

## *Cyprus: Pension System and Pension Projections*

This country fiche has two main purposes. First, it provides an overview of the pension system. Second, it outlines how the pension projections have been generated for the purpose of the Economic Policy Committee's Ageing Working Group (EPC AWG).

### *1. Overview of the Cyprus Pension System*

The current pension system in Cyprus comprises:

- The General Social Insurance Scheme
- The Social Pension Scheme
- The Special Allowance to pensioners
- The Government Employees Pension Scheme
- Other Public Sector Employees Pension Schemes
- The Voluntary Provident Funds and other similar collective arrangements.

In 2003 total pension expenditure was estimated to be over C£600 million or around 9% of GDP. Of this amount, around 50% is accounted for by pensions paid under the general Social Insurance Scheme, nearly 25% by voluntary provident funds/lump sum retirement payments, and nearly 20% under occupational pension schemes for central government, local government and semi-government employees.

#### *1.(a) The General Social Insurance Scheme*

The general Social Insurance Scheme was introduced in 1957 and since the 1964 reform extends compulsory insurance to every person gainfully employed in Cyprus, including all categories of self-employed. The reform of 1980 introduced earnings-related insurance, replacing the previous scheme of flat-rate contributions and benefits.

The general Social Insurance Scheme provides the following benefits and social security:

- Sickness benefit (in cash)
- Unemployment benefit
- Old age pension
- Employment injury benefit (in cash and in kind)

- Maternity benefit (in cash)
- Invalidity benefit (in cash and in kind)
- Survivors' benefit

Old-age pensions under the general Social Insurance Scheme represent the main source of income for retirees. The pensionable age under the Social Insurance Scheme is 65 years; however, an insured person is entitled to old age pension at the age of 63 years if: (i) he or she satisfies the contribution conditions and has weekly average of insurable earnings equal to 70% of the weekly amount of the basic insurable earnings, or (ii) he or she was entitled to invalidity pension immediately before reaching the age of 63 years. Retiring before reaching the pensionable age under the general Social Insurance Scheme is very common. The effective retirement age under the social insurance scheme is approximately 63 years.

The level of old-age pensions in the general Social Insurance Scheme depends on the length of the contribution period and the level of insurable earnings. Pension benefits have two components: a basic pension, and a supplementary pension based on the level of insurable earnings. The earnings on which contributions and benefits are calculated (insurable earnings), are divided into a "lower" and an "upper" band, with the "lower band" consisting of earnings up to a certain "basic" level (the weekly amount of the basic insurable earnings changes from year to year and for 2005 is £77,47). The "upper band," consists of earnings in excess of the "basic" level up to a maximum limit. Gross insurable earnings can reach up to a maximum of six times the basic level.

The old-age pension is composed of a basic pension and a supplementary pension. The weekly amount of the "basic" pension is calculated according to the weekly average of paid and credited earnings in the "lower" band of insurable earnings. The weekly rate of "basic" pension is equal to 60% of the weekly average for a beneficiary without dependants, 80% for a beneficiary with one dependant, 90% for a beneficiary with two dependants and 100% for a beneficiary with three or more dependants. The weekly amount of the supplementary pension is equal to 1/52 of 1,5% of the total paid and credited insurable earnings of the beneficiary in the "upper" band of insurable earnings.

Pension –in-payment are indexed; The basic pension is indexed yearly to annual increases in insured earnings and the supplementary pension is indexed to the consumer price index. Total contribution rates for the social insurance scheme, which in addition to old-age pensions consist of unemployment sickness and other benefits, etc., differ between the employed and self-employed persons. Employed persons contribute 12,6 percent of their insurable earnings, shared equally between the employer and employees, while the self-employed contribute 11,6 percent of their insurable income. The central government contributes the equivalent of 4 percent of insurable earnings. Out of the total 16,6 percent of insurable earnings contributed to social insurance, around 8,6 and 5,6 percentage points are attributed to basic and supplementary pensions, respectively. Consequently, with an equilibrium contribution rate<sup>1</sup> of around 9 percent for the basic lower pension band and 2,5 percent for the supplementary upper pension band, the number pension system is currently financially covered and produces a surplus. The scheme is at an early stage of maturity with the number of contributors well in excess of the number of pensioners. Indeed, the surplus in the social insurance funds accounts was £232 million or 3,2% of GDP in 2004 and resulted in the reserves of the general Social Insurance Fund accumulating to £2,843 million or 39% of GDP by the end of 2004.

