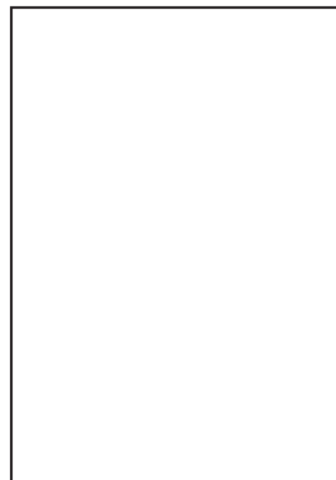
ECONOMIC ISSUES 9

THE WORLD OF PENSIONS



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The World of Pensions

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Foreword

It was in 1998 that the Asian Institute of Transport Development, as part of its research programme, undertook a study of the increasing pensionary liabilities of the Indian Railways. This was brought out in a publication titled ‘Greying of Indian Railways’. The study showed how the railway pension system had become financially unsustainable and called for urgent remedial measures. The monograph was widely acclaimed.

Following the above, the government of Uttar Pradesh entrusted to the Institute a detailed study of the pensionary system for its civil servants and to suggest ways and measures to reform the existing arrangements. Meanwhile, the Government of India, recognising the need to expand the coverage of social security, set up a committee, commonly known as Project OASIS (Old Age Social and Income Security) Expert Committee. The Institute actively contributed to its deliberations.

It is a matter of great satisfaction that the Institute has been instrumental in highlighting the problems of old-age security as also the financial load of the existing schemes. The suggested reforms of these schemes have also been found to be acceptable. The present monograph is an attempt to bring together at one place, the salient features of the various pensionary systems and the kinds of reforms that are being undertaken the world over. This would help the stakeholders to understand and appreciate the issues involved in a wider perspective.

K. L. Thapar
Director

1

INTRODUCTION

In history, the extended family has been the primary institution that has performed the role of providing income security in old age. Elderly members in a family lived and worked with their children and earned a common livelihood. However, with quick urbanisation, fundamental economic and social changes have taken place, which have broken down or at least weakened the earlier informal arrangements. Families have become smaller and more spatially distributed and organic in nature. At the same time, people live longer and, therefore, the proportion of old people in the population has increased.

It is estimated that over the next 50 years, globally the proportion of people above 60 will rise from 10 per cent to 22 per cent (see Annexure A). For India alone, the share of the aged is estimated to rise from 6.4 per cent in 1991 to 8.9 per cent in 2016[1].

A study[2] by the World Bank also states:

– In 1990, almost half a billion people in the world were above 60. By 2030, the number will triple to 1.4 billion. Most of this growth will take place in developing countries, over half of it in Asia alone.

– Because of the broad diffusion of medical knowledge and declining fertility, developing countries are aging much faster than the industrial countries had done. In Belgium, it took more than 100 years for the share of the population over 60 to double from 9 per cent to 18 per cent. In China, the same transition will take only

1. Population Projects for India and States – Registrar General, India, 1996.
2. 'Averting the Old Age Crisis' (1994).

34 years and in Venezuela 22 years. As a result, developing countries will have 'old' demographic profiles at much lower levels of per capita income than the industrial nations.

Broadly, the objectives of all pension systems are three-fold. First, the objective is to provide security against destitution in old age, when the individual is no longer able to support himself as before. The second objective is to smoothen the distribution of consumption spending over a life span, shifting a part from the more productive years to the least, thereby spreading it more equitably over the life of an individual. The third and final objective is to provide insurance for the individual against the risks of a longer than average life, disablement before reaching the pensionable age, and leaving behind dependants without support.

Voluntary actions by individuals to provide for their old-age security remain unsatisfactory for several reasons:

i. *Shortsightedness* – some people may not be farsighted enough to save for their old age and may later become charges on the rest of the society;

ii. *Inadequate savings instruments* – capital markets are underdeveloped in many countries;

iii. *Long-term poverty* – some people do not earn enough during their working lives to save for their old age; and

iv. *Information gaps* – people may be unable to assess the long-term solvency of private savings or the productivity of alternative investment programmes.

The state was the first employer to assume responsibility for supporting its employees by developing systems of old age pensions. Soon, the idea of supporting the retired workers and their survivors by pension spread to other sectors also, and occupational pension systems were created for specific categories of employees. This led to the demand for a statutory basic pension

system that would bring similar benefits to the majority of the working population. Hence, in several countries, the government provides a ‘floor’ of income protection for the elderly, with the aged population’s needs met by a mix of national insurance and national welfare systems.

