



Axel Börsch-Supan

# The 2005 Pension Reform in Finland

Finnish Centre for Pensions  
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## **ABSTRACT**

This paper provides an outsider's review of the Finnish pension reform which will be phased in after January 2005. The reform is a major step towards improving the earnings-related part of the Finnish pension system. The reform is an admirable combination of carrots and sticks, and it will make a substantial step forward to encourage labor force participation among older workers and to discourage early retirement. The new system will be more sustainable through increased pre-funding and a new linkage to life-expectancy; it will reduce some perverse incentive effects that have led to premature retirement; and it will be more equitable by correcting some major inconsistencies in the benefit computation.

The reformed system remains – often unnecessarily – complicated which reduces the intended signaling effects toward more labor force participation, one of the major aims of the 2005 reform. It still retains some strong incentives to retire early through loopholes such as unemployment and disability pathways. The reform is a “new entrants’ reform”; current pensioners are largely protected. This creates a very long transition period, and prevents the reform from stabilizing the already very high contribution rate which will threaten Finland's position in the international competition over jobs. It is a first step in the right directions – more steps will hopefully follow.

## **ACKNOWLEDGEMENTS**

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# 1 Introduction

The pressures exerted by population aging, amplified by negative incentive effects, make public pension systems unsustainable all over the world and have led to major pension reforms in many countries. These reforms follow a wave like pattern. After a wave with a strong stress on pre-funding in order to strengthen capital markets and alleviate pressures on the baby-boom generation, the newest wave of reforms fashion “notional defined contribution” (NDC) systems in order to improve transparency and to strengthen the link between contributions and benefits.

Finland has its fair share of the problems which plague pension systems all over the world, population aging as well as premature retirement due to negative incentive effects. Finland has reacted to these challenges and enacted a major reform of its earnings-related pension scheme. The reforms will be phased in after January 2005. The Finnish pension reform has elements of both major reform strands mentioned above: it will generate more pre-funding, and it will make the earnings-related scheme closer to a NDC system, although it remains being communicated as a traditional defined benefit (DB) system.

In this paper, I aim to evaluate the 2005 Finnish pension reform from an internationally comparative point of view. Section 2 details the challenges which the Finnish reformers attempted to tackle and relates them to the main features of the old system. Section 3 describes the main reform elements. Section 4 presents my yardstick of evaluation: What are the goals of a good pension system? What should the 2005 Finnish pension reform achieve? Section 5 then evaluates the Finnish pension system in the light of these goals. Section 6 concludes.

## 2 What are the challenges?

Population aging is not the only challenge to pay-as-you-go financed pension systems. Since pension expenditures are a substantial part of GDP, the way how pension systems are managed also has macroeconomic implications. Ill-managed pension systems reduce growth, while well-managed pension systems improve the competitive position of a country in a globalized world. In this section, we briefly sketch these challenges, show where Finland stands, and link the current Finnish situation with features of the pre-2005 pension system.

### 2.1 Population aging

Population aging is generated by two distinct demographic processes. It is important, to distinguish these two processes, since one of the core insights of pension reform analysis is that they demand two different policy responses.

The first process is fertility decline and especially the fast transition from baby boom to baby bust in the 1950s. Figure 1 shows the familiar population pyramids. The peak of the baby boom was relatively early around 1947. These cohorts enter their retirement years after about 2010. Birth rates then declined, but not as fast as in other European countries, and not as dramatically. The size of the 1947 cohort is about 40 percent larger than the 1972 cohort. Hence, fewer young persons have to finance more pensioners than in a static population. This is the first challenge of population aging. There is little one can do about the cause of this extra financial burden: the fertility decline is a historical fact, and higher fertility rates now will not affect this historical baby-boom/baby-bust transition. If one deems the financial burden for the younger generation too large because this generation has too few members, the only consequence is that some part of this burden has to be shifted to other generations. Shifting this burden forward, however, is excluded because the resulting debt would be huge and macroeconomically destabilizing. Hence, the only remaining avenue is that members of the baby-boom generation have to pay some part of their pensions themselves by saving for their own retirement. This pre-funding mechanism is the natural policy reaction to the first demographic challenge: a considerably smaller cohort size of the baby-bust generation.

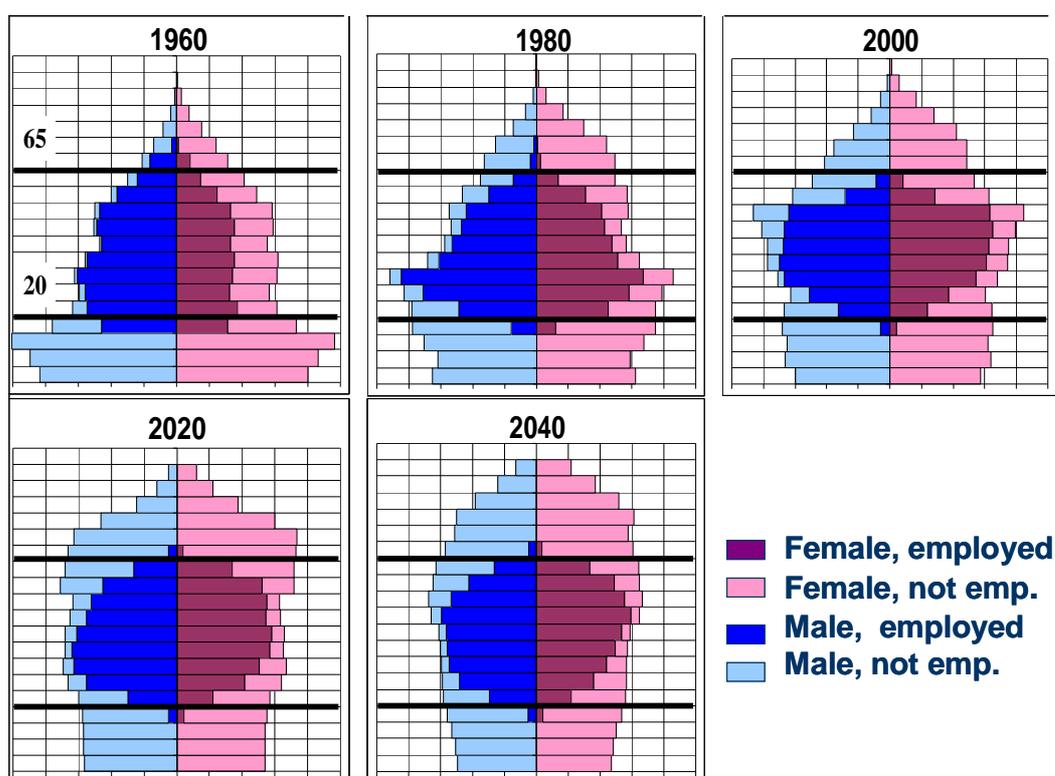
The second process underlying population aging is the secular increase in longevity which has so far shown no signs of deceleration.<sup>1</sup> In Figure 1, it shows up in the steady increase in the size of the oldest age group. An increasing life span creates no problems if everything in an economy adapts in proportion, especially the economically active life

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<sup>1</sup> See Oeppen and Vaupel (2003) for a very optimistic view on human life span.

span. This, however, does not happen automatically since many rules and regulations in an economy are fixed and respond slowly to demographic changes. The obvious example is a fixed retirement age. Longevity only creates a financing problem for pensions if the retirement age does not move in proportion to longevity. Indexing the lifelong sum of benefits to longevity (either by increasing retirement age or by reducing retirement benefits over an extended reciprocity duration) are the natural policy responses to the second challenge of population aging.

*Figure 1. Finnish Population Pyramids, 1960-2040.*



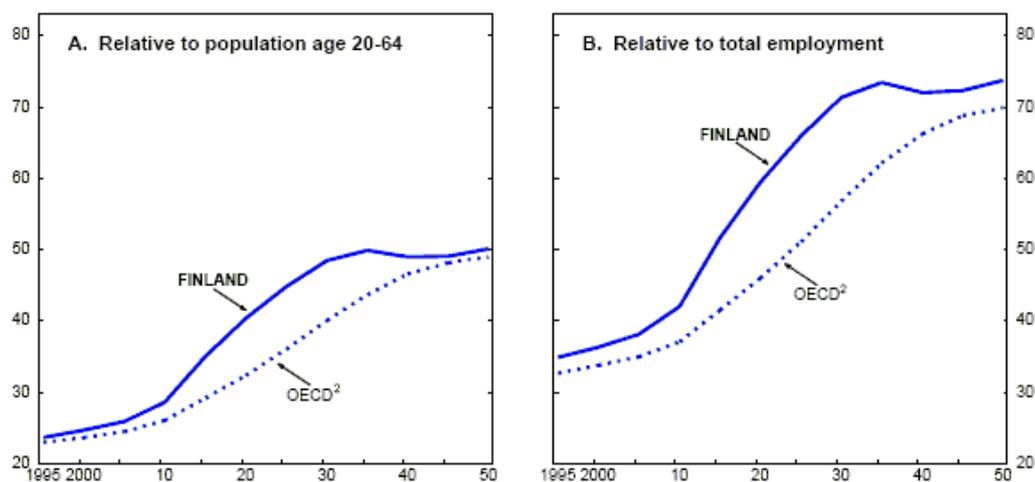
Source: Eurostat, 2004 and Statistics Finland, various years (adapted from Risku, 2004).

Finland shares the general trend as well as the two distinct processes of population aging with all of the industrial countries. There are, however, some noteworthy differences. First, the baby boom was earlier than in the central European countries. Second, the baby-boom/baby-bust transition was not as pronounced as in the large Continental European countries, such as France, Germany and Italy. This leads to an earlier peak of the demographic stress than elsewhere. Figure 2 shows that the Finnish aging process, expressed in terms of the old-age dependency ratio, is stronger than the OECD average, but after 2030, it converges quickly back to it. Compared with the EU member states, Finland has a more pronounced aging process than Germany and Italy for the next 10-15 years, but

with regard to the longer run, say around the year 2040, Germany and Italy will have much higher dependency ratios than Finland.

In terms of policy and in comparison with the other EU countries, Finland needs a reform that works quickly. It has less time than other countries. While it needs also policies addressing the first demographic process (declining cohort sizes), the long-run need for pre-funding is less pronounced than elsewhere. However, while the necessary long-run capital stock per capita can be smaller than in Germany and Italy, it needs to be accumulated faster. Reform pressures are therefore particularly urgent in Finland.

*Figure 2. Old-age<sup>1</sup> dependency ratios, per cent.*



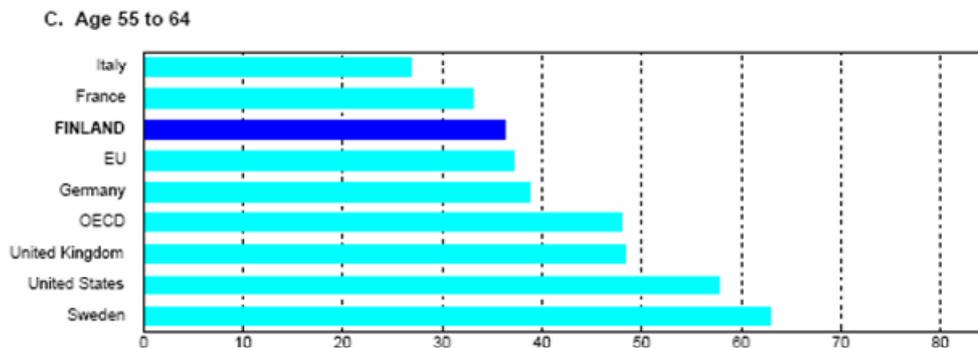
<sup>1</sup> Persons aged 54 and above.