### ***1. (b) The Government Employees Pension Scheme***

The Government Employees Pension Scheme provides retirement and survivors pensions to civil servants, members of the educational service, the police and the armed forces. It is financed almost entirely by general taxation on a pay-as-you-go basis. The number of persons covered is currently about 30,000.

Participation of the employees in the financing is limited to a share in the cost of survivors' pensions. In 2003 this share was about 40% of the total cost of survivors' pensions or 2,4% of the total of all pensions.

Pensions are calculated on the final salary at an accrual rate that produces a retirement benefit equivalent to two thirds of that salary after 33 1/3 years of service. The pension is 50% of the final salary, but it is reduced by the amount of supplementary

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<sup>1</sup> The equilibrium contribution rate is the rate necessary for each scheme to finance the respective current pension expenditures.

Social Insurance pension from the time the retiree is awarded such pension (normally at the age of 63 years). The compulsory retirement age up to July, 2005 was 60 years, with early retirement allowed after 55 years without any actuarial reduction of benefits. In fact, the effective retirement age for central government employees has been significantly below 60 years. As from 1.7.2005 the age of compulsory retirement for civil servants will gradually increase to 63 years by 1.7.2008. The members of the police of the rank of sergeant and below retire compulsorily at 55 years; early retirement is allowed from age 50 years.

### ***1.(c) Other Public Sector Employees Pension Schemes***

There are other occupational pension schemes that provide cover to permanent employees of public utility organizations, local governments and of other public law authorities under the same terms and conditions as for civil servants. It is estimated that the total number of employees covered is around 7500. These pension schemes, which operate under special laws, are financed almost solely by employers and as for civil servants, participation of employees is limited to part of the cost of survivors benefits. The benefits and the entitlement conditions are the same as for central government employees.

### ***1.(d) The Social Pension Scheme***

The Social Pension Scheme closes the gap in accessibility to pensions by providing non-means tested pensions to those residents, of 65 years or more who, for any reason did not participate in the labour market and as a consequence have no pension income either from the General Social Insurance Scheme or from any other source. In other words, the Social Pension Scheme ensures universality in pension provision.

The beneficiaries are mostly women (about 95%), who were either urban housewives or non-insured wives or unmarried daughters of farmers engaged in family agricultural work.

The rate of the Social Pension is equivalent to 81% of the full basic social insurance pension, and as a consequence, is automatically indexed to earnings.

### ***1. (e) Special Allowance to pensioners***

The special allowance is payable to pensioners whose pension income does not exceed CY£6000 per year. It is paid without any test of income from work or other sources and without taking into account the household total pension income, since each pensioner is treated as a member of a single person household.

### ***1. (f) Voluntary Provident Funds***

Provident Funds are arrangements that are agreed within the framework of the system of free collective bargaining. They provide defined contribution lump-sum benefits. However, for certain categories of employees (e.g. bank employees, employees of oil companies, government manual workers), the Provident Fund is combined with a defined benefit lump-sum based on the recent salary and the employee receives the higher of the two amounts.

Provident Funds are financed by contributions from employers and employees. The number of Provident Funds for which returns were made in 2001, was 1484 with a total membership of about 103,000 employees. The average joint contribution was 11.4% of earnings. Industry-based Provident Funds operate for certain categories of employees, like construction workers, hotel employees etc. Trade unions also operate multi-employer Provident Funds. However, most of the Provident Funds operate on an enterprise basis and are small in size. In 2001, 65% of the Provident Funds covered 1-19 members. Provident Funds with 1-9 members were 51% of the total number of such funds.

