are covered by the inflated tax intake (Barr 2002).

increasing premium prices when the insurance company realises that mostly bad risks buy insurance. (Hemming 1998:22; Walliser 1999:8-9)

Where insurers cannot distinguish between high-risk and low-risk applicants, they can either charge a premium based on average risk (pooling equilibrium) or try to offer separate policies to the different risk-groups (separating equilibrium). In the case of pooling equilibrium, the high and low risk consumers are grouped together with a common premium and cover, i.e. the insurance company offers a coverage and price level which is somewhere between the high and low risk demands, entailing subsidisation of the low-risk groups. In the case of separating equilibrium, the insurance company seeks to appeal to self-selection and offer such policies so that customers, through their market behaviour, reveal their true risk-probability. (Barr 1992:750-753)

Rotschild & Stiglitz (1976) evaluated the equilibrium in insurance markets with adverse selection. They propounded that under certain assumptions, insurance companies would segment the market into two different risk groups, each with insurance contracts at actuarially fair prices. At the same time they also claimed that their separating equilibrium relies on the assumption that insurers can restrict the quantity of insurance. In the annuities markets, however, nothing prevents individuals from purchasing annuities from different insurance companies to counteract any restrictions on quantity. Thus, if insurers are able to control the price but not the overall quantity, the price will be less favourable for low risks and more favourable for high risks, than in the separating equilibrium. The impact of adverse selection on private pension insurance has been further explored by Eckstein *et al.* (1985) and Eichenbaum & Peled (1987), who, following Rotschild & Stiglitz (1976) and Wilson (1977), have analysed more specifically the two sets of problems that adverse selection gives rise to.

The first problem is that the pooling equilibrium is unstable because of low risks dropping out or because of competitive behaviour between insurers. Individuals who know that they have a higher than average mortality risk avoid buying annuities because they do not expect to live sufficiently long to recoup the cost of their purchase (Gillion *et al*. 2000:58). The insurance firms charging the pooling equilibrium price face a threat of “cream skimming” by competitors, referring to the attempts by other insurers to recruit good risks and avoid bad risks, leading to alternative insurance offers, which are only preferred by

low-risk types (Fabel 1994:19). Thus, if an insurance company offered a contract based on average risk, another company would bid away the low-risk group by offering a cheaper policy (Barr 1992:751).

The second problem is that separating equilibrium where the risk groups self-select over a menu of type-specific actuarially fair insurance offers is inefficient (Fabel 1994:19).[7] Eckstein *et al*. (1985) and Eichenbaum & Peled (1987) demonstrate how the introduction of a public old-age insurance with mandatory participation and a single insurance offer applied to all consumer types, gives rise to Pareto-improvements, if additional demand for annuity insurance can be covered.

The empirical evidence provided by Friedman & Warshawsky (1990) and Mitchell *et al*. (1999) support the theoretical predictions of thin insurance markets and high annuity prices. Since the respective consumers exhibit life expectancies which are significantly higher than average, the only offers remaining in the market are those calculated as actuarially fair for "high risk" consumers.[8] As Barr (1998:117) has put it, paradoxically, though insurers fear that mainly bad risks will buy cover, the outcome is in fact gaps in coverage for low risks.

Thus, in the face of adverse selection, the market is either inefficient or fails entirely. A partial solution here would be to make membership compulsory to prevent low risks from opting out of a pooling equilibrium, thus making it possible to break the link between premium and individual risk (Barr 1998:117,125). Making the membership mandatory, however, would not suffice alone because the problems of non-insurability against inflation still remain. Further, the problems of adverse selection may re-emerge, contingent on the specific features of the regulation of withdrawals.

An important issue, which should be addressed with government regulation, regards the portion of the account balance that should be subject to withdrawal rules and the portion

[7] Barr (1992) has even argued that separating equilibrium does not exist.

[8] Walliser (1999) argues that unfavourably priced annuities alone could not suffice to explain the lack of demand for annuities. He suggests that bequest motives, self-insurance against health risk, the inability to adapt annuities exactly to the desired consumption stream, the lack of inflation protection, and the existence of a public pension system may all play some role in the weak demand for additional annuity coverage.

that can be drawn as a lump sum. If regulation stipulates that only a portion of the account balance must be converted into an annuity, it will split the insurance market into two parts: one for regulated withdrawals and the other for voluntary purchases. The market for regulated purchases would not be subject to adverse selection while the other would likely be subject to even stronger adverse selection. Albeit mandating the conversion of the entire account balance into annuities could avoid adverse selection, such a mandate may restrict the flexibility of retirees to adapt income streams to their needs. The degree to which adapting is hindered depends on the portion of retirement income provided by the accounts. If individual accounts accumulate a large portion of worker's retirement wealth, some more flexibility might be necessary. (Walliser 1999:17-19)

Another major question is whether only life annuities or also other forms of withdrawal over time should be allowed. Life annuities protect the retiree against longevity risk, while e.g. phased withdrawals[9] do not offer such protection. Prohibiting phased withdrawals (or allowing them only when combined with annuities) would ensure participation in the insurance market and prevent those who expect to have short lives from opting out of the annuities market. (Walliser 1999:17-19)

In addition to the problems arising from adverse selection, there is also the problem of myopia on the part of individuals (sometimes also called the "moral hazard" problem, cf. Gillion *et al*. 2000; Hemming 1998),[10] which has given rise to paternalistic reasons for government intervention in providing for old-age income. The assumption here is that some people will realise too late that they have not saved enough money to preserve their consumption during retirement (Hemming 1998:22). A related problem is that some individuals will underestimate their life expectancy or will be shortsighted in their

[9] Under a phased withdrawal option the participants would obtain a market-related return on their declining balances (Alier & Vittas 2001:395).

[10] According to the "traditional" definition in the context of insurance, "moral hazard" arises where the insured person can influence the expected loss at a cost lower than the expected gain, and without insurer's knowledge (Barr 1992:752). The term has, however, obtained various other meanings, even in (social) insurance context, in addition to the original one. The opponents of the PAYG system, on the other hand, have also blamed the PAYG system for inducing moral hazard, in the sense that people do not save for their retirement when they know that they would be entitled to sufficiently generous publicly provided pension benefits.

financial planning during retirement and will spend the accumulated assets too quickly (Gillion *et al*. 2000:58). In Feldstein (1985), myopic behaviour is associated with "incorrect" weights attached to the instantaneous old-age utility in the consumer's *ex ante* lifetime utility function. Fabel (1994:18) has suggested that the development of public pension systems indeed reflects the attempt of a paternalistic state to correct the myopic behaviour of its citizens. This paternalistic reason for state intervention has also been labelled as the "merit good" argument in the framework developed by Musgrave (1959).[11]

The fourth problem of private insurance relates to administrative costs. Administrative costs include the costs incurred by pension funds that take care of the assets in the accumulation phase and insurance companies that provide the annuities after retirement. While competition precludes excess rents, it does not ensure low costs (Orszag & Stiglitz 2001:35). An important factor in determining the level of administrative costs is the degree of centralisation in operating the accounts. In a decentralised system, the costs could be rather substantial as a consequence of foregone economies of scale and duplication of work. Thus, where pension insurance is state run or where the government mandates centralised administration, the administrative costs could be markedly less than if the provision were left only to the market.

A related problem, which remains, even if the government mandates centralised administration of the accounts, is the excessive advertising and marketing expenditure by the pension and insurance funds. These may often amount to socially wasteful expenditures (Gillion *et al*. 2000:58). Diamond (1996) has argued that while the "costs of competing" (e.g. advertising) are present in many products for which the benefits of competition outweigh these costs, the derived benefits may be small for old-age insurance.

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[11] Paternalism has often been accused of elitism (Mueller 2002:272). In the context of pensions, Ribhegge (1999:71-71), for example, contends that the government has no right to believe that individuals underestimate future needs, and if individuals really did underestimate their future needs, the government would also have to intervene in a number of other decisions having an impact for the future (e.g. choosing the partner, the number of children one wants to have, or a profession). Furthermore, it has been claimed that the merit good argument for a state pension system assumes that the individual as a saver and investor is myopic and irrational, but as a citizen and voter, is far-sighted and rational, meaning that the citizen/voter invests more time and energy on what the proper consumption pattern should be for the society than he or she does for themselves. Such assumption is seen to contradict the proposition that voters are rationally ignorant (cf. Buchanan & Tullock 1962). (Mueller 2002:272)

Taken together, high transaction costs can render private pension provision less efficient in comparison with the state-run schemes.

There are also considerable equity issues related to the provision of retirement income. If pension saving is left to the market, income inequalities from peoples' working lives will be carried into their old age, i.e. to a stage in life when people are often vulnerable and with few options for taking care of themselves. The result could be social deprivation and poverty for groups of elderly people. To what extent the state should address the pension provision with regard to equity is, however, an ideological question related to the weight attached to redistributive and social solidarity objectives (Barr 1992:771).

Taken together, there are at least five sets of arguments supporting state involvement in pension insurance. The first refers to the un-insurability of inflation risk in the private market. In the case of social insurance "the contract"[12] is usually less specific than in private insurance allowing protection against risks, which the private insurance cannot insure. Social insurance, in sharp contrast with actuarial insurance, can cover not only risk but also uncertainty (Barr 1998:125-126). The second set of arguments points to the failure of the private insurance markets to provide adequate pension insurance because of adverse selection. Government intervention enables the establishment of pooling equilibrium by making participation in the scheme compulsory, thereby countering the adverse selection problem. Third, public involvement in pension provision can mitigate the effects of myopia. Fourth, public provision can be seen as a way of reducing administrative costs and preventing wasteful advertising costs, thereby increasing the overall efficiency of pension insurance. Last, public pension provision may serve important equity goals by providing a mechanism of redistribution and preventing poverty at old age.

Although there are compelling arguments for government involvement in pension provision, the government still faces the question about the specific form of involvement. The "traditional choice" has been a PAYG system, often with all or a substantial part of

[12] Many authors (e.g. Rizzo 1990) refer to the arrangements of public pension provision as "contracts" between the contributors of social tax on the one hand and the government on the other. The PAYG system on the whole has also been often referred to as the "intergenerational contract" system.

the pension payouts being in the form of defined benefits.[13] The defined benefit PAYG system has been seen as providing adequate pensions in a predictable and equitable way, thus addressing many of the arguments for government intervention.

It should be noted, however, that in the history of pension insurance development, there have been serious debates about whether pensions should be funded or PAYG.[14] For example, in the United States in the 1930s there was considerable debate among insurance and social security experts about the long run costs of public old age provision under the newly introduced system (Achenbaum 1989:116-121). While the Treasury wanted to accumulate a large reserve fund to cover future benefit liabilities and protect general government revenue from future social security claims, the business leaders feared that the accumulation of a large reserve would diminish consumer purchasing power and adversely affect the capital market (Quadagno 1988:119-121). Similar debates took place in the United Kingdom, following the Beveridge report of 1942, which originally envisaged a system of benefits actuarially linked to contributions and with a reserve fund to be built up in the early years to pay for later pension benefits. By 1958 the idea of building up a fund was abandoned and the system was financed on PAYG basis. (Dilnot *et al*. 1984)

The shift through the 1950s from the original social security conception of full funding to PAYG received little criticism owing to rapid economic growth and relatively small cohorts of pensioners allowing benefits to rise faster than contributions. However, the

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[13] In defined benefit schemes the benefit formula determines the level of benefits individual receives and the link between contributions and benefits (if any) (Gillion *et al*. 2000:5). Contrasted with defined benefit schemes are defined contribution schemes, which usually refer to individual funded accounts, where the contribution rate is fixed and the individual's pension is determined by the size of his or her lifetime pension accumulation (Barr 2000:5). Defined benefit plans assign accrual risk to the sponsor, while defined contribution plans assign accrual risk to the individual worker since retirement benefits depend on the efficacy of which contributions were financially managed (Orszag & Stiglitz 2001:18-19).

[14] In PAYG system, contributions of one period are directly transferred to the recipients of benefits in the same period, and, while members acquire claims against the system by virtue of making contributions in the present, no actual capital is accumulated. In a funded system, claims to benefits are covered by a capital stock built up by contributions in the past. (Siebert 1998:8) As Stiglitz & Orszag (2001:22) remind us, pre-funding (at least in the broad sense) does not necessarily imply privatisation and private market investments. Pre-funding could also take place when the government accumulates assets in anticipation of future payments due under the public defined benefit plan.

economic stagnation following the oil crisis of 1973 gave rise to much more critical analysis of social security systems. This economic concern about the long run costs of public pensions has followed two distinct but related paths since mid-1970s, one looking at macroeconomic effects (mainly the effects on growth and saving), the other at microeconomic transfer functions of social security pensions. (Johnson & Falkingham 1992:126) During recent years, the debate has been revived again, with a growing volume of discussion devoted to complementing the PAYG schemes with funding elements and increasing the role of private provision in the area of pensions, in the form of multi-pillar pension system.

2.2. Combining Private and Public – Introducing the Multi-pillar System

As Castles (2001:141) has enunciated it: "There is a new spectre haunting Europe, the OECD, and if the World Bank is to be believed, the world as a whole – the spectre of an ageing population". Indeed, it seems that for both state-level policy-makers and several international organisations, population ageing has acquired the characteristics of a crisis or even panic: e.g. the World Bank (1994) talks of the "old age crisis", the OECD secretariat (1996) of a "critical policy challenge".

A major problem in light of changing demographics is related to the long-term fiscal sustainability of PAYG schemes. Feldstein (1998b:299) has claimed that reforming the current PAYG pension systems is "the most important fiscal issue facing governments around the world". Longer expected lifespan and reduced fertility will increase the pension costs as a percent of GDP in the future. Table 1 presents data for present and projected pension expenditures in selected transition economies. The second row shows the pension expenditures in 1997-98, the third row shows the expenditures in 2050 assuming that current fertility and mortality rates remain constant, while the fourth row shows the expenditures in 2050 assuming that the fertility and mortality rates gradually converge towards West European levels. Among the sample countries, the projected pension expenditures – assuming an unreformed PAYG system – apparently explode in Poland, but the projected increase is also striking in the case of Estonia.

Table 1. Pension expenditures as % of GDP in a sample of transition economies

	Estonia	**Lithuania**	**Poland**	**Russia**	**Ukraine**
In 1997-98	9.7	6.1	14.2	6.9	9.3
In 2050 with unchanged fertility and mortality	17.6	10.6	27.1	13.6	14.5
In 2050 with higher fertility and lower mortality	19.4	11.1	34.5	15.5	17.6

Source: Lindeman *et al.* (2000:9).

The long-term fiscal sustainability problem is aggravated by the fact that PAYG systems are financed from current tax receipts. As the pension burden increases, taxes will have to be increased, increasing the wedge between the pre-tax wages and attained consumption possibilities. The result of these incentive effects might be reduced labour supply (if the substitution effect dominates) and, thus, further difficulties in generating sufficient tax revenue to finance the PAYG pensions.

The fiscal sustainability problem can to some extent be addressed by incremental changes to the pension schemes, e.g. by increasing the stipulated pension age, by gradually lowering the PAYG pension payouts or by making the payouts depend more closely on previous labour market participation. While these steps can reduce the sustainability problem, they can only be applied to a certain degree without undermining the basic premise of the PAYG pension, namely to provide adequate pension coverage for elderly people.

In response to the anticipation of the "old age crisis" the 1990s saw renewed interest in pension and pension reforms by the International Labour Organisation (ILO), World Bank, International Monetary Fund (IMF), International Social Security Association (ISSA), and the European Commission. Interestingly, the World Bank, for whom the pension issue has not been a traditional focus of activity, emerged as a major actor in the "pension reforms market". It is also interesting that ILO and ISSA – that had previously been very significant international organisations in the field of social security and social insurance – were left with somewhat marginalized role in the pension debates at the beginning 1990s (Charlton & McKinnon 2001:12-13).

Based on the experiences from Chile and other Latin American countries the World Bank (1994) strongly advocated pension reforms in which traditional PAYG schemes were to be supplemented by private funded systems. What was initially perhaps more flexible

approach to pension system reforms has by now evolved into a more rigid framework, what some critics call the "World Bank pension orthodoxy" (cf. Müller 1999). That "orthodoxy" consists essentially of three different pillars. The first pillar provides a minimum pension to all pensioners and can be PAYG financed. The second pillar is a privately managed mandatory funded scheme with individualised savings accounts.[15] A third pillar with a voluntary private pension can be added. The underlying idea is to balance the concerns about fiscal sustainability and labour market incentives with the desire to ensure adequate pension coverage for most people. The multi-pillar approach is seen to provide minimum coverage for all pensioners, while at the same time isolating the pension provision – at least partially – from the effects of demographic changes.

In practice it is somewhat ironic that the pension reform proposals vindicated by the World Bank have been to a large extent ignored by the high income countries to whose problems (especially in terms of population ageing combined with mature pension systems) the Bank's pension reform proposals could be seen as primarily addressed. Keeping in line with the views of IMF and the European Commission, many high-income countries have preferred to implement cost-cutting or parametric reforms as their mechanism for controlling the cost of public pension provision. (Charlton & McKinnon 2001:6-7)

In the Central and Eastern European countries, on the other hand, the World Bank proposals have received a warmer welcome and have been adopted by increasing number of countries.[16] The significance of these reforms could hardly be underestimated. Not only do they have an important bearing on the transitional countries themselves, but since in some ways these countries could be seen as having turned into a "testing ground for the future of social policy elsewhere in the industrialised world" (Deacon & Hulse 1997:4),

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[15] Charlton & McKinnon (2001:55) allege that although the second pillar outlined in *Averting the Old Age Crisis* (World Bank 1994) was expansive enough to reflect any potential combinations of policy measures, allowing the second pillar incorporate both privately and publicly managed systems, in practice, the resultant "popular interpretation" of the Bank's preferred model invariably focuses on the need for the crucial second pillar to be both fully funded and privately managed. That is now defined as forming the "current conventional wisdom" of pension system reform and restructuring.