<sup>2</sup> Average of the rates of individual countries (excluding Mexico and Turkey).

Source: Statistics Finland, Eurostat, United Nations and OECD Secretariat.

## 2.2 Labor force participation and growth

Figure 2 also shows another aspect of the Finnish situation that needs to be addressed as part of a pension reform. The aging process is much more pronounced, especially in comparison with the other industrialized countries, when measured relative to employment, rather than relative to the demographical definition of working age. Labor force participation among Finnish elderly is low, far below OECD average, and has been below EU-average until recently, see Figure 3.

**Figure 3. Older Worker's Employment Rates.**

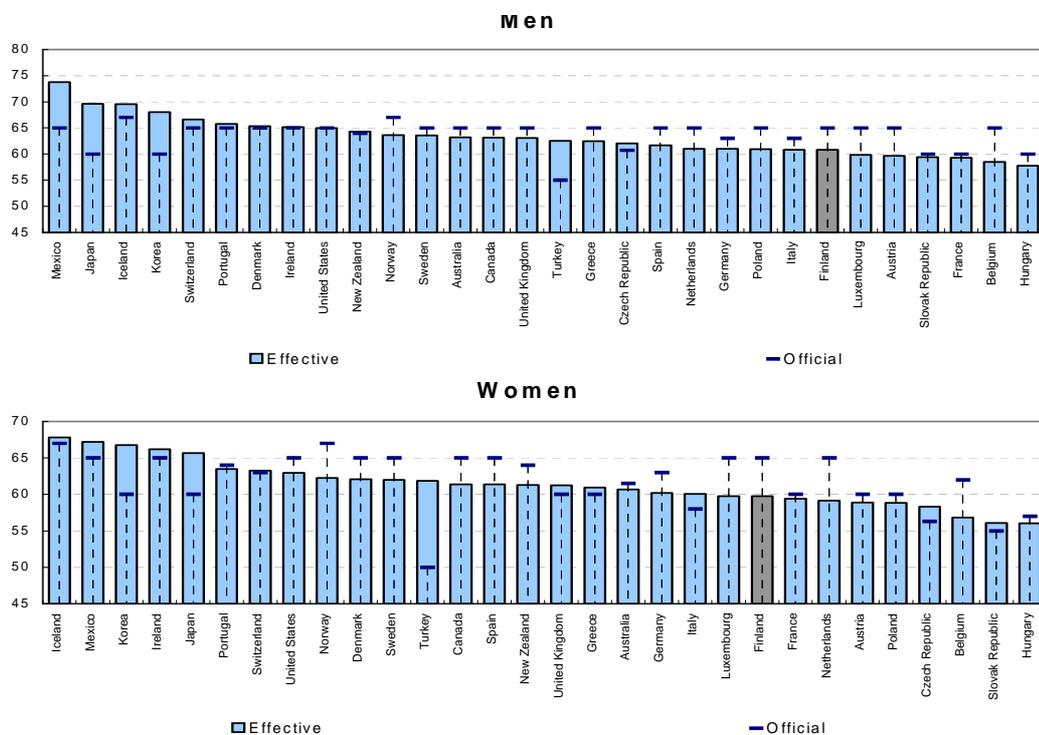
Source: OECD (1999), Employment Outlook.

Some recent changes have stopped this trend (see Figure 5) and employment rates appear to exceed the EU average according to very recent statistics. A pension reform in Finland must strengthen these improvements.

Low employment rates among older workers correlate with a relatively early average retirement age among both women and men, see Figure 4. The trend in the 1980s and early 1990s was particularly strong. It is not a coincidence that this was also the time of generous early retirement regulations and the introduction of a multitude of pathways (unemployment, disability due to social factors, etc.) into de facto retirement, see Gruber and Wise (1999). The difference between Sweden and Finland is remarkable, see Figure 5, and it can be traced to differences in the leniency with which early retirement pathways were opened in Finland (see OECD, 2003).

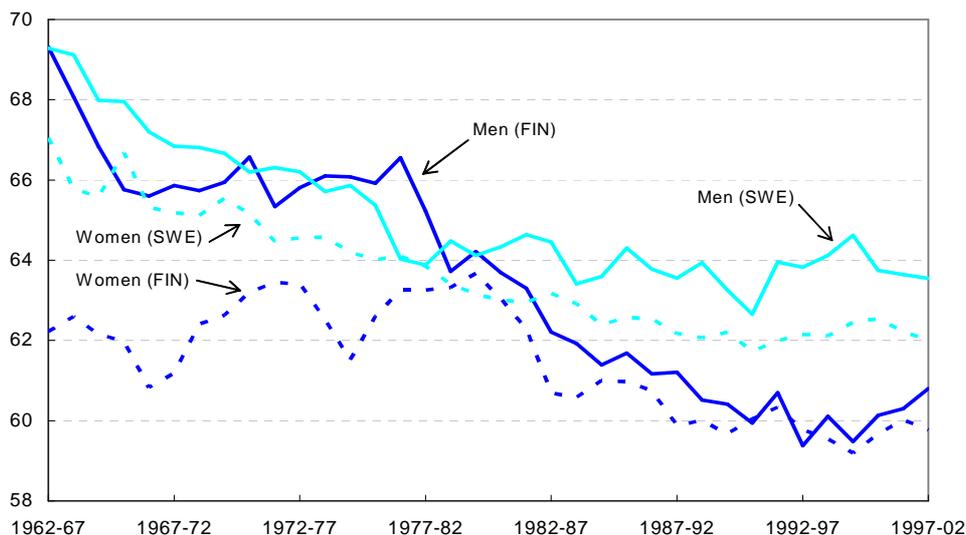
Since the main component of GDP is labor, economic growth depends crucially on the size of the labor force. Population aging implies a decline in the employment rate and, in some countries, also an absolute decline of employment. Population aging therefore threatens per capita GDP as well as total GDP growth. Declining age-specific labor force participation substantially worsens these trends. Quite naturally, an aging economy requires increasing age-specific labor force rates to compensate for the shift in the age structure which anyway puts pressure on total employment.

Figure 4. Effective and official retirement ages in selected OECD countries, 1997-2002.



Note: Average age of withdrawal from the labour force for individuals older than 40 years based on changes in participation rates by five-year age cohorts over five-year intervals.  
Source: OECD (2003).

Figure 5. Average effective retirement age in Finland and Sweden, 1967-2002.



Note: Estimated average age at which individuals older than 40 left the labour force during any given five-year period.  
Source: OECD (2003).

## 2.3 Old-age poverty

In addition to demography and growth, a third challenge is to maintain the social balance of a pension system. After all, the main task of a pension system is to provide all elderly individuals with a decent income. The Finnish system has done a good job so far in preventing old-age poverty. Table 1 depicts poverty rates based on micro data collected by Statistics Finland. Poverty rates (defined by the 50% limit) are substantially lower for retired persons than on average, although there are some pockets of poverty, especially among those retirees who used to work as self-employed farmers. In the design of a pension reform, it is important to keep an eye on poverty risk. Pension reforms in times of population aging must cut overall costs to make the pay-as-you-go-financed burden of pensions bearable for the younger generation. Reducing (relative) replacement rates may easily hit the (absolute) floor of the subsistence level for those individuals who had low life-time incomes, unless the pension system provides a floor.

*Table 1. Poverty rates in Finland (2001).*

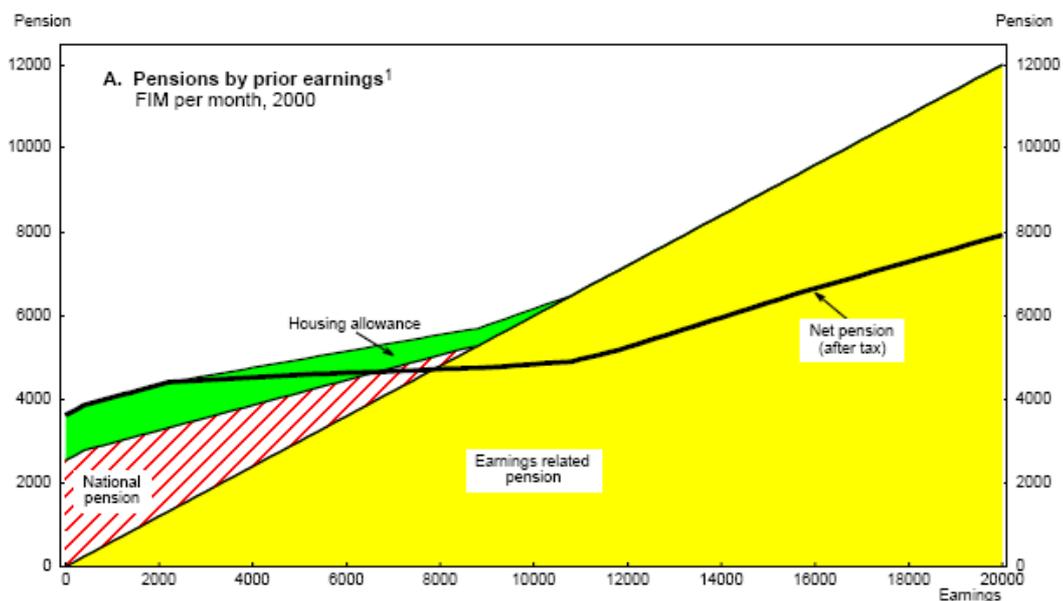
	Poverty limit 60 % of median income, new OECD equivalence scale	Poverty limit 50 % of median income, old OECD equivalence scale
All	<b>10,8</b>	<b>4,5</b>
Wage earners	2,9	1,0
Unemployed	58,5	24,3
Lone parents	22,7	9,1
Pensioners, all	<b>12,2</b>	<b>1,5</b>
Formerly: Salaried employees	2,7	0,2
Workers	14,2	1,7
Self-employed in agriculture	20,0	2,5
Other self-employed	11,1	0,1

Source: Income Distribution Statistics, Statistics Finland

## 2.4 How did the pre-2005 system cope with these challenges?

Going backwards through the challenges posed, the pre-2005 Finnish pension system did an excellent job in preventing old-age poverty, as we have seen in Table 1. The main reason is that the Finnish pension system provides the above-mentioned floor through the National Insurance. Figure 6 depicts the interaction between the minimum pension guarantee of the National Insurance with the second layer of the earnings-related pension. It is important to keep this feature intact through the aging process.

