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Grech, Aaron George
Central Bank of Malta

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FUNDED PENSION SCHEMES: ECONOMIC EFFECTS AND POLICY IMPLICATIONS

By Gordon Cordina¹ and Aaron George Grech²

This paper reviews alternative pension systems and examines the arguments in favour of funded pension schemes. The benefits of the latter derive mainly from long-term economic efficiency gains rather than from the immediate relief of pressures on the fiscal balance. Indeed, the transition towards a funded scheme could imply an increase in government expenditure in the short run. Fiscal consolidation and the attainment of equilibrium in the external balance are essential prerequisites for a move towards a funded pension system to be conducted successfully.

Over the years, Malta has developed an extensive welfare system, which covers a sizeable proportion of its population. The expansion of the State's responsibilities for household income has important implications for the sustainability of Government's expenditure programmes. Chief among these is the progressively increasing 'welfare gap': i.e the gap between social expenditure outlays and the taxes intended to finance them.

This fiscal financing problem will in the next decades be compounded by the ageing of Malta's population through its impact on pension expenditure. A possible solution to the ageing problem is to effect parametric changes to the present Pay-as-you-go (PAYG)³ pension system, such as raising the retirement age or increasing National Insurance contribution rates. Another approach is to replace the PAYG arrangement with a funded scheme, where contributions are invested in order to create funds out of which future pensions will be paid. The implications of such a reform extend beyond the financing of social expenditure, as it could change the way the economy, and especially the labour market, operates. This article places this debate within

the local context and assesses the principal implications of the introduction of a funded pension scheme for Malta.

1. The effects of ageing on public finances and the economy

As is well known, the early decades of the next century will be characterised by considerable changes in the demographic structure of many countries. Economic growth has led to a gradual lengthening of life expectancy and brought about a decrease in birth rates in most developed countries. As a result, the proportion of the elderly in the total population is increasing and is expected to continue to do so in the coming years.

This demographic transition has also affected the Maltese economy. Before the 1940s, both birth rates and death rates were very high. A record high in Malta's fertility rate was registered in 1944, reflecting the post-World War II 'Baby Boom' phenomenon. Subsequently, birth, death, and infant mortality rates declined notably. By the turn of this century, the 'Baby Boom' generation will reach retirement age. Table 1 shows the expected effects of this demographic transition

¹ Gordon Cordina is a Senior Research Officer in the Economics Department of the Central Bank of Malta.

² Aaron George Grech is a Research Officer in the Economics Department of the Central Bank of Malta.

³ Under the PAYG system, pensions are financed out of concurrent social security contributions.

over time. The support ratio, i.e. the number of working-age persons per retired citizen, exhibits a pronounced downward trend, falling from 3.74 in 1998 to 2.27 in 2020. During this period, the number of persons aged 60 and over is projected to rise by around 40,000 to just under 103,000 – nearly a quarter of the population.

1.1 The Effects of Population Ageing on the PAYG system and Government Expenditure

These demographic developments have obvious implications for public finances. Malta's present PAYG pension system can be viewed as an implicit social contract whereby a generation of workers finances current pensions out of a payroll tax in return for a promise that their pensions will be financed by a future generation of workers. In this sense, current workers can be seen to be investing towards their future pensions at a rate of return determined by the growth of the working population and of its average income.

In Malta, the statutory social security

contribution rates were 8.3% and 10% of wages for employees and employers respectively up to 1998. The contribution rate of employees has been raised to 9% in 1999, and will be further increased to 10% in the year 2000. The amount of contributions effectively collected, however, typically hovered around 8% of wages for employers and 6% for employees up to 1998. This is partly because the amount of weekly contributions in respect of any employee is subject to a nominal ceiling. Inefficiencies in the collection of contributions also partly explain this result.

Due to its PAYG nature, whenever there is a change in the relative proportion of workers and pensioners, the payroll tax rate must change accordingly in order for the system to be kept in balance. A simple mathematical model approximates how National Insurance contribution rates will have to change in order to accommodate the pension outlays implied by the ageing process. Contributions into and expenditure out of the system can be described by the following identities:

TABLE 1 DEMOGRAPHIC PROJECTIONS

	1998	2000	2020	2040
Population aged 60+	63,100	65,000	102,700	104,900
% of population	16.7	17.0	24.7	25.3
% annual growth ¹	-	1.49	2.31	0.11
Population aged 15-59	236,300	240,000	232,900	233,900
% of population	62.4	62.7	56.0	56.5
% annual growth ¹	-	0.78	-0.15	0.02
Total Population	378,400	382,800	416,000	413,900
% annual growth ¹	-	0.58	0.42	-0.03
Support Ratio	3.74	3.69	2.27	2.23

¹ Average annual growth rate since the year indicated in the preceding column.