[16] The list of countries in 2004 includes Poland, Hungary, the Czech Republic, Latvia, Croatia, Russia, and Kazakhstan.

the partial privatisation of pension systems might create noteworthy precedents for other countries (cf. Queisser 1998).

According to Gillion *et al*. (2000:435) although it is generally difficult to restructure social security institutions once they have been established, the exceptional cases are the countries with a climate of radical reform, such as has existed in recent years in CEE. Indeed, in comparison with Western Europe, many countries in CEE have been in a unique position that has certainly made it easier to undertake a somewhat more radical reform of the pension system by riding on the "general wave of reforms". Since changes have been an inevitable part of life for the people in those countries over the past decade, the public is perhaps more willing to accept radical changes than in the more stable and established societies with more deeply engraved social insurance structures. This has enabled to break with the otherwise possibly overwhelming influence of path dependence.

In addition to the general readiness to go along with reforms, the pension reform along the lines of the World Bank scheme has enjoyed popular support in CEE owing to the traumatic historical experiences these countries have had with public pension provision. Hyperinflation combined with inadequate indexing (due to tight government budgets) in the early 1990s undermined confidence in public pension provision. Thus, some mistrust in the state – particularly in the area of retirement – is likely to have encouraged support for private alternatives, given that the private sector is not (yet) discredited to the same extent as the public sector. (Overbye 2001:191)

2.3. Discussion on the Benefits of a Multi-pillar System

The increased funding of pensions (by introducing the privately run second and third pillar) has been envisaged as generating a number of potential benefits, including:[17]

- Higher pension payouts if the returns on privately managed pension accounts are higher than the implicit interest in PAYG system.[18]

[17] Some authors – confusingly – label these additional benefits as "externalities".

[18] That claim reflects the higher potential return associated with investing a significant share of contributions in equity markets, relative to the rate of growth of wages, which determines the implicit rate of return in

- Diversification of the risks related to different pillars.
- Increased labour supply if the partial funding of pensions restrains tax pressures and embodies desirable work incentives.
- Decreased tax evasion as a result of improved compliance incentives.
- Potential for higher domestic saving if household saving increases and the government budget balance does not deteriorate. Higher domestic saving could lead to a lower interest rate if capital mobility is incomplete.
- Development of domestic financial markets and the creation of domestic financial institutions. Pension funds with a long investment horizon might contribute to greater financial stability.
- Enhanced economic growth resulting from the impacts on labour supply, saving, and development of financial markets.

While the list of potential benefits of switching from a defined benefit PAYG system to a multi-pillar scheme appears impressive, the benefits are by no means certain. Recent debates have questioned the theoretical and empirical foundation of the multi-pillar approach and have raised numerous problems related to funded pension schemes. While more and more countries introduce multi-pillar systems, this debate intensifies. Some of that discussion will now be presented in the next sub-sections that give an overview of the current discussion on the listed benefits.

2.3.1. Diversification of Risks

The fundamental goal of any pension system is to ensure adequate pension coverage for retirees. It has been argued by the World Bank pension policy advocates that having different pillars may help to provide greater security by diversifying the sources of pension payouts, since the first and the second pillars are subject to risks that are not perfectly correlated.[19] According to Holzmann (2000:21): "The principal advantage of a multi-pillar scheme lies in risk diversification. Not all of the population's retirement portfolio will be held hostage to political and demographic risk". Merton *et al*. (1987)

PAYG systems (Heller 1998:7). The classical growth theory also suggests that market real interest rate is higher than the real growth rate of wages and salaries (Siebert 1998).

[19] It should be mentioned, however, that at least analytically, privatisation and diversification are distinct concepts and may not necessarily imply each other: one can imagine private accounts that are restricted to risk-free financial assets, and public systems that invest in risky assets (Orszag & Stiglitz 2001:26).

concluded already before the World Bank pension agenda that the integration of social security and private pensions could be viewed as means to realise an optimal portfolio.

The main risks usually attributed to public PAYG pension systems are demographic and political risks. The demographic risk refers to shifts in the population structure – primarily ageing (increased life-expectancy combined with reduced fertility) – leading to significant increases in system dependency ratio (indicating the relative number of pensioners to contributors). Political risks can be expressed in design features offering short-term political gains that can lead to system's financial insolvency (Fox & Palmer 2001:122), cause benefits to be reduced at short notice owing to political changes, or prevent the political system from making timely adjustments to meet changing economic and demographic trends (Gillion *et al*. 2000:12).[20] What could be added here as the possible risks of PAYG schemes are, for example, institutional risks arising from the possible failure to obtain retirement benefits as a result of inadequate record-keeping or other kinds of incompetence, and economic risks related to unexpected changes in wages (Gillion *et al*. 2000:12).

The funded pillars, however, are also subject to a host of risks. As noted in section 2.1 one of the fundamental risks in private pension provision is unexpected inflation, which is an uninsurable risk.[21] Further, private pension provision is affected by unexpected changes in both capital and annuities markets. Even if the pension fund regulation ensures that portfolios are well diversified, contributors would still be susceptible to normal fluctuations in asset prices, episodes of bubbles and crashes, or more severe effects of general financial crises leading to significant declines in the value of the portfolios (Rocha *et al*. 2001:182-183). Even though the smoothing effect of long holding periods is

[20] Privately run defined contributions are thus seen as avoiding the political risks in the sense that pension incomes would depend on the accumulation of individual's own pension savings rather than being subject to the risk that governments may be unwilling to levy taxes that would be needed to cover the promised level of pension benefits (Heller 1998:7).

[21] Although "indexed annuities" have been developed where there is sufficient supply of medium or long-term investments that offer real rates of return, most governments find it hard to issue indexed bonds that have the same duration as annuities. Further, it could be argued that when a government issues indexed bonds it imposes risks on future tax-payers that are very similar to those in PAYG system, thus diminishing the possible risk diversification effects of a multi-pillar pension system. (Lindeman *et al*. 2000:43)

generally assuring, there can be very large fluctuations in replacement rates among retiring workers of different cohorts. Workers retiring in the year when equity and bond markets are booming would obtain a much higher pension than workers retiring when markets are stagnating. (Alier & Vittas 2001:393; Rocha *et al*. 2001:196)

In addition, as societies age, returns on capital investment tend to become smaller because the capital stock will be too large for the smaller number of people in these societies and has to be adjusted downward by reducing investment (Siebert 2002:2). By reducing labour supply, ageing makes capital less scarce compared to labour, thereby depressing asset prices and the return on capital (Bovenberg 2002:183). Consequently, the privately managed pension assets may be subjected to a continuously declining trend, at least in closed economies (Siebert 2002:2). Thus, there is a risk that individual's accumulated pension assets may end up being significantly less than expected i.e. less than the notional net present value of the stream of public pension benefits discounted to the time of retirement (Heller 1998:8).

Pension funds can be affected by systemic risks giving rise to spill-over effects e.g. in the form of banking crises that can result in the sharp collapse in asset prices, negatively affecting some cohorts and leading to insolvency of several banks. To the extent that fund managers are subsidiaries of banks, there could be an overall erosion of capital protection in the pension industry. (Rocha *et al*. 2001:182-183)

Further risks emanate from the annuities markets. Even if a private defined contribution scheme yields a higher rate of return than the implicit return of a public defined benefit scheme, the accumulated assets may not be sufficient to purchase a lifetime annuity that would exceed the benefits that could have been provided under the public scheme (Heller 1998:8). Under a defined-contribution scheme, the annuity a person can buy with a given sum depends on the expected duration of retirement (i.e. remaining life-expectancy at the time of retirement) and on the interest rate the insurance company expects to earn over the lifetime of the annuity. According to Barr (2000:24) there is significant uncertainty about both variables. On the one hand, e.g. a major health breakthrough could significantly increase the average life expectancy and lead to insurance company failures or decrease the value of annuities for individuals (Heller 1998:17). On the other hand, fluctuations in the interest rates affect the value of annuitised benefits (Gillion *et al*. 2000:12-13). While

allowing phased withdrawals (offering a market-related return on declining balances) would protect the participants from low asset prices and low interest rates that might prevail at the time of their retirement, the participants would still be exposed to longevity risk (Allier &Vittas 2001:395).

Another problem is that in many countries (even in advanced industrial countries), the annuities market is thin, meaning that each of the competing insurance companies has only a few people in each age group, leading to high transaction costs because of foregone economies of scale. This may reduce the value of the annuity, quite independent of interest rate fluctuations. (Barr 2000:24)

Also, even if participation in the defined contribution scheme is compulsory, the adverse selection problems in the insurance markets may remain (cf. section 2.1). Private insurers may still attempt to limit the sale of annuities to those who have a high probability of longevity and use the "creaming" strategy by attracting low-risks (Heller 1998:17).

On a micro level, pension funds are haunted by agency risks, not only in the form of fraud, malfeasance, and outright theft of assets, but also more subtle violations like self-investment, investment in related companies, directed fee arrangements etc. The agency risks, enabled by informational asymmetries between fund managers and members, are exacerbated by the combination of complexity of portfolio strategies in the case of long-term investments, and low level of sophistication of many fund members.[22] Although agency risks depend to a large extent on the legal and governance structure of pension funds,[23] all types of funds are exposed, in one way or another, to agency risks. (Rocha *et al*. 2001:182-183)

Guarantees of minimum second pillar returns would introduce an element of intergenerational risk pooling and mitigate the possible effects of market fluctuations and management failures. However, designing an absolute guarantee on second pillar benefits

[22] The workings of financial markets have been observed to be poorly understood, even in the industrial countries with the most sophisticated systems and options (cf. Barr 2002).

[23] The main components of pension fund regulation include: licensing criteria, governance rules, asset segregation rules, independent custodian, external audit, disclosure requirements, investment regulation, guarantees, minimum capital and reserves, and regulations on costs and fees (Rocha *et al.* 2001:183-184).

that reduces the exposure of individuals to market risk, proves financially sustainable, and minimises the moral hazard, is an immensely complex task (cf. Rocha *et al*. 2001:198-200). On account of these complexities Rocha *et al*. (2001:200) suggest that absolute guarantees on second pillar benefits seem to cause more costs and complexities than benefits, and should generally be avoided (especially in countries where the private mandatory pillar is a component of a multi-pillar system and accounts for less than half of contributions). Relative guarantees, however, may have the undesirable consequence of encouraging all pension fund mangers to hold essentially identical portfolios, removing any real choice individuals might have in structuring their retirement portfolio (World Bank 1999:7).

To what extent the multi-pillar system is capable of diversifying the mentioned risks is far from being uncontested. On the one hand, Lindeman *et al*. (2000:11-13) ascertain that since the growth of wages (influencing the implicit return in PAYG schemes) and the returns to capital (determining the return in private pillars) are not correlated, based on limited empirical evidence for OECD countries, some diversification gain is possible. On the other hand, in the future, both the return on capital and the return on wages might be influenced by the ageing of the population (Bovenberg 2002:184).[24]

Barr (2000, 2002), Hemming (1998), Johnson & Falkingham (1992) put forth that many of the risks characterising the different pillars are not – to a large extent – negatively correlated or even orthogonal to each other. Specifically, they have argued that the switch to funding does not necessarily resolve the problem of adverse demographics or economic risks because funded pensions face similar problems to PAYG schemes, and exactly for the same reason – "a shortage of output". Both funding and PAYG are essentially only different venues for organising claims on future output (Barr 2000, 2002) since any saving, public or private, funded or unfunded, involves accumulation of a claim on the goods and services produced by future generations of workers (Johnson & Falkingham 1992:148).

The impact of the shortage of output in the case of funded pensions is essentially two-fold. First, when the desired pensioner consumption exceeds desired saving by workers, the

[24] To what extent the scarcity of labour relative to capital will raise wage growth is difficult to ascertain (Bovenberg 2002:184).

excess demand in the goods market causes price inflation, reducing the purchasing power of pensioners' annuities. Second, if the pensioners' desired assets sales exceed desired asset purchases by workers, which is the case when increasing numbers of pensioners attempt to sell assets to relatively few workers, the excess supply in the assets market reduces asset prices, reducing the value of pension fund units and resulting in lower annuities. (Barr 2000:9,22; Hemming 1998:12) Thus, both PAYG and funding are exposed to demographic risk, and in both cases this risk will be ultimately borne by pensioners (Hemming 1998:12).[25] Provided that the key variable in the case of demographic problems is output, the choice between PAYG and funding is in fact secondary, and the policy should seek to encourage output growth directly (Barr 2000:1).[26]

It has been suggested that funded pillars enable international diversification by offering opportunities to invest abroad (thus permitting to overcome the possible problems of insufficient output that would threaten closed economies as described above). To what extent that contention holds, depends on what the target-countries of investments are. Similar demographic profiles of the developed and transitional countries entail that investments – even when spread over a wide range of these countries – are still subject to the risks of decreasing returns on capital due to population ageing. When the large baby-boom cohorts in many industrial countries retire, pension funds in all countries will want to realize their assets, which will tend to drive down asset prices. (Johnson & Falkingham 1992:148-149) Thus, funded systems can be shielded from ageing only if capital can be easily invested in "younger" countries with abundant labour.

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[25] Barr (2000:9) adds here that the only difference is that with funding the process is less transparent, and for that reason, is perhaps preferable to politicians "who prefer bad news be seen to arise through market outcomes than political decisions".

[26] The ways to increase output include, for example, increasing the productivity of each worker via more and better capital equipment, increased R&D expenditure, better education and training; or increasing the labour supply by raising the age of retirement (e.g. relating it to the average life-expectancy), facilitating life-long learning, encouraging wage flexibility of elderly workers (in order to allow adjustment with individual productivity), encouraging higher female participation rate while protecting fertility and investments in human capital of children (Barr 2000:10, 1992:770; Bovenberg 2002). Visco (2002:39-40) reminds us, however, that higher productivity growth may add to the fiscal pressures of social security expenditures when the pensions are indexed to wage growth. Also, even when there is no fixed link through indexing, past experience shows that higher living standards have generally led to public pressures for increases in pension benefits.

With PAYG, demographic risk and economic risk are closely related: if productivity growth slows, the burden on future workers will rise in the same way as if there were fewer workers. Funding, however, is subject to the same risk. If productivity growth slows, then the same forces that prevent the real interest rate falling below the growth rate in the long run will also prevent it from remaining too far above the growth rate. (Hemming 1998:12)

Barr (2000:5) suggests that political risks also affect all pension schemes, both public and private, because all pension systems are dependent on effective government. Policies to limit the risks emanating from privately run schemes essentially mean that government is re-injected into the financing of social insurance (Heller 1998:3). On the other hand, excessive regulation or political interference with pension funds may lead to lower returns of the funds either by limiting competition or attempting to direct the investments so that they would earn political credit. As Orszag & Stiglitz (2001:37) ask: "why would a government that is inefficient or corrupt in running a public defined benefit system be efficient and honest in regulating a private scheme?"

Thus, economic and demographic risks are common to both funding and PAYG, and funded schemes, in addition, face further risks (investment risk, annuities market risk, and management risk). Hence, the risk-spreading argument is certainly more controversial than it first appears. Orszag & Stiglitz (2001:26) allege that in purely financial terms, diversification undertaken through a public system rather than through private system involves less risk for any individual because of the possibility to spread risk across generations in a way that is not possible under a private defined contribution programme. Indeed, one of the weaknesses of funded pensions – with each cohort relying on its own savings – is the difficulty of insuring against risks that affect any particular generation (i.e. variations in productivity growth, rates of return on capital, inflation etc.) (Johnson & Falkingham 1992:149). Full insurance against these risks requires both inter-temporal and inter-generational redistribution, which can be best achieved through PAYG pension scheme (Green 1988).

2.3.2. Impact on Labour Market Incentives and Tax Evasion

A common claim regarding funded individual accounts as sources of retirement income is that they provide better labour market incentives than traditional (defined benefit) social security systems. That argument has been substantiated on several different grounds.

First, payroll taxes have a distortionary effect because they increase the wedge between gross and net wages received by workers. Ensuing that wedge, workers may be willing to supply less labour than would otherwise be the case (assuming dominating substitution effect) (Siebert 1998:17).[27] Also, high payroll taxes paid by the employer can raise the effective minimum wage, and possibly reduce the demand for labour at least in the formal sector (Fox & Palmer 2001:114).

The second set of arguments is related to the lack of sufficient linkage between the contributions paid and benefits received in the public defined benefit pension insurance schemes. Estelle James (1998, cited in Orszag & Stiglitz 2001:32) has claimed that, "the close linkage between benefits and contributions, in a defined contribution plan, is designed to reduce labour market distortions, such as evasion by escape to the informal sector". In a similar vein, Martin Feldstein (1998a, cited in Orszag & Stiglitz 2001:32) contends: "the extra dead-weight loss that results from these very unequal links between incremental taxes and incremental benefits would automatically be eliminated in a privatised funded system with individual retirement accounts". Gillion *et al*. (2000:342) bring out that labour market effects of social security on prime age workers depend in part on whether social security contributions are viewed as tax.[28] If workers' own benefits are linked to their own contributions like in a savings scheme, they are more likely not to

[27] The effect on individual labour supply, however, also depends on the flexibility of labour supply. If people can adapt their labour supply, tax wedges can create distortions and affect incentives. (Fox & Palmer 2001:113)

[28] From a tax-theoretical point of view, mandatory payments by employers and/or workers, which are individually tracked, and used as a basis for calculating pension benefits, should be called "contributions" rather than "taxes". The essential difference here is that "contribution" is a specific payment, which directly provides some basis for entitlement to benefits, while "tax" finances the general functioning of government, and the government-provided benefits an individual receives do not depend on the amount of taxes the individual pays. (Gillion *et al*. 2000:255) That issue has been more extensively analysed by Cowell (1990), Slemrod (1992), Tanzi & Shome (1993), and others. The literature has been surveyed by Alm (1996).

consider the contribution as a tax, while in defined benefit schemes contributions may be regarded as more akin to taxes, leading to disincentives to work (Hemming 1998:21).