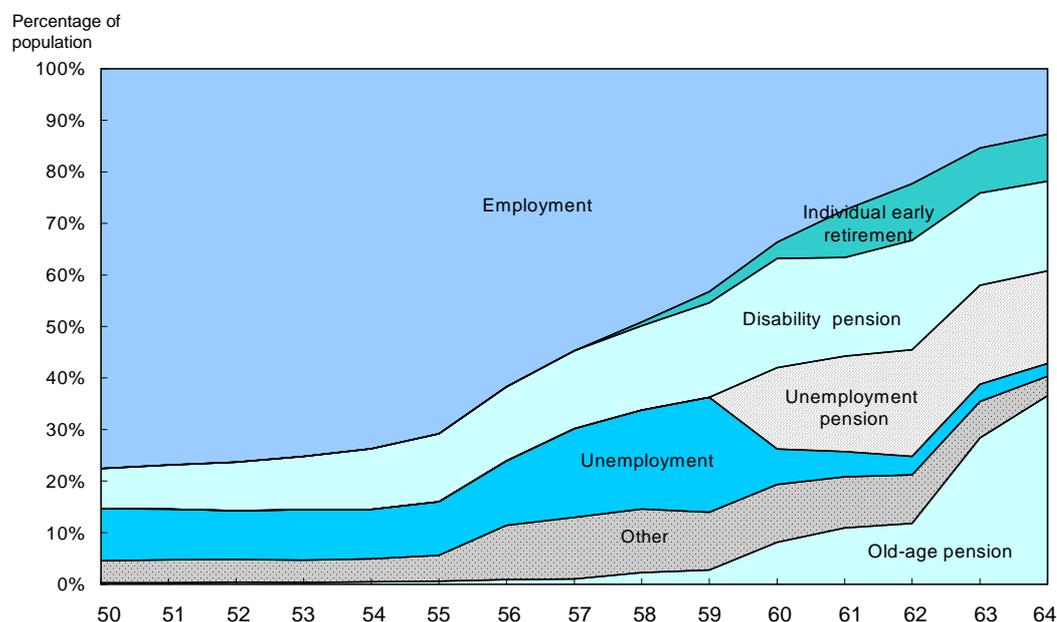
**Figure 6.** Pension income by average earnings.



Source: Antolin, Oxley and Suyker (2001).

The old Finnish system was less successful in addressing the second challenge, namely keeping labor force participation at levels compatible with demographic change. The reason is visible in Figure 7: There is a multitude of special pensions that make early retirement a convenient option for both employers and employees. As a consequence, there is a steady decline of participation as individuals age. As opposed to many other countries, this decline is almost linear after age 55, rather than first slow until about age 60 and then very fast around age 62-65. It will be important to reduce the incentives for early retirement for all of pathways, not only within the old-age pension.

**Figure 7.** Main activities of older people in Finland, 2000.

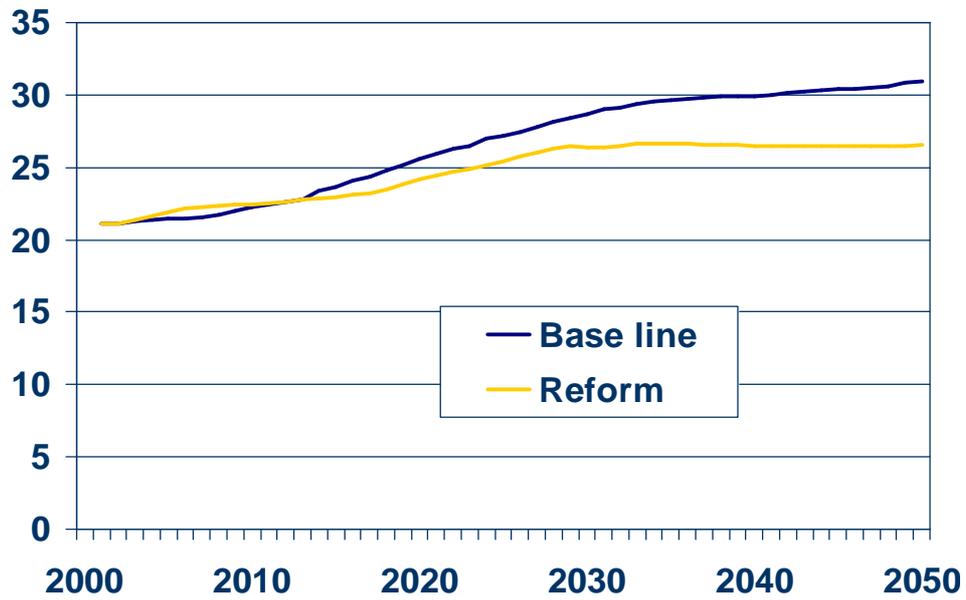


Note: The category Other includes people receiving an agricultural pension, a part-time pension, participating in active labour market programmes and those persons not receiving any benefits at all.  
Source: Statistics Finland, Employment Statistics, quoted from OECD (2003).

Finally, coming back to the first challenge, namely demography, let me stress again that the sequence of baby boom and baby bust will increase the system's dependency ratio and thus the pension burden to the younger generation even if one indexes benefits and retirement age in a way that perfectly compensates for increases in longevity. Figure 8 shows that the old system was on a very dangerous path. The figure depicts the projected contribution rate (employer's plus employee's contribution) to the Finnish pension system as a percentage of the gross wage. A first observation from an international perspective is that today's contribution rate is already quite high. It exceeds the contribution rate in most European countries, with the notable exception of Italy. Second, the projected increase under the old system is remarkable: from 21.4 percent today to more than 30 percent points after 2040, almost a 50 percent increase.

Figure 8 also shows that only a part of this increase is taken away by the 2005 reform act, a worrisome feature which I will discuss later in greater detail. This increase in labor costs will worsen the competitive position of Finland relative to her international trading partners. It appears wise not to be complacent about this development.

*Figure 8. Projected Contribution Rate to Earnings-Related Pension, 2000-2050.*

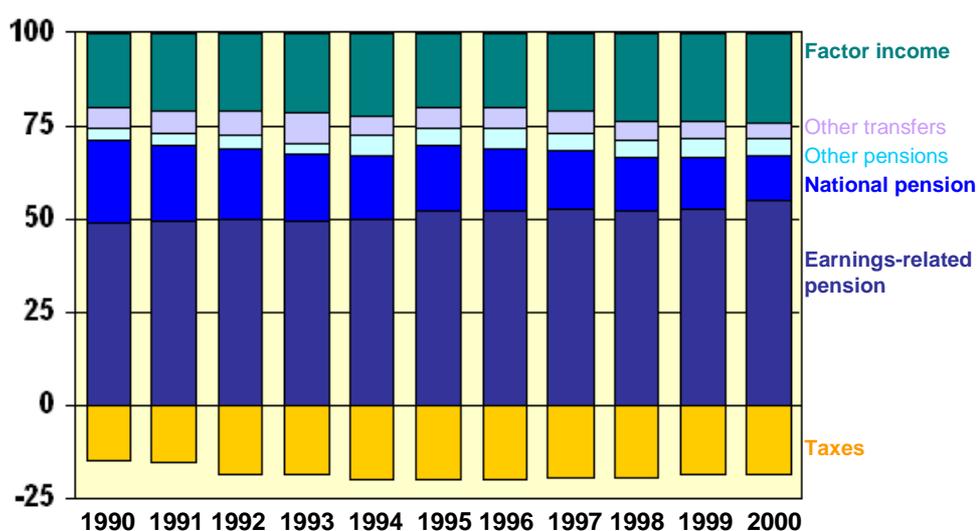


Source: Finnish Centre for Pensions (Risku, 2004).

### 3 A summary of the 2005 reform

Finland has a multipillar system with a minimum pension guarantee (pillar 0 in the new World Bank parlance<sup>2</sup>) provided by the “National pension” and an earnings-related scheme provided by several pension institutions that is mainly pay-as-you go (pillar 1) but also partially funded (what the World Bank would define as pillar 2). Additional independently organized occupational pensions play only a negligible role, while private income (assets, labor, transfers etc.) contributes about a quarter to total retirement income. On average, factor income is about half labor and half asset income, but asset income has a larger share for the richer, while labor income is more important for the poorer retirees. As Figure 9 shows, the earnings-related scheme is the backbone of the Finnish pension system. This even holds for the upper income quartile since there is no absolute ceiling on pension benefits.

*Figure 9. Composition of retirement income, 1990-2000.*



Source: Uusitalo, Sallila and Hagfors (2003), quoted from Finnish Centre for Pensions (2004).

<sup>2</sup> Holzmann et al. (2004).

### 3.1 Overview of the 2005 reform

The 2005 reform kept the minimum pension guarantee essentially untouched. It provides a means-tested income floor for the retired at about 450 Euro per month. Additional pension income in excess of 46 Euro p.m. reduces the minimum pension at a clawback rate of 50 percent. If individuals receive employment earnings-related pensions in excess of 1016 Euro per month, they have no right to the national pension. Some 54 percent of all retirees receive income from this means-tested pillar, but only 8.3 percent have a national pension as their only pension income (see Figure 6).

Focus of the 2005 reform was the earnings-related pillar. This pillar is mandated by several pension acts that refer to a specific employment status (private long-term employee, self-employed, private short-term employee) or the sector (farmers, government etc.). The insurance is provided by a number of separate institutions. For some pension acts, there is only one monopoly insurance provider (e.g., municipal, government, private short-term employed). For some other sectors, there is a limited number of alternative providers (private sector long-term employees and self-employed) which compete on the basis of the contribution rate. Contracts are made between employers and providers. Hence, the earnings-related pension scheme has many features of occupational pensions financed by a mix of (largely) pay-as-you-go (as e.g. in France) and (to a much lesser degree) funding (as e.g. in the Netherlands). In the sequel, we focus on the majority of workers which are covered by the employees pension act (TEL). The reform applies, *mutatis mutandis*, to most other branches as well.

The 2005 reform is a package of many elements which, in combination, pursue three major aims:

- (1) to make the earnings-related scheme more sustainable by
  - (a) increasing the extent of prefunding, and
  - (b) linking benefits to life-expectancy;
- (2) to increase labor force participation among older workers by
  - (a) introducing a window of flexible retirement age,
  - (b) sharply increasing the accrual rate within the window of retirement,
  - (c) increasing the actuarial adjustment of early retirement pensions.
  - (d) abolishing the cap on the replacement rate, and
  - (e) restricting access to other pathways;

- (3) to make the system more equitable by
- (a) basing benefits on all life-time earnings,
  - (b) equalizing the minimum age for benefit computation and contribution requirement,
  - (c) changing the indexation rules, and
  - (d) redefining accrual for certain non-working episodes.

In the remainder of this section, I will provide a summary of each element of the reform package. The section ends with a summary of the transition rules.

### **3.2 Increasing the sustainability of the earnings-related scheme**

As we have seen, the contribution rate to the earnings-related system (currently 21.4 percent) is already high by international standards. In addition, it is projected to increase further and to exceed 30 percent by the year 2040. The reform takes several steps to dampen this increase.

#### ***(a) Increasing the extent of prefunding***

Currently, the Finnish earnings-related scheme is a hybrid pay-as-you-go plus funded system which has about 84bn Euro worth of assets, invested both domestically and internationally, mostly in commercial assets, but partially also in government bonds.

As opposed to many other systems, the funds in the Finnish system are not individualized at the employees' level. To be precise, the amount of funding is linked to each individual and the funds are used to pay the specific individual's pension once he retires. Yet it is not individualized in the sense that an employee would be able to differentiate the funded part from the pay-as-you-go part or, even closer to "individual accounts" in the Anglo-Saxon sense, to make an individual investment decision. In turn, it is important to note that due to the linkage of the fund's size to each individual's pension claim, this fund cannot be used as a buffer fund to cap the contribution rate at a predefined level.

Between 1977 and 1996, funding was done by dedicating an amount that corresponded to the 1.5 percent accrual of the contributors between 23 and 54 years of age, to each pension provider's own reserve fund. At various occasions (e.g., 1990 and 1993) the funding share was increased ad hoc. Moreover, since the year 2000, funding has also been increased on a regular annual basis by the difference between the expected investment yields (measured by the ministry confirmed minimum interest rate) and a 3 per cent base rate. Before 1997, corresponding yields could be used to finance the pay-as-you-go system. In fact, before 1997, not only the interest flows, but also increasingly the asset stock itself was used to finance the pay-as-you-go system, thereby reducing the reserves and changing the mix between pillars 1 and 2 of the Finnish pension system.