Source: Central Bank, Annual Report, 1997

$$\begin{aligned} & \text{Contributions into the system} \\ & = \text{NI rate} * (\text{Average Wages} * \text{Workers}) \end{aligned}$$

$$\begin{aligned} & \text{Pension outlays} \\ & = (\text{Replacement Ratio}^4 * \text{Average Wages}) \\ & \quad * \text{Pensioners} \end{aligned}$$

For the system to remain in balance, contribution inflows must equal expenditure outlays, which implies:

$$\begin{aligned} & \text{NI Rate} * \text{Workers} \\ & = \text{Replacement Ratio} * \text{Pensioners} \end{aligned}$$

$$\begin{aligned} & \text{NI Rate} \\ & = \text{Replacement Ratio} * (\text{Pensioners} / \text{Workers}) \\ & = \text{Replacement Ratio} / \text{Support Ratio} \end{aligned}$$

Data for 1998 yield an estimate of the average wage in Malta at Lm4,900. Based on data published with the Budget Speech for 1999, the per capita retirement pension can be estimated at Lm1,800. This implies an average replacement ratio of around 37%. This appears to be low compared to the statutory retirement pension that is supposed to yield 66% of a person's salary. It is however to be borne in mind that this so-called "two-thirds" pension accounts for only one half of total retirement pension outlays⁵. Furthermore, the pension that can be received by any one beneficiary is subject to a nominal cap. Assuming that the replacement ratio will in future remain at 37% of current wages⁶, then, in the light of the projected decrease in the support ratio, National Insurance contribution rates will have to develop as shown in Table 2 for the pensions system to remain in balance.

The analysis in Table 2 shows that the contribution rate necessary to keep the pensions

TABLE 2 THE EVOLUTION OF CONTRIBUTION RATES NEEDED TO KEEP THE REPLACEMENT RATIO CONSTANT

Year	Support Ratio	Total Contribution Rates
1998	3.74	9.9%
2000	3.69	10.0%
2020	2.27	16.3%
2040	2.23	16.6%

system in balance in 1998, at 9.9%, was far below the effective rates of contributions collected, which was around 14%. Indeed, it may be argued that the deficit on the social account has up to now not been generated by pensions but by other items of expenditure being charged to the account. The Table also shows that the maximum contribution rate to be ever needed, 16.6% in 2040, is significantly higher than the contribution rate of 9.9% needed to balance the system in 1998. Furthermore, it falls below the total of the statutory contribution rates; nevertheless it is higher than the contribution rates actually collected. It should thus be clear that the ageing of the population will have discernible effects on public finances.

This analysis depends critically on the assumption of a constant replacement ratio from wages to pensions. This may be invalidated by the fact that in future, a higher proportion of pensioners will be eligible for the "two-thirds" pension. On the other hand, if the nominal cap on pensions remains in place, the effective ratio of

⁴ The replacement ratio is defined as the fraction which the average pension represents of the current average wage.

⁵ The remainder is made up of a variety of schemes targeted at specific functions, such as the National Minimum Pension and the Old Age Pension.

⁶ The above projection assumes that the average pension is indexed with the growth in average gross earnings, and that NI contributions are used only to finance contributory pensions.

pensions to wages will be constrained downwards.

1.2 The Effects of Population Ageing on the Economy

The economic effects of population ageing extend beyond government expenditure, primarily to the generation of savings and productive capacity. The life-cycle hypothesis of consumption states that as households tend to smoothen consumption over their lifetime, elderly people on lower income tend to save less. Hagemann & Nicolletti (1989) estimated that population ageing will decrease private savings in the major OECD economies by between 5% and 12% of GNP between 1980 and 2025. Mason & Tryon (1990) argue that from 2015 onwards, the demographic shift will lead to global excess demand and higher real interest rates. Lower saving and higher interest rates could influence adversely either the level of investment, or the external balance, or both. Pressures on saving and interest rates could be further accentuated by an increase in government spending as the population ages. In turn, lower investment and a shrinking, and perhaps less mobile, labour force would reduce an economy's productive capacity. In view of the considerations outlined above, it should be clear that policy measures in relation to population ageing must encompass the issues of reduced saving and productive capacity as well as the financing of pensions. Moving away from PAYG pension systems towards funded systems may offer solutions to these different facets of the population ageing problem.

