

Economic Impact of Various Mandatory Pension Systems

Note:

The models referred to in this system are as follows:

M1 – State pension increased to 50% of average industrial earnings – immediate introduction

M2 – No change to State pension, mandatory supplementary scheme with 15% contribution rate split 5% employee, 5% employer, 5% Exchequer – introduced over 10 years

M3 – No change to State pension, mandatory supplementary scheme with 15% contribution rate split 10% employee, 0% employer, 5% Exchequer – introduced over 10 years

M2 – No change to State pension, mandatory supplementary scheme with 15% contribution rate split 5% employee, 5% employer, 5% Exchequer – introduced immediately

The quantification of the macro-economic effects for Ireland of the introduction of different types of mandatory pension systems can only be undertaken within the framework of a macro-economic model. We use the ESRI's Medium-Term Model (HERMES) to simulate the effects of alternative pension systems on macroeconomic variables such as GNP, employment and unemployment. In this note we set out the approach we took to modelling the effects and we present the results of various simulations which quantify the magnitude of the impact of alternative pension systems.

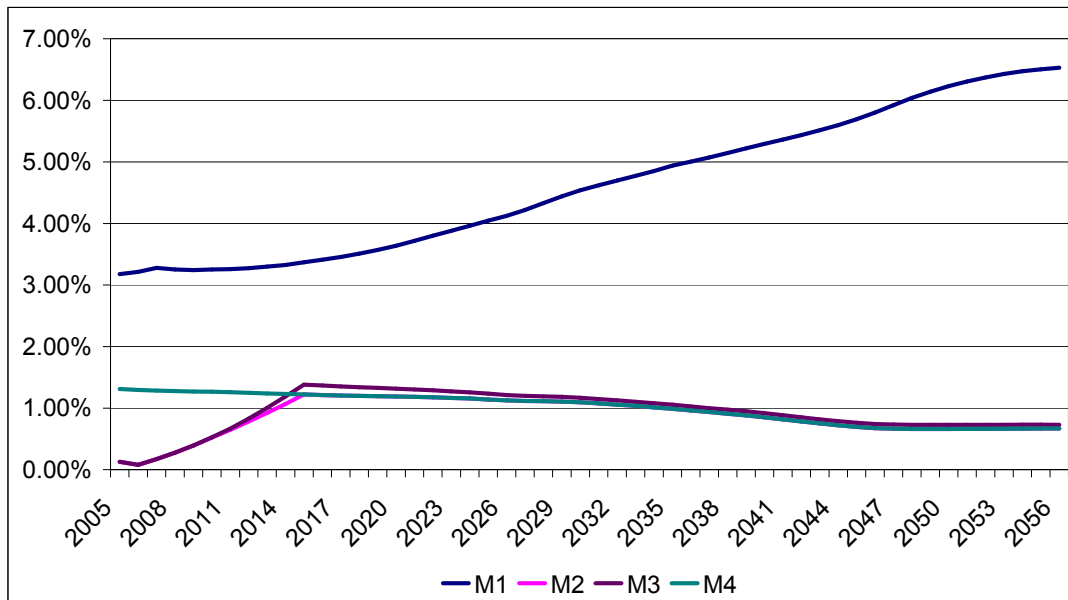
Assumptions and Approach

We began by estimating the *additional* cost of each alternative system relative to the current system.¹ This gives us the amount of extra revenue that needs to be raised to fund the alternative systems (see Figure 1).² The additional cost of the M1 system over the current system is approximately 3.3 per cent of nominal GNP in the short to medium term. However, it should be noted that, in the longer term the additional cost of this system accelerates (unlike the other systems) and is approximately 6.5 per cent of nominal GNP in 2056. We are focussing on medium term impacts in this note (5 years ahead) so we do not take account of this continued rise.

Figure 1: Additional Cost of Each System, as a % of Nominal GNP

¹ The features of the four alternative systems are taken from a memo provided by Brendan Kennedy. The additional cost of each alternative system was calculated using the central projections from Life Strategies.

² It should be noted that this is not the same as the total cost of any of the alternative systems but the extra cost of each of the alternative systems over the current system.



In modelling the impact of mandatory pensions, much will depend on how the labour market reacts because mandatory pension contributions for employees and employers will act like taxes. For employers, paying contributions above what they are currently paying will increase the price of labour and reduce their demand for labour. For employees, paying mandatory contributions will reduce their incentive to stay in the labour market and so reduce labour supply. Overall, we would expect to see a fall in labour demand and supply that would result in a fall in employment and consequently output in the economy.

When modelling each of the systems, an important point to be kept in mind is that the distribution of contributions across employers and employees is likely to be largely irrelevant in the long-run and so should not to be a concern in our analysis. To get a sense of why we say this, consider a situation in which all the contributions are levied on employers. The effect of this will be to reduce labour demand and, in a competitive labour market, this will lead to lower wages. In this way, employees absorb part of the cost of the pension contributions even though it is the employers who write the cheque. In the language of public finance economics, the distinction we are drawing here is between *who pays the tax* (in this case the employers) and *who bears the incidence of the tax* (in this case it is shared between the employers and the employees with the precise share being determined by the relative elasticities of labour supply and labour demand).

We can reverse the example and ask what happens if the tax is levied on the employees. In this case, labour supply falls and employers have to offer higher wages to attract the same amount of labour. Although the tax contributions are deducted from the employees paycheque, the incidence is partly borne by the employer through higher wages. Under certain conditions, it makes absolutely no difference as to who pays the tax – the pre- and post-contributions ages will be the same, as will employment and hence output. For this reason, we run the models below focussing on the impact of difference in contribution amounts and not on who pays those contributions.