## ***2. Accessibility to Pensions***

The prime purpose of the pension system in Cyprus is to provide access for all individuals for appropriate pension arrangements, public and/or private, which allow them to earn pension entitlements, enabling the maintenance of a reasonable standard of living after retirement.

Accessibility to pensions is universal for the 65 years and over population and is ensured through the general Social Insurance Scheme and the Social Pension Scheme. The latter is of importance for women, especially of the older generations with the low labour force participation rates and the non-remunerated family work in agriculture.

Accessibility to supplementary pension provisions is encouraged through tax incentives by exemption of contributions, investment income and lump-sum gratuities of pension funds and contributions, investment income and lump sum benefits of Provident Funds.

However, the majority of employees have no supplementary protection at all, or they are covered by provisions, like Provident Funds, with serious weaknesses in terms of their effectiveness as retirement income institutions. This is due to the fact that members usually receive their entitlements at the time of changing of employers. In 2001 about 76% of all payments out of Provident Funds were made for termination of employment and only around 20% was paid in retirement. This situation has led to substantial inequalities within the pension system as a whole, especially between the employees of the broader public sector and the majority of the employees in the private sector. These inequalities are manifested in the financing, the replacement rates and the pensionable age.

In 2003, out of the 334,000 active contributors to the general Social Insurance Scheme, only about 43% had some type of supplementary protection by occupational schemes.

### ***3. Adequacy of Pensions***

The minimum subsistence level is ensured through the Public Assistance Scheme. In 2003 the basic amount of social assistance for a person without dependants was equivalent to 32% of the net median equivalised income.

The minimum pension is ensured through the general Social Insurance Scheme for every working person, the Social Pension Scheme for the remaining persons and the Special Allowance.

For a single person, the minimum social insurance pension, together with the special allowance, was 9% higher than the amount of public assistance for basic needs. It was equivalent to about 35% of net median equivalised income.

#### ***4. Pension System: Early Retirement and Labour force Participation***

While the general Social Insurance Scheme and the pension schemes for public sector employees encourages early retirement, at the same time they provide incentives for maintenance of the participation of elderly workers in the labour force. Under the general Social Insurance Scheme, the average effective retirement age is 63 years and among public sector employees is around 57 years. Under these schemes, old-age pensioners have the right to continue work and earn income without prejudice to their pension benefits. Indeed, the employment rate among elderly persons (55 to 64 years) is relatively high in Cyprus being 49,9% in 2004 compared with the EU 25 average of 41,0%.

#### ***5. Pension Projections***

##### ***5(a) Basis of Projections***

An actuarial valuation of the Social Security Scheme as of 31 December 2003 that included long-term projections of pension revenues and expenditure was conducted by the international actuarial services of the International Labour Organization in 2004<sup>2</sup>. Assumptions on the actuarial exercise were based on the national population projections and the economic forecasts of the Ministry of Finance. The present pension projections for Cyprus and an assessment of the impact of future pension expenditure and revenue flows on the government finances build upon this actuarial exercise using, however, as required the population projections and macroeconomic assumptions prepared by the European Commission for the Economic Policy Committees' AWG, instead of national assumptions.

The valuation starts with a projection of the population of Cyprus and a projection of the economic variables that will influence the number of contributors and the number of persons who will receive benefits contributos and the number of persons who will

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<sup>2</sup> "Actuarial valuation of the Social Security Scheme as of 31 December 2003". Report to the Government of the Republic of Cyprus, International Labour Organization, Geneva, November 2004.

receive benefits from the scheme, as well as the level of their wages and the rate of inflations.

Next, projection factors specifically related to the Social Insurance Scheme are other pension schemes such as the distribution of retirement by age are determined and used in combination with the demographic/economic framework.