The current asset volume amounts to more than 140 percent of the wage sum, covering some five years of expenditures. This is a rather large fund compared to international standards. It suffices to finance about a fourth of the baby boomers' retirement. It is not sufficiently large, however, to smooth the entire demographic burden, so the contribution rate to the earnings-related scheme will rise with population aging as we have seen in Figure 8.

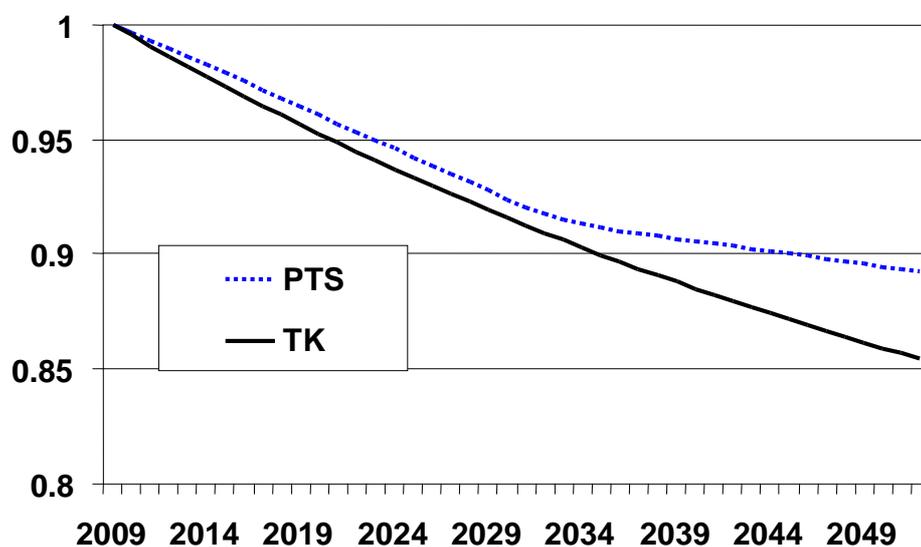
The decision by the 2005 reform was therefore to increase funding in the size of 7.5 percent of the private sector wage sum during the next 8 years. The additional funds are supposed to be dissolved after the year 2013 in order to reduce demographically induced increases of the contribution rate. The build-up of the buffer fund is financed by an increase in the contribution rate of about 0.9 percentage points.

Figure 8 shows the projected path of the total contribution rate before and after the reform, including both pure pay-as-you-go contributions and the (first contribution-increasing, then decreasing) effect of the additional demographic buffer fund.

### ***(b) Linking benefits to life-expectancy***

From 2010 onwards, benefits will be indexed by life-expectancy. The aim of the factor is to adjust benefit levels so that the present value of the benefits does not increase when life expectancy is increasing. Beginning with the cohort of 1948, the starting level of the old-age pension of each cohort entering retirement is multiplied by this factor. This factor then remains constant during retirement for this cohort. The factor is computed as the annuity value of a Euro for a person aged 62 years in this person's retirement year relative to the annuity value for a person who is aged 62 in year 2009.

Estimates of the life-expectancy factor, based on two different population projections, are presented in Figure 10. The decline in benefits is substantial and amounts to about 10 percent by the year 2035, and 15 percent by 2050. During the year 2004, Statistics Finland is supposed to present a new population projection which most likely will generate an even steeper increase in life expectancy so that the factor will decline further than in the figure below. This will create a sizeable "pension gap". Whether this gap will be filled by working longer or by saving privately (or a smaller pension is simply accepted) is up to the individual. In the political arena, however, the reform has been "marketed" with the option to work longer.

*Figure 10. Effect of the longevity factor.*

Source: "PTS" is based on EUROSTAT's population projection for Finland, "TK" on the Statistic Finland 2001 population projection. (Risku, 2004).

### 3.3 Increase labor force participation among elder workers

As we have seen, retirement age among Finnish workers is low compared with other OECD countries, and the trend has been further downward until recently. The 2005 reform takes quite a broad basket of measures to strengthen this reversal of the previous trend. The aim is to increase the effective retirement age by 3 years until the year 2050.

#### **(a) Introducing a window of flexible retirement age**

The old system had a normal retirement age of 65 and the possibility to retire earlier between ages 60 and 64. The reform changes this to a window of retirement between ages 63 and 68, plus an early retirement option at age 62. Retirement incentives during the window period are mainly governed by a very high accrual rate (see point *b* below), while the incentive to take out the early retirement age is mainly governed by the actuarial adjustment (see point *c* below).

#### **(b) Increasing accrual rates at older ages**

Benefits in the Finnish system are computed by multiplying pensionable earnings (indexed to today's level) with the accrual rate. In the old system, the accrual rate was 1.5 percent p.a. for earnings until age 59, and 2.5 percent for earnings between age 60 and 65. The new system sharply increases the age gradient of accrual. The lower rate will only apply until

age 52, and a higher rate of 1.9 percent applies to ages 53 through 62. From age 63 onwards, the accrual rate increases sharply to 4.5 percent p.a. The nonlinear accrual scheme means that earnings in later life are valued more than earlier earnings. It therefore creates an incentive to work longer.

***(c) Increasing the actuarial adjustment of early retirement pensions***

During the (relative to the old system much shorter) early retirement period of 12 months before the retirement window, the new system uses a mechanism other than the accrual rate to discourage early retirement by applying a so-called actuarial adjustment. It amounts to a benefit reduction of 0.6 percent for each month retiring earlier than age 63 (7.2 percent p.a.). No old-age pension benefits are granted before age 62, as opposed to the old system.

An actuarial adjustment of 0.4 percent per month (4.8 percent p.a.) – but now added to the benefits as a bonus – applies to individuals retiring after the retirement window. This adjustment is smaller than it used to be in the old system, where it was 0.6 percent per month.

The actuarial adjustment and the nonlinear accrual rate mechanisms work jointly. Section 5 provides a simulation analysis of the combined effects.

***(d) Abolishing the cap on the replacement rate***

The old system provided a cap on the replacement rate through the so-called “pension integration”. The earnings-related pension could not exceed 60 percent of the highest pensionable wage during the career. This mechanism created a major disincentive to work once this cap was reached since further work could not increase retirement benefits. Rather, by postponing retirement, the present value of benefits declined because a fixed pension amount was paid for a shorter period. The new system abolishes this cap, and there is no maximum on the replacement rate anymore. As the simulation analysis of section 5 shows, this abolishment, together with the high accrual rate, changes retirement incentives dramatically after age 63.

***(e) Restricting access to other pathways***

The old Finnish system of earnings-related pensions had a remarkable multitude of pathways into retirement, including an unemployment pension, several variants of disability pensions, and the part-time pension. The 2005 reform puts a bit more light into this jungle by abolishing several pathways and making others less attractive.

The *unemployment pension* will be abolished for persons born in 1950 or later. However, these individuals can still receive unemployment benefits until they are eligible for old-age pension benefits since the limit of 500 days will be waived for persons who are age 59 when the benefits expire. Hence, an “unemployment tunnel” to the old-age pension

benefits starts from the age of 57. This is two years later than the corresponding unemployment tunnel in the old system.

The “*individual early retirement pension*” among the disability pensions will be abolished for individuals born after 1943. In turn, however, “social factors” (as opposed to medical factors) after the age of 60 will be emphasized more strongly when granting disability pensions.

Another change makes the *part-time pension* less attractive by reducing the accrual rate for persons born after 1946 and increasing the eligibility age by two years. Part-time earnings contribute to pension accrual at the same rate as full-time earnings. In addition, the difference between full-time and part-time wage also enjoys pension accrual. In the old system, this was a sizeable subsidy to early retirement, since this difference enjoyed an accrual rate of 1.5 percent p.a. independent of age. In the new system, the accrual has been reduced to a half (now 0.75 percent). In addition, the accrual rates of part-time work have been brought into line with the old-age pensions (1.9 percent until age 62, 4.5 percent thereafter). Hence, they are more attractive at ages 58-60, less attractive from 61-62, and more attractive after age 63. Finally, the temporary reduction of the eligibility age for a part-time pension to age 56 has been discontinued. Workers can take up part-time pensions now two years later at age 58.

### **3.4 Increasing equity in the earnings-related scheme**

There are many elements in the 2005 Finnish pension reform designed to make the earnings-related pension scheme more equitable and closer to an actuarial-based pension system. They are described in this subsection. In addition, the reform added some “carrots” to reduce the impact of the many “sticks” elsewhere in the reform package.

#### **(a) Basing benefits on life-time earnings**

The old system computed the pensionable wage – the base wage for all benefit calculations – for each job separately by averaging the last 10 years in each job.<sup>3</sup> This procedure ignores earnings differences among workers in the other years. The new system bases the pensionable wage on all earnings and does not distinguish among jobs in different sectors of the economy.

#### **(b) Minimum ages for benefit computation and contribution requirement**

In the old system, workers had to pay contributions into the system from age 14 on. The old-age benefit accrual, however, started at age 23. Individuals who started their careers early were penalized relative to individuals starting their career at age 23. The reformed

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<sup>3</sup> On a “real” basis after applying the working-age index. Three years with particularly low earnings could be left out. The rules apply *mutatis mutandis* for a job lasting less than 10 years.

earnings-related system equalizes both ages. Contributions are due for workers aged 18 and over, and benefit accrual starts at the same time as contributions are due.

***(c) Changing the indexation rules***

The reform introduced a subtle change in the indexation formula of the beneficiaries. In the old system, benefits of early retirees (aged below 65) were indexed after their retirement according to a 50-50 mixture of wage and cost-of-living increases. After age 65, the index was changed to a 20-80 mixture. The new system now applies the 20-80 mix between wage and cost-of-living increases to all retirees, which may be seen as being more equitable.

Moreover, the working-age index (i.e., the index with which earnings are converted from nominal Euro into real Euro to form the basis for the wage base of the benefit computation) has also been changed for those who work and are under age 65. In the old system, their earnings were indexed by a 50-50 mixture of wage and cost-of-living increases. The new system changes this index to a 80-20 mixture and therefore makes it much closer to pure wage indexation. While this increases the incentive to work longer, the change of the working-age index makes the new system costlier than the old one.<sup>4</sup> This is partly compensated for by the change in the retirement-age index described in the first paragraph.

***(d) Redefining accrual for certain non-working episodes***

The new system introduces and unifies accrual calculations in the earnings-related pension system for certain non-working periods. Examples are a maximum of five years of studies that lead to a degree, child care leave (taking care of children less than three years after a one year's parental leave), unemployment, sick leave and rehabilitation allowance. Unemployment and non-working periods lasting less than a year had been covered also under the old system. It has been agreed that some of these new pension credits (higher studies, child care leave) will be financed from the general budget, not from contributions to the earnings-related scheme. This is another innovation in the Finnish system since so far contributions have been the only financing source (plus interest income from the funded part). The agreement is that these two parts of the pension system (contributory and redistributive) will remain strictly separate.

### **3.5 Transition rules<sup>5</sup>**

The main rule is that the changes take effect from the beginning of 2005. The pension rights earned prior to that are earned according to the old rules: old rights are vested. After 1.1.2005, pensions accrue according to the new rules.

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<sup>4</sup> Unless real wages decline.

<sup>5</sup> I am grateful to Seija Ilmakunnas and Ismo Risku for compiling these transition rules.