Third, defined contribution schemes are seen to provide incentives for later retirement (Barr 2000:19). The increase of labour supply by older workers could be particularly important since the economic impact of ageing is linked to fewer workers relative to the total population (Visco 2002:34). Gruber & Wise (1999) have shown that public defined benefit plans in industrialised economies have played an important role in inducing early retirement. Specifically, in countries with a higher tax on staying, people tend to exit earlier. Fabel (1994:23) emphasises that efficient labour supply decisions require that the adjustments of benefits to different choices of the retirement age satisfy actuarial fairness in the sense that "the expected discounted value of prolonged benefit receipts associated with an earlier withdrawal is reduced by an amount exactly equal to the expected discounted value of foregone contribution payments". Orszag & Stiglitz (2001:34) point out that the overall effect of a pension system on the incentive to retire includes three components: the marginal accrual rate for additional work (additional benefits relative to contributions), the actuarial adjustment of delaying the initial receipt of benefits (regardless of additional contributions), and the rules for whether benefits are reduced because of earnings.

Direct linkage between contributions and benefits can also be a feature of a state scheme with benefits strictly proportional to a person's contribution record. Thus, designing such incentive structure does not necessarily imply that pensions have to be provided by private funds. Badly designed pension schemes – either public or private – can reduce labour supply and discourage work. Based on such reasoning, Barr (2000:20) infers that at least theoretically, the questions about labour supply effects should be independent of debates about whether to opt for PAYG or funding.

Barr admits, though, that as an empirical matter, reality and perception may diverge in that people could perceive a contribution to a private scheme as a contribution, while perceiving contributions to a state scheme, even when actuarially designed, as a tax. Thus, if workers discount future benefits entirely, contributions are equivalent to an income tax, but where future benefits are perceived as actuarial, contributions are not a tax but simply the price of insurance, which has few distortionary effects (Barr 1992:772).

It could be argued that if the implicit rate of return on PAYG contributions is below the net rate of return on other savings, the difference is seen as a tax rather than a contribution. To what extent the contention of higher yield is valid, has, however, been subject to intensive debates, and cannot be regarded as automatically true (cf. discussion in sub-section 2.3.1). Extrapolations from the past, indicating that the rate of return in private schemes is likely to be higher than the implicit rate of return in PAYG schemes, may be questionable given the likely impact of the ageing population on the asset prices (Heller 1998:10-11). Orszag & Stiglitz (2001:24) remind us that the simple comparisons of rates of return in private and public pension provision could be rather misleading because they do not take into account transition costs and administrative costs, which could be rather substantial, thereby decreasing the rate of return in the private scheme.

In addition, any mandatory scheme – even private and funded – may cause distortions if it forces individuals to save more for retirement than they would have done otherwise since individuals seek to minimise the consequences of the programme that are undesired by them (Gillion *et al*. 2000:337). If people are impelled to "buy" more coverage than they would voluntarily choose and cannot borrow to offset this, the net effect on their welfare is negative. If they can borrow, but only at a rate that is above the rate of return on paid contributions, an additional tax element emerges.[29] (Fox & Palmer 2001:114)

As for the empirical evidence, Barr (1992:773) concludes that studies conflict about whether pensions reduce labour supply (different results depending on model specification, choice of sample etc.). According to him, the issue is not only unresolved but may remain so. On the other hand, Barr (2000:34) contends that the empirical evidence of the possible disincentive effects of badly designed schemes (public or private) is strong. Thus, while it may not be possible to ascertain the overall effect of pensions on labour supply, the specific effects of the design elements of the schemes are still discernible.

Bovenberg (1998:322) has argued that the positive labour supply effects of funding may be overstated because incentives for additional financial saving may make it less attractive

[29] "This tax element may be quite high because poor households in middle-income and poor countries often face capital rationing. Their discount rate can be quite high, and may rise even more if they have a reason to expect much better times for themselves in the future." (Fox & Palmer 2001:114)

for individuals to save in the form of human capital. Hence, human capital does not last as long and people retire earlier. He brings the example of the Netherlands where substantial tax incentives for pension saving induce older workers to retire early, thereby reducing labour supply and exacerbating existing distortions in the labour market.

When looking at the questions of tax evasion, a strong relation between contributions and benefits can have particular benefits in countries with a large grey economy by providing incentives that can assist compliance (Barr 2000:20). The relationship between contributions and benefits is, however, only one aspect of evasion. Mackenzie *et al*. (2001:9) argue that full compliance may be hindered by the presence of a minimum pension guarantee. A guaranteed safety net may inhibit the full participation of low-paid workers in contribution-related schemes if they believe that they will not be able to accumulate enough contributions to receive pensions that exceed the minimum. Furthermore, where the supply of labour to the formal sector exceeds the demand at current wage rates (implying unemployment), the worker may be forced to accept terms of service and collude with the employer.

As Gillion *et al*. (2000:255) have underscored, understanding the causes of evasion is important for structuring pension reforms. A partial understanding could lead to exaggerated expectations regarding the reduction in evasion and thus an overstatement in the increased revenues brought about by the changes in social security schemes. In fact, most reasons for evasion occurring apply equally to defined contribution and defined benefit schemes, and one system may not be a clear advantage over the other in managing evasion.

2.3.3. Impact on Saving, Financial markets and Economic Growth

One of the most hotly debated topics in retirement income policy is the question of how the different pension schemes affect national saving (Gillion *et al*. 2000:352). Given the World Bank's growing interest in financial systems and sectors as key elements in the "post-Washington consensus" focus on the economic development, it is perhaps not surprising that pension systems came to be viewed as potentially the key saving and investment instruments in financial intermediation (Charlton & McKinnon 2001:13-14). It is by now a rather common assertion – within the framework of advocating the World Bank pension model – that moving toward a system of pre-funded individual accounts

would increase national saving (e.g. James 1995; Feldstein 1997, cited in Orszag & Stiglitz 2001:21).[30] In other words, PAYG schemes are blamed for reducing saving below what would be achieved in the absence of such schemes. The argument was first brought up by Martin Feldstein (1974) who suggested that because the public pension system guarantees a post-retirement income, working age adults accumulate a smaller net wealth by the time retirement age is reached. He pointed out that while payroll taxes finance consumption rather than investment, most workers view payroll taxes as compulsory saving that yields benefits in retirement and consequently reduce their voluntary saving. As a result, overall rate of personal saving in the economy falls, forcing up interest rates in closed economy (thus making borrowing more expensive and investment less profitable). Thus, the welfare gains from more adequate retirement income are supposedly being offset, at least to some extent, by the social losses connected with lower saving (Gillion *et al*. 2000:353).

Feldstein's arguments, however, have been criticised for behavioural implausibility. Individuals do not usually adopt rational lifetime utility maximising plans but use shorter planning horizons because the cost of processing all available information about future is too high (Thaler 1990). On the other hand, individuals may also adopt planning-cycle that is longer than their own life cycle. Bequests, for example, have been interpreted as people deriving some benefit from the economic well being of future generations, implying multi-generational planning horizon (Barro 1974, 1978). Also, vast empirical research on the potential economic effects of social security has been unable to produce either conclusive support for, or conclusive refutation of, the argument that public pensions reduce saving (Johnson & Falkingham 1992:128). For a survey of the empirical literature, see Aaron (1982).

To what extent funded and privately run pension schemes can increase national saving is also far from uncontroversial. Overbye (2001:191-192) contends that from a theoretical perspective it is not obvious why the introduction of a mandatory, funded pension scheme should change individual preferences for saving and consumption over the life cycle. According to that view, people will respond to mandatory saving simply by reducing other

[30] Chile's policies have been most often cited as an example of success. More recently, the high savings rates achieved by some Asian economies (e.g. Singapore and Malaysia) have been used to further buttress the evidence about the pension reform's impacts on saving (Heller 1998:4).

types of saving, or by contribution evasion. Gillion *et al*. (2000:342) expound that mandatory contributions to a defined contribution plan would not act as tax *only* if the worker had saved this amount anyway and received the same rate of return with the same risk. Thus, workers for whom the mandatory contribution is greater than they would have saved voluntarily will attempt to maintain their consumption by reducing other savings. Also, the decrease of interest rates possibly induced by pension fund accumulation[31] may induce the reduction of other forms of voluntary saving (Johnson & Falkingham 1992:148). If individuals offset any contributions to the individual accounts through reduced saving in other forms, then total private saving remains unaffected (Orszag & Stiglitz 2001:21).

Besides, it could be argued that if the privatised system is seen as yielding a higher return than the public system, contributors would need to rely less on their own voluntary saving to finance their retirement, leading to a decline in private saving. A similar effect would arise if the participants viewed the privatised system as more secure than the public one, in the sense they are more certain about receiving fully satisfactory pensions on retirement. (Mackenzie *et al*. 2001:7)

Even if the reform does lead to an increase in household saving, it will translate into higher national saving only if not accompanied by a countervailing reduction in either business or government saving. Unless the increase in private saving is larger than the increase in government deficit, the net effect will be to reduce national saving.[32] When an individual accounts reform is unsupported by new incentives to increase private saving, it must probably be accompanied by measures to tighten the fiscal stance, offsetting the transitional deficit, if an increase in national saving is to be achieved. (Mackenzie *et al*. 2001:5)

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[31] Provided that the interest rates are not determined by abroad, as would be the case with small open economies.

[32] As for the potential impact on interest rates, according to Mackenzie *et al*. (2001:7-8), when financial assets are imperfect substitutes, the impact will depend on how open the economy's capital markets are. The more open the economy, the less likely that an increase in public debt will impact on interest rates, since no significant change in interest will be necessary for foreign investors to take it up.

An important question here is, what happens to the pension benefits of the current pensioners. If pensions are not reduced, they will have to be paid from taxes or from debt. Extra taxation, however, will put a strain on private saving, and extra debt will counterpoise, at least partially, additional private capital formation. (Barr 2000:12) Mackenzie *et al*. (1997a:48) suggest, however, that if the number of retirees entitled to pensions under the old PAYG scheme is high, the increase of deficit can be so large that it makes fiscal retrenchment more acceptable to voters than it otherwise would be.

Mackenzie *et al.* (1997b) provide a survey of the empirical literature regarding the possible effects on saving. Evidently it is crucial how the pension system is financed and how the private sector reacts to the pension scheme. Empirical work for the United States and some other countries shows that the introduction of private pension schemes increases private saving, i.e. the increased pension saving is not fully offset by a reduction of other forms of private saving. Lavi & Spivak (1999) show that the result holds for Israel using macro data as well as household data.

Any predictions about the effect of the reform on saving also have to take into account what effects the changing demographics (population ageing) would have on the saving behaviour of individuals. Macro and micro studies have so far yielded rather different estimates of the impact of demographic variables on saving. Early macro studies (e.g. Modigliani 1970) offered very large effects – increase in dependency ratio leading to significant reductions in private saving. Also, the follow-up by Masson & Tyron (1990) estimated that an increase of one percentage point in the dependency ratio causes a fall of one percentage point in the savings rate. Studies using household data, in contrast, often obtain small, even zero, effects (e.g. Canari 1994). For a more detailed review of the empirical literature cf. Eichengreen & Fifer (2002).

Related, but a separate effect of the pension reform involving (partial) switch to funding is assumed to be in the form of encouraging financial market development. Privatised pension system is often seen as a way to underpin and stabilise capital market development via long investment horizons (Charlton & McKinnon 2001:13-14). Benefits stemming from a mandatory private pension pillar include enhancement of financial innovation and modernisation of the infrastructure of securities markets (Gillion *et al*. 2000:357). Also, pension funds are likely to press for improvements in the "architecture of

allocative mechanisms", including better accounting, auditing, brokerage and information disclosure standards (Greenwald & Stiglitz 1990). The pension reform could also be seen as giving a momentum to the development of modern banking and insurance supervision, new securities and corporate laws, junior equity markets and credit rating agencies (Gillion *et al*. 2000:357).

Charlton & McKinnon (2001:8-9,95) point out that though in principle, stimulating the development of private pensions sectors can aid the development of capital markets, in practice, the capital market benefits of such pension system reforms may have been oversold. They argue that wide-ranging financial system underdevelopment combined with a relatively small volume of assets held by each of a number of contractual savings institutions all competing with each other for customers, are likely, at least in the short to medium term, to undermine the achievement of such goals. Initial set up costs combined with administration expenses and commercial costs suggest that it may take several decades for even the best-run private funds to build assets to a significant level to make an identifiable impact upon financial sectors and systems.

Among the key surmises made by the advocates of the current pension reform orthodoxy is that (even partial) privatisation of pension provision facilitates national economic development and economic growth (Charlton & McKinnon 2001:8). Because of the potential value of their assets and the potential cost of their liabilities, pension systems are seen as occupying an exalted position in relation to other elements of social security and social welfare (Vittas 1992:2). The correct choice of pension system is increasingly perceived as paramount to the functioning and healthy development of national economies by the virtue of being a major determinant of the structure of the financial system (Vittas & Michelitsch 1996:262). In particular, the World Bank's view has been that for the Central and Eastern European countries, pension reforms, economic restructuring and the growth options are closely related (Holzmann 1994:184, cited in Charlton & McKinnon 2001:94).

Evidence that funding can lead to a greater increase in output than PAYG (via increased saving), however, is inconclusive (Barr 1992:774). To corroborate that argument the following three links must hold: funding must lead to a higher rate of saving than PAYG, that higher saving has to be translated into more and better investment, and that

investment must lead to an increase in output. These three linkages do not hold necessarily. As pointed out in the discussion above, funding may not necessarily increase saving (even in the build-up phase). Even if saving increases, it cannot be taken for granted that pension fund managers make better choices than do other agents about resource allocation. In transitional countries, the link between saving and growth faces further complications. Funding contributes to growth only if it increases domestic investment, but domestic investment in these countries may be low yield and high risk, encouraging pension fund managers to invest abroad. (Barr 2000:13)

The empirical evidence concerning the effect of funded pension schemes on saving, investment, development of financial markets, and economic growth is far from being cogent (cf. Schmähl 2000; Aaron & Reischauer 1998). In any case, the shift toward defined contribution pensions is so recent that "any belief in their positive economic effects must remain largely an article of faith at this stage" (Overbye 2001:191-192). The impact of different financing methods will in reality depend to a great extent on country-specific conditions (Schmähl 2002:19). Also, it has been argued that other government policies, such as tax policies, educational policies and infrastructure development are more appropriate tools for influencing national saving and economic growth because they do not involve sacrifice of social insurance goals and address the involved issues more directly (Gillion *et al*. 2000:458).

2.4. Summing up the Theoretical Discussion

Taken together, social security schemes *may* affect the hours employees work, the choice of work in the formal or informal sector, and the age of retirement. They *may* also have an impact on individual saving, national aggregate saving, the development of capital markets, and even economic growth. In most cases, theory yields ambiguous predictions concerning these effects, and empirical studies have failed to resolve the issues (Gillion *et al*. 2000:13). Further, the goals of pension policy often come into conflict, e.g. even if private funds help to deepen domestic capital markets, they may also expose the elderly to greater risks and require more resources in administrative costs (Orszag & Stiglitz 2001:39).

It should not be forgotten that the primary purpose of a pension scheme is to provide a stable, predictable and adequate source of retirement income for each participant. The

macroeconomic goals should therefore be viewed as having only secondary importance. Indeed, the basic objective of a public pension programme is not to raise the savings rate. Pension reform may in fact have significantly less to do with macroeconomic implications than with political and social issues (e.g. who should bear the risk of poor economic performance, to what extent the pension system ensure intra- and inter-generational redistribution of wealth etc.) (Mackenzie *et al*. 1997a:49). From an economic perspective, the difference between PAYG and funding should also be seen as secondary.

Some areas of consensus have, however, emerged. First, pension systems may have important implications not only for social conditions, but also for economic development and fiscal sustainability. Second, although private entities can offer pension savings schemes, government intervention is required to ensure the adequacy of pensions and regulate and supervise the private pension funds. Third, the social and economic impacts of a country's pension scheme depend, to a great extent, on the detailed rules and regulations governing the scheme. To rephrase the point; within the same framework, e.g. a multi-pillar scheme, different specific implementation-schemes can bring about rather different outcomes. Fourth, although somewhat overlooked in the on-going discussion it is evident that the interplay between the pension and the tax systems are of crucial importance.

Having decided on a multi-pillar pension system, the policy makers still face a large number of decisions concerning each of the pillars and the overall functioning of the system (Fox & Palmer 2001; Müller 1999:9-13): Who should be eligible for coverage in each of the pillars? Should participation be mandatory or voluntary? How should each of the pillars be financed? How large should the first pillar be? To what extent should the first pillar redistribute income? To which extent should the first pillar be pre-funded? How should taxes be used to influence participation and financing? How should benefits be determined (age-criteria, means-tested, defined benefit vs. defined contribution, or combination of those)? Should management and ownership of pension pillars be public, private or a mix of both? How should the private pension funds be regulated? With respect to the withdrawal phase, there are additional issues that have to be addressed: How will the annuities be protected against inflation? What flexibility should retirees have in choosing insurance products that convert the accumulated assets into retirement income?

The listing is not exhaustive and some combinations are mutually exclusive. Still, within a multi-pillar scheme a very large number of combinations are possible, each combination denoting specific policy choices. The decisions about reform elements may depend on the existing pension system, country characteristics, the scope of the perceived demographic shock, etc. The choice might also be influenced by the policymaking process and more generally by the political economy considerations (Müller 1999; James & Brooks 2001). Importantly, however, it will also reflect political preferences with respect to distribution and broader societal values (Müller 1999:chp. 2). The Estonian reforms are no exception to this picture; economics, demographics, value judgements and politics shaped the Estonian pension reforms described in the next chapter.