The modern pension plan is a complex mechanism. It creates obligations that may take a long time to be discharged and involves costs that cannot be estimated very accurately. It leads to the accumulation of large amounts of money, part of which is contributed by the employees, which are required to be managed and invested with great prudence. The development, implementation and administration of the pension plan call for various forms of technical, professional and administrative skills. It also has to rely upon numerous agencies for specialised services, and hence, the choice of agency to perform a specific function has to be a judicious one. The most critical element, however, remains management and investment of funds accumulated under the plan, and minimising the risks of the plan members. These and other issues are discussed in the chapters that follow.

2

PENSION PLANS

There are two main categories of pension plans: 'defined-benefit' and 'defined-contribution'.

Defined-Benefit Plans

A defined-benefit plan is one in which a promise is made by the employer to pay its employees certain benefits on completion of service. The benefit formula determines the level of benefits the individual will receive. It could either provide benefits at a flat rate or earnings-related benefits. The earnings-related defined-benefit formula includes the length of the period used to calculate earnings, benefit accrual rate and penalty or reward for early or late retirement. A participant's basic retirement benefit may increase due to a hike in salary, crediting of additional years of service with the employer, plan amendments providing for cost of living increases, and early retirement subsidies.

In general, defined-benefit plans do not provide employees with individual account balances. Instead, a formula is used to define and guarantee what retirement benefits will be given, beginning at the participant's normal retirement age. The benefit is usually extended in the form of periodic payments generally known as annuity. Contribution amounts are not specified, and the employer guarantees the benefits and thus absorbs the investment risk.

Defined-benefit schemes can be financed either through pay-as-you-go financing or through full funding. Under pay-as-you-go financing, current workers' contributions (supplemented, at times, by contributions from their employers) are used to pay benefits to

the current retirees. Thus, a plan's current revenues cover its current obligations, and there is no stock of savings to pay future pensions. Under full funding, current workers' contributions are accumulated in pension funds and invested. Should the projected interest rate and earnings deviate from the actual, and if there is a shortfall, additional contributions may be required from the guarantor.

When the employer undertakes to provide a predetermined benefit, there is necessarily no equivalence between the monetary value of the benefits that have accrued up to a given point and the sums that have been accumulated to pay the benefits. A liability – moral or legal – of a measurable value is created with the crediting of each rupee of future benefit, apart from any financial or budgetary arrangement that may have been made to meet the obligation. If the plan is to operate on an acceptable basis the accrual of benefit credits must be offset, over a period of time, by the setting aside of funds estimated to be sufficient to provide the benefits credited under the plan.

Sharing of Risks in Defined-Benefit Schemes

In these (*defined-benefit*) schemes, the employer, not the employee, bears the primary risk of a fall in the return on plan assets, but also gets the benefit of any higher-than-required return. In reality, these risks (or gains) to the employer are shared more broadly, rippling through to current workers (whose wages may be more or less depending on the cost of the scheme to the employer), to shareholders and taxpayers (through effects on profits), to customers (through effects on prices), and even to past or future workers, if the company uses surpluses from some periods to boost pensions in others.

Source: The Pension Puzzle, Nicholas Barr, 2002.

In a defined-benefit plan, the significance of a segregated fund of assets as a source of security is measured by the relationship between the amount of assets in the fund, and the present value of the accrued benefit to be paid from the fund. Ideally, the ratio should be one is to one. In practice, it will be determined by three factors: (i) the nature of the actuarial assumptions underlying the funding policy of the employer, (ii) the extent to which contributions to the fund conform to the

funding policy, and (iii) the manner in which the assets are invested and administered by the agency to which they are entrusted.

Since the benefits will be paid over many years, and funds set aside for the payment of such benefits will earn interest until finally disbursed, it is necessary to convert the anticipated benefit payments into a single sum value through the discounting process. The process of deriving the present value of future benefit payments is referred to as valuation of the liabilities of the plan. In order to measure plan obligations and determine the contributions necessary to systematically pre-fund benefits over time, pension plans hire actuaries to conduct valuations of the plan (see Annexure B).