2. The Theoretical Arguments Behind Funded Pension Systems

A PAYG pension system, and the burgeoning government debt that it implies, is economically inefficient. It distorts economic choices and

provides only an implicit and low rate of return to participants. Under a PAYG system, contributions are viewed as a tax rather than as a form of saving, and therefore provide a disincentive to work. Furthermore, the promise of a guaranteed future pension may discourage saving. By contrast, a funded pension system could help economies to save more and improve the operations of their labour and capital markets. The resulting increase in economic growth⁷ would in turn enhance the resources available to meet future pension payments.

2.1 The Return on Contributions under the two schemes

Paul Samuelson (1958) demonstrated that with a constant real wage and a population that grows from below⁸, the return on contributions in a mature PAYG system is equal to the rate of growth of the population. Henry Aaron (1966)

TABLE 3 ANNUAL RETURNS ON PRIVATE PENSION FUNDS COMPARED TO GDP GROWTH RATES

Country	Real Pension Fund Returns (%)	Real GDP Growth (%)
	1981-90	1981-90
Australia	7.5	5.5
Canada	7.0	2.8
Denmark	8.0	2.3
Germany	7.0	2.5
Japan	10.8	4.4
Netherlands	8.4	2.5
U.K.	11.3	3.2
United States	9.7	3.0

Source: Willmore, 1998

⁷ Feldstein estimates that the gains for the US would be as high as 5% of GDP each year in perpetuity. Kolitkoff's estimates for the same country stand at 4.5%.

⁸ That is one that increases because of increased births, not because people are living longer.

further proved that the real return on social security contributions is equal to the sum of the rate of growth of the population and the rate of growth of productivity (or real wages). Since wages tend to be a constant share of GDP, this would be equivalent to the rate of growth of GDP.

In contrast, the return under a funded system depends on the returns from investments in financial assets. Empirical evidence shows that the real returns on financial assets nearly always exceed the growth rate of an economy⁹. This implies that a worker usually earns a lower return on his contributions under the PAYG system over the long term, as can be seen in Table 3.

The higher rate of return on a funded pension scheme could thus alleviate the problem of a transition out of a PAYG system. This is important because contributors during the transition period are often required to finance the existing PAYG system as well as to contribute towards their own funded pension.

Due to PAYG's low return, people have to pay more in contributions in order to finance the same pension. In this sense, part of the NI contribution is a pure tax. However, it should be borne in mind that the higher rate of return on funded pension systems in part reflects a risk premium. Furthermore, the return on a funded system also faces a demographic risk: since the increasing number of the aged will have to sell their accumulated assets to a diminishing number of workers, possibly leading to lower asset prices (Hemming, 1998).

2.2 The Labour Market – Disincentives to Work and Tax Evasion

The complexity of social security rules often leads workers to dissociate contributions paid into the system from the benefits received. Contributions

are thereby regarded as a tax to be avoided, benefits as unearned transfer payments to free-ride and exploit. Social security contributions thus introduce a tax wedge between the wage offered to workers and that which they in fact earn, and may act as a significant disincentive to work. Workers attempt to reduce the burden of this tax either by adjusting the number of hours worked or by shifting into the informal labour market. The tax also distorts the form in which compensation is taken, as taxable cash can be replaced by untaxed fringe benefits. Firms respond to higher PAYG labour costs in formal markets by depressing real net wages, adopting more capital-intensive production methods or transferring activities to countries with lower social security costs. As economic agents avoid taxation, a vicious circle is initiated whereby taxes would have to be increased, leading to more tax evasion and a larger burden on those who cannot evade the tax. Higher NI contribution rates would thus amplify the distortions in the labour market. Under a funded system, the link between benefits and contributions is explicit. This eliminates the adverse incentive effects of the PAYG system, inducing the labour market to operate more productively (Corsetti and Schmidt-Hebbel, 1995).