3. The Design of the Estonian Pension Reforms

3.1. The Pension System Inherited from Soviet Times and the Early Reforms

The pension system in the Soviet Union was regulated by two separate legislative acts: Soviet Union Law on Pensions (enacted in 1956) that regulated the pensions for the majority of people, and the Law on Kolhoz Members Pensions (1964) that governed the pension scheme of the collective farm members. Both offered protection against old age, invalidity and the loss of the breadwinner. The statutory retirement age was 55 for women and 60 for men, with qualification requirements of 20 and 25 years respectively.[33] Pension benefits were tied to pre-retirement salary (either the average of the last year or five consecutive years from the last ten years), with the replacement rate varying with income, and ranging from 100% for low-income earners to 50% for high-income earners. The whole scheme was financed directly from the state budget, and although all enterprises and organisations were paying "social tax" to the state budget, there was no actual link between the social tax revenues and pension expenditures. (Leppik & Männik 2002:90-91)

It has been argued that the main economic effect of this relatively generous system was to inflate the dependency burden on the working population (Fox 1998:372). The number of pensioners in Estonia was growing throughout the Soviet period as a result of the

[33] However, there were several special provisions for persons with disabilities and selected occupations, which reduced the average effective retirement age to about 57 for men and 53 for women (Fox 1994).

retirement age remaining the same over 40 years while the average survival age increased (Leppik 1998). As in other Eastern European countries, at the beginning of the transition Estonia had the per capita incomes and tax-collecting capabilities of middle-income countries, but the old age demographics and spending on pensions (as a proportion of GDP) of high-income countries (World Bank 1994:42).

In the early phase of the transition, changing the pension system was mainly seen as a social issue isolated from economic and demographic developments (Leppik 1998). At the beginning of the 1990s, the main issue the reform was supposed to address was the necessity to increase pensions. Only in the second part of the decade the problem of the sustainability of the pension system came to the fore.[34]

At the very beginning of the transition, the new Soviet pension law was translated into Estonian, to be implemented from 1 January 1992 onwards, despite the serious doubts among the local and foreign experts (ensuing from the fact that no cost evaluation of the law had been carried out).[35] However, since tax collection did not meet expectations and monetary flows were disrupted, the Estonian Parliament suspended the new pension law and introduced temporary flat-rate living allowances. The promise to restore the pension law after the currency reform in summer 1992 was not fulfilled. Instead, in spring 1993 the Act on State Living Allowances was adopted. This Act became the basis for regulating old age pensions during the whole transition period. Although several amendments were introduced, these did not change the essence of the scheme. (Leppik & Männik 2002:96-97)

According to the Act, the retirement age was scheduled to increase gradually until 2003 (until it reached 65 for men and 60 for women). Public pensions consisted of two parts: a

[34] The choice not to pursue further reform at that stage was partly based on the realisation that no pension insurance system could have worked under the extreme inflation experienced in the early 1990s (Tavits 2003:655, referring to Hansson 1995).

[35] The Act extended the list of periods that would be regarded as equivalent to working and envisaged changes in the pension formula: the basic old-age pension was to be calculated as 60% of the minimum wage, supplemented by earnings-related component amounting to 40% of the average personal wage during the reference period (Leppik & Männik 2002:98-99).

flat-rate part connected to the minimum wage and a supplementary part, which took into account the length of employment. Neither salaries of the Soviet period nor the transition period were taken into account in calculating the pension. (Toots 2000) National pension, amounting to 85% of minimum wage, was introduced to cover persons whose length of service was less than 15 years (Leppik & Männik 2002:99). In 1994, an amendment to the Act established that the amount for a basic pension would be set annually by the Parliament rather than being tied to the minimum wage, with the goal of increasing the flexibility of the system (Toots 2000; Leppik & Männik 2002:99). Altogether, the benefit formula was changed 9 times between 1992 and 1997, the changes mostly serving the goal of increasing the pension benefits (Leppik & Männik 2002:109).

3.2. Introducing the 3-pillar System

Designing the 3-pillar system commenced in 1997 when the Cabinet decided to form a joint working group consisting of the members of the Parliamentary Social Committee and the experts from the Ministry of Social Affairs for the purpose of preparing a comprehensive overhaul of the pension system (Tavits 2003:646).

According to the "Conceptual Framework of the Pension Reform" (Government of Estonia 1997) the main goals of the pension reform were to guarantee the political stability and legal certainty of the Estonian pension system and to convince the public that the new system would continue without major changes. The system was to be transparent and as simple as possible and the different pillars of the pension system and other forms of social insurance were envisioned to form a coherent and consistent whole complementing each other. It was also emphasised that the new pension system has to guarantee a minimum level of pension provision for all Estonians, and ensure the desired degree of redistribution in a transparent way. Other goals set out in the paper were to ensure the long-term solvency of the pension system, to encourage economic growth, to decrease the proportion of the underground economy, to avoid fiscal imbalances, and to enhance the functioning of the financial markets.[36]

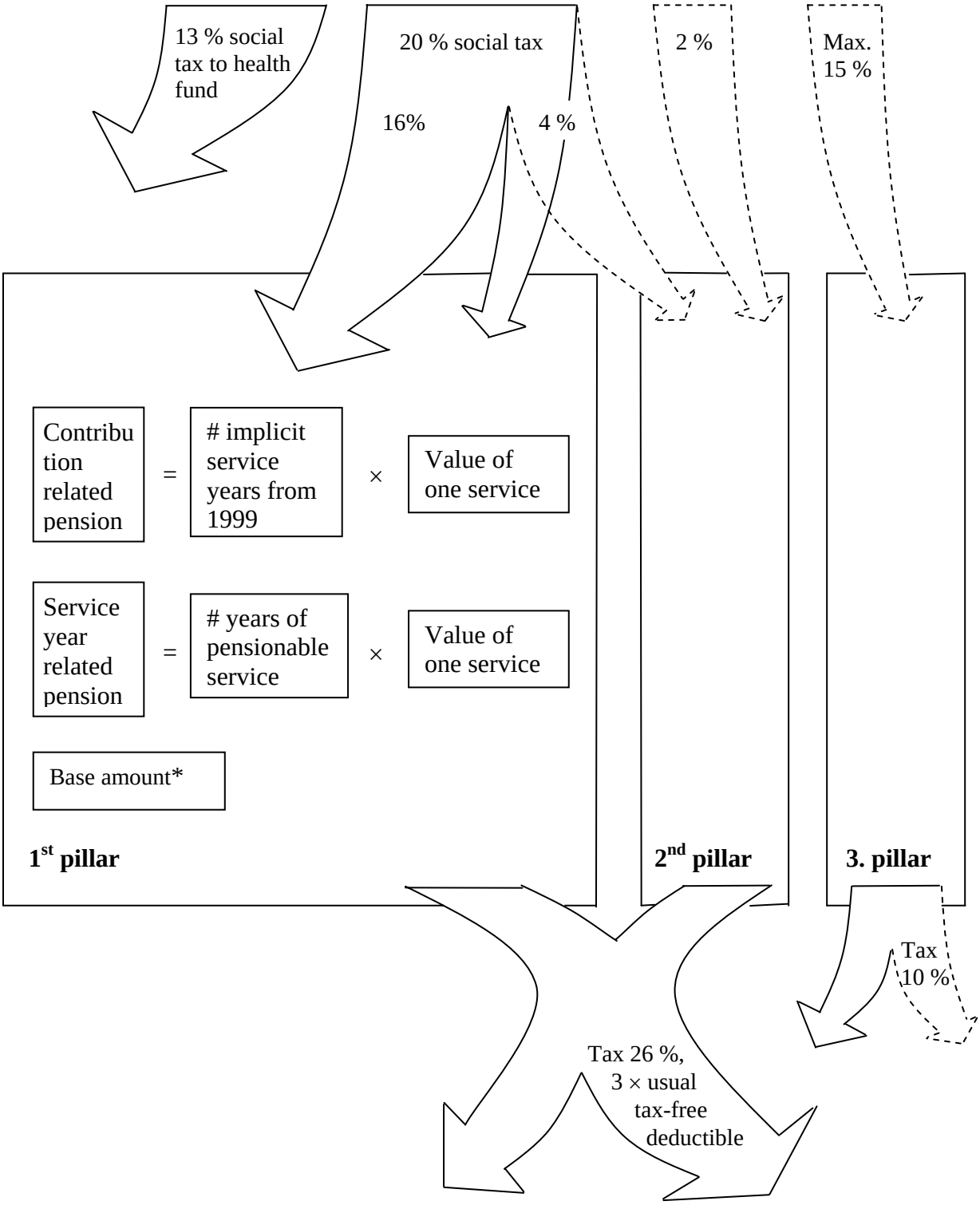
[36] These goals coincide to a large extent with the goals attributed to multi-pillar systems discussed in chapter 2.

The Conceptual Framework envisaged a 3-pillar pension system, and its underlying philosophy was very much influenced by the suggestions put forth by the World Bank in e.g. World Bank (1994) (Bank of Estonia 2003).[37] The reform was subsequently elaborated over the next four years by adopting the acts changing the first pillar and introducing the second and third pillar. Interestingly, the overall reform of the pension system actually started with the introduction of the third pillar, followed by changes to the first pillar and then the introduction of the second pillar. So, for example in 1998 the first and the third pillar of the 3-pillar system pension system were already functioning, while debates on the second pillar continued until 2001.

The first pillar of the new scheme is PAYG financed, but the pension paid out is in fact calculated from three separate parts, *viz.* a base amount, a working time-related component and a contribution-related component. The second pillar provides funded coverage based on contributions to private pension funds. Participation in the second pillar is compulsory for persons born in 1983 or later, but voluntary for older persons. When individuals have joined the second pillar, a fraction of their wage earnings will be directed into their individual accounts. The third pillar refers to voluntary pension savings encouraged by a lenient tax treatment. The three pillars will now be considered in more detail, cf. also Figure 1.

[37] Tavits (2003:655) points out that the direct resources offered by the World Bank (and the Swedish expertise) were rejected in order to avoid creating dependency on international organisations and foreign sponsors. Still, the World Bank Mission participated in a pension reform workshop organised jointly by the Estonian Government and the World Bank with a purpose to advise on key policy options regarding the second pillar. Also, the World Bank pension projection model was used in the policy formulation process. (World Bank 1999)

Figure 1. The Estonian old-age pension system, 2004



* indicates that the amount is adjusted annually by the average of the annual increase in the consumer price index and the annual increase in total first pillar contributions.

3.3. Reform of the First Pillar: Goals and Design

The main act regulating the first pillar is the State Pension Insurance Act (adopted in 1998), which pursues several policy objectives. First, it is aimed at decreasing labour market distortions by strengthening the link between contributions and benefits. Second, it strives to inhibit the increase of the system dependency ratio by modifying the eligibility criteria of pensions. Third, it aims to guarantee the compliance with the European Union requirements on equal treatment of men and women (EUS 2000:28).

The first pillar is administered by the Ministry of Social Affairs and the Social Insurance Board. Also, the State Pension Insurance Register was established as a new unit of the Social Insurance Board. The register keeps individual level data about the amounts of social tax paid on their behalf and keeps track of the individual contributions needed to calculate the contribution-related part of the old-age pension.

The first pillar operates according to PAYG principle: current pensions are financed from the social tax paid by employers and the self-employed.[38] The social tax contribution amounts to 33% of income, of which 13%-points is health insurance contribution, and the remaining 20%-points is earmarked for pensions, cf. also Figure 1. However, when a person has joined the second pillar, 16%-points instead of all 20%-points goes to the first pillar, while the remaining 4%-points is directed to the second pillar individual accounts.

An important change of the first pillar is the introduction of the contribution-related component. The old-age pension paid out of the first pillar consists of three components: a base amount, a working-time part based on the number of accumulated years of pensionable service and a contribution-related part.

[38] According to the Social Tax Act, the state pays social tax for the following persons: persons who are paid child care allowance or are paid benefit pursuant to the Parental Benefit Act (so-called “parent salary”) or caregiver’s allowance, persons receiving unemployment benefits or social benefits, non-working spouses accompanying diplomats and public servants serving in foreign missions of Estonia, and conscripts in compulsory military service in the Defence Forces.

The *base amount* is paid to all retirees who are eligible for state pension. The base was determined in the State Pension Insurance Act in 2002 and is indexed annually, cf. below.[39] The base amounted to EUR 37 in 2003.

The *working-time component* is calculated as the number of accumulated years of pensionable service attained before 1999 multiplied by the value of one service year. The number of years of pensionable service comprises the time during which the person had a job for which social tax was paid, was a member of an artistic association or trade association, was in military service, was enrolled in an education institution, etc. The *value of one service year* was also determined in the State Pension Insurance Act and is indexed, cf. below. The value of one service year was EUR 2 in 2003.

The *contribution-related component* depends on the contributions paid into the first pillar on behalf of the employee, or by themselves in the case of self-employed persons, after 1 January 1999 and is found by multiplying the sum of a person's annual factors (or "implicit years") by the value of one service year. One annual factor or "implicit year" is a person's pension-earmarked social tax as a fraction of the average pension-earmarked social tax paid by all contributors in the given calendar year.[40]

The base amount and the value of one service year are found according to an indexation formula, cf. the amendments to the State Pension Insurance Act enacted in January 2002.[41]

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[39] It should be noted, however, that the indexing formula has not been strictly adhered to. For example, in July 2003 the base amount was increased by EUR 6 in addition to the increase that took place as a result of indexing. In March 2004 the Estonian Parliament approved the plan to increase pensions by additional amounts in 2004-2006. The base part is increased by EUR 3 and the value of the service year by EUR 0.07 each year.

[40] The average part is calculated by adding up the pension earmarked part of the social tax paid by all contributors and dividing it by the sum of accumulated service years earned in that year by all the contributors (if a person has paid social tax on less than minimum wage per month, the "earned" service year is respectively less than 1).

[41] Before the introduction of the indexation formula, the determination of the level of pension benefits was more discretionary. The State Pension Insurance Act passed in 1998 stipulated that the current pension payouts are re-calculated each year, depending on the expected social tax revenue and following the rule that 35% of the pension expenditure should be used for base amounts and 65% for the other components. The

The index is written up by one half of the increase of the consumer price index and one half of the increase of the pension part of the social tax contributions.

In order to qualify for old-age pension an individual must have completed at least a total of 15 qualifying years, which comprise years of pensionable service before 1999 and accumulation periods starting from 1999. One year towards the accumulation period is calculated for the insured person for whom the pension-earmarked part of individually registered social tax has been paid according to at least the minimum monthly wage for a year.[42] Persons reaching the age of 63, but who do not qualify for any other type of pension, and who have lived in Estonia at least 5 years before retirement can claim the *national pension*. The national pension rate was fixed by the State Pension Insurance Act and is indexed in the same way as the old-age pensions. In 2003 the national pension amounted to EUR 60.

Other changes stipulated by the State Pension Insurance Act of 1998 include the equalisation of the pension age at 63 for both men and women by the year 2016, the opportunity of early retirement with actuarially reduced pensions and the opportunity for delayed retirement resulting in higher pensions.[43]

3.4. The Second Pillar: Goals and Design

The working group designing the second pillar started their work in 1999. It drew on the experiences of Chile, Poland, Hungary, and Latvia (Erlemann & Oone 2002). The Funded Pensions Act, which is the main act regulating the second pillar, came into force 1 October 2001 but since the registration of the pension management companies and the pension fund took time, it was only possible to start joining the second pillar from 4 May 2002. In

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base amount, however, was to be determined by the legislature at the passage of the annual state budget whereas the value of one service year was to be set by the Cabinet.

[42] Thus, upon calculation of the accumulation period, the pension earmarked part of individually registered social tax of an insured person for each calendar year is compared to the pension-earmarked part of social tax calculated on the minimum monthly wage for January of the corresponding year multiplied by twelve.

[43] A person can retire with an early-retirement pension up to three years before the legally stipulated retirement age, but in such case the amount of pension is reduced by 0.4% for each month falling short of the legally stipulated retirement age. As for the postponed retirement pension, the pension is increased by 0.9% for each month by which a person postpones retirement.

April 2004, a new Funded Pensions Act was adopted, repealing the Act of 2001, necessitated by the passage of the new Investment Funds Act, which also covered the regulation of pension funds.

As brought out in the explanatory note to the Funded Pensions Act of 2001 and in the Progress Report submitted to the European Commission (EUS 2000) the aims of the second pillar are: to prevent a drop in the standard of living after retirement, to avoid the reduction in the average replacement rate due to unfavourable demographic developments, and to make the pension system less susceptible to political pressures. Also, it aims to increase the responsibility of individuals in the pension-system and facilitate redistribution along the life cycle.[44]

The participants in the second pillar have to pay 2% of their gross salary to the pension fund and in addition to that the state adds 4%-points from the pension-earmarked part of the social tax.[45] In total 6% of the person's income is transferred to the pension account of the person, while the person has paid directly only 2%. In return for their contributions, individuals acquire units of pension funds. Thus, the second pillar is fully funded, providing defined contribution type pensions.

In designing the second pillar throughout 1999-2000 it was debated whether the second pillar should be compulsory or not. Initially designed as compulsory for all under 50 years old, then for all under 35 years old, it then became a target of political battles when part of the governing coalition wanted to make it completely voluntary. The motivation behind such a proposal ensued from the fact that the governing coalition wanted to fulfil their

[44] Again, all these goals coincide with the touted goals and benefits of having a funded pillar discussed in section 2.3.

[45] The logistics of payments look like the following: The employer of a person who has subscribed to the second pillar has to withhold 2% of the person's salary and transfer it to the Tax Board. The Tax Board has to verify that contributions are made correctly and transfers the contributions together with the 4%-points from the social tax contributions to the bank account of the registrar of the Estonian Central Register of Securities in the Bank of Estonia.

electoral promise to the electorate of not raising taxes.[46] As a compromise, it was finally decided that participation in the second pillar would be compulsory for those born after 1982, while it would be voluntary for others. However, once an individual decides to join the scheme, and submits a subscription application, the contract becomes a binding obligation that cannot be renounced.

The person who has subscribed to the second pillar can freely choose between the different pension funds run by private pension management companies, and change the funds by transferring the assets from one fund to another. In order to keep down the administration and transaction costs, the Central Register of Securities administers the payments and databases centrally. The Register keeps track of the applications, the funds chosen, the contributions paid, the pension fund units acquired, and benefits paid.