Defined-Contribution Plans

Benefits can also be based on what individuals contribute to the system, allowing some rate of return, compounded annually. This system is known as 'defined-contribution system'. Under the system, the amount of money that must be contributed to the plan is specified, but not benefits payment. Contribution rates are usually a predetermined fraction of salary, although that fraction need not be constant over an employee's period of service. The pension fund consists of a set of individual investment accounts, one for each employee covered. Pension benefits are not specified, other than that at retirement the employee gains access to the total accumulated value of the contributions and the earnings on those contributions.

Defined-contribution systems, by definition, are always fully funded and can be managed privately or publicly. The relationship between contribution and benefits is transparent, and the participants of defined-contribution plans receive only what they have accumulated. Each participant receives his pension as an annuity whose size is determined by life expectancy and the estimated rate of interest. Members of these schemes face the

uncertainties associated with varying real rates of return to the pension assets.

How Safe are the Defined Contribution (DC) Schemes?

DC plans have their faults, as demonstrated by the collapse in December of Enron, once America's seventh biggest company. Over half of its employees' 401(k) pension assets had been invested in the company itself. Following the Enron debacle it also emerged that employees' 401(k) funds at several blue-chip American firms, including General Electric, were even more heavily invested in their own company than at Enron.

On the face of it, all this seems to suggest that DC pensions are riskier than DB ones. After all, the buck no longer stops with the company, but instead with the employee, who must take responsibility for the investments in his DC plan. Still, provided that contributions to the DC plan are made at the same rate as into the DB plan, that shift in the burden of risk may not be all bad from the employee's point of view. This is because the corporate guarantee of a defined benefit comes at a price: if better-than-expected returns generate a surplus in the pension fund, the company usually gets to keep it.

The lesson to be learnt from the Enron debacle is that DC plans, like any other form of investment plan, need some basic safeguards. Their absence in the DC system may reflect its origins as the 'accidental' pension. Those faults must be put right. But they do not discredit the principle behind DC pension plans.

Source: The Economist, February 16, 2002.

Even in defined-contribution schemes, the levels of the employer's and employee's contributions vary widely across countries though, in most of them, the contribution by the employer is half or more of the total contribution. Some instances of such countries are Italy, Sweden, Argentina, Sudan, Austria, Greece, Turkey, Sri Lanka, and Indonesia. The features of the defined-contribution plan itself may also differ. A mandatory funded-contribution plan exists in Australia, Mexico and Chile, while in Sweden there is the pay-as-you-go defined-contribution plan. In the UK, the plan is funded but contracted out* so that the employees can reduce their contributions as long as they participate in individual or occupational schemes with a sufficient

* Employees governed by the State Earnings Related Pension Scheme (SERPS) in the UK have been permitted to contract out to defined-contribution plans and earn a rebate on their National Insurance contributions.

level of protection. In some countries like Chile, there is also the practice of supplementary contribution on a voluntary basis. In the US, the Individual Retirement Account Plan is an individual-based voluntary plan while there also exist voluntary group-based plans like 401(k). In Canada, likewise, there exist individual-based voluntary retirement savings, and pension plan on group basis. The rates of employees' contributions vary in these countries, from as low as 2 per cent in Sweden to as high as 18 per cent in the US and Canada. The rate generally reflects whether the defined-contribution plans provide a major source of retirement income or not. It is the amount of contribution to be apportioned that determines the level of benefits.

Notional Defined-Contribution System

The defined-contribution scheme, in recent times, has also taken the shape of a Notional Defined-Contribution (NDC) system as introduced in France, Latvia, Poland, Italy and Sweden. The appeal of the NDC system lies in that it charts a middle path between a defined-benefit scheme and a defined-contribution fully advance-funded scheme. Under this system, wage earners pay contributions based on a fixed rate and these contributions are credited to their notional accounts: therein lies the defined-contribution feature of the system. However, these contributions are used towards paying the benefits of the current pensioners, and, to this extent, it is analogous to a pay-as-you-go system. Each year the individual's account is also credited with notional interest payments earned on notional accumulation. This interest rate is legislated and varies in the countries undertaking this type of reform. In Sweden, it follows the rate of growth of nominal wages and in Italy, the rate of growth of nominal GDP. The NDC benefit is calculated by dividing the value in the account at the time of retirement with a factor based on life expectancy.

The advantages of the NDC system are primarily three-fold. First, by tying benefits to contributions rather than to income, individuals have stronger incentives to make contributions.