There are a number of indications that the PAYG social security system in Malta may be having disincentive effects on the labour market. NI contributions become a regressive tax once the wage earned from a worker's principal employment exceeds the level associated with the maximum amount of contributions that may be effected per week. Most of workers earning a lower wage perceive this system mainly in terms of the adverse implications of a regressive tax on social justice. Workers earning a wage in excess of that associated with the cap on contributions lament the fact that the pension benefits receivable are also subject to a cap. Other rules of the PAYG system may be having similar effects. For instance,

⁹ Hemming (1998) reports that in the G7 countries, plus Denmark, the Netherlands and Switzerland, real earnings growth averaged about 2% during 1970-1990, whereas the real average rate of return on a 50-50 portfolio of equities and government bonds in the same sample was above 4%.

there exists a minimum period for which contributions need to be effected for a worker to qualify for benefits¹⁰. This may induce workers to actually contribute for that period only, shifting to underground economic activities for the rest of their working lives. A notable exception to this typically takes place during the last years of work, because pensions are linked to incomes declared and contributions effected during those years¹¹.

The costs of underground economic activity in Malta, and the extent to which they arise out of the social security system, are not generally well defined. Underground activity typically takes place to avoid taxation. The main cost is therefore borne by government. The rest of the economy, however, may also bear a cost if underground production is less efficient than that in the formal economy. Small economies may be especially prone to underground activities, as the typical optimum operating size of a number of operators would be small enough to permit them to stay outside the formal system. In these economies, therefore, it is especially important that the proper incentive signals are given for operators to shift into the formal economy if the costs of underground activities, especially those falling on the government, are to be avoided. The social security system undoubtedly has an important role to play in this respect.

2.3 Pension Systems and Saving

The fundamental motivation behind personal saving is to enable consumption to be spread out more or less evenly over a lifetime. According to the life-cycle hypothesis of consumption, households try to maintain a stable per capita level of utility over time. They do this, typically, by

initially borrowing (e.g. to purchase their house) and later saving so as to repay outstanding loans and provide for retirement when income can be expected to drop. A pension system may lead to a decline in household saving if the benefits received are perceived to be higher than the cost of contributions to the system. In other words, households may reduce saving if they perceive the pension system as an (unearned) addition to their wealth.

This phenomenon may apply in the case of a PAYG system. The first retirees under the system typically will have paid a relatively low amount of aggregate contributions but will have received benefits over their entire retirement period¹². Furthermore, contributions under the PAYG system can be perceived as costing less than the benefits received if households are used to the government financing a pensions deficit through other sources of revenue - and believe that it can continue doing so indefinitely into the future. Finally, a PAYG system may have important redistributive effects, whereby some - typically lower income - households may actually receive more by way of benefits than the contributions paid, to the detriment of other households. The consumption stimulated in net beneficiary households could offset the additional saving effected by net contributory households.

A funded pension system, where benefits are linked to past contributions, should eliminate distortions to saving behaviour. The replacement of a PAYG system by a funded one is generally expected to, on balance, increase saving - though arguments in this respect are not unambiguous. For instance, the higher return on contributions

¹⁰ See Social Security Act, 1987, Section 17(2).

¹¹ See Social Security Act, 1987, Section 2.

¹² Mitchell et al (1998) say that the early cohorts of retirees in the US (born before 1910) earned an implicit rate of return of between 13% and 37% on their contributions. To account for this, Feldstein developed the notion of social security wealth, that is, the difference between the actuarial value of the social security benefits to which you are entitled at 65 and the actuarial value of the social security taxes that you pay before retiring. Feldstein estimated this at over three-fourths of financial wealth in the United States, which would however be significantly reduced if the effects of the increased debt burden on future generations is accounted for.

provided by the funded system could induce households to save more, so as to maximise future consumption. On the other hand, target savers typically consume more with an increase in the return on investment. A funded pension scheme could also increase saving if the mandatory contribution rate is higher than the average saving rates of individuals that were hitherto not covered by any pension arrangement. On the other hand, higher mandatory contribution rates under a funded scheme could simply crowd out other saving which the personal sector would have effected anyway under a PAYG system. This effect could be mitigated by the increased awareness of future pension commitments instilled by the funded system, and possibly by the fact that contributions to a personal saving account could be preferable to compulsory National Insurance contributions. Finally, the enhanced economic growth that could be engendered by a funded pension system could stimulate saving.