There are several exceptions to this rule. First, the *longevity factor* is applied only after the year 2009. Second, a *transition period* permits pensioners who retire from a job in the private sector that they held on January 1, 2005, to choose between the new and the old system. For those retiring from the private sector prior to 2012, pensions will be calculated both according to old and new rules. Pensioners will receive the higher amount. The baby-boomers in Finland were born between about 1946 and 1950 (the largest cohort was born in 1947, see figure 1). This transition rule is therefore available for most baby boomers in the private sector.

Third, the phase-out of pathways affects only certain cohorts. The right to the *part-time pension* at the age of 56 is kept to the cohort born in 1946 or earlier. Cohorts that are born later than that get the part-time pension only after the age of 58. The *individual early retirement pension* (lower age limit 60 years) is removed in the pension reform. The age cohorts born in 1943 or earlier maintain the right to this scheme. But for the younger cohorts the standard disability pensions will be awarded on less strict medical criteria when they turn 60+. The removal of the *unemployment pension* will affect the cohorts born after 1949. The rise in the lower age limit to be eligible for the "unemployment tunnel" (extended unemployment benefits) is effective for those born after 1949.

## 4 The yardstick: What is a good pension system?

Any evaluation should have a well-defined yardstick against which the object of evaluation is being compared. What are the primary goals that a good pension system should achieve? My yardstick includes six goals. They should be adequate, affordable, sustainable, robust, equitable, and they should minimize distortions to the economy. The first subsection defines these goals, while the second subsection puts the new Finnish pension system into the context of other pension reforms, using an internationally comparable typology of pension systems.

### 4.1 Goals for the design a pension system

*Adequate*<sup>6</sup> refers to both the absolute level (preventing old-age poverty) as well as the relative level (replacing sufficient lifetime earnings) of retirement income that the pension system will provide. The goal of any pension reform should be to ensure that all persons regardless of their level or form of economic activity should have access to the capacity to remain out of poverty in old age and that the system as a whole provides assurances that those individuals who live beyond the expected norms will be provided with protections from the risk of exhausting resources due to longevity.

*Affordable* refers to the financing capacity of individuals and society. Although higher replacement rates seem desirable, they come at a cost. The direct cost is through higher contribution payments for individuals, which interferes with more pressing consumption needs (such as raising children) or investment needs (such as providing for housing). The indirect cost is through higher incentives for evading contributions through informal sector activities, with negative consequences for individual lifetime opportunities and macroeconomic consequences for budget sustainability and economic growth. Mandated contribution rates in excess of 20 percent are likely to be very detrimental even for high-income countries with a well-developed collection structure.

*Sustainable* refers to the financial soundness of the scheme, now and in the future. Pension programs should be structured so that their financial situation does not require unannounced future hikes in contributions or unannounced future cuts in benefits. All adjustments needed to keep the scheme financially sound (through changes in contributions, benefits, or age of retirement) should be decided, announced, and factored into the current design of the program. Since the whole population (active and retired) lives off current gross domestic product (GDP) and imports, to the extent that countries cannot borrow from abroad indefinitely to sustain increasing levels of imports, the amount of

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<sup>6</sup> For the first four goals, I am (sometimes verbatim) drawing from a recent report by the World Bank, see Holzmann et al. (2004).

available resources matters. Hence, different pension arrangements are necessarily related to the size and growth of the country's economy. Sustainability therefore ultimately refers to the primacy of output in determining overall constraints and the capacity of any reform to provide the promised benefits without unduly displacing other claims on future resources. Sustainable pay-as-you-go systems cannot pay a higher long-run return than the growth rate of the wage bill, i.e., the growth rate of labor productivity minus the shrinkage rate of employment due to population aging. It goes without saying that pension systems which are on a path that requires continuous contribution rate increases cannot be sustainable.

*Robust* refers to the capacity of the system to withstand major shocks and so to remain viable over in the face of the inevitable imposition of unforeseen conditions and circumstances. Shocks to the system may come in the form of economic (e.g. capital market), demographic or political risks. A pension system must be designed to withstand the range of stresses from these and other sources, explicitly taking into account the anticipated stability of the environment in which it is implemented. A central element in meeting this goal is the completion of a credible analysis of the financing of a reform across the full range of likely scenarios and over the full term required for a reform to mature and reach long-term stability.

*Equitable* refers to equal treatment of equal circumstances. Individuals with equal lifetime contributions to a pension system should receive equal benefits from that system. Individuals should not be penalized when they switch jobs or work in different sectors of the economy. Such defined equity makes a pension system politically sustainable in modern democracies. Treating people equitably requires an internally consistent pension scheme, applicable to the many individual life histories possible in a modern and dynamic economy.

Finally, a good pension system should *minimize distortions* to the economy. Pension expenditures are typically a significant share of GDP. It therefore matters how a pension system is financed. If contributions are considered pure taxes, with little relation to a quid pro quo, they are likely to create substantial deadweight losses. Deadweight losses are the loss of economic activity created because people prefer e.g. not to take up a job or to work longer, because they think that taxes and contributions take too much away from their pay so it is not worth their forgone leisure time. Because the size of such deadweight losses is quadratic in the tax rate – hence, high contribution rates create much more than proportional deadweight losses. A projected contribution rate increase in Finland from 20 to 28 percent doubles the deadweight loss! Adding 20 percent to a contribution rate of 20 percentage points (i.e., raising the contribution rate from 20 to 24 percentage points) increases the deadweight burden by 44 percent. In turn, if individual benefits are perceived as commensurable to individual contributions, the deadweight loss is small. The

transparency of a scheme helps to communicate this commensurability and make it credible. The value of information about the benefits and their link to contributions lies in reducing the deadweight losses of a pension system. If people understand that there is a return from their contributions, they will forego some leisure and work more, even if part of their gross pay will be taken away for pension contributions.

#### **4.2 A systematic view: Where does the new Finnish pension system fit?**

The goals of a good pension system can be achieved by many means. There is no such thing as *the* ideal pension system with a set of uniquely defined features. Some features of a pension system can substitute for another feature. Design features have to fit to the country and its social fabric. To take two examples, recent pension reforms in Germany and Sweden have created very different types of reformed pension systems (a look-alike of a traditional defined benefit system in Germany; an innovative notional defined contribution system in Sweden) in spite of almost identical goals. Where does the 2005 Finnish pension reform fit in this spectrum of international pension reforms?

The following typology distinguishes pension systems by four dimensions. The many possible design features add additional complexity to these dimensions. It is remarkable that almost all of these features are not discrete, but continuous in character. For example, pay-as-you-go and funded financing mechanisms do not exclude each other, but complement each other, as they do in the old and the new Finnish pension system. More surprising may be that also defined-benefit and defined-contribution mechanisms are not black and white; rather, there is a continuum between these two prototypical pension systems.

Notional defined contribution (NDC) systems like the Swedish system enforce an extreme position along certain dimensions, while traditional defined benefit (DB) systems, such as the old Finnish system, often take the other extreme. The middle ground, however, is large. The reformed Finnish system (as well as the reformed German system<sup>7</sup>) quite often takes this middle ground.

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<sup>7</sup> Börsch-Supan and Wilke (2003).

*Table 2. Dimensions of pension systems.*

<b><u>(a) Credits for contributions</u></b>	
Base:	Life-long.....Best x years.....Final salary.....Flat
Weights:	Early vs. later contributions (-> interest).....Equal (point system)
<b><u>(b) Accrual of interest:</u></b>	
Rate:	r (market).....g (wages.).....n+g (Aaron-Samuelson)
<b><u>(c) Conversion to benefits:</u></b>	
Conversion:	Linear (equivalence).....Concave (redistributive)
Formula:	NDC: $B=NPW/G$ .....DB: $B=f(\text{credits, other; accrual rate})$
Actuarial:	Neutral at retirement (at the margin).....Flat
Risk:	Benefits frozen at retirement.....Indexation rules.....Fully adjustable
<b><u>(d) Funding:</u></b>	
Extent:	No fund at all.....Reserve buffer.....Fully funded
Collateral:	None.....Government bonds.....Commercial bonds/stocks

Source: Börsch-Supan (2003)

### ***(a) Crediting contributions***

Only certain contributions are credited in the old Finnish system, while the new system credits contributions on a life-time basis. Through the accrual rate system, both the old and the new system give more weight to contributions in later age, the new system significantly more. Part of this was undone in the old system due to the cap on the replacement rate. The new Finnish system resembles notial account (or actuarially based) systems in this respect much more than those traditional defined benefit systems that are based on last-salary based benefits computations.

### ***(b) Accrual of interest***

The implicit interest rate (rate of return) in the Finnish system is lower than the implicit rate of return in a prototypical pay-as-you-go system (the growth rate of the wage bill) since the “working-age index” is a convex combination of the productivity increase (80 percent) and the inflation rate (20 percent). In the old system, demography entered this rate of return indirectly through longer reciprocity due to increased longevity. This will be neutralized in the new system through the longevity factor. This feature induces a distinct flavor of a defined contribution system since the annuity value of benefits, given a certain earnings level, will be lower when the demographic component of the rate of return declines – benefits depend on uncertain demographics just as benefits in a financial defined contribution system depend on uncertain capital returns. The growth rate of the labor force, however, does not directly enter the Finnish system’s rate of return although it does enter

indirectly through the contribution rate which is adjusted according to the pay-as-you-go system. Some elements of capital market returns enter the rate of return indirectly through the reserve fund's performance. Thus, the new Finnish system is a mixture between a defined benefit and a defined contribution system, although it is marketed as a pure and traditional defined benefit system.

### **(c) Conversion to benefits**

Benefits in both the old and the new earnings-related Finnish pension scheme are essentially linear in contributions, see Figure 6. Redistribution by income is done through the National pension; the 50 percent clawback rate creates a concave relation for the lower about third of the income distribution. Additional redistribution occurs through the credit for non-working episodes such as higher studies and child care. The conversion to benefits follows a simple rule (inflated pensionable wage times accrual rate).

Quite complex, however, is the adjustment of pension benefits to the retirement age. It is not neutral (at the margin) since there is no annuity computation like in the Swedish system. Rather, a complex interaction between the accrual rate and the actuarial adjustment creates a very intransparent relation between benefits and retirement age. Section 5 presents a simulation analysis to understand how this adjustment works. Unlike the U.S. or Swedish systems, it is not a truly actuarial adjustment, as we will see further below.

### **(d) Funding**

The fourth dimension in the scheme of Table 2 is the extent of financing via pay-as-you-go versus funding. The Finnish earnings-related scheme is a pay-as-you-go system with a substantial reserve fund that could act as a buffer not only against short-term fluctuations. It is actually large enough to be able to dampen demographic shocks. The collateral is a mix of commercial and government investments, and it includes a substantive share of foreign assets. Note that domestic government bonds do not provide a demographic reserve since they are claims on future tax payers just as pay-as-you-go pensions claims are claims on future contribution payers. In fact, financing a pension system through domestic government bonds is macroeconomically equivalent to a pay-as-you-go system (Diamond, 1965; Pestieau and Possen, 1999). Using foreign government bonds effectively internationalizes the pay-as-you-go system by securitizing claims on taxes paid by future foreign citizens. Hence, the Finnish system is a hybrid system with a mix more dominated by pay-as-you-go financing than obvious from a quick look at the shares of contributions to both financing methods. The degree of funding, however, is substantially larger compared with some of the Continental European pension systems (e.g. France, Germany, Italy, and Spain).