Pension projections are carried out following a year-by-year cohort methodology. The existing population is aged and gradually replaced by the successive cohorts of participants on an annual basis according to the demographic and coverage assumptions. The projection of insurable earnings and benefit expenditures are then performed according to the economic assumptions and the scheme's provisions.

Employing population projections and economic assumptions of the Commission, the information and relationships embodied in the actuarial exercise were used to forecast numbers of contributors to and beneficiaries from the general Social Insurance Fund, which in turn were used to generate flows of pension expenditures and revenues.

Similar projections exercises were carried out for the supplementary pension schemes covering civil servants, teachers, other central government employees and local government and semi-government employees. Essentially these exercises involved projections of the number of contributors and numbers of beneficiaries of different types of pension (old-age, widows' and retirement lump sums) and the average levels of such pensions, using the common population and macroeconomic projections of the Commission.

Owing to insufficient, detailed information it was not possible, at this stage, to make projections of payments from private sector provident funds.

### ***5(b) Assumptions***

**Population Projections:** projections are in line with those of the Commission which show total population rising by 33% between 2004 and 2050, to 975.071, compared with national estimates, which show a 12% increase to 816.406 by 2050.

The working age population (15-64 years) is projected to rise by 19% to 590.391 in 2050 compared with the increase of 6% in the national estimates. For those aged above 65 years their level is projected to rise by 195% between 2004 and 2050 reaching 261.340 or to over 26% of the total population; national estimates have the old-age population rising by 171% to over 28% of the total population by 2050.

***Economic:***

- **Labour participation rates:** male labour force participation rates are projected to rise gradually from of 80% in 2003 to 86% by 2050. Female participation rates are expected to increase steadily over the long-term rising from 62% in 2004 to 75% in 2050. The Commission estimates show total labour force participation rising to 82% by 2020 and remaining at around this level thereafter, whereas national estimates have the total participation rate rising gradually to 71% by 2010 leveling off until 2030, and thereafter increasing to 77% by 2050.
- **Employment growth:** assuming a gradual increase of the employment rate of the working age males and much larger though decelerating rises in the employment rates of working age females and of old age persons, and constant net migration inflows of 5 to 6 thousand per annum, it is estimated that the annual employment growth would rise to 2,3% over the years 2007 to 2011 and to an average of 1,5% in the years to 2016, to 0,4% from 2017 to 2014, to 0,2% over the years 2025 to 2040, and to minus 0,5% by 2050. Reflecting lower labour participation rates and smaller net immigration flows national estimates show much lower employment growth, up to 2020, and thereafter, similar low rates of growth.
- **Annual labour productivity:** annual productivity increases according to the Commission, are projected to accelerate from 2,4% in the 2005 to 2009 period, to 3,0% until 2021, and thereafter decline gradually to 2,7% by 2030, and to 1,7% by 2050.
- **Nominal wage and salary incomes:** nominal wage and salary earnings are projected to grow broadly in line with the rate of inflation and labour productivity growth.
- **Real GDP growth:** mainly reflecting the projected growth rates of labour productivity, real GDP is projected to grow at an annual rate of 4% from 2005 to 2009, then decelerate to 3,4% by 2020, to 2,8% by 2030 and, further to

1,2% by 2050. National estimates have real GDP rising at lower rates until 2020, but at 3% or higher rates than the Commission thereafter.

- **Inflation:** the annual rate of inflation is projected to average 2,5% in 2005 and 2006 and to decline to 2% per annum in the following years.
- **Interest rates:** these are assumed to average 5% per annum in nominal terms or 3% in real terms over the long-term.
- **Fiscal Policy:** Implicit in these simulations is the assumption that by the end of 2009, based on the current Convergence Programme, the general government deficit will be reduced to 0.6% of GDP. Thereafter, it is implicitly assumed that the underlying fiscal position will not change in either direction, except for age – related revenues and expenditures.

### *5(c) Results of Pension Projections Exercise*

The results of the pension projections exercise applying the common EU assumptions to the pension system in Cyprus as of end-2004 are shown in table 1 for pension payments. The ageing of the population and maturing of the social insurance scheme, (that began in 1980), result in a distinct upward trend in the ratio of pension payments to GDP, particularly in the period from 2040 to 2050. It is estimated that the ratio of the number of old age pensioners to the number of contributors to the social insurance schemes rises from 26% in 2004 to 41% in 2020, to 52% in 2040 and further to over 64% in 2050. Over this latter period, the sharp projected acceleration in the growth of the old age population and the projected marked slowdown in the growth of real GDP, reflecting falling employment from 2043 onward, largely explain the large increase in pensions.

In contrast, pension revenues in the form of contributions to the social security funds rise rapidly over the period 2005 to 2020 predicated on projected considerable employment growth. Thereafter, contributions to the social security funds level off as a proportion of GDP at around 7,2% (Table 2). The acceleration in the growth of pension payments from 2020 onwards leads to the social security funds going into deficit from around 2030, and pension reserve assets falling from 37% of GDP in 2020 to 25% in 2030 and becoming negative after 2040.

Using national assumptions, projections show that the social insurance fund becomes financially unviable by 2020 as the slower growth of social security contributions is surpassed by the growth of pension payments much earlier.

These pension projections were integrated into projections for the overall general government finances to assess long-term fiscal sustainability. The projections in table 2 show that the increase in pension payments causes the general government deficit to expand from 2030 onward, leading to higher debt and interest payments and a sharply deteriorating fiscal situation, especially from around 2035 onward. Indeed, the government debt to GDP ratio rises from 53% in 2035 to 70% in 2040 and soars to 144% in 2050 (Table 2).

**Table 1: Pension Expenditure Projections<sup>1</sup>**

(In per cent of GDP)

	2004		2005	2010	2020	2030	2040	2050
	(C£mn.)	(% of GDP)	( ← )		projections			( → )
Pension Expenditures <sup>2</sup>								
-social insurance scheme outlays	321.0	4.3	4.2	4.8	6.6	8.5	10.1	14.4
-government employees' scheme outlays	167.2	2.4	2.4	2.5	2.7	2.8	3.9	4.4
-social pensions	28.2	0.4	0.4	0.4	0.3	0.3	0.3	0.3
-additional grants to pensioners	5.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1
-local government employees' scheme outlays	9.3	0.1	0.1	0.1	0.2	0.2	0.3	0.3
General Government pension-related expenditures	531.1	7.3	7.2	8.0	9.9	11.9	14.7	19.5
Memorandum item:								
-Semi-government employees' pension scheme outlays	19.4	0.3	0.3	0.3	0.3	0.5	0.6	0.7

1. The greater part of the pension projections, that is, those out of the general Social Insurance Fund are based on the 2004 actuarial exercise, using common demographic projections and macroeconomic assumptions prepared by the European Commission for the Economic Policy Committees' AWG. Expenditures of the central government employees' and local government semi-government employees' pension schemes were based on national assumptions updating an earlier exercise of the Ministry of Labour and Social Services. Projections for social pensions and additional grants to pensioners were assumed to fall slightly as a percentage of GDP over the long term because rising per capita income would reduce the need for such pensions and grants.

2. Consists mainly of old-age pensions, retirement lump-sum payments, survivors', and disability pensions.

### *5(d) Pension Reforms and Simulations*

In view of the unsustainable long-term fiscal situation stemming largely from rising pension payments, pension reform is being discussed by the social partners. The introduction of private funded pension schemes have been ruled out. Instead a package of parametric reforms of the existing social insurance scheme are being considered.

The actuarial exercise of 2004 undertook simulations including one involving three parametric reforms, namely:

- increasing the normal retirement age from 63 to 65 years;
- raising the years of eligibility required for obtaining an old-age pension from 10 to 15; and
- indexing the lower band or basic pensions to the consumer price index, rather than to wage earnings.

These parametric reforms when applied to the actuarial exercise using Commission assumptions produced a financially viable situation for the Social Insurance Fund, with the growth of pension payments substantially reduced, and the pension reserve assets maintained well above 40 percent of GDP over the long run. (See Table 2).

The main driving force in accounting for the reduction in pension payments is the change in the indexing of basic pensions. However, such a measure would greatly reduce the relative level of pensions, especially of poorer persons, lowering the replacement rate and eroding the adequacy of individual pension benefits.

Hence, a further simulation was undertaken raising Social Insurance Fund contribution rates from the current level of 14,3% of insurable earnings in phased increases from 2025 to over 20,3% by 2045. Under this scenario the financial viability of the Social Insurance Fund is considerably improved up to around 2035. But, thereafter, the pension reserves to GDP ratio declines quite precipitously, and the government debt to GDP ratio climbs as well from 38% in 2035 to 73% in 2050 (table 2).

Thus, this scenario needs to be buttressed by at least some of the parametric reforms outlined above. In addition, the reform scenarios above are based on favourable demographic and economic assumptions that may fail to materialize. To safeguard

**Table 2:*****Cyprus: Estimated Results of Reforms to the Social Insurance Fund***

	<b>Pension Payments (In per cent of GDP)</b>				<b>Social Security Contributions (in per cent of GDP)</b>			
	<b>2004</b>	<b>2020</b>	<b>2040</b>	<b>2050</b>	<b>2004</b>	<b>2020</b>	<b>2040</b>	<b>2050</b>
Baseline scenario <sup>3</sup>	4,4	6,6	10,1	14,4	5,7	7,1	7,2	7,1
- with parametric reforms <sup>4</sup>	4,4	4,9	7,1	10,0	5,7	7,1	7,2	7,1
- with increased contribution rates <sup>5</sup> ; no parametric reforms	4,4	6,6	10,1	14,4	5,7	7,1	9,9	10,1
	<b>Pension Reserves to Assets Ratio (In per cent of GDP)</b>				<b>Debt to GDP Ratio (in per cent of GDP)</b>			
	<b>2004</b>	<b>2020</b>	<b>2040</b>	<b>2050</b>	<b>2004</b>	<b>2020</b>	<b>2040</b>	<b>2050</b>
Baseline scenario <sup>3</sup>	39,0	37,3	1,9	-4,5	71,3	36,4	70,0	144,0
- with parametric reforms <sup>4</sup>	39,0	53,1	57,2	43,6	71,3	21,7	2,8	15,2
- with increased contribution rates <sup>5</sup> ; no parametric reforms	39,0	37,3	24,6	3,4	71,3	36,4	42,6	72,9

<sup>3</sup> Actuarial exercise applying Commission population projections and economic assumptions to the Social Insurance Fund accounts as of 2004.

<sup>4</sup> Include raising retirement age, indexing basic pensions to CPI instead of wage earnings, and increases in years required for eligibility for old age pensions.

<sup>5</sup> Includes increase in social security contribution rates as from 2025 to 2045.

against this risk and to strengthen the more fragile higher contribution rates scenario it would be necessary to introduce, in addition, two of the aforementioned parametric reforms such as raising the retirement age and the years of eligibility required for obtaining an old age pension, while omitting or modifying the more contentious proposal of indexing basic pensions to the consumer prices instead of wage earnings.

Furthermore, to ensure the financial viability of the pension system in Cyprus in view of population ageing it will be necessary to apply parametric reforms to supplementary occupational pension schemes, such as for government employees. Already, the retirement age for civil servants is being raised in phased increases from 60 to 63 years, as from July 1, 2005. Negotiations are proceeding with other government employees and personnel of semi-government organizations to effect increases in retirement ages as well.