On the basis of the Chilean experience¹³, Mackenzie, Gerson, & Cuevas (1997) conclude that the effects of the introduction of a funded pension scheme on saving depend crucially on the way in which the transition away from a PAYG system is financed. Once a funded scheme is introduced, saving would not increase substantially if outstanding PAYG commitments are financed by Government debt - as increased private saving would in this case be largely offset by increased public dis-saving. Aggregate (national) saving would increase only if transition pension payments are financed by fiscal consolidation. Thus, pension reform in Chile had a negative impact on the country's saving rate in the first 9 years following the reform. Only when fiscal policy was subsequently tightened did the

saving rate rise.

The consideration of developments in saving is especially important in the case of Malta, where, notwithstanding the fact that the ageing of the population was still far from its peak level, the gross national saving rate fell from 29% of GDP in 1991 to 18% of GDP in 1997. A reversal of this trend is essential if domestic investment is to be sustained without increasing external indebtedness. As discussed above, the introduction of a funded scheme could increase the incentives for households to save. But the way in which the transition from a PAYG system to a funded scheme is financed is probably the single most important factor that would affect the development of national saving in this instance.

2.4 The Effects of a Funded Pension System on the Financial Sector

The introduction of a funded pension system generally leads to a faster development of the financial services sector, and this, in turn, boosts the supply of longer-term funds available for real investment¹⁴. The system probably also ensures a more productive use of capital, as it makes resources available to the private sector, rather than letting them be managed entirely by government. Most pension funds tend to follow a 'buy and hold' strategy in their equity acquisitions (Reisen, 1997), and take an active stance in the management of the companies in which they acquire a large shareholding, generally contributing to improve corporate governance. They also encourage improvements in the standards of accounting and auditing, contribute to the development of broking and trading arrangements, and help establish more efficient and reliable clearing and settlement facilities. In

¹³ Chile adopted a fully funded pension scheme in 1981.

¹⁴ In Singapore, pension fund assets rose from 28% of GDP in 1976 to 73% in 1986, whereas in Chile the system which was introduced in 1981 had accumulated assets equivalent to 26% of GDP by 1990 (Vittas, 1992). Nowadays, private pension funds constitute the largest category of institutional investors in the capital and money markets in developed countries.

Chile, for instance, pension funds stimulated the development of a corporate bond market and facilitated the privatisation of state companies.

The magnitude of annual contributions to pension funds is usually too high for them to be profitably invested entirely in domestic ventures. In small economies especially, a substantial portion of these funds are likely to be invested in foreign securities. In Singapore, for instance, the national pension fund 'effectively operates as a compulsory unit trust, investing in foreign assets on behalf of Singaporean households' (Vittas, 1992). One of the main reasons why this occurs is that international diversification of the pension funds' portfolio simultaneously raises returns and reduces overall risk. If pension funds were largely invested domestically, contributors would be heavily exposed to home-country shocks. Furthermore, this would drive domestic interest rates down to an unattractive level.

On the other hand, in the Maltese context, permitting substantial overseas investment by local pension funds could expose the country to balance of payments risks. It could, in fact, lead to a considerable outflow of funds over a prolonged period of time, since capital would only be repatriated in order to pay the pensions of retired

persons. If steps are not simultaneously taken to decrease the current account deficit, or to attract other kinds of capital inflows, the official external reserves could drop markedly. This situation can be avoided if the current account position improves, or local assets become attractive to foreigners. These considerations demonstrate the importance of undertaking widespread structural reform of the economy together with the overhaul of the pension system.

The liberalisation of capital controls may itself mitigate some of the effects of the capital outflows effected by pension funds. In theory, the liberalisation of capital controls could induce residents to repatriate foreign assets, since they would be free to re-invest them abroad in future should they wish to do so (Reisen & Williamson, 1994).