## 5 Evaluation of the 2005 reform

The Finnish reform is an admirable combination of sticks and carrots. It provides quite a few sticks (e.g. reducing benefits by the longevity factor, clogging up some of the early retirement options, increasing some eligibility ages), but softens the impact with quite a few carrots as well (e.g. increasing the accrual rate, introducing new credits for non-working life episodes). This balanced approach has certainly helped the Finnish reform to pass the political hurdles that block pension reform in other countries (such as France or the US).

The reform has elements of both prototypical pension reforms mentioned at the beginning. It strengthens prefunding to some extent, adding 7.5 percent of the wage sum to a fund currently measuring 140 percent of the wage sum. It also makes the system closer to the economic essence of a NDC system because it links benefits consistently to life-time earnings and converts it to an annuity which is effectively indexed by life-expectancy.

The following first subsection looks at the aims of the 2005 reform, asks whether they are sufficient and whether they can be achieved with the provided means. The other subsections evaluate each element of the reform in detail, following the same structure (and numbering) as Section 3.

### 5.1 The aims of the 2005 reform

The hopes for the Finnish pension reform are big. Figure 8 depicted the projection of future contribution rates under the old and the new system. Aim of the reform is to reduce the contribution rate by 3 percentage points in 2030 and 5 percentage points in 2050.

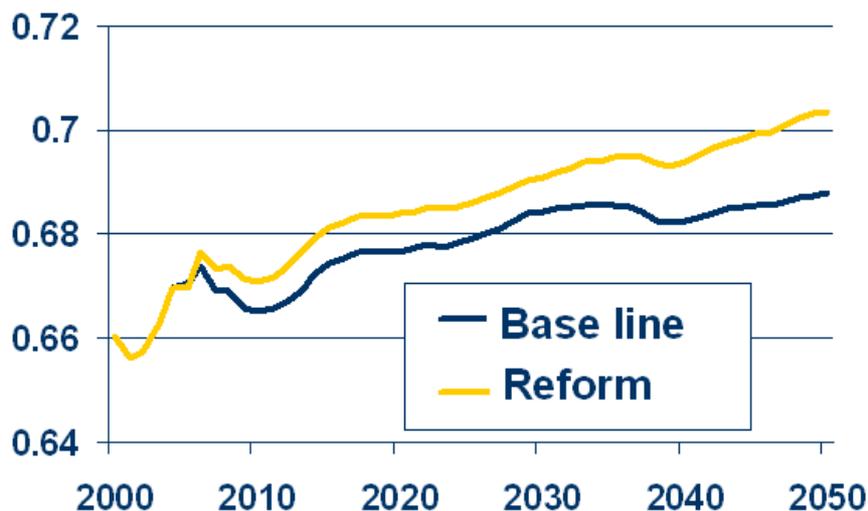
Direct effects are achieved both by cost-cutting (in particular through the longevity factor) and by drawing from the buffer fund (which will be filled at a higher speed until 2013, thereby increasing the contribution rate between 2005 and 2012).

Indirect effects are achieved by a projected increase in labor force participation. Figure 11 shows the employment rate of the Finnish economy which is currently at about 66 percent. Even without the current reform, it is projected to increase in the long run, mainly due to some program changes already decided upon before the 2005 reform and the assumed reduction in the unemployment rate. The 2005 reform is projected to increase the employment rate by almost 2 percentage points in the long-run over and above this projected trend, and it will have a sizeable effect (about 0.7 percentage points) already 5 years from now.

Much of this effect is due to a projected effective average retirement age which is expected to increase by 3 years in the long run, of which a 2-year increase is projected to occur during the next 10 years. While some of the increase is not reform-driven, the

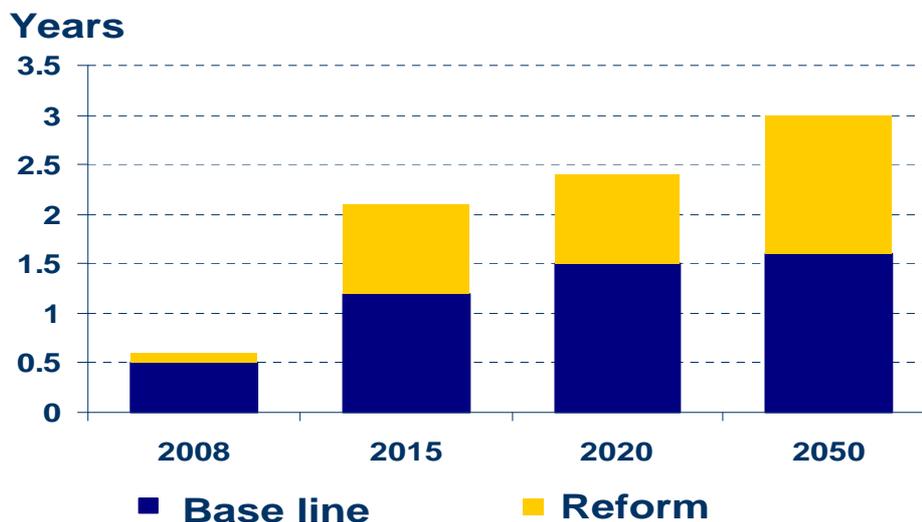
designers of the 2005 reform hope that the reform will double the originally projected increase in the retirement age.

*Figure 11. Projected Employment rates.*



Source: Finnish Centre for Pensions (Risku, 2004).

*Figure 12. Projected Increase in the Average Effective Retirement Age.*



Source: Finnish Centre for Pensions (Risku, 2004).

There are two obvious questions at this point: Are these projections likely to be met? And even if so, are these goals sufficient?

Let me begin with the second question. From an international point of view, a contribution rate in excess of 20 percent is worrisome, and planning a further increase from the current 21.4 percent to 27 percent (see Figure 8) is staggering. We know that high contribution rates have a considerable deadweight loss, even though they may not do as much harm as a tax rate of an equal amount. High contribution rates increase total labor costs and thus reduce employment in an internationally competitive labor market. With the enlargement of the European Union, this international competition is sure to increase, making the deadweight loss of an already large public pension program even more damaging.

The only way to reduce this deadweight loss is a larger buffer fund if replacement rates should remain intact. Adding more to the common pool buffer than the envisaged 7.5 percent is politically critical, since the workers are unlikely to distinguish between the pay-as-you-go and the funded part of the Finnish pension system. Further contribution rate increases in the short run are obviously politically difficult even if they reduce contribution rates in the long-run. This shows a major weakness of the Finnish system of old-age provision: It is one big system without any private savings character that avoid the deadweight losses of a public system.

Creating a larger buffer has been done in other countries by reducing the public pillar and filling it by private savings. This can be done by individual retirement saving accounts such as in Canada (“RRSP”) or the United States (“IRA”). Alternatively, they can be collected and funneled by the employer, such as in the U.S. “401(k) plans” or several variants of occupational pensions in Europe (e.g. Netherlands, Switzerland, United Kingdom). Seen from a macroeconomic point of view, there is no difference between increasing the public buffer in order to smooth the contribution rate and accumulating private savings in individual or occupational pensions. From a microeconomic point of view, however, the difference is enormous since private savings create no deadweight losses (as long as they are voluntary), while public savings through mandatory contributions do. And it is worth emphasizing again that deadweight losses increase quadratically with the share of income that go to deductions which workers perceive as taxes.

The debate about public versus private saving is still quite contentious, and it involves political judgment as well as assumptions about microeconomic behavior with still only weak empirical evidence. Hence, and as a foreign observer, I prefer the more modest role of simply being curious how the constant and long-run increase of contribution rates to the public retirement system will be borne by the Finnish workers. German workers and employers are complaining about contribution rates that are lower than the Finnish ones.

Moreover, unemployment runs high also in Finland,<sup>8</sup> and high total labor compensation is not making the fight against unemployment any easier. Politically, winning the pension game by a modest reform may mean losing the unemployment game, since governments have been voted out for their inability to reduce unemployment. I am curious, how these political games will work out in Finland.

So let me turn to the first question: Will the 2005 Finnish pension reform achieve the goals set in the figures shown above? My answer is: Not completely certain. Quite clearly, many steps go in the right direction and will increase labor force participation of older workers. In that sense, the Finnish people should be congratulated for a pension reform that will make their lives easier for the young and does not affect the current old.

There are three areas why my evaluation retains some skepticism. First, the reformed Finnish pension system still retains strong incentives to retire early through loopholes such as the unemployment tunnel and the “social clauses” in the disability pathway. Moreover, even the old-age pension part of the system is still not actuarially neutral. Second, the new system sends confusing signals. Part of this is bad design with a multitude of overlapping instruments; part of this is a skillful design for political approval. The price for a political compromise, however, is the weakening of the intended signaling effects toward more labor force participation, one of the major aims of the 2005 reform. In a similar vein: Marketing the Finnish system as a Continental-European-type DB system disguises the striking economic convergence to a Swedish-type NDC system. This disguise may be helpful for political purposes, but it reduces transparency and increases the deadweight losses of a public pension system. Third, the reform is essentially a “new entrants’ reform”; current pensioners are largely protected. This creates a very long transition period and prevents the reform from stabilizing the already very high contribution rate. Again, political reasons may make the claims of the currently retired untouchable, but it seems neither equitable nor efficient to put most of the burden on the generation of persons still to be retired.

In the remainder of this section, I will go through the reform features described in Section 3 in light of these three reasons for skepticism, always keeping in mind that the reform does go in the right direction, and certainly a big part of the way.

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<sup>8</sup> The OECD-compatible unemployment rate in September 2004 is 7.2% (Statistics Finland). Registered unemployment is 10.2%.

## 5.2 Increasing the sustainability of the earnings-related scheme

### *(a) Increasing the extent of pre-funding*

The increase in funding by 7.5 percent of the wage sum is small in two respects. First, relative to the existing fund (worth 5 years of contributions), its size is small (worth 4 months of contributions). Second, according to the current planning, the additional fund will be used to smooth the contribution rate after 2013. As Figure 8 shows, the additional fund will not be able to stabilize the contribution rate.

I am aware that the Finnish pension system is in a politically precarious position. On the one hand, the system should have a larger fund in order to stabilize future contribution rates. On the other hand, already the small increase of the fund has raised the contribution rate by about 0.9 percentage points and met political opposition. This precarious position is amplified by the fact that most workers will not be able to differentiate the funded and the pay-as-you-go part of the system. For them, an increase of 0.9 percentage points is similar to a tax increase, whether or not it is used to actually build up a reserve fund from which these very same workers or their children will profit later. Once again: Public saving instead of private saving creates additional deadweight losses.

The alternative is private individual and occupational pensions. They are largely lacking in Finland. They have, of course, their own share of problems, such as high administrative costs, misuse by the employer, mis-selling to inexperienced workers, lack of financial expertise, little uptake or high interruption and cancellation rates. Having a broader portfolio of retirement savings mechanisms consisting of three elements – public savings as currently done in Finland, occupational pensions such as in the Netherlands, and private individual pensions such as in the United States – appears to be wiser than relying on a single mechanism.

There is another reason to be sceptical about the focus on public savings only, and this is individual choice about how to react to the cost cutting measures of the 2005 reform (in particular the longevity factor). Individuals can react to these cuts either by working longer or by saving more. The Finnish government is marketing working longer, not increasing savings. But why not give people a choice? While undoubtedly retirement age has to adapt to longevity, not all individuals can work longer, and many individuals may prefer to retire early and to finance the pension gap with their own savings. The necessary private saving instruments, however, are currently not in place, and they require a certain scale to be efficient. This scale is hard to reach when public retirement saving mechanisms crowd out much of the market for private retirement saving.