Second, the pension provided depends on both the accumulated sum in one's notional account and on the average life expectancy at the age when one starts receiving pension. If life expectancy increases, the pension for a given wage will fall, encouraging individuals to delay retirement if their objective is to reach a target pension level. Third, the transition issue (discussed in Chapter 5) of financing the payments to current pensioners, when current contributions are diverted to individual-funded accounts, does not arise since the contributions are not actually diverted.

However, in comparison to the fully funded defined-contribution systems, NDC systems do have some drawbacks. First, there are no additional savings generated in the economy to stimulate investment and growth. Secondly, from a fiscal standpoint, the government holds an unfunded liability. And, the liability, i.e. the acquired rights of pensioners, is clearly defined. In the traditional defined-benefit systems, since most individuals are only vaguely aware of the monetary equivalent of their acquired rights, reducing these liabilities is politically feasible. However, once they become clearly defined with explicit monetary equivalents, which is the case in NDC systems, reducing them becomes more difficult. Finally, though the factor of conversion into annuities supposedly depends on expected longevity upon retirement, it is also highly subject to political manipulation, because the process is notional. For example, the government may decide to grant notional credit for non-contributing years or may fail to adjust the conversion factor when life expectancy increases.

Defined-Contribution vs Defined-Benefit

From the employees' perspective, the major advantage of the defined-benefit approach is that it offers plan participants who stay with the same employer a guaranteed benefit designed to replace their pre-retirement labour income. The main defect of private defined-benefit plans in most countries is that they do not currently offer explicit inflation insurance. The major advantage

of the defined-contribution approach is that it offers participants a more portable and flexible retirement-savings vehicle whose value during the pre-retirement years is easier to understand and measure. In addition, some employees see the cash-out access to the defined-contribution plan's lump sum accumulation to be quite attractive (see Annexure C for a comparison of the benefits and costs of defined-contribution and defined-benefit funded-pension systems).

Financing Pension Plans

The employer's pension obligation represents a promise to the employee of future pension payments. The pension costs are typically financed in two different ways, either by the pay-as-you-go system or by pre-funding.

Pay-as-you-go System

The simplest approach that can be used to meet the financial obligations of a pension plan is for the employer to disburse the benefits as they become due. This is commonly referred to as the 'pay-as-you-go' approach. The outlay under this method is normally low during the early years of the pension programme, since the number of retired employees is relatively small and no provision is made to meet the accruing benefits of those employees who are still working. As the employee group matures, however, a constantly increasing number of persons are added to the retired rolls till retirement benefits eventually constitute a significant percentage of the total payroll costs. The ratio of beneficiaries to contributing workers is called as the dependency ratio.

The following equation describes the relationship between contributions, benefits and dependency ratio under a typical pay-as-you-go scheme when pensions are indexed to wages (rising automatically with the average wage in the economy) and financed by a pay-roll tax.

$$bd = c$$

where *b* is the target benefit rate, *d* is the dependency rate, and *c* is the contribution rate as a percentage of wages necessary to cover *bd*.

For example, if we want to determine the contribution rate needed to pay a pension equal to 40 per cent of the final year salary, a dependency ratio of one retiree to every two workers will require a contribution of 20 per cent. Thus,

$$\frac{40}{100}(b) \text{ x } \frac{1}{2}(d) = \frac{20}{100}(c)$$

If the dependency ratio is dropped to one for three, the contribution rate would get reduced to 13.3 per cent.

$$\frac{40}{100} \text{ x } \frac{1}{3} = \frac{13.3}{100}$$

The relationship between contributions and benefits at various system dependency levels can be read more clearly in the table below. The contributions may well be paid out of the current revenue (this is true for civil servants in many countries including India). The contribution rates refer to the share of total wages that must be set aside for pensions:

Contribution Rates Under Pay-as-you-go Schemes

(Figures in percentage)

Benefits (percentage)	**System Dependency Ratio**					
	1/5	**1/4**	**1/3**	**1/2**	**2/3**	**3/4**
80	16	20	27	40	53.6	60
60	12	15	20	30	40.2	45
50	10	12.5	17	25	33.5	37.5
40	8	10	13.3	20	26.8	30
20	4	5	7	10	13.4	15

Source*: Tata Economic Consultancy Report for Fifth Central Pay Commission 1996.*

It is clear that when dependency ratios are one-third or lower, a low contribution rate can still pay a high pension benefit rate. But contribution rates rise with increased dependency rates, and are as high as 25-37.5 per cent of the wages for a 50 per cent benefit rate at higher dependency ratios. The situation becomes

more serious when the pension-benefit ratio is a function of the final wage rather than the average wage. In that case, contribution rates must be higher for a given dependency rate.

