APPENDIX IV

Modeling Options on Changes to the Current Pensions System

IV

The modeling software used for running simulations on options on changes to the current pensions system is the Pensions Reform Options Simulation Toolkit designed by the World Bank. The various models simulated were carried out by the World Bank on behalf of the Pensions Working Group.

The assumptions inputted into the PROST model are on two tiers: (i) Macro Economic Variables; and (ii) Pension Specific Variables.

The following are the key assumptions applied.

Macro-Economic Variables

01. Demographic Data

The demographic data applied is the data used by the World Bank in its report of March 2004. This data was obtained from the World Bank through MCESD. This data is consistent with the projections made by the National Statistics Office.

Two parameters were however introduced to this data. These are:

- The work force will increase annually by the addition of 500 immigrants.
  This is modeled on the further assumption that equal number of male and female immigrants with labour force participation is equal to those of the Maltese males and females assumption.
  70% are assumed to be in age cohort of 18 to 45 years of age: workers of a young age who are either assigned to Malta on projects or wish to migrate to Malta.
  30% are assumed to be in the age cohort of 45 to 60 years of age: persons with experience or who wish to live in Malta and then retire here.
- The work force will increase annually by the addition of 150 returned migrants.

  This is modeled on the further assumption that equal number of male and female returned migrants with labour force participation is equal to those of the Maltese males and females assumption.
  100% are assumed to be in age groups of 36 to 40 years of age: second generation persons of Maltese parents who seek to return to the country of their parents.

02. GDP Growth in Real terms

Economies behave in a cyclical manner. The assumption made here is that as restructuring takes place Malta will enjoy a GDP Growth of 4% per annum until 2020. This is leveled at 2.5% thereafter to account for both high and low GDP growth during future economic behaviour.

03. Inflation Rate

Inflation has been reasonably low in Malta. Inflation is assumed to be 2.5% over the modeling period to account for both high and low inflation cycles during future economic behaviour.

04. Collection Rate

The changes proposed argue for a far more aggressive compliance and enforcement regime. It is thus assumed that the Government will collect 95% of the contributions due to the State for contributory benefits.

05. Discount Rate

The discount rate is assumed at 5% in real terms. This is equivalent to approximately 7.5% in nominal terms.

06. Women's Participation

Women's participation in the economy is expected to increase. The traditional behavioural pattern that men work and women take parental responsibilities is changing amongst younger generations of women. Nevertheless, women who are currently 40 years of age and above and have opted out from the work force are not expected to return in large numbers into the work force. It is thus assumed that till 2020 the current women participation rate will increase to 55%.

As the demographic structure of women changes, and today's 20 and 30 year old women age, it is expected that this cohort of women are more likely to continue to work in later years even though they will be married and have parental responsibilities. It is thus assumed that women's participation will increase even further from 2020 onwards. This increase will also be supported by pension measures designed to assist persons to return to work after taking career breakouts due to parental responsibilities. Thus, it is assumed that the employment participation rate from 2021 onwards will increase to 62%.

The assumption can be argued to be a cautious one. A higher participation rate has not been favoured as it is assumed that complete behavioural change that will see the considerable majority of women working during marriage will take time to happen.

07. Unemployment Rate

Malta will over the next ten years undergo considerable structural change to render it more competitive. Over this period of time unemployment is assumed to be 7%. It is further assumed that once the structural changes take place the economy will perform better. It is thus assumed that from 2015 onwards the unemployment rate will be 6%.

08. Employment Rate

The employment rate is assumed to be endogenous.

09. Annual Real Wage Growth

Given the necessity to maintain the labour share of the GDP in face of a declining labour force the Annual Real Wage Growth is assumed to be 3%.

Pension Specific Variables

The recommendations proposed by the Pensions Working Group is based on the following changes. This is referred to as the Base Model.

01. Current Pensioners

Current pensioners and individuals who will retire prior to the implementation of the proposed changes which are assumed to be introduced on 1st January 2007 will not be effected by the recommendations proposed.

02. Retirement Age

The retirement age will be increased to 65 years of age for both men and women. This will be introduced as follows:

(a) In terms of women, the pension age will be 61 years of age with effect from 1st January 2007.

(b) The increase of pension age for all to the 65 years threshold will start from 1st January 2007, persons holding the following years of age will retire as follows:

Years of Age as at 1st January 2007	Retirement Age
55 years of age and over	No change
52 years of age to 54 years of age	62 years
49 years of age to 51 years of age	63 years
48 years of age and below	65 years.

03. First Pillar Pension

03.1 The minimum pension guarantee currently is:

Single	Lm40.45 per week
Married	Lm46.39 per week

This is assumed to increase annually as from 1st January 2007 by the rate of inflation based on the Retail Price Index.