The unit-holder is entitled to payouts from the second pillar, when he or she has reached the stipulated retirement age, is being paid a state pension,[47] and at least five years have passed since the person started paying contributions. The payouts depend on the size of the accumulated contributions and on the rate of return of the pension fund. The unit-holder can enter into an insurance contract, paying the insurer, as a single premium, the redemption price of all the redeemed units of pension funds. Payouts are made in the form of annuities, i.e. periodically payable amounts on the basis of the insurance contract. However, if the monthly annuity exceeds three times the amount of the national pension, a person can choose periodic payments from the pension fund to the extent of the amount exceeding the said pension rate.[48] If, upon entry into a contract, the annuity per calendar month proves to be less than one quarter of the national pension rate, the person is entitled to periodic payments from the pension fund. Also, if the total amount contributed to

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[46] It is questionable whether making people pay into individualised pension accounts should be called raising taxes since the contributions remain a property of the individual (Potisepp 2000). Cf. discussion in section 2.3.2.

[47] This requirement does not apply to persons who are not entitled to a state pension (e.g. because of insufficient pensionable service years or accumulation periods).

[48] In the Funded Pensions Act of 2001 it was stipulated that the maximum number of units redeemed from a mandatory pension fund by a person as periodic payments per calendar month would be determined using calculation methods approved by the Financial Supervision Authority, while the new Act of 2004 gives the responsibility of regulation to the Minister of Finance.

mandatory pension funds is less than three times the amount of the national pension, a person will be entitled to withdraw the whole amount as a lump sum.

As for the taxation of the pension payouts, the total payouts out of the first and second pillars are calculated, and the amount of triple the income-tax free minimum is not taxed. (See also Figure 1.) The payouts above that amount are taxable as personal income, currently at 26%.

The Investment Funds Act and the Funded Pensions Act regulate the investment activities of the pension funds, and the supervisory authority over the pension management companies is exercised by the Financial Surveillance Authority. It is not permitted to invest the assets of the pension funds in shares to an extent that is greater than 50% of the market value of the assets of the fund. The Act mandates risk spreading by stipulating that the value of securities issued by one entity cannot total more than 5% of the market value of the assets of a mandatory pension fund. Also, assets of a pension fund deposited in a single credit institution or in credit institutions belonging to the same group cannot total more than 5% of the market value of the assets of the pension fund.

If a pension management company violates the requirements, it does not render such transactions void, but the company has to compensate the unit-holders of the pension fund for any damage resulting from the violation. The size of the loss will be determined by the Financial Surveillance Authority on the basis of all the proprietary damage caused, including any loss of profit compared to the situation where such violation would not have occurred.

According to the Guarantee Fund Act passed 20 February 2002, the Pension Protection Sectoral Fund is established out of the contributions of pension management companies. If there is a loss, and the pension management company has not compensated unit-holders before the deadline set by the Financial Surveillance Authority or if the pension management company does not have sufficient resources, the loss will be defrayed by the Pension Protection Sectoral Fund. A unit-holder would be fully compensated for losses up to EUR 10,000 per specific loss event of the unit-holder. Any loss exceeding EUR 10,000 will be compensated for to the extent of 90%. However, the state does not give any guarantees regarding the value of the units. The only losses that are compensated are those

arising from violating the stipulated investment requirements and other rules set out in the acts and regulations.

3.5. The Third Pillar

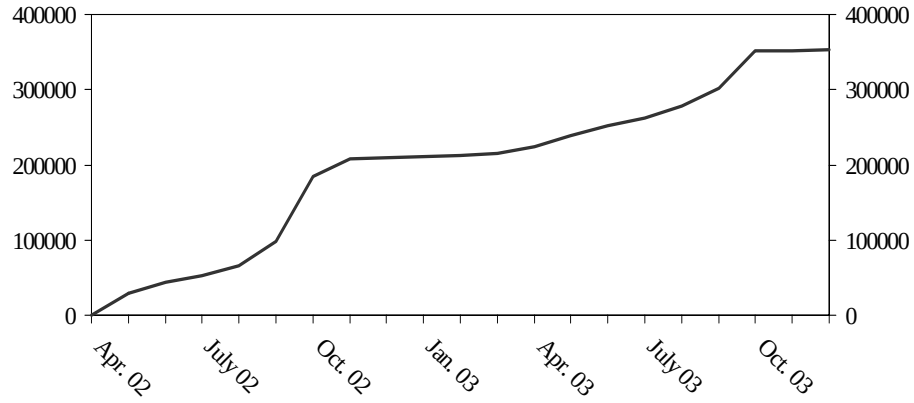
The third pillar of the pension system – the privately managed voluntary funded pillar or the supplementary funded pillar – is regulated by the Funded Pensions Act and the Investment Funds Act. Individuals can participate in the third pillar in two different ways (EUS 2000): they can either opt for pension insurance policies offered by licensed private insurance companies or for units of pension funds managed by private asset managers. Thus, the third pillar participants have a choice between the defined-benefit and the defined-contribution type schemes.

The participation in the voluntary private pension schemes has been encouraged by tax incentives (stipulated in the Income Tax Act). The contributions can be deducted from the taxable income, with a total of up to 15% of the income. As for the taxation of payouts, if the pension savings are taken out as a lump sum after the person reaches retirement age, a rate of 10% applies. The regular payouts or annuities, based on the insurance contract, however, are not taxable. The pension age is decided in the contract between the individual and the insurance company. However, the minimum age for which the tax exemptions apply is set at 55 years.

4. The Early Outcome of the Pension Reform

Joining the second pillar became possible from 4 May 2002. The *first phase* of joining lasted until 1 June 2002 at which time 44,600 people had joined the second pillar. Those who had joined by that date could start making contributions from July 2002. The *second phase* lasted until 31 October 2002 with contributions to the second pillar starting from January 2003. By the end of the second phase 207,200 people had joined the second pillar, which amounted to 36% of the taxpayers and was a significantly larger number than expected. The *third phase* of joining lasted until 31 October 2003 with contributions starting from January 2004. By the end of the third phase 351,154 people had joined the second pillar. Figure 2 depicts the number of people having joined the second pillar. The different phases are clearly distinguishable.

Figure 2. Number of participants in the second pillar, April 2002 – Dec. 2003, end of month



Source: Pension Centre 2003

Different age-groups have joined the second pillar in different strengths. Table 2 shows the proportion of persons in various age-groups having joined the second pillar by 31 October 2002 and 31 October 2003, respectively. The participation rate of the oldest group remains broadly constant at approximately 25%. This reflects the fact that for those born 1942-56, the second phase, ending 31 October 2002, was the last chance to join the second pillar. For those born 1957-61, the third phase ending 31 October 2003 was the last chance to participate. This group saw a significant jump in participation during the third phase. Other age-groups have also seen substantial increases in the proportion of persons joining, especially the group of those born after 1982 where participation is compulsory for persons having their own income.

Table 2. Proportion of persons in different age-groups having joined the second pillar, %

Year of birth	**1942-56**	**1957-61**	**1962-66**	**1967-71**	**1972-76**	**1977-82**	**> 1982**	**All**
By 31 Oct. 2002	21.5	25.0	24.9	25.9	25.8	24.7	33.0	24.9
By 31 Oct. 2003	23.4	54.0	44.7	44.7	46.0	38.7	64.5	41.3

Source: Own calculations based on Erlemann & Oone (2002), Oone (2003b) and Statistics Estonia.

There are six pension fund management companies running a total of 15 different funded pension funds. There are essentially three types of funds that the participants can choose from: aggressive funds investing up to 50% of assets in shares, balanced funds investing at least 75% of the assets in debt instruments and up to 25% in shares, and conservative funds investing 100% of the assets in debt instruments.

The risk-preferences of different age-groups are depicted in Table 3. For all age-groups taken together, approximately 2/3 has opted for aggressive funds. The preference for aggressive funds clearly decreases with age. According to Oone (2003a), the preferred risk-profiles were influenced by the performance of the different types of funds.[49] In spring 2003 the performance index for conservative funds was increasing, while the index for aggressive funds was decreasing. In autumn 2003, however, the index for aggressive funds was increasing again, leading a significant number of people to opt for it.

Table 3. The risk preference of different age-groups, % of all funds, Oct. 2003

Year of birth	**1942-56**	**1957-61**	**1962-66**	**1967-71**	**1972-76**	**1977-82**	**> 1982**	**All**
Aggressive funds	29	45	61	75	84	89	85	67
Balanced funds	33	40	30	19	12	7	4	20
Conservative funds	38	15	9	6	5	4	11	13

Source: HEX Tallinn (2003) and Oone (2003b).

As for the gender profile of those joining the aggressive fund, in the second phase 69% of men and 60% of women opted for the aggressive funds (Erlemann & Oone 2002). By the end of the third phase 72% of men and 64% of women men had chosen the higher-risk fund (Oone 2003a).

The concentration of participation can also be brought out as one of the trends: 86% of the participants have chosen funds managed by the two biggest banks in Estonia. 52% have joined the funds managed by *Hansapank* and 34% the funds managed by *Ühispank* (HEX Tallinn 2003). The total value of assets in the second pillar funds amounted to EUR 63.4 million as of 31 December 2003 (Pension Centre 2003).

Table 4. The number of people joining the third pillar, end of period

1998	**1999**	**2000**	**2001**	**2002**	**2003**
348	10452	24430	34883	46732	58248

Source: Sormunen (2003a), Tiit *et al*. (2004:37)

The number of people who have joined the third pillar has been gradually increasing, cf. Table 4. By October 2003 the total value of assets was EUR 5.2 million in third pillar

[49] The performance of the different funds is tracked by the Estonian Central Register of Securities and the information published on the webpage of the Estonian Pension Centre: www.pensionikeskus.ee/?id=631.

pension funds and EUR 34 million in third pillar pension insurance funds (Pension Centre 2003).

5. Points of Argument

Ideally the choice of pension system should be derived from the maximisation of society's social welfare function (Stiglitz 2000:93-116). In practice, however, pension systems are very complex and affect society in a host of ways, which cannot be adequately incorporated in a formal maximisation procedure. The policy-makers' choice of various design elements must be guided by specific (partial) objectives.

The Estonian pension reforms were aimed at addressing a large number of objectives, cf. chapter 3. The objectives are in some cases closely connected, but also exhibit potential conflicts. In this chapter a number of areas are brought up where it is arguable to what extent the goals can be met, also in the light of the theoretical discussion developed in chapter 2. The discussion is mostly indicative and focuses chiefly on pointing out areas where more analysis is needed. Section 5.1 focuses on the public policy and also administrative objective of creating a simple and transparent pension system. Section 5.2 considers the basic objective of adequate pension provision, which also entails a discussion of distributional aspects. Section 5.3 considers the derived effects on the public finances. Finally, section 5.4 discusses the broader effects on the overall performance of the Estonian economy, including the effects on labour supply, saving, financial markets, and economic growth.

5.1. Transparency and Administrative Simplicity

The "Conceptual Framework of the Pension Reform" (Government of Estonia 1997) states that the new Estonian pension system should be as simple and transparent as possible. Transparency is certainly an important factor in ensuring the legitimacy and hence political sustainability of the pension reform (Barr 2000:38). Simplicity and transparency of the pension system would imply that it can be easily understood by individual citizens, and in cases where they have to make decisions (e.g. whether to join the second pillar or not), they can make the decision without having to go through an excessively complex information search and reasoning process. It is, however, arguable whether these goals have been achieved; cf. also the description of the new pension system in chapter 3. The

complexity stems from several sources, *viz*. the individual pillars, the interplay between the three pillars and finally the interplay between the pension system and the tax system.

The first pillar of the pension system is complicated as the calculations of the working-time and contribution-related parts are relatively involved. The working-time component will eventually disappear, but it will take many decades. And, although the introduction of the indexing formula might have helped to increase transparency and certainty of the first pillar, subsequent muddling with the formula by increasing pensions via additional amounts and the emerging discussion regarding possible changes to the formula have certainly undermined the achievement of this goal. As Lindeman *et al*. (2000:13) have suggested, the goal of strengthening individual responsibility and enhancing transparency, can be seriously compromised unless regular and predictable indexing standards are introduced into the first pillar. Indeed, individuals cannot be expected to assume more responsibility for their own retirement planning if the key components of the first pillar are adjusted every year through an opaque and unpredictable political process (World Bank 1999:5).

The second pillar in itself is perhaps easier to understand, but the investment risks are not easily assessed. Furthermore, having joined the second pillar affects the calculation of the contribution-related part of the first pillar pensions since the annual factors are based on the ratio of the individual contribution and the average contribution for each year. The main effect here is that those who have joined the second pillar accumulate smaller annual factors and receive lower pension payouts from the first pillar when they retire, compared to the scenario if they had not joined. Thus, the interaction between the first pillar and the second pillar is rather complex. In addition, the implied value of the inherent taxation postponement and tax reduction is difficult to estimate in deciding whether to join the second pillar.

Indeed, an accurate comparison of the possible returns on the first and second pillar contributions would require rather extensive cognitive abilities. The second pillar return depends on the performance of the portfolio, which is very difficult to foresee. The benefits in the form of annuities depend on the situation in the annuities market, the average life expectancy of the population when one retires and interest rates, which can be very difficult to predict many years in advance. On the other hand, the first pillar returns

depend on the economic growth, the growth of the population, employment and productivity; factors which could also be very difficult to presage.

The interaction between the two pillars regarding the influence of joining the second pillar on the calculation of the contribution-related part of the first pillar pension was not clearly brought out during the introductory phase of the second pillar. While this could be understandable from the viewpoint of trying to attract as many people as possible to join the second pillar, it could be contended that there was no sufficient or easily available information regarding the interaction between the pillars necessary for making an informed choice.

It could be argued that the second pillar and the contribution-related part of the first pillar duplicate each other to a large extent, adding complexity with little apparent gain.[50] A counterargument is that the risk profiles of the two pillars are different; while the first pillar carries a large amount of political and demographic risk, the second pillar carries mainly financial market risks. This argument is only partly valid. As discussed in sub-section 2.3.1 (cf. also the discussion below, in section 5.2) the claim that different pillars can diversify the risks has been contested on various grounds.

The third pillar is less complex. Still, the interaction between the first and second pillars and the third pillar is not entirely clear. For example: when would it be beneficial to the individual to refrain from joining the second pillar and instead invest the saved amount in the third pillar? Obviously the future taxation of the payouts from the different pillars is one of the important factors in this context. Putting together the payouts from both the first and the second pillar in order to find whether they exceed the triple of income tax free minimum could be seen as adding complexity to the system.

Arguably all pension systems are complex and their functioning to some extent opaque. While this is unfortunate in all systems, it is especially unfortunate in the 3-pillar system

[50] Even the World Bank (1999:5-6) suggested in its *aide memoire* to an Estonian pension reform work-shop that for those who participate in the second pillar, the first pillar pensions should only be based on years of service (in addition to the base component), while the contribution-related component could be introduced for those who do not join the second pillar.

implemented in Estonia where most individuals must make decisions concerning whether to join the second pillar or not and whether to contribute to the third pillar.

5.2. Adequate Future Pension Provision?

A fundamental goal of all pension systems is to ensure adequate pension coverage for retirees as also emphasised in the Estonian government's "Conceptual Framework of the Pension Reform" (Government of Estonia 2003).

Having different pillars may help to provide greater security by diversifying the sources of pension payouts, provided that the first and the second pillar are subject to risks that are not perfectly correlated. Still, as discussed in section 2.3 all future pension payouts are subject to substantial political risks since policymakers can change e.g. the accumulation rules and the taxation of the second pillar in the future. Furthermore, all the pillars will be subject to demographic and economic risks, because of the effect on output, which will put a pressure on first pillar benefits and reduce the purchasing power of the annuities (cf. discussion in section 2.3.1, in particular the arguments developed by Barr 1992, 1998, 2000, 2002; Hemming 1998, Johnson & Falkingham 1992; Bovenberg 2002). As the World Bank (1999) pointed out in its *aide memoire* to the pension reform workshop in Estonia, the potential gain from diversification can only be realised if the shift to a funded pillar can generate economic growth through increased national saving and/or significant increase in the depth and liquidity of the capital markets.

The emphasis on contribution-related benefits in all three pillars may result in insufficient pensions for some parts of the population. Table 5 presents the Estonian government's forecasts of the payouts from the first and second pillar, cf. the "Pre-accession Economic Programme of 2003" (Government of Estonia 2003). Although such forecasts are very uncertain and sensitive to changes in the assumptions, it is noticeable that the average replacement rate is expected to be falling markedly between 2005 and 2030. Only at the very end of the prognosis period is the replacement rate higher than in 2005.

Table 5. Prognosis for pension payouts from first and second pillars, %

	2005	**2010**	**2020**	**2030**	**2040**	**2050**
Average replacement rate for all	34.3	30.1	25.3	25.0	32.5	39.0
- Of which from first pillar	*34.3*	*26.5*	*17.2*	*11.7*	*10.1*	*9.0*
- Of which from second pillar	*0.0*	*3.6*	*8.1*	*13.3*	*22.4*	*29.9*
Average replacement rate for second pillar participants	..	33.0	32.4	35.4	41.6	43.3

Source: Government of Estonia 2003, own calculations.

From approximately 2030 the expected payouts from the second pillar are significantly higher than the payouts from the first pillar. It follows that the pension benefits of those who have *not* joined the second pillar may turn out to be rather low. Also noticeable is the substantial difference between the expected average replacement rates (including those who have not joined the second pillar) and the replacement rates for second pillar participants in 2020 and 2030. As was brought out in chapter 4, almost half of those born 1957-61 (and who cannot join anymore after 31 October 2003) did not join the second pillar. For this group the average replacement rates may be comparatively low.[51]

Although the expected average replacement rates for *second pillar participants* generally show an increasing trend, merely looking at the averages may not adequately describe the replacement rates for people with non-traditional working-paths or low-income earners, who have contributed relatively little into the first and the second pillar. Since a significant part of the first pillar depends on previous earnings and the payouts from the second and third pillar are also earnings-related, a significant number of people might not manage to accumulate enough contributions during the working-time.