A pay-as-you-go system would remain solvent as long as the working generation is able and willing to share sufficient income with the retired generation. Given the population trends, it is unrealistic to expect future working generations, dwindling in absolute numbers, to continue to support an ever larger population of retirees to the same extent as at present. In fact, the annual outlay under this arrangement, expressed as a percentage of payroll, ultimately reaches a level that is considerably higher than that of any other financing method. To ensure sustainability through a pay-as-you-go system would require increase in the payroll tax rates or reduction in lifetime retirement benefits.

Despite its limitations from the standpoint of both the employer and the employee, the pay-as-you-go or the current disbursement method of pension financing is used in connection with a number of plans, often as a supplement to a formal underlying plan.

Funded System

In a funded-pension system, provision needs to be made for future pension payments. The funds allocated for this purpose, together with the interest earned on them, constitute the pension capital, which is drawn on when pensions are subsequently paid out.

Beneficiaries of fully funded pensions may have several options for using their accumulated savings upon retirement. In more liberal systems, individuals may have absolute freedom to withdraw all funds in one go, spread the withdrawals as they wish, or simply pass on the funds to their heirs. Alternatively, beneficiaries may be given an option to withdraw some share of their savings in the fully funded account at any time after reaching a certain age, but may be required to purchase an annuity with the

remaining share, in order to ensure adequate retirement income and limit subsequent recourse to public assistance. In other systems, government regulations may require that annuities – a series of payments in return for a lump sum paid upfront – should be purchased only from licensed institutions. However, given the lack of developed annuity markets, such products may not be able to provide sufficiently high rates of return to the retirees.

Reduction of Employer Outlay in Funded Plans

One of the most persuasive arguments in favour of funding, from the standpoint of the employer, is that it will reduce the out-of-pocket cost of the plan. An employer would pay out $27,810 on the current disbursement basis if he were to provide $150 a month to an employee who retires at sixty-five and lives out the life expectancy accorded to him. However, if the sum required to provide the benefits were to be accumulated through a series of level annual installments, extending from age thirty to age sixty-five, discounted for interest at 3 per cent but not for mortality, the outlay would aggregate only $15,630 or 56 per cent of the cost under the current disbursement basis.

The difference in the outlay under the two methods of financing is, of course, wholly attributable to the interest factor. Under the current disbursement method, the employer's contributions obviously earn no interest, and the total cost is the sum of the individual payments. Under the advance funding scheme, each annual installment is credited with 3 per cent interest from date of payment until the time it is disbursed as a retirement benefit.

Source: Fulfilling Pension Expectation, Dan. M. McGill, Pension Research Council, USA.

One of the primary purposes of funding is to enhance the security of the benefit rights of plan participants. In the absence of funding, the participants are completely dependent upon the employers' willingness and ability to honour their claims. Moreover, with no advance provision for the payment of benefits, the employer's ability – and even his willingness – to meet the burden of pension claims will be weakened with the addition of each new name in the pension roll. On the other hand, if a funding programme is in place, the employees can look forward to a segregated fund, irrevocably committed to the payment of benefits and administered by an impartial third party, for meeting their claims.

Funding vs Pay-as-you-go

While the employer's outlay under the pay-as-you-go approach tends to be low during the early years of a plan, it increases as the years go by and ultimately constitutes a heavy drain on his working capital. Moreover, the drain is inexorable. Unless the employer is willing to accept the consequences of a default on his commitment, he must make the benefit payments every month, year after year, irrespective of his financial position at the time. There is absolutely no flexibility in the arrangement. The traditional pay-as-you-go system – as a defined-benefit plan – is also relatively inflexible in that it would be politically and legally quite difficult to reduce pension levels as the tax base declines and the fiscal burden increases. On the other hand, there is considerable flexibility in an advance-funding programme, especially when the monies are accumulated in a trust fund or under a group annuity contract.