3. Preliminary Notions on the Process of Transition to a Funded Pension System

In the transition from a PAYG to a funded system, implicit pension pledges are turned into explicit liabilities. This process usually takes place when, as from the determined cut-off date of the old system, new entrants into the work force would start paying contributions into retirement funds

TABLE 4 PENSION REFORM TRANSITION IN LATIN AMERICA

Country	Implicit Pension Debt (% of GDP)	Year of Introduction	Shift to Funding	Financing Instruments
Chile	126	1981	Full	Recognition Bonds
Peru	37	1995	Partial	Recognition Bonds
Colombia	86	1994	Partial	Recognition Bonds
Argentina	n.a	1994	Partial	Compensatory pension
Uruguay	214	1995	Partial	No compensation
Mexico	142	1994	Full	Life-time Switch
Bolivia	40	1997	Full	Compensatory Pension
El Salvador	n.a.	1996	Full	Recognition Bonds

Source: Quiesser, 1998

rather than towards a PAYG system. Thus, their contributions would no longer be available to finance current pension benefits. The affiliates of the old scheme could be given the option of either changing over to the funded scheme or remaining within the PAYG scheme. Those who opt to remain with the old system would continue paying NI contributions, and these would be utilised for the payment of current pension outlays in return for a PAYG scheme pension upon retirement.

The transition towards a funded scheme can create substantial fiscal financing problems in the initial phases¹⁵. The PAYG system would soon register a deteriorating balance as contributors into the system decline while pension recipients increase. Government would have to carry this financing burden until the PAYG scheme is completely wound up upon the demise of the last affiliate. The pension benefits of at least one generation of retirees would have to be financed out of general taxation. Moreover the workers who shift into the new system would require some form of compensation for their previous contributions. Chile granted these workers a 'recognition bond'¹⁶, which was deposited into their pension savings account. Other Latin American countries that have carried out similar reforms have simply promised a compensatory pension to these workers when they retire¹⁷. Details in this respect are given in Table 4.

The fiscal cost of the transition would decrease if lower pensions are paid to the transition generation. Politically, this would be a very difficult policy to implement, and it would create

resistance to the reform. Perhaps a more acceptable strategy would be to reduce the speed of the transition by allowing only new entrants to the labour force to join the funded scheme. In this way, revenues into the PAYG system would decline at a slower pace. Feldstein (1998) proposes a staggered approach whereby government guarantees retirement benefits but uses the transition to the funded system to pay for them. The transition workers would continue paying PAYG contributions at the current rates, but only part of the revenue from these would go to the funded system. The extra payments would be used to finance current pension benefits.

The Chilean authorities had, for some years before the introduction of their pension reform deliberately strengthened their fiscal stance, leading in 1980 to a positive balance of general government revenue equivalent to 4.4% of GDP and a public saving rate of 7.4% of GDP. This prepared government finances for the impact of the pension reform. The transition was tax-financed, and the budget was balanced again in 1988. Privatisation proceeds were used to finance the greater part of the increased pension gap - though the government could also have financed the gap through higher borrowing.

The dynamics of pension reform could lead one to think that the transition generation pays twice for its pension¹⁸. But this is not quite true - as the burden on transitional working generations decreases gradually over time. This is because the new funded system should lead to higher investment and faster economic growth.

¹⁵ The current annual cost of Chile's pension reform stands at about 4% of GDP, and the obligations under the old system will disappear only by the year 2020, when the last retiree under the system dies. The last recognition bond issued is expected to be redeemed by 2037.

¹⁶ Calculated to represent the present value of past contributions to the PAYG system.

¹⁷ By issuing these bonds at the moment of switching and redeeming them upon retirement, the financing of the pension gap was extended over a longer period of time. With compensatory pensions, this period is stretched further since the cash flows required to pay pension payments are lower than for the redemption of bonds.

¹⁸ It pays for the current pensioners through NI contributions and for its own pensions out of contributions to the funded system.

Conclusion

Funded pension schemes carry enhanced security for future pensioners. The claims of pensioners are thereby backed by assets rather than by promises that future contributors can revoke. Funding may allow a society to finance pension payments at a lower cost than PAYG. Its positive externalities could also lead to higher economic growth in the long term, by stimulating saving, enhancing efficiency in the allocation of capital, and improving the mechanisms governing the operation of the labour market.

The transition from a PAYG pension system towards a funded system may however imply sacrifices in the short run, particularly with respect to consumption, a higher fiscal deficit, and balance of payments outflows. For these short run costs not to outweigh the potential long-term benefits, it is essential that certain prerequisites are met before pension reform is undertaken. In particular, the fiscal position should be consolidated, so as to enable the government to meet the increased financing requirements resulting from the diversion of social security contributions to the funded system. The attainment of overall economic balance, especially within the context of the external balance of payments, is also essential in view of the potential outflow of capital associated with the investment abroad by pension funds in the early phases of the reform.

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