The study by Tiit *et al*. (2004:92) contends that by the time the first pillar changes have full effect (i.e. the time when those who entered the labour market after 1999 retire), significantly large groups will end up with only minimum coverage from the first pillar. They predict that ca. 7% of those reaching retirement age may have problems with fulfilling the qualification requirement of 15 years, meaning that they can only receive the national pension from the first pillar. An additional 10% will receive only a minimum

[51] On the other hand, for those who did not join the second pillar, the contributions-related part of the first pillar pensions would be somewhat larger because of the 20%-points of the social tax contribution (instead of 16%-points as it is in case of the second pillar participants) being used for finding the annual factors. The extent to which that would "compensate" for not having joined the second pillar is yet difficult to ascertain.

level pension, not higher than the national pension, because of the small annual factors. That would mean that about 17% of the retirees receive a state pension at a minimum level.

The groups that will be particularly hurt by the changes to the first pillar include: those earning minimum wages, long-term unemployed, parents who stay at home longer to take care of children[52] and other economically inactive groups. The social tax for certain groups of economically inactive persons paid by the government on the basis of EUR 45 (that amount has not been changed since 2000), would result in the annual factors of merely 0.12, entitling the person to additional EUR 0.3 per month in pension benefits. At the same time the social tax paid on behalf of those receiving an average salary would entitle the person to additional EUR 2.4 per month. (Tiit *et al*. 2004:92-93) Also, if the conservative indexation formula is kept in place, those who rely only on the first pillar benefits will face the fall of replacement rates when the wage growth outpaces price growth in the years following their retirement.

It could be argued that those joining the second pillar are taking on a significant risk regarding their pension provision, especially if they opt for the more aggressive funds. As pointed out in sub-section 2.3.1 even if the regulations concerning the investment activities of the pension funds are rather stringent and aimed at spreading the risks, they do not protect the Estonian unit-holders from downturns on the financial markets, either in the form of normal fluctuations in asset prices, episodes of bubbles and crashes, or more severe effects of general financial crises either in Estonia or in the countries where the assets have been invested. Thus, there could be significant variation between the payouts received by different individuals and also between whole cohorts, depending on how well the equity or bond markets are doing at the time of retirement (cf. Alier & Vittas 2001).

Unlike in some countries that have undertaken similar pension reforms (e.g. Poland)[53] there are no minimum return requirements (relative or absolute) stipulated in the Estonian

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[52] Since 2004, for the first year of child leave, the parent staying at home receives so-called “parent-salary”, amounting to the salary earned before the child leave (up to triple the average salary), on which the state pays the social tax and also contributes l % to the second pillar.

[53] In Poland the pension funds are subject to a relative rate of return guarantee, based on the average return of all pension funds. At the end of each quarter, the supervisory agency will calculate the average rate of

system. The Guarantee Fund compensates only for losses arising from the violation of the prescribed investment rules and limitations. Whether minimum return guarantees would also be desirable in Estonia is questionable (cf. discussion in sub-section 2.3.1). Such guarantees would undermine individual responsibility expressed in the choice of proper funds and portfolios, subsequent monitoring of the performance of the acquired units, and switch from aggressive to conservative portfolios when the retirement time approaches. Rather, it might be argued that sufficient competition between the funds, transparent reporting, accessibility of the information to all unit-holders, and the ability of the unit-holders to switch between the funds should be sufficient. Rocha *et al*. (2001:202) also concluded that most attempts to impose such guarantees may cause more harm than benefit and should generally be avoided.

A more serious problem is the question of how the annuities from the second and third pillars are going to be protected against unexpected inflation. As Walliser (1999:19) emphasises, inflation protection should be mandatory for at least that portion of accounts whose withdrawal over time is regulated, otherwise, the real value of pensions could decline substantially and surprisingly. In Estonia's case, the question of inflation protection will become all the more relevant provided that an increasing part of the replaced income at retirement will come from the second pillar (cf. Table 5). To the extent that inflation protection is unavailable in the insurance market acting on its own, the Estonian government might have to issue inflation-indexed securities to facilitate the market-provision of inflation-protected annuities. Judging from the previous experience of many other countries the issuance of inflation-indexed securities has turned out to be quite complicated. Thus the Estonian government and the insurance market may have to face rather serious challenges in protecting the annuities against the unexpected inflation risk.

As pointed out in sub-section 2.3.1 other annuities market risks may add to the risks arising from the equity market (cf. Barr 2000, 2002; Heller 1998; Gillion *et al*. 2000; Alier & Vittas 2001). Since the value of the annuity will depend on the interest rate the insurance company expects to earn over the lifetime of the annuity, the persons retiring

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return, weighted by size of fund, achieved for the previous 24 months by all pension funds in operation. Any fund management company which fails to achieve 50% or four percentage points (whichever is the lower) below the average nominal return for all funds has to make additional payments to the fund. (Chlon *et al*. 1999:30-31)

when interest rates are low, may receive a lower annuity than expected. The changes introduced to the Funded Pensions Act in 2004 stipulate that the interest rate used for calculating the annuity may not exceed 3%. To what extent fixing the maximum interest rate is advantageous, is not entirely clear, because it may deprive the retirees from benefiting from potentially higher interest rates.

In terms of regulating the withdrawal phase prescribing compulsory annuities and allowing phased withdrawals when the annuities would exceed the triple of national pension as it is done in the Estonian case could be seen as an optimal combination of the two withdrawal options. Since the compulsory annuities already protect the participants against longevity risk, allowing phased withdrawals that offer a market-related return on declining balances, could be seen as mitigating the effect of low asset prices and interest rates that might prevail at the time of retirement. Since the phased withdrawals are only available to those who have signed the annuity contract, the permission of phased withdrawals may not endanger the insurance market in the form of adverse selection as much as the case when phased withdrawals were allowed even without an annuity contract. The extent to which individuals make use of the phased withdrawals might, however, affect the insurance market and calls for further analysis.

Allowing the withdrawal of accumulated assets as a lump sum when the annuities are very small, serves the efficiency goal of avoiding the accumulated assets being eaten up by excessively large administrative costs relative to the yielded payouts. The optimality of regulation, however, depends on the proportion of the retirement income coming from the second pillar. It could be argued that since an increasing portion of retirement income will be coming from the second pillar, the question of flexibility in the division between mandated annuities, phased withdrawals and lump sums, might have to be addressed in the future (cf. discussion in section 2.1).

The Funded Pensions Act stipulates that annuities have to be calculated by using gender-neutral life expectancy tables. That would protect women from receiving lower annuities than men.[54] The remaining problem might be that of insurance companies seeking to limit the coverage for women by more tacit methods (cf. Hemming 1998). Also, it is not clear

[54] From a pure insurance perspective, however, a lower pension for women for the same premium is actuarially fair since women tend to live longer than men.

whether and how insurance companies will be prevented from separating annuitants into other risk classes based on marital status, forebears' longevity, income, and health habits. The extent to which privacy remains protected, determines the ability of certain groups to influence their annuity coverage based on their private information about longevity aspects. (Walliser 1999:20)

High administrative costs of running private pension funds would, ceteris paribus, lead to lower returns (Orszag & Stiglitz 2001). In Estonia's case, the administrative costs are certainly decreased, owing to the centralised system (cf. section 3.4). In addition, the acts regulating the second pillar stipulate ceilings for service fees that can be charged from unit-holders.[55] During 2002-03 competition between pension management companies held administrative fees below the stipulated maximum levels. However, it is not certain that the companies will continue charging such low fees in the future. Also, the competition between the pension funds in attracting customers either to join the second pillar or to change fund once they have joined has given rise to extensive advertising campaigns, which can influence the fees charged to participants.

In addition to the adequacy of pensions in absolute terms, the question of relative adequacy and the issue of redistribution brought about by the pension system should be addressed. The "Conceptual Framework of the Pension Reform" (Government of Estonia 1997) also brought out that the reform should ensure the desired degree of redistribution in a transparent way. The distributional impact of the reforms is difficult to estimate at this stage, in part because of the absence of background data on the persons contributing to the second and third pillar but some preliminary insights can be brought out. The first pillar payouts are partly linked to the pensioner's previous connection to the labour market and, hence, the payouts from all three pillars are correlated with the pensioner's earnings history. In the case of the first pillar pensions, the inequality in terms of the pension benefits is gradually increasing because of the growing importance of the contribution-related part in relation to the working-time component.

The differences in the accrued "implicit years" are already evident. Those earning the minimum wage have accumulated the sum of annual factors amounting to 1.35 in 1999-

[55] E.g. the upper limit on issue fee was set at 3%.

2003 (around 0.34 per year). At the same time, the largest annual factor for 2002 was 59.7 (Taliga 2003). Table 6 shows the number of persons having achieved certain ranges of annual factors during the period 1999-2002. A factor below 1 means that the annual pension contribution was less than the average contribution part in that year. Approximately 70% of all contributors pay less than the average contribution. The accumulated effect on pension payouts could thus be rather significant.

Table 6. "Implicit years" (annual factors) accrued, 1999-2002, thousands

	1999	**2000**	**2001**	**2002**
< 1	501	507	511	521
1-3	188	192	189	185
3-10	21	22	23	21
> 10	0.7	0.8	1.5	0.7

Source: Taliga (2003).

The taxation of pension payouts is lenient and, anyway, not very progressive. In addition, it is likely (although not yet verified by statistical data) that primarily high-income earners will take advantage of the third pillar and, hence, receive the rather substantial tax rebates inherent in this pillar. This selection bias would further tilt the system toward regressiveness. Taken together, it is clear that the reformed pension system brings about only limited interpersonal redistribution in the long term.

A further problem of unwarranted redistribution (from rich to poor) may arise from the annuities market depending on the regulation regarding the calculation of annuities. If segmentation of annuities into risk classes were prohibited, that would imply redistribution among different risks classes. Thus, if a low-income retiree with shorter life expectancy pays the same price for an annuity as a high-income retiree with above average life expectancy, the wealth is redistributed from the low-income retiree to the high-income retiree. (Walliser 1999:20)

The new pension system also impacts on the redistribution between current pensioners and current contributors. The introduced indexing formula means that the pension payouts increase by one half of the inflation and one half of the increase of the social tax contributions. This implies that pension payouts to current pensioners are likely to increase at a lower pace than would have been the case if the indexing formula were

written up using e.g. wage growth or social tax intake. Thus, the current pensioners are in some sense financing the transition costs through the new indexing formula, which make the pension increases fall behind the wage growth.

5.3. Public Finances

Public pension systems are important for public finances in the short (and medium) term, as well as in the long term. The introduction of funded pillars is partly meant to address potential long-term solvency problems of the public PAYG pillar, cf. chapter 2. However, the shift from a full PAYG system to a partially funded system entails transition costs impacting on the public finances in the short and medium term.

Pension reforms influence the public finances via both revenues and expenditures. In the case of Estonia, the short-term net effect on the public finances is mainly the result of a negative effect from lower contributions to the first pillar and a positive effect from the new indexing scheme. An assessment of the budget effects of the comprehensive pension reform is, however, complicated by the fact that it is difficult to specify a realistic counterfactual.

The second pillar is operated so that 4%-points of the payroll tax (the social tax), is redirected to individual accounts. Furthermore, the 2% of the wage-bill paid by second pillar participants is tax-exempted. Contributions to the third pillar are also tax-exempted, with a total of up to 15% of the income of the taxable period. The foregone revenue stemming from the third pillar was EUR 3.8 million in 2002 (Leppik 2003) amounting to a little less than 0.1% of GDP. Naturally, this amount would also increase if third pillar savings outpace GDP growth in the future.

Thus, by design the reforms have costs in the form of lower revenues to the state pension fund as well as lower general tax revenues. This is the transition cost from a PAYG to a partially funded system showing up in the form of a deteriorating budget balance when measured – as conventionally – on a yearly basis (Mackenzie *et al*. 2001). However, the reforms also introduced an indexing scheme giving equal weight to both increases in the social tax contribution and the consumer price index. This implies in periods with high real wage growth, that pension payouts are outpaced by wages.

The overall impact of the pension reforms on the budget was initially expected to be positive (Government of Estonia 2002). It was assumed that only 80,000 would join the second pillar in 2003 whereas the number of participants actually exceeded 350,000. The Preaccession Economic Programme of 2003 (Government of Estonia 2003) brought out more realistic predictions, reported in Table 7, assuming that around 300,000 people join the second pillar.

Table 7. Expected net impact of the pension reforms on the government budget, millions EUR

	2003	**2004**	**2005**	**2006**	**2007**
Net impact on government budget	14.6	- 4.4	- 5.0	4.0	15.8

Net impact = impact on revenues – impact on expenditures.

Source: Ministry of Finance prediction in August 2003, cited in Government of Estonia (2003:49).

The budget for the year 2003, adopted in December 2002, incorporated expected costs for financing the second pillar equal to EUR 38 million (1.5% of the budget, and 0.5% of GDP).[56] Until the summer 2002 it had been stipulated that the central government budget has to be balanced. However, in anticipation of the financing requirements of the pension reforms, amendments were made to the State Budget Act allowing the state budget to exhibit a deficit. Owing to favourable conditions, however, the consolidated budget for the governmental sector in 2003 exhibited a surplus of 2.6% of GDP. Even though part of the contributions were diverted to the second pillar, in 2003, the percentage of state pensions of GDP and the pension insurance reserve[57] increased due to the growth of employment and the increase of labour costs in relation to GDP on the one hand and the conservative indexing formula on the other hand (Tiit *et al*. 2004:96-97).

Since the take-up reached over 350,000 by the end of 2003, the impact on the budget of 2004 was substantial. It was expected that the amount of social tax contributions diverted to the second pillar would be around EUR 57 million (Sormunen 2003b). In the explanatory note of the budget for 2004 (Ministry of Finance 2003:420) it was brought out

[56] According to the estimates of the Bank of Estonia (2003), during the next ten years the estimated annual cost of the second pillar may amount to 0.5% of the GDP. In light of the larger than expected uptake, this estimate could be rather low.

[57] In years 2000-2003 the social insurance revenues exceeded the expenditures, leading to an accumulated reserve, which amounted to 1.5% of GDP in 2003 (Tiit *et al.* 2004:63).

that the predicted pension expenditure would exceed the revenue from the social tax contributions earmarked for pensions by EUR 19 million.

The short-term impact on the budget balance gives only a partial picture of the public finance implications of pension reforms as the reforms also influence future revenue and expenditure flows. A full picture of the fiscal stance would need to consider a suitably discounted sum of future net public obligations, both explicit and implicit (Mackenzie *et al*. 2001). Several factors influence the government's long-term expenditure and revenue stream:

First, the second and third pillar pension payouts (if not withdrawn as annuities) taking place in the future will be subject to taxation. However, as previously argued, the tax treatment of the pension savings is lenient in most cases. If these rules are not changed in the future, the tax intake from the private pension payouts will be relatively small.

Second, the costs of first pillar pension payouts might change. The background for the reform was an expected increase in the ratio of pensioners to persons active in the labour market in the future, cf. chapter 3. The rationale for the pension reform was to avoid spiralling PAYG payouts and, hence, higher taxes. Still, this requires that the implied downward adjustment of pension payouts from the first pillar will be retained. There are reasons to believe that this could be politically difficult. Experience from high-income countries shows that it is difficult to cut public pension payouts (e.g. Bonoli & Palier 2000). This might also be the situation in the case of the transition economies in which there is a long tradition of relatively generous and egalitarian pensions. A large number of Estonians may end up with little or no funded pension coverage, as they do not contribute to the second or third pillar. In this situation it might be politically unacceptable to retrench the first pillar payouts. The result could be relative generous payouts via the first pillar combined with foregone revenues from the second and third pillar. Also, when the pension payouts from the second pillar turn out to be insufficient (e.g. as a result of serious financial market downturns, financial crises etc.), the government might still be expected to assume some responsibility given that the second pillar has been made at least partially compulsory. The greater the government's involvement in mandating and regulating privately managed funds, the greater the conjectural liability that is created (Heller 1998:15).

Third, derived effects on the economy in the form of larger production would lead to higher tax intake and, hence, an improved fiscal stance in the long term. This channel therefore hinges on the size of the labour supply response and possibly also on effects stemming from higher national saving. The dynamics of this revenue source is difficult to estimate.

According to the pension model used by Tiit *et al*. (2004), the projections for the next 50 years – given the pension rules in force in 2004 – show that the first pillar intake will decline to 6% of GDP while the payouts decline to 5% of GDP.[58] Although by the year 2007 the first pillar reserve will be exhausted and during the period of 2007-2011, additional (though not extensive) subsidisation from other budgetary revenues will be needed,[59] from year 2012 the first pillar surplus will start increasing again and will reach 30% of GDP in the following 40 years (assuming that no extraordinary increases of pensions in addition to indexing will take place). The main reasons for the surplus are the conservative indexing formula[60] and very asymmetric distribution of wages resulting in annual factors of less than one for a large part of the population, meaning that the contribution-related pensions in the future will be relatively smaller than the current pensions primarily related to service years (Tiit *et al*. 2004:69-72, 96-97). These projections seem to weaken the argument that the introduction of the second pillar was necessary to address the solvency problems of the first pillar.

As for possible effects on tax evasion, the argument supporting the reduction of tax evasion as a result of the pension reform in Estonia, is that since individuals perceive a clearer link between their contributions and the future benefits, they would be less inclined to collude with the employer by agreeing to receive part of the salary in "an envelope". However, it is difficult to ascertain how strong the effects here are. As regards the second pillar, it would seem that since people still have to pay 2%-points more, compared to the

[58] In 2003 the costs of state pensions constituted 7.1% of GDP (Tiit *et al.* 2004:64).

[59] Primarily because of the additional pension increases in 2004-2006 (Tiit *et al.* 2004:69)

[60] Based on these projections Tiit *et al*. (2004:97,104) recommend the government to reconsider the indexation formula and give a larger weight to the social tax intake (2/3 instead of the current 1/2). If the indexation were only based on social tax intake, the first pillar would be running significant deficits, amounting to 2% of GDP by 2020. The cumulative deficit would amount to 45% of GDP by 2050.

prior situation, they may not want to reveal their salary to the full extent, because the larger the claimed salary, the larger their own contribution has to be (cf. the discussion about the effects on tax perception in section 5.4). Further, because of relatively high unemployment, the employees are often not given a free choice in whether or not to collude with the employer – disagreement would put their job at risk.