The Annuities Market

A mandatory scheme with a deadline (such as date of retirement) for the purchase of an annuity creates a high investment risk for workers, because of the possibility that the market value of their accumulated assets, or the interest rate on which annuity prices depend, may be abnormally low on that date. One possible solution is to encourage the development of variable or participating annuities in which people purchase annuity units whose prices fluctuate as market conditions change, similar to adjustable rate mortgages. This has the advantage of mitigating the risk associated with requiring a purchase on a specified date. But it has the disadvantage that the retiree must bear the risk of a fluctuating pension amount for the rest of his or her life. Another solution would spread out the purchase of annuities, that is, require a smaller purchase of deferred annuities each year, from the time the worker reaches a given age, such as 50. Still another solution would allow workers to take gradual withdrawals from their retirement accounts, such as 5 per cent of the assets each year after age 65, in lieu of purchasing annuities.

In Singapore only the purchase of a 'minimum pension' is required, and in Chile a regimen of scheduled withdrawals is permitted as an alternative to annuities. In this type of system accumulated savings are spread over the worker's expected lifetime, though little may be left by the end for workers who live longer than average. Voluntary retirement saving plans in Canada and the United States give retirees a choice between phased withdrawals and annuities.

Source: Averting the Old Age Crisis – World Bank (1994).

Full pension funding is favoured in the private sector because of the fear that sponsoring companies may go bankrupt and the retirees' pensions may disappear. Because the risk of government bankruptcy is considered negligible, pay-as-you-go systems have been the norm in the public/government sector in several countries including India. But there are several arguments in favour of funded pensions for the public sector:

- Under-funded pensions represent a future liability for tax payers, whereas fully funded pension schemes provide for liabilities as they occur, and, to that extent, do not lead to a sudden increase in the amount to be paid out as pension.
- Establishment of pension funds offers an alternative to bank savings, assists in diversifying national savings into longer-term forms and caters for the long-term needs of savers.
- Because of centralised operations, such funds benefit from economies of scale and have lower operating costs. They also present opportunities for risk diversification.
- Favourable fiscal treatment of pension funds is partly responsible for stimulating their growth. Since pension savings are normally tax exempt, the incentive to save is higher, with higher marginal tax rates.

From the employer's standpoint, the most obvious potential disadvantage of funding is that the agency to which the funds are transferred may earn a lower investment return than the employer could have obtained through retention and investment of the funds in his own business, even after accounting for income tax. This situation has undoubtedly prevailed in a number of cases in the years gone by and may still prevail to some extent. Nevertheless, with an expanding percentage of pension monies going into common stocks today and with the rise in the rate of return that

can be obtained on investments in general, it is becoming increasingly difficult for an employer to earn more after taxes than the funding agency can realise on a tax-exempt basis.

A second possible disadvantage of funding is that the accumulation of large sums of money in the hands of the funding agency may create a mistaken impression of affluence, leading to a demand by the employees for liberalisation of the pension plan. Another disadvantage is that it involves some loss of discretion of manoeuvrability on the part of the employer. An unfunded plan can be operated without regard to the regulations and restrictions applicable to a qualified plan, whereas a funded plan, if it is to enjoy favourable tax treatment, must comply at all times with the requirements of the tax laws.

From the point of view of financial stability and risk management, there are clear advantages of advance-funded defined-contribution systems. Individual accounts reflect individual labour force participation, which means that the individual himself – and not other workers – bears the risk of early exit. Annuities calculated at the time of retirement, reflect changes in life expectancy. This helps to insulate the system from demographic risks. However, there is always a risk that when the accumulation is to be converted into an annuity, the financial market may be depressed and may, therefore, have an adverse impact on the annuity. Imperfect annuities markets may have a similar effect.

Beyond normal investment risks, private pension funds could fall victim to fraud, in particular, when financial sector regulation is in the process of being improved. Further, pay-as-you-go systems, with their benefits independent from the business cycle, can provide an element of insurance for the economy, as a whole. Pay-as-you-go proponents point to the depression of the 1930s as an example in which a fully funded system would have failed and led to an even bigger economic contraction.

One option for governments concerned about future pension levels in the face of rising dependency ratios is to introduce a mandatory fully funded pillar alongside the existing pay-as-you-go pillar. Such 'prefunding' would require a rise in the payroll tax, with the additional pension contributions invested in a fully funded pillar. This payroll tax hike should optimally be set equal to the increase in private savings outside the pension system that would be accumulated by forward-looking individuals. Given that individuals behave, at least in part, myopically and, therefore, do not fully adjust their savings behaviour outside the pension system, prefunding would imply a rise in aggregate savings and an improvement in the macroeconomic savings investment balance.

The Multi-pillar System

To overcome the difficulties involved in both the pay-as-you-go approach and the fully funded approach, many countries have been moving towards a multi-pillar