The public savings are invested in a portfolio which currently has a substantial share of government bonds. The pension providers have obviously realized that holding Finnish

government bonds does not provide diversification advantages against the pay-as-you-go system (as pointed out in Section 3, holding government bonds is equivalent to maintaining a pay-as-you-go system) and converted a large share of these domestic bonds into foreign government bonds. This, however, does not change the pay-as-you-go character. Using foreign government bonds effectively internationalizes the pay-as-you-go system by securitizing claims on taxes paid by future foreign citizens. If these other countries have demographic problems, Finland will share them as well. Since most of the world, and certainly Europe and even more so the Eurozone, is undergoing population aging, a portfolio of international government bonds does little to diffuse the negative effects of demographic change on pension sustainability.

***(b) Linking benefits to life-expectancy***

The introduction of the longevity factor is an excellent move in order to make pension benefits actuarially fair in the intergenerational sense. Longer periods of pension reciprocity at an unchanged annual level increases total benefits in a way which cannot be maintained without continuous contribution rate increases, which is unsustainable, see Section 4. The longevity factor goes a long way towards the good sides of a NDC system which uses a straight-forward annuity calculation to maintain sustainability with respect to increases in longevity. The longevity factor achieves the same goal with lesser resort to financial mathematics which may appeal to most workers. By making the system more actuarially fair between generations, it reduces distortions and deadweight losses.

### **5.3 Increase labor force participation among elder workers**

***(a) Introducing a window of flexible retirement age and***

***(b) Increasing accrual rates at older ages and***

***(c) Increasing the actuarial adjustment of early retirement pensions***

The introduction of a “window of retirement” between the ages of 62 and 68 is a smart move because it avoids the politically highly controversial increase in the normal retirement age. Giving individuals a choice is politically appealing and diffuses many issues. This is likely to work, however, only if individuals know the rules within the window of retirement. Whether this is the case, remains questionable since the way how benefits depend on retirement age is very complex indeed. There are too many and too confusing instruments: The accrual rate changes with age, there are actuarial adjustments, and the window of retirement is combined with an extra year of early retirement. All this is overlaid with a confusing multitude of pathways: one can enter retirement through an unemployment tunnel, using disability insurance that includes “social factors”, or a part-time pension with complicated rules. A further reform should simplify these rules during

the “window” and should make them more transparent. The complexity of the system and the use of redundant instruments are by themselves bad design features and harm the goals of the reform. If people do not understand the system, it is unlikely that they behave as its designers have intended.

Introducing a “window” has psychological drawbacks, notably the absence of a clear signal what the “normal” retirement age is. As a matter of fact, the signal given by the “window” may even be counterproductive: obviously, some in Finland feel that the retirement age has been reduced from age 65 to 63 since there is no actuarial adjustment after the age of 63, and the accrual rate mechanism remains not well understood.

One has to trade off the unambiguous signaling effect of an increase in the normal retirement age (such as 65 to 67 in Germany and the U.S.) with the potential political opposition. Once the latter is overcome, retirement behavior will change, and this, after all, is a main purpose of the 2005 reform. One can combine a window period with a “pivotal” retirement age that delivers this psychological function e.g. by expressing all benefits relative to this pivotal age and indexing it to longevity.

Even putting these psychological arguments aside, the system does not appear to work in economic terms as smoothly as planned. One actually needs a simulation model to figure out the incentives on workers on their choice of retirement age.<sup>9</sup> This model computes the present discounted value (PDV) of net benefits from the pension system, seen from the perspective of an individual at age 55. The PDV sums all pension benefits after retirement and subtracts the contributions paid to the pension system between age 55 until retirement. All flows are expressed in real 2004 Euros and discounted to age 55. This PDV depends on the age of retirement. Computing and plotting this dependency is the aim of the simulation exercise.

The simulation model is based on a stylized earnings career and life-cycle. It is based on men who start work at age 18, earning first a relatively low wage and finally reaching a wage at the end of his career that is slightly higher than average. Averaging over his lifetime, earnings are 25,000 Euros p.a.. This individual earnings profile is superimposed by a macroeconomic real wage growth (assumed to be 1.5 percent p.a.) and by inflation (also assumed to be 1.5 percent p.a.), such that nominal wages grow by 3.0 percent p.a. in the aggregate. The model assumes current survival rates, corresponding to a conditional life-expectancy of 22 years at age 60. The underlying discount rate is assumed to be 3 percent. Since the latter rate is a critical parameter, we will also show alternative computations with a lower and a higher discount rate (1 and 5 percent, respectively).

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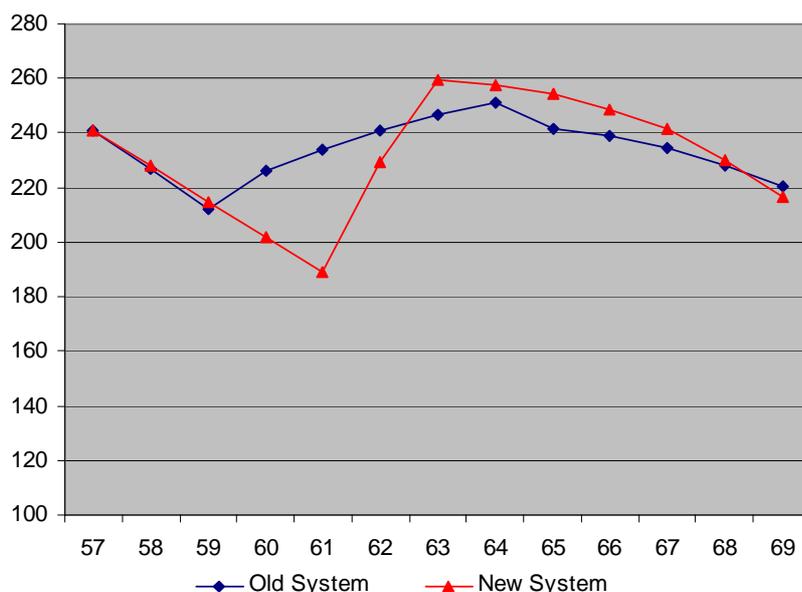
<sup>9</sup> This is not a trivial task. I apply the methodology of Gruber and Wise (1999) and base my simulation analysis on a model developed by Börsch-Supan and Schnabel (1999) for the German pension system. The OECD has apparently done a similar analysis, but has reported only little about the retirement incentives of the new system (OECD 2003).

The simulation analysis simplifies the complex Finnish pension system by modeling only two pathways. It is assumed that the representative worker takes the unemployment tunnel between ages 55 (57 under the new system) and the early old-age retirement age, and the old-age pension afterwards. For unemployment benefits, we apply a flat 55 percent replacement rate.

Finally, the computation abstracts from two important features. In the old system, it abstracts from the 60 percent cap on the maximum replacement rate. In the new system, it abstracts from the gradual introduction of the longevity factor. Both abstractions are made in order to isolate clearly the incentive effects of the accrual rate and the actuarial adjustments from other system changes and effects. We will show the effect of the replacement rate cap further below.

Figure 13 compares the resulting net present discounted values in the old and the new system.

**Figure 13.** Net Present Discounted Value of Benefits by Retirement Age.



Source: Own computations. Normalized for level effects. Discount rate 3 percent.

During the unemployment tunnel, the PDV declines because postponing the entry to the tunnel does not change the annual benefits, but reciprocity time gets shorter. Note the great attractiveness of the unemployment tunnel. One has to work at least until age 62 to get a better deal through the old age pension. In the old system, when the tunnel began at age 55 (not shown in Figure 13), entering at this early age created a larger PDV than under any old-age pension option!

Under the old system, early retirement starts at 60. Because of the high actuarial adjustment plus elevated accrual, the PDV rises with retirement age, but only until age 64. At age 65 and after, there is no accrual of additional earnings, and the PDV falls. The fall is only partially compensated by the actuarial adjustment.

Under the new system, the tunnel must be taken longer, but since the years worked between age 18 and 23 now add to accrual of the later old age pension, the PDV is slightly higher than under the old system. Early retirement at age 62 is possible, thus the PDV increases at that age. Because of the actuarial adjustment, it increases further until age 63. During the window of retirement (age 63 to 67), there is no actuarial adjustment, only elevated accrual. This elevated accrual of 4.5 percent is not large enough to compensate the lack of actuarial adjustment. The decline accelerates after age 68, since the actuarial adjustment is too small to compensate the lack of earnings accrual.

If we accept the present discounted value of benefits as a measure of retirement benefits – workers are likely to postpone retirement if the PDV increases, and they will take retirement as soon as the PDV decreases – the following predictions emerge:<sup>10</sup>

- a) Those who want to (or must) retire very early will take the unemployment tunnel as early as possible. The easier it is to get into the unemployment tunnel, the earlier will be the effective average retirement age. Postponing the tunnel entry age by two years is an important step of the 2005 reform. However, the lack of any actuarial adjustment creates very strong early retirement incentives to “retire” no later than age 57 once this pathway is taken.
- b) The early retirees will retire 2-3 years later, commensurable with the reform’s shift of the earliest retirement age. Also in this respect, the 2005 reform does the right step. This pathway, however, is of little relevance for those who want to take the unemployment tunnel.
- c) For the later retirees, the incentives of the reform are perverse: they will now retire about one year earlier. Replacing the actuarial adjustment by a seemingly very high accrual rate does not work correctly. Note that the accrual rate works only on the last few years, compared to the large base of an entire life-history of earnings. One needs a very steep accrual rate profile to mimic an actuarial coefficient applied to the benefit base.

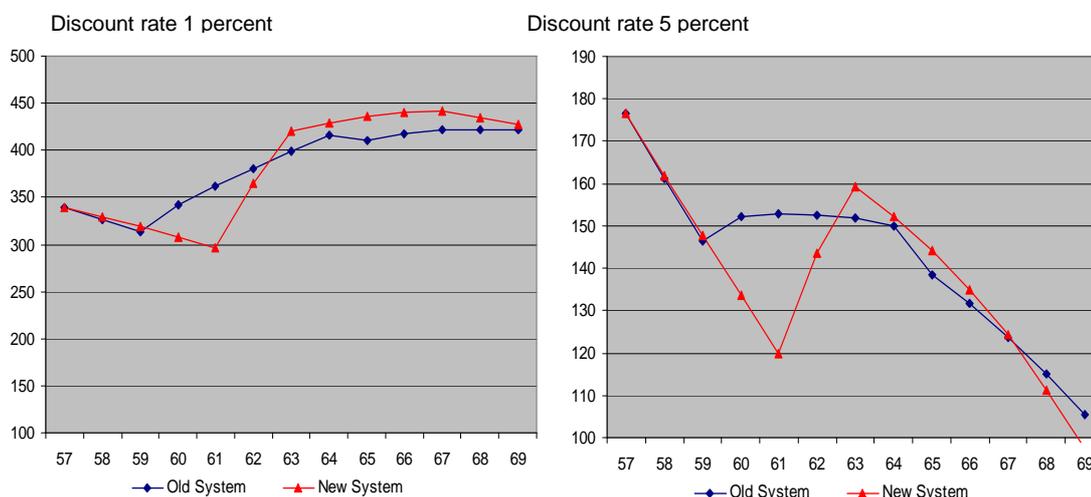
These results depend not only quantitatively, but also qualitatively on the chosen parameter value of the discount rate assumed to guide the decisions by the representative workers who

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<sup>10</sup> One may doubt that workers react to the PDV since it is a complex construct built on complex rules. They have shown, however, to predict actual retirement behavior quite precisely, see Gruber and Wise (2003), especially successful in a reform context (Börsch-Supan and Berkel, 2004).

contemplate (early) retirement.<sup>11</sup> Figure 13 is based on a 3 percent discount rate, the common choice among macroeconomists for computations affecting the entire economy. Figure 14 shows alternative computations. For a 1 percent discount rate, the discussed effects are much smaller and some early retirement effects go completely away. I do not think, however, that such a low discount rate (which makes workers essentially indifferent between today and the future) is a reasonable parameter choice. Rather, individuals tend to be more short-sighted than the social planner who is assumed behind the 3 percent discount rate. They therefore rather have a higher discount rate. For a 5 percent discount rate, the PDV profiles become much steeper and the early retirement incentive effects are much stronger than in Figure 13.