5.4. Economic Performance

The Estonian pension reforms had wider goals than "just" providing adequate pension coverage without risking short-term or long-term solvency problems in the pension system. This section discusses some of these broader objectives of the reforms, their underlying rationale and whether they are likely to be achieved.

Labour market participation

One of the stated goals of the Estonian pension reforms is to increase labour market participation. The officially measured participation can be influenced by substitution between the official and the shadow economy as well as by changes in the total labour supply.[61]

The introduction of the second pillar should improve the incentives to participate in the official labour market as the conventionally measured tax pressure is reduced. To what extent the individuals perceive that they paying less taxes (in the form of having 4%-points of the social tax contributions diverted to individualised accounts even though they have to add 2%-points themselves as well) is yet to be ascertained. But the perception is likely to be that the amount that has to be paid into the "general pool" is smaller than before the reform.

The clearer linkages between the first and second pillar contributions and the future pension benefits may also have notable effects on the perception of the tax burden, and hence, on the possible changes in labour supply. It is analytically important to distinguish between the effects of the first and the second pillar.

[61] A reduction in the underground economy was also considered a goal in itself.

The introduction of the second pillar received a lot of attention from the media, encouraged by the pension funds and the politicians and officials behind the reform. The banks running the pension funds "made sure" the second pillar received heightened attention on an individual level, promoting the second pillar as a very good "deal" for the individual. The prevailing slogan was "you give 2% and the state gives you 4% in return". It is very likely that this kind of advertising encouraged the perception of the second pillar as a way to pay less to the current pensioners and use part of the social tax contribution for one's own retirement.

The first pillar changes – especially the introduction of the contribution-related part – received somewhat less attention from the public and the media. To what extent the first pillar contributions are seen as "contributions" rather than "taxes" (cf. section 2.3.2), depends on how well the individuals are able to interpret the statements of the accumulated annual factors they receive once a year. If the meaning of the factors is not well understood, it could be assumed that the first pillar contributions are rather viewed as "taxes", implying that they are seen as going to the "common pot" rather than leading to clear pension benefits in the future. That, in turn, may encourage the perception of the opportunity to redirect some of the contributions to the second pillar as a way to pay fewer taxes to the "common pot". Thus it would be necessary to conduct further analysis about how well the first pillar structure and the linkages between the current contributions and future pensions are understood, and whether necessary improvements should be made in informing people about how to interpret the statements of the accumulated annual factors.

The perception of reduced tax burden is likely to have been encouraged by the fact that the interaction between the two pillars received hardly any attention at all (cf. discussion in section 5.1). Thus, the individuals were not informed that joining the second pillar in fact means that they would get a smaller pension from the first pillar since the annual factors would be calculated on the basis of 16%-points of the pension-earmarked contribution and not on the basis of 20%-points as it is done for those who have not joined the second pillar.

Still, there must be at least some groups of people who were familiar with the structure of the first pillar and the interaction between the first and the second pillar. The crux here is – would they also perceive that their tax-burden has been reduced? Analytically accurate

perception of the tax burden here would require that people are able to compare the implicit rate of return on their PAYG contributions with the return on the second pillar contributions.[62] However, an accurate comparison of the possible returns on the first and second pillar contributions is immensely complicated. As discussed in section 5.1 an accurate assessment of the difference between the returns is very difficult or even impossible to make. Ensuing the Estonian context, the assessment, if undertaken by an individual at all, could be quite probably tilted towards expecting higher return from the second pillar, resulting in part from the distrust of the state in the area of pension provision and higher optimism about what the private sector can achieve compared to the public sector.

Thus, it is probable that the pension reform in Estonia has led to an overall perception of a lower tax burden. Still, there is also a possibility that in some cases the tax burden could be seen as having increased. That would be the case if individuals have to pay into funded pillar more than they would have chosen to save for their own retirement. That could have significance for those born after 1982, for whom the joining with the second pillar was compulsory. As brought up by Gillion *et al*. (2000:342), if mandatory contributions to a defined contribution plan are higher than what the worker would have saved anyway, the worker will be unable to maintain his or her desired consumption and will view the mandatory contribution as tax.

Võrk (2002) shows using household data that the labour supply in Estonia is very sensitive to changes in the tax rate, but does not determine the relative importance of changes in the overall supply and substitution from the informal to the formal sector. Thus, it can be suggested that stronger incentives for formal work introduced by the reforms of the pension and tax system are likely to lead to larger labour market participation.

As for the choice of retirement age, the reforms can certainly be seen as offering incentives for later retirement: deferring the retirement results in increased retirement benefits depending on how many months later (than the officially stipulated retirement age) the person retires. According to Fabel (1994:23), efficient labour supply decisions always require that the adjustments of benefits to different choices of the retirement age

[62] As pointed out in section 2.3.2, if the implicit rate of return on PAYG contributions is below the net rate of return on other savings, the difference could be seen as a tax rather than a contribution.

must satisfy actuarial fairness. As Tiit *et al*. (2004:95) bring out, ensuing that one year of deferred retirement would increase the annual pension by almost 11% (topped by the additional annual factors), the incentive to postpone retirement should be considerable.[63]

Tiit *et al*. (2004:29-30) point to another aspect that may influence the postponement of retirement in order to receive a higher pension – the size of the accumulated annual factors and the additional pension yield from those, relative to the national pension. If the additional annual factors remain so low that they do not yield higher pension than is the level of national pension, the motivation to work for additional years may be undermined.[64] Thus, it is important to recognise that the labour market effects also depend on the relative sizes of the national pension, base part, and the value of one service year.

As for the impact of the second pillar on the choice of retirement age, there are several possible effects at play here. On the one hand, contributing for a longer period of time might be seen as giving rise to higher pension benefits. On the other hand since the size of the benefits depends on the situation in the equity, bond and annuities markets, it is possible that the first pillar incentives to retire later are counteracted by the second pillar incentives when the situation in respective markets is favourable. Alternatively, the second pillar incentives might induce even later retirement than the first pillar alone would do when the relevant markets are down but with a prospect of upturn. In addition to the first and second pillar, however, the third pillar may also influence retirement decisions by offering an opportunity to retire several years earlier than the stipulated retirement age for the two other pillars.

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[63] Tiit *et al.* (2004) point out that receiving equivalent additional pension from the third pillar would require contributing 5% of one's salary for 10 years. To what extent the individuals approaching retirement age subject their decisions to such calculations, is of course another matter. Therefore, the call for increasing the awareness of such opportunity is certainly warranted.

[64] Tiit *et al*. (2004:30) add that this effect might be less in the future because the planned pension increases (in addition to the increases arising from indexing) in 2004-2006 increase the "earned" pension relative to the national pension.

Household saving

As brought out in chapter 2, introduction of funded pillar(s) is often seen a way to encourage the growth of household saving by the pension reform advocates. The question is also important in the context of the Estonian pension reform for at least three reasons. First, one of the goals of the pension reform is to entice the households to take greater responsibility for future labour income cessation and higher private saving would indicate that this policy objective has been achieved. Second, the Estonian pension reforms entail that private pension saving is "sweetened" by transfer of tax revenue (second pillar) and substantial tax concessions (third pillar) presumably giving greater incentive for private saving. Third, household saving constitutes in almost all countries an important part of overall saving.

Based on the discussion in sub-section 2.3.3, the question of what impact a partial switch to funding could have on household saving is still controversial. First, it is not clear that the PAYG system necessarily decreases saving (cf. Johnson & Falkingham 1992; Aaron 1982). Second, it is also not uncontested – either theoretically or empirically – that partial privatisation and introduction of funded elements would increase saving to a significant degree (cf. Overbye 2001; Gillion *et al*. 2000; Johnson & Falkingham 1992; Orszag & Stiglitz 2001:21; Mackenzie *et al*. 2001:7).

Estonians contributing to the second pillar pay directly only approximately ¼ of the savings out of their own pocket, while the redirection of part of the payroll tax and the saved income tax make up the balance. If the second pillar contribution does not offset other forms of household saving, then the *households'* net savings would – ceteris paribus – increase by the entire contribution. However, the second pillar contribution might offset other forms of household saving, and the overall pension system reforms might also influence the households' savings decisions. The incentives to save in the third pillar are also likely to replace other saving subject to higher tax rates. The very short period since the inception of the Estonian reforms and the absence of micro data implies that no empirical testing of the issue can be undertaken.

National saving

The effect of the new 3-pillar pension scheme on overall saving is of interest, not least from a macroeconomic viewpoint. Overall national saving stems from the government, the households and the corporate sector (including the financial sector). Even if households are likely to increase their saving, it will translate into higher national saving only if it is not accompanied by an offsetting reduction in either business or government saving. The Estonian pension reforms impact the overall government balance via several channels, cf. section 5.3. The direct effect of the diverted payroll tax is to worsen the government balance, but this is moderated by the new indexing scheme for pension payouts. When individuals replace other voluntary savings (subject to taxation) with third pillar savings encouraged by tax incentives, the tax base is eroded, leading to lower public saving.

The effect on the corporate sector depends mostly on derived effects, e.g. changes in production, and this effect is uncertain. While government saving falls, household saving increases while corporate saving is uncertain. It appears likely that the switch to a funded system is indeterminate and anyway rather insignificant.

Functioning of financial markets

Deeper and more efficient markets are often touted as a goal of introducing funded pension pillars run by private financial entities, and Estonia is not an exception, cf. section 3.2. As described, the uptake of the second pillar has been strong and the private funds appear well functioning. One should notice, however, that the pension funds are almost entirely investing their assets abroad. This investment strategy surely reflects a prudent diversification of risks. Still, it also implies that the Estonian financial markets have been little influenced by the pension reforms and any positive effects are likely to be indirect, e.g. by an upgrading of fund management know-how.

Economic growth

A stated objective of the pension reforms was to increase economic growth, an area of great importance for Estonia. A number of possible sources generating higher income have been considered in this sub-section. In a closed economy, a higher national savings

rate will lead to a lower domestic interest rate, increased capital accumulation and higher growth for a period of time. However, Estonia is a small and extremely open economy and the interest rate level is essentially determined from abroad. Thus, changes in the savings rate influence the current account balance, but should have no impact on growth.

Increased labour market participation would lead to higher recorded production. The welfare effect however might not fully reflect the increased recorded production. To the extent that the increased labour supply is caused by substitution from the shadow economy to the official economy, the increased production largely reflects a statistical reclassification. To the extent that overall labour supply increases, the higher production goes together with longer working hours.

Based on recent empirical literature, a broad-based view is that deeper and more efficient financial markets have a positive impact on economic growth (Levine 1997). Whether there will be any discernible effects in Estonia might depend on the actual developments in the financial sector, specifically whether the financial intermediation within Estonia improves.

In sum, it appears very uncertain whether the pension reforms have any discernible effects on economic growth in the medium term. If indeed there will be a positive effect, it is most likely to come through increased labour market participation.

6. Final Comments

The first part of the thesis gave an overview of the theoretical discussion on pension insurance and pension reforms, with a particular focus on multi-pillar schemes combining public and private pension provision. The discussion brought out several theoretical arguments that should be taken into account when designing a pension system. In particular, social insurance theory points to several problems that might occur in private pension provision. Private pension insurance is not able to protect the annuitants against unexpected inflation, may be subject to adverse selection problems, myopia, may involve excessive administrative costs, and lead to inequitable outcomes. Ensuing those problems, there are compelling arguments supporting public involvement in pension provision.

The renewal of the debate on pension reforms in 1990s has led to an emergence of a multi-pillar pension model that has been strongly advocated by the World Bank and has received a warm welcome in several countries in Central and Eastern Europe. In addition to addressing the question of fiscal sustainability in the face of ageing populations and mitigating the risks arising from having only a public pillar, the multi-pillar model is often seen as giving rise to a list of wide-ranging benefits, including better incentives in labour market, increased saving, improved financial markets, and enhanced economic growth.

As brought out in the discussion on the touted benefits, the extent to which the arguments showing the linkage between the pension reforms (establishing multi-pillar schemes and involving partial switch to funding) and these benefits hold, is very controversial, with both theoretical and empirical findings leading to conflicting conclusions. Indeed, both public and private pillars are subject to demographic, economic, and political risks, and private pillars involve further risks related to financial markets and management. The elements of defined contribution and funding in pension provision may or may not increase labour supply, encourage saving, enhance the development of financial markets, and encourage economic growth. Provided that there are more direct ways to achieve most of these goals, pension system may not be the best instrument, especially if the goal of providing adequate living standards to all retirees is going to be undermined.

In the light of the theoretical discussion, the thesis then considered the recent reforms of Estonia's pension system. As discussed in chapter 3, the design of the reforms has often represented political compromises leaving the new system with a number of characteristic "birthmarks":

- A high degree of voluntary participation, especially at the early stages of reform.
- High-powered incentives: Payouts from the first two pillars are closely correlated with past earnings.
- Substantial incentives for participation, especially the redirection of payroll taxes for the second pillar and tax exemption for the third pillar.
- Lower payroll and income tax revenue, but the revenue loss "counterbalanced" by pension payouts only partly indexed to wage increases.

- Individual freedom to choose between the different private pension funds and their risk profile.

These design choices exhibit a certain internal consistency. For example, the partially voluntary contributions essentially necessitated generous incentives to encourage participation and quickly reach a "critical mass". The design choices also show that the pension reform continues the market-based and individualistic approach characterising Estonia's economic policies since the country regained its independence in 1991.

The discussion focused on a number of contentious points, where it is possible to question the expediency of the reforms. The political process and many interests to be embraced have led to a very complex pension system. Informed decisions with respect to the participation in the second and third pillars require a thorough understanding of the system and meaningful estimates of future economic developments and policies. For most Estonians the choices will be very challenging and it could be feared that aggressive advertising, past fund performance and market rumours have undue impact on peoples' pension decisions.

It was also argued that the "high-powered" incentives could lead to inadequate pension coverage for persons with non-traditional careers, e.g. housewives not working, long-term unemployed, and other persons with very low lifetime income who do not manage to accumulate enough contributions both in the first and the second pillar. In addition, participants in the second pillar may face significant risks in terms of fluctuating asset prices or more severe financial crises, affecting the value of their pension benefits. Another issue that certainly needs to be addressed is that of how to protect annuities against unexpected inflation. The question of inflation protection will become essential provided that an increasing part of the replaced income at retirement will come from the second pillar. Other risks arising from the annuities markets also require further consideration, e.g. how to mitigate the effects of changing interest rates on annuities, what would be the optimal combination of mandated annuities, and allowed lump-sum and/or phased withdrawals.

The redirected payroll tax and deferred income taxation, ceteris paribus, lead to a substantial government revenue loss in the short term. Rapid wage growth in combination

with the changed indexation scheme has prevented serious public finance problems during the first couple of years. Also, even though one of the arguments for introducing the second pillar was to address the solvency problems of the first pillar, if the conservative indexing formula is kept in place, the first pillar will not run into deficit (the only period when the deficit could show up is 2007-2011). It is doubtful, however, that the indexing formula resulting in low payouts from the first pillar is going to be retained. When a large number of Estonians end up with only minimum coverage from the first pillar while not receiving any or very little payouts from the second and third pillars, it might be politically unacceptable to retain the stipulated first pillar payouts at very low levels. The result could be relative generous payouts via the first pillar combined with foregone revenues from the second and third pillar.

Derived effects in the form of improved economic performance are difficult to assess. Any effects from saving to economic growth are unlikely, but the pension reforms might lead to larger labour supply and hence a period of higher growth.

In sum, the implementation of a 3-pillar pension system in Estonia has proceeded smoothly and the uptake of the funded second pillar has been much greater than anticipated. Still, many issues remain unsettled. The interplay between the different pension pillars and the tax system is complicated and appears in some cases unfounded. The high-powered incentives might have inappropriate distributional consequences and could lead to poverty problems. The public finances have weakened in the short-term. The impacts on economic performance in terms of increased saving and lower interest rates are uncertain.

Estonia has undergone more than a decade of economic reforms creating a “normal” market-based economy closely integrated with especially the European economies. The pension reforms discussed in this paper are another step in the direction of structural change and market-conformity. Still, the thesis suggests that there is room – and reasons – for future changes to the Estonian pension system.

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Kokkuvõte

Käesolevas magistritöös antakse kõigepealt ülevaade teoreetilisest diskussioonist, mis käsitleb riikliku ja erasektoril põhineva pensionikindlustuse kombineerimist mitmesambalise pensionisüsteemi näol. Seejärel kirjeldatakse ning analüüsitakse Eestis läbiviidud pensionireforme, mille tulemusena on loodud kolmesambaline pensionisüsteem. Magistritöös on välja toodud mitmed probleemid, mis uuest kolmesambalisest pensionisüsteemist võivad tuleneda, ning seatakse kahtluse alla, kas loodud pensionisüsteem suudab täiel määral saavutada kõiki reformi algul seatud eesmärke. Analüüsi osas on välja toodud ka mitmed küsimused, mis vajaksid edasist analüüsi, parandamaks pensionisüsteemi toimimist ja seatud eesmärkide saavutamist.

Pensionisüsteemid kujutavad ennast kompleksset analüüsi objekti ning puudutavad mitmeid küsimusi nii sotsiaalpoliitika, avaliku halduse kui ka majanduse vallas. 1990ndatel aastatel on pensionireforme Kesk- ja Ida-Euroopas, sealhulgas ka Eestis, oluliselt mõjutanud Maailmapanga poolt välja pakutud mitmesambalise pensionisüsteemi mudel, mille kohaselt tuleks jooksval finantseerimisel põhinevaid riiklikke pensionisüsteeme täiendada eelfinantseerimisel põhinevate ja erasektori pensionifondide poolt hallatavate kohustuslike ja vabatahtlike pensioniskeemidega.

Sotsiaalkindlustusteoreetilised seisukohad viitavad mitmetele probleemidele, mis võivad esineda erasektori poolt pakutavate ja hallatavate pensionikindlustusskeemide puhul. Erasektori kindlustusfirmad ei suuda enamasti pakkuda annuiteetidele kaitset ootamatu ja ulatusliku inflatsiooni vastu. Asümmeetrilise informatsiooni probleem, mis põhjustab kahjulikku valikut (*adverse selection*), võib sageli kaasa tuua kindlusturgude ebaefektiivsuse. Üksikisikud võivad pensionikindlustuse valikul või kasutamisel olla lühinägelikud. Kui pensionikindlustus on detsentraliseeritud, toob see endaga kaasa ulatuslikud administreerimis- ja tehingukulud. Erasektoril tuginev pensionikindlustus võib viia ebavõrdsuse kasvu ja vaesusmäära suurenemiseni pensionäride seas.

Antud probleemidest tulenevalt on riigipoolsel pensionikindlustusturu reguleerimisel ja ka riiklikult korraldatud pensionikindlustuse süsteemil mitmeid eeliseid. Jooksval finantseerimisel põhinev süsteem kaitseb pensione inflatsiooni eest, pensionikindlustuse kohustuslikkus võimaldab vältida kahjulikust valikust ja indiviidide lühinägelikkusest

tulenevaid probleeme, pensionikindlustuse tsentraalne korraldus vähendab administratiivseid kulusid ja riiklik pensionikindlustussüsteem võimaldab ümberjaotuslike mehhanismide kaudu vähendada ebavõrdsust ning vaesust pensionäride seas.

Mitmesambalise pensionisüsteemi pooldajad väidavad, et sellise pensionimudeli sisseviimine aitab kaasa mitmete eesmärkide täitmisele: võimaldab maandada erinevate sammastega seotud riske, suurendab tööjõu pakkumist, vähendab maksupettusi, suurendab eraisikute säästmist ja seeläbi ka kodumaist säästmist, soodustab finantsturgude arengut ning majanduskasvu.

Käesolev magistritöö juhib tähelepanu sellele, et seos mitmesambaliste pensionisüsteemide loomise ja antud eesmärkide saavutamise vahel võib sageli olla vaieldav. Nii teoreetilised kui empiirilised uurimused on viinud vastuoluliste järeldusteni. Erinevate sammaste olemasolu ei pruugi maandada riske sel määral, nagu sageli eeldatakse. Demograafilised, majanduslikud ja poliitilised riskid mõjutavad nii riiklikke kui ka erasektoril põhinevaid pensionisambaid. Erasektori poolt hallatavate sammastega kaasnevad veel täiendavad riskid, mis on seotud finantsturgude muutlikkuse ja fondivalitsemise juhtimisriskidega. Eelfinantseerimisel põhinevate sammaste rakendamine ei pruugi tingimata parandada tööjõu pakkumist. Eelkõige sõltub mõju tööjõuturule pensionisüsteemi konkreetsetest detailidest, mis mõjutavad töötajaile loodud ajendeid. Teoreetilised ja empiirilised uurimused ei ole jõudnud üheste järeldusteni ka selles osas, mis puudutab pensionisüsteemi mõju säästumäärale ning majanduskasvule.

Eesti kolmesambaline pensionisüsteem koosneb kolmest erinevast sambast. Esimene sammas on jooksvale finantseerimisele tuginev riiklik pensionikindlustus, mida rahastatakse sotsiaalmaksu pensionikindlustusele minevast osast. Tööandjad maksavad 33% töötaja palgast sotsiaalmaksuks, millest 13% läheb ravikindlustuseks ja 20% (või 16% kui ollakse ühinenud teise sambaga) praeguste pensionäride pensionideks. Esimesest sambast saadavad pensionid koosnevad kolmest osast: põhiosast, staažiosakust (mille suurus sõltub sellest, kui palju on pensionisaajal pensioniõiguslikku staaži kogutud kuni 1998. aasta lõpuni) ning kindlustusosakust (mille suurus sõltub sellest, kui palju on pensionisaaja palgast alates 1999. aasta algusest makstud sotsiaalmaksu pensionikindlustuse osa). Pensionide indekseerimine 2002. aasta 1. aprillist seab riiklike

pensionide suurendamise vastavusse indeksiga, mille väärtus on tarbijahinnaindeksi aastase kasvu ja sotsiaalmaksu pensionikindlustuse osa laekumise aastase kasvu aritmeetiline keskmine.

Teine sammas on sissemaksete poolt määratud kogumispension, mille tuluallikaks on töövõtjate ja töötajate endi poolt tehtud sissemaksed individuaalsetele arvetele ning mille haldamisel mängivad peamist rolli erastruktuurid. Teises sambas osalemine on kohustuslik pärast 1982. aastat sündinuile ning vabatahtlik teistele. Kogumispensioni sissemakse koosneb kahest osast: palgast kinnipeetav makse, mis moodustab 2% töötaja igakuisest brutopalgast, ning riigipoolne makse sotsiaalmaksu arvelt, mis on 4% brutopalgast.

Kolmas sammas on sissemaksete poolt määratud ja kogumisprintsiibil põhinev täiendav kogumispension, mille tuluallikaks on vabatahtlikud sissemaksed. Kolmanda sambaga liitumist ja sellesse sissemaksete tegemist stimuleeritakse 26% tulumaksusoodustusega (aasta jooksul tehtud sissemaksetelt, mis ei ületa 15% brutosissetulekut).

Kuigi liitumine teise sambaga on olnud oodatust suurem, mistõttu Eesti pensionireformi on peetud väga edukaks, siis on oluline vaadata ka pensionireformi teisi aspekte ja võimalikke mõjusid. Eesti pensionireformi kavas välja toodud eesmärgid kattuvad suures osas eesmärkidega, mida on teoreetilises diskussioonis toodud välja kui mitmesambalise pensionimudeli eesmärke. Eesti pensionireformi kontseptsioonis kohaselt peaks reform tagama pensionisüsteemi poliitilise stabiilsuse ja õigusliku püsivuse, loodud pensionsüsteem peaks olema terviklik, arusaadav, läbipaistev ja võimalikult lihtne. Samuti peaks süsteem tagama Euroopa sotsiaalkindlustuse miinimumstandardite järgimise, kindlustama ühiskonna poolt nõutud tulude ümberjaotamise ulatuse ega tohi olulisel määral toimuda ühegi ühiskonnagrupi arvel. Reformi eesmärkideks on ka pensionireformi pikaajaline finantsstabiilsus, riigieelarve tasakaalu säilitamine, majanduskasvu soodustamine, varimajanduse osakaalu vähendamine ning finantsturgude arendamine.

Käesolev magistritöö püüdis selgitada, mil määral võimaldab kolmesambalise pensionisüsteemi sisseviimine seatud eesmärke saavutada. Kuigi pensionireformi eesmärgiks seati lihtsa ja läbipaistva süsteemi loomine, millest oleks kerge aru saada, on uus pensionisüsteem pigem raskesti hoomatav ning keerukate sammastevaheliste seostega. Lihtsus ja läbipaistvus eeldavad, et elanikel on võimalik teha pensione puudutavaid

otsuseid, ilma et nad peaksid kulutama ülemääraseid ressursse vajaliku info otsimise ja analüüsimise peale. Teise sambaga liitumist puudutavate kampaaniate puhul jäeti sageli kõrvale asjaolu, et liitumine teise sambaga vähendab tulevikus esimesest sambast saadavat pensioni, kuna väheneb kindlustusosaku aastakoefitsiendi suurus. Kuigi selline strateegia on mõistetav teise sambaga liitumise julgustamise ja liitujate arvu kriitilise massi saavutamise seisukohast, võib eeldada, et paljudel juhtudel ei jagatud liitujatele piisavat teavet informeeritud valiku tegemiseks, mis seega vähendas reformi elluviimise läbipaistvust.

Optimaalse otsuse tegemine küsimuses, kas liituda teise sambaga või teha panus pigem esimesele ja kolmandale sambale, nõuab väga ulatuslikku analüüsi, muu hulgas ka erinevate sammaste tootluse (esimese samba puhul on "tootlus" küll pigem implitsiitne) võrdlust. Erinevate sammaste tootluse võrdlus aga eeldab informatsiooni, mida on kas raske leida või keeruline ette ennustada (nt majanduskasv, tööhõive kasv, muutused demograafilistes näitajates, aktsia- ja väärtpaberiturgude muutlikkus, intressimäärad, keskmine oodatav eluiga pensionile minemise hetkel jne). Kuigi pensionisüsteemid ongi oma olemuselt komplitseeritud, on süsteemi liigne keerukus eriti problemaatiline juhtudel, kus elanikele on antud ulatuslik vaba valik oma pensione puudutavates otsustes.

Kuigi pensionide indekseerimise valemi kehtestamine Riikliku Pensionikindlustuse Seadusega aitas kaasa pensionide taseme etteennustatavusele ja pensionide kalkuleerimise läbipaistvusele võrreldes senise süsteemiga, kus pensionide suurus otsustati igal aastal koos riigieelarvega, siis pensionide täiendav suurendamine aastatel 2003-2007 lisaks indekseerimisest tulenevatele pensionitõusudele on taas hägustanud pensionide taseme etteennustatavust ning tekitanud kahtlusi kehtestatud indekseerimisvalemi suhtes. Kuigi antud samm on põhjendatud pensionide adekvaatse taseme tagamiseks, vähendab see siiski pensionisüsteemi läbipaistvust ja etteennustatavust.

Kuna kõigist kolmest sambast saadav pension sõltub olulisel määral individuaalsest sissetulekust kogu töötamisaja jooksul, siis võib märkimisväärne osa pensionäridest saada tulevikus ebapiisavat ja vaid minimaalsel tasemel pensioni. Esimese samba puhul võib olulisel osal elanikest osutuda probleemiks vajaliku pensionistaaži täitmine, mille puudumisel on neil õiguse saada vaid rahvapensioni. Märkimisväärsel osal elanikkonnast on pensionile mineku ajaks kogutud ka madal aastakoefitsientide summa, mis annab

õiguse vaid miinimumpensionile. Teise sambaga liituja puhul sõltub saadav pension tehtud sissemaksetest, mis omakorda on seotud liituja palgatasemega, ja valitud pensionifondi tootlusest. Kolmanda samba puhul ei pruugi sissemaksed (ja sellest tulenevalt ka väljamaksed) olla küll otseses seoses palgatasemega, kuid sõltuvad siiski sissetulekutest. Eriti puudutab risk saada tulevikus vaid väga väikest pensioni majanduslikult vähemaktiivseid ja madalat palka saavaid ühiskonnagruppe.

Teise ja kolmanda samba puhul on riskiks aga finantsturgude volatiilsus ja finantskriisid, mis võivad oluliselt mõjutada kogutud osakute väärtust ja sellest tulenevalt ka saadavat pensioni. Kui pensionile minemise ajal on finantsturgudel – kas Eestis või riikides, kuhu pensionifondid on varasid investeerinud – mõõnaseis, siis võib see mõjutada terve kohordi pensionile minejate pensionide suurust.

Samuti on seni veel lahendamata küsimus, kuidas kaitsta teisest ja kolmandast sambast saadavaid annuiteete ootamatu ja ulatusliku inflatsiooni eest. Eriti oluliseks tuleks pidada kaitse tagamist inflatsiooni vastu kohustuslike annuiteetide puhul. Antud küsimus omandab järjest olulisema kaalu, kuna kasvav osa pensionidest pärineb teisest sambast.

Lisaks vajab edasist analüüsi ja tähelepanu küsimus, kuidas kaitsta teise (ja ka kolmanda) sambaga liitunuid muude kindlustusturge puudutavate riskide eest: Kuidas pehmendada kõikuvate intressimäärade mõju annuiteetide suurusele? Milline on kohustuslike annuiteetide ja muud väljamaksete vormide optimaalne tasakaal, vältimaks kahjuliku valiku probleemide esilekerkimist? Täiendavat analüüsi vajab ka küsimus, mil määral ja milliste karakteristikute alusel võivad kindlustusfirmad teise samba annuiteetide arvutamisel jagada isikuid erinevatesse riskigruppidesse ja määrata vastavalt annuiteetide suurust.

Lisaks pensionide absoluutsele tasemele on oluline hinnata pensionireformi ümberjaotuslikke mõjusid. Esimese samba puhul on ümberjaotuslik roll põhiosal ja ka staažiosakul (viimase roll küll väheneb järk-järgult). Siiski, kuna kõigist kolmest sambast saadavad pensionid on seotud sissetulekute ja palgatasemega, võivad töötamisea ebavõrdsused kanduda üle ka pensioniikka – perioodi, mil inimesed on sageli nõrgemas positsioonis oma elujärje mõjutamiseks. Samuti on tõenäoline, et kolmanda sambaga liituvad – saades sellega seonduvaid maksusoodustusi ning tulumaksuvabasid annuiteete –

just kõrgema sissetulekuga grupid, mis omakorda suurendab pensionisüsteemi ümberjaotuslike mehhanismide regressiivsust. Kokkuvõttes võib uus pensionisüsteem tuua endaga kaasa vaid väga piiratud ümberjaotust kõrgema sissetulekuga gruppidelt kõrgema madalama sissetulekuga gruppidele.

Kolmesambalise pensionisüsteemi sisseviimisel on ka olulised fiskaalsed tagajärjed nii eelarvelaekumiste kui ka -kulutuste näol. Siirded teise sambasse vähendavad esimese samba laekumisi, kuid samas piirab konservatiivne pensionide indekseerimise valem esimese samba pensionikulutuste kasvu. Eelarve laekumisi vähendavad ka teise ja kolmanda sambaga seotud maksusoodustused.

Pensionireformi fiskaalne mõju pikemas perspektiivis sõltub mitmest erinevast tegurist. Oluliseks faktoriks on see, kas muudetakse erinevatest sammastest laekuvate pensionide maksustamist ja teises ning kolmandas sambas osalemisega seotud maksusoodustusi. Kui praegu kehtestatud reeglid jäävad samaks, siis võib eeldada, et maksusoodustuste tõttu saamata jäävad tulud riigieelarvesse järjest suurenevad, kui teise ja kolmanda sambaga liitujate arv kasvab.

Samuti mõjutab fiskaalpositsiooni see, kas konservatiivse indekseerimisvalemiga jätkamine osutub poliitiliselt jätkusuutlikuks. Kuigi praegu kehtiv indekseerimisvalem tagab prognooside kohaselt selle, et vaatamata teise sambaga seotud üleminekukuludele ei ohusta esimest sammast pikaajaline või ulatuslik defitsiit, on kaheldav, kas juhul kui pensionide tase jääb oluliselt maha palkade tasemest, on võimalik jätkata konservatiivse indekseerimisvalemi kasutamist. Kuna teise sambaga liitumine oli suuremale osale elanikkonnast vabatahtlik, siis sõltub märkimisväärne osa pensionäridest eelkõige esimese samba pensionidest, mis teeb aga esimese samba pensionide vähendamise fiskaalse positsiooni parandamiseks oluliselt keerulisemaks. Lisaks, kui teise samba pensionid osutuvad finantsturgude madalseisu tõttu ebapiisavaks, siis võib eeldada, et esimese samba pensione tuleb täiendavalt tõsta, tagamaks adekvaatne individuaalne asendusmäär.

Kolmanda tegurina võivad fiskaalset positsiooni mõjutada sekundaarsed mõjud, mis tulenevad suurenevatest maksulaekumistest, kui pensionireform mõjutab positiivselt tööjõuturgu ja majanduskasvu. Pensionireformil võib olla ka pärssiv mõju maksudest

kõrvalehiilimisele, kuna indiviidid tajuvad selgemalt seost sotsiaalmaksu ja teise samba kontributsioonide seost tulevikus saadavate pensionide vahel.

Kolmesambalise pensionisüsteemi sekundaarseid mõjusid majandusele on praegu veel raske täpselt hinnata. On tõenäoline, et majanduskasvule võib kaasa aidata pigem suurenenud tööjõu pakkumine kui erasektori säästmise kasv. Konventsionaalselt mõõdetav maksukoormus elanikkonnale on reformi tulemusel vähenenud, mille põhjal võib eeldada, et pensionireform toob endaga kaasa suurema tööjõu pakkumise nii mitteformaalsest sektorist formaalsesse sektorisse liikumise kui ka kasvanud töötundide mahu näol. Samuti võib eeldada, et teise sambaga liitujad peavad oma tööandja ja enda poolt tehtavaid sissemakseid teise sambasse pigem kontributsioonideks kui maksudeks, kuna need on selgelt seotud tulevaste pensionidega.

Muutusi maksumäära tajumises (ja vastavalt ka tööjõu pakkumises) mõjutab ka see, mil määral on teise sambaga liitujaid informeeritud sellest, et teise sambaga liitumine vähendab nende poolt esimesest sambast saadavaid pensione. Kui antud seosest ei olda informeeritud, siis on tõenäone, et maksukoormuse langust peetakse suuremaks kui juhul, mil kahe samba vaheline vastasmõju on teada.

Kas esimese samba makseid peetakse kontributsioonideks (ja mitte maksudeks), sõltub sellest, kui hästi ollakse informeeritud esimese samba struktuurist ja aastakoefitsientide tähendusest. Kui informeeritus on puudulik, mistõttu ei nähta selget seost makstud sotsiaalmaksu (pensionikindlustuse osa) ja tulevikus esimesest sambast saadava pensioni vahel, on tõenäoline, et esimest sammast nähakse vaid praegustele pensionäridele pensionide maksmise mehhanismina ja sissemakseid esimesse sambasse pigem maksude kui kontributsioonidena. Seega on tööjõu pakkumise suurenemise seisukohalt oluline suurendada elanikkonna teadlikkust ka esimese samba struktuuri kohta ja analüüsida, kas senine aastakoefitsientidest teavitamise süsteem vajaks parandamist.

Kokkuvõttes on kolmesambalise pensionisüsteemi sisseviimine Eestis kulgenud edukalt, eriti kui pidada silmas teise sambaga liitunute arvu, kuid mitmes küsimuses on vaja veel edasist analüüsi ning võimalike muutuste ja täienduste kaalumist, võimaldamaks reformi eesmärkide paremat saavutamist.