For the M2, M3 and M4 mandatory pension systems, it is proposed that the Exchequer also makes a contribution to funding the pension systems. However, from a macro-economic perspective the Exchequer has to get the money from somewhere (through higher taxes, reductions in expenditure or increased borrowing) so we treat the contributions from the Exchequer as money that has to be raised through higher taxes.

Finally, we model the total additional contributions of the alternative system as if it is being put into an investment fund abroad. Our stock of foreign assets would build up and the Exchequer would receive interest payments on the fund. We assume that there is no impact on personal consumption for existing employees in response to the build up of pension wealth.

Impact of M1 Pension System

Over the medium term the amount of additional contributions necessary to fund this system is roughly equivalent to 3.3 per cent of nominal GNP. We took this figure and examined how much taxes would have to increase to generate an increase in government revenue of that magnitude. Before looking at the results we should warn that the figures may understate the actual impact for this particular scenario. The model is more reliable when looking at more modest policy changes – a policy change that implies additional taxes amounting to 3.3 per cent of GNP could have more dramatic effects that are not being captured by the model. The results of the simulation are presented in Table 1.

Table 1: Impact of M1/Alternative System 5' Pension System

	2007/Year 1	2008/Year 2	2011/Year 5
Real GDP	-2.4	-3.4	-3.3
Real GNP	-1.9	-2.5	-0.9
Employment	-1.6	-2.9	-3.1
Unemployment Rate*	1.3	2.0	0.7
Wages	0.4	0.7	-5.1
Real Personal Disposable Income	-9.5	-12.6	-13.7
Balance of Payments, % of GNP*	2.7	4.1	4.7

* percentage points change

From the table, we can see that the level of economic activity would be substantially lower than otherwise would have been. GDP would be 2.4 per cent lower in the first year after the tax is imposed and would be 3.3 per cent lower by the fifth year. However there is a much bigger impact on GDP than on GNP. This arises from the fact that we assume the government invests the additional revenue abroad. As the foreign assets build up governments interest payments from abroad increase. The model makes the simplifying assumption that there are fully integrated capital markets in Europe. The wedge between the impact on GDP and GNP is the increased foreign debt interest payments received. The higher saving by the government has a counterpart in a permanent increase in the balance of payments surplus. This reflects the continuing improvement in the government's net foreign asset position.

Employment is also lower and the unemployment rate is higher. In the second year employment is about 3 per cent below base - a fall of around 58,000 jobs.

Wages are initially higher than they otherwise would have been – although a fall in labour demand would tend to reduce wages, the fall in labour supply has the opposite effect. The simulation suggests that the supply effect dominates in the short run. However, the wage increase is not enough to offset the implicit tax increase and so there is a substantial fall in real disposable income.

Impact of M2, M3 and M4 Pension Systems

The assumptions underlying the M2 and M4 systems are identical with the exception of timing: the M4 system is introduced immediately whereas the M2 system is introduced gradually over ten years.

The impact of introducing this system immediately would result in GDP being roughly 1 per cent below what it otherwise would have been in the first year of the imposition of the tax and approximately 1.4 per cent lower by the fifth year (see Table 3). If this system were introduced more slowly the economic impact would also be more gradual (see Table 2). The channels through which the economy is affected are identical to the M1 simulation although as the M2 and M4 systems involve significantly lower contributions their economic impact is more muted.

Table 2: Impact of M2

	2007/Year 1	2008/Year 2	2011/Year 5
Real GDP	-0.13	-0.26	-0.68
Real GNP	-0.09	-0.18	-0.31
Employment	-0.09	-0.25	-0.68
Unemployment Rate*	0.07	0.18	0.38
Wages	0.03	0.06	-0.43
Real Personal Disposable Income	-0.52	-1.04	-2.83
Balance of Payments, % of GNP*	0.15	0.32	0.92

* percentage points change

Table 3: Impact of M4

	2007/Year 1	2008/Year 2	2011/Year 5
Real GDP	-0.96	-1.41	-1.35
Real GNP	-0.75	-0.98	-0.30
Employment	-0.63	-1.31	-1.18
Unemployment Rate*	0.53	0.92	0.25
Wages	0.16	0.30	-2.30
Real Personal Disposable Income	-3.78	-5.24	-5.62
Balance of Payments, % of GNP*	1.06	1.65	1.87

* percentage points change

The only difference between the M2 and M3 systems is that in the M3 system none of the cost is levied directly on employers, whereas in the M2 system it is evenly distributed between the two. As mentioned above, this should not matter significantly in the medium term. The simulation results are presented in Table 4 and are virtually identical to the impact of the M2 system³.

³ The tiny differences in the figures in Tables 2 and 4 are the result of minor differences in the contributions estimated by Life Strategies.

Table 4: Impact of M3

	2007/Year 1	2008/Year 2	2011/Year 5
Real GDP	-0.13	-0.26	-0.70
Real GNP	-0.09	-0.18	-0.32
Employment	-0.09	-0.25	-0.70
Unemployment Rate*	0.08	0.18	0.39
Consumer Prices	0.03	0.06	-0.16
Wages	0.26	0.06	-0.42
Real Personal Disposable Income	-0.52	-1.04	-2.90
Balance of Payments, % of GNP*	0.15	0.32	0.94

* percentage points change