**Figure 14.** Net Present Discounted Value of Benefits by Retirement Age: Discount Rate.

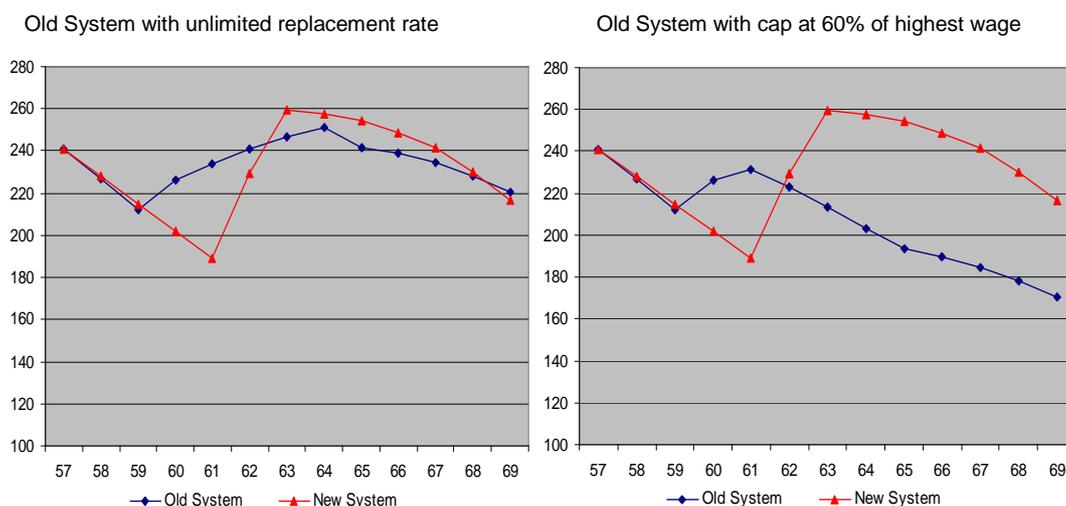


Source: Own computations. Normalized for level effects.

#### **(d) Abolishing the cap on the replacement rate**

The 60 percent cap on the replacement rate (relative to the highest earnings in each job spell) under the old system creates a flat benefit profile once the maximum replacement rate has been reached. Figure 15 shows the old system without and with such a cap. If earnings begin at age 23, the cap of 60 percent is reached at age 61 in the stylized earnings profile of our simulation model. Hence, the PDV declines after age 61, and there is no incentive to work past 61. Abolishing the cap as a part of the 2005 reform is therefore a consistent and important step to make the Finnish system compatible with longer work histories. It also aligns benefits better to contributions, strengthens the earnings-related character of the system, and therefore reduces the deadweight burden.

<sup>11</sup> The other parameter values are not critical.

**Figure 15.** Net Present Discounted Value of Benefits by Retirement Age: The Cap.

Source: Own computations. Normalized for level effects.

### (e) Restricting access to other pathways

It is well-known from the international experience that individuals fairly carefully select those pathways to retirement which give them the best combination of early retirement and high benefits. Making one pathway to retirement less generous, such as the old-age pension pathway, will create substitution to other pathways, such as the unemployment, disability, and part-time pathways. If the aim of a reform is a later retirement age, one must reform all pathways commensurably.

The 2005 reform has done this to a large extent, although not completely consistently. On the one hand, it made the part-time pension less attractive which had in the past significantly contributed to a lower old-age labor supply. Hakola (2002) concludes that about 50% of the part-time pensioners would have continued at full-time work had there not been a part-time pension. The 2005 reform also abolished the individual early retirement pension, a type of special disability pension. On the other hand, however, it softened the disability insurance part of the system by introducing “social clauses” in the disability insurance.

The unemployment insurance pathway – special provisions for long-time elderly unemployed effectively creating an “unemployment tunnel” – has attracted many early retirees in other countries, e.g., Germany and Italy. It is likely that the unemployment tunnel in the new system after the 2005 reform will find similar demand in Finland.

Shifting the entry age for the unemployment tunnel from age 55 to age 57 is an important and internally consistent reform step. Nevertheless, as Figure 13 has shown, the

total value of benefits generated by this pathway is rather generous relative to old age pensions, and it is therefore likely to attract many individuals.

#### **5.4 Increasing equity in the earnings-related scheme**

The present discounted values in Figure 13 through 15 have been normalized for level effects: their value at age 57 is equal. The transition from the old to the new system will create substantial level effects, however, which depend on calendar time as well as the individual earnings history. In the near future, most level effects tend to increase the PDV of the new system relative to the old system. Some of the changes are quite expensive and will undo the cost cutting attempts. In the longer run, however, the cost cutting level effect of the longevity factor will dominate and decrease pension benefits as shown in Figure 10. I interpret this as another aspect of the carrot and stick character of the 2005 reform: a short-run carrot against a long-run stick.

##### ***(a) Basing benefits on life-time earnings***

Basing benefits on life-time earnings rather than on the last 10 years of each job spell (with some selection options, see Section 3) is a very important step in order to link benefits better to earnings, thereby reducing inequities and related deadweight losses. It is an essential step in a modern world with complete computer-based earnings histories, and a virtually self-evident one. The 2005 reform did not re-adjust pension benefit levels. Hence, this step might create higher pensions for some earnings histories. In general, however, it will result in lower pension benefits since most workers have earnings histories with steadily increasing wages.<sup>12</sup>

##### ***(b) Minimum ages for benefit computation and contribution requirement***

Making the beginning of contribution and accrual history coincide is another logical step in making the Finnish system truly earnings related, and an important step towards internal consistency. This move unequivocally increases benefit claims, compensating on average some of the reductions generated in the previous reform element. Without a detailed simulation model that respects the heterogeneity of individual earnings histories, it cannot be predicted what the overall budget effects are.

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<sup>12</sup> This was a reason to introduce accrual for study periods and accruals that increase with age (see subsection d) – an attempt to get the academics' labour union to agree – another example of the carrot and sticks approach.

***(c) Changing the indexation formula***

In an ideal economist's world, working-time indexation should be 100 percent wage based, while retirees should be able to choose the retirement-age index. This means that retirees should be able to choose between a nominal, real or wage-indexed annuity or whatever combination among them, as long as the present discounted value of the benefit stream is kept equal.

There are political and psychological reasons to deviate from this economist's view. Deviating from a 100-percent wage base in the working-time index reduces the overall benefits and can therefore be interpreted as a hidden cost-cutting device. Moreover, it weighs later contributions heavier than earlier ones. I find neither aim really convincing.

Prescribing retirees the type of annuity (real, nominal, wage-indexed, etc.) may be justified because experience with annuities is still fairly scant, and workers may make mistakes either by overannuitization (too much retirement income was generated by annuities, as it seems to be the case in Germany: elderly have high saving rates) or by underannuitization (too little retirement income was generated by annuities, as in Great Britain: poverty rates among the elderly are high and increasing).

***(d) Credit for certain non-working episodes***

The new system introduces accrual for certain non-working periods as described in Section 3. These carrots are part of the carrot and stick approach and are one of the common political mechanisms to buy the necessary support from the more redistribution-oriented voters. It is not clear how expensive these subsidies are. The agreement is that these subsidies will not be financed from pension contributions. Finances for these subsidies should come from the government, not from contributions, and be separately accounted for. Hence, the idea is to run two systems (the purely contributory and the purely redistributive part) which will remain strictly separate. One should be careful, however, that this feature does not become a slippery slope towards tax-financing the contributory parts of the system. This would seriously undermine the relation to earnings in the Finnish earnings-related system and counteract the first two reform steps discussed in this short section.

**5.5 Transition rules**

The transition rules are very generous and make the 2005 reform essentially a "new entrants' reform". The political economy behind these transition rules is obvious, but they will undo part of the reform, and minimize the medium-run impact of the reform. This is visible in the small impact of the reform on contribution rates (see Figure 8).

The longevity factor will not correct for the increase in longevity between 2005 and 2009. This time span corresponds to about half a year of increasing longevity.

The choice between old and new rule unambiguously raises costs. The phase-out of certain pathways (individual early retirement pension, unemployment pension, see Section 3) will only affect the cohorts born after 1949. Both transition rules are particularly expensive because they are available for most baby boomers in the private sector.

## 6 Conclusions

The new system is an admirable combination of carrots and sticks. On the political side, the reform survived political resistance at a time when pension reform failed due to heavy political protests elsewhere, e.g. in Austria and France. On the economic side, the 2005 reform will encourage labor force participation and discourage early retirement, making a great step towards one of the main aims of the reform: financing the burden of population aging by a higher labor force participation of older workers. Moreover, the 2005 reform relates benefits to longevity and thus makes the system more intergenerationally fair in the sense that longer pension reciprocity of the older generation does not also increase costs to the younger generation. It also increases pre-funding through a public savings instrument and thus dampens future contribution rate increases.

The 2005 reform makes the system more internally consistent and tightens the relation between earnings and benefits – after all, the essence of an earning-related system. Basing the benefit computations on life-time earnings, abolishing caps, minimum ages and similar non-linearities, are almost self-evident features of a modern earnings-related pension system. The reform does a great job in this important direction. A tight link between contributions and benefits minimizes the deadweight loss of public pension contributions, a crucial factor in assessing the labor market effects of a pension system.

Nevertheless, the reformed system still retains strong incentives to retire early through loopholes such as unemployment and disability pathways, and it has not fixed misincentives for those who want to work particularly long. It also remains unnecessarily complicated which reduces the intended signaling effects toward more labor force participation, one of the major aims of the 2005 reform. The lack of transparency counteracts the intended positive labor force participation effects, and it amplifies an anyway very large deadweight burden.

The 2005 reform is essentially a “new entrants’ reform” because it largely protects current pensioners. This creates a very long transition period, and prevents the reform from stabilizing the already very high contribution rate. It is highly alarming when pension projections after a reform still predict contribution rates far in excess of 20 percent; in this case, exceeding 27 percent after the year 2040.

In the end, the Finnish pension reform of 2005 is an interim step. Finland is unlikely to afford contribution rates as high as projected after the reform. International competition on the labor market is most likely to increase, and the projected increases in pension system contribution rates weaken the Finnish position in this international competition for jobs.

Without risking low replacement rates, Finland will need more funded pensions. The reform ascertains this, but in order to minimize deadweight losses in financing such funded

pensions, Finland will need pensions which are not part of the general public tax and contribution system. The underdeveloped state-independent occupational and individual pension market in Finland will need more attention, since it needs to compliment the hybrid public pay-as-you-go plus funded system.

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