03.2 The contribution period for the accumulation of the Two-Thirds First Pillar pension should be increased from 30 years to 40 years as from 1st January 2007 as follows:

Years of Age as at 1st January 2007	Accumulation Period
46 years of age and over	No change from current accumulation period
40 years of age to 45 years of age	35 years.
39 years of age and below	40 years.

03.3 The base line for the calculation of the Two-Thirds First Pillar pension will be changed from the best consecutive three years from the last ten years for employees and from the average of the last ten years' net income for self employed persons to the average of the 40 year contributions accumulation history for both employees and self employed as from 1st January 2007 and will be introduced as follows:

Years of Age as at 1st January 2007	Base-line for Calculation of First Pillar
55 years of age and over	No change from the current base-line calculation period
50 years of age to 54 years of age	Average of best 5 years
45 years of age to 49 years of age	Average of best 10 years
44 years of age and below	40 years.

03.4 As from 1st January 2007 the Two-Thirds First Pillar post retirement pension income is annually built up for all pensioners by inflation based on the Retail Price Index.

03.5 A person may continue to opt to work beyond the new statutory retirement age whilst enjoying the Two-Thirds First Pillar (and Second Pillar) pension with no capping on income earned subject to the payment of the First Pillar contribution. This measure will come into effect in tandem with the recommendations proposed on the retirement age.

03.6 The current invalidity pensions scheme should be reviewed with a view to tighten the eligibility criteria as well as to adopt the principle of 'rehabilitation or alternative work before pension'.

03.7 The ceiling of the First Pillar's Maximum Pensionable Income will as from 1st January 2007 be the current Maximum Pensionable Income adjusted yearly to reflect inflation.

03.8 The Class I and Class II contributions should remain unchanged.

03.9 For modeling purposes only it is assumed that 2% of the social security contribution paid by an employee (Class I share is 10%) and 1% of the State Grant (Class I share is 10%) is channeled to the Health Fund.

03.10 As from 1st January 2007 all non-contributory benefits will be financed through the Consolidated Fund.

03.11 For modeling purposes it is assumed that a policy that credits ones person by two years for every child born subject that the said person must return to employment for the same period is introduced as from 1st January 2007.

04. Second Pillar Pension Scheme

04.1. The Second Pillar Pensions Scheme is introduced on a voluntary basis as from 1st January 2006. The following take-up rates are assumed:

2006	4%
2007	5%
2008	6%
2009	7%

For modeling purposes only it is assumed that the contribution to be paid by the employer and employee during this period will be 2% respectively.

04.2 For modeling purposes it is assumed that the Second Pillar Pension Scheme is introduced on a mandatory basis for persons who are 45 years of age and younger. Contributions are assumed to be as follows:

2010 to 2024	2% each from employee and employer
2025 onwards	5% each from employee and employer

04.3 Administration costs of the Second Pillar Pension Scheme are assumed to be Lm1,000,000 for each of the first three years from when this is introduced mandatorily. This is then assumed to fall to Lm750,000 annually given that the initial mobilisation costs would have been made.

04.4 The rate of return on private fund investments taking into account the 'prudent-person' rule as well as quantative diversification criteria is assumed to be 5% in real terms.

04.5 The following annuitisation rules are assumed:
- Assumed life insurance companies use 4% in calculating annuities to cover longevity risk
- Assumed annuities based on unisex life tables
- Assumed annuities are inflation-indexed.

04.6 For modeling purposes only it is assumed that a Pensions Compensation Fund will be created which will be financed from the Second Pillar Pensions Scheme itself where 1% of total annual contributions to the Second Pillar Pension Scheme are channeled to this Fund.

05. Definitions of Wage Earners

The following assumptions are taken in defining wage earners:

05.1 High Wage Earner:
Starts work at 24 years of age. Retires at 65 years of age. Begins work at twice the average wage of a 24 years old person. Annual wage growth is 10% higher than the average wage growth. Mortality rate is 10% lower than the average. Takes one year off in his / her career to undertake studies.

05.2 Average Age Earner:
Starts work at 22 years of age. Retires at 65 years of age. Begins work at the average wage of a 22 years old person. Annual wage growth is equal to average wage growth. Mortality rate is average. Takes one year off at the age of 26 years

05.3 Low Wage Earner:
Starts work at 18 years of age. Retires at 65 years of age. Begins work at 60% of average wage of a 18 year old person. Annual wage growth is 10% lower than the average wage growth. Mortality rate stands at 10% higher than average. Unemployed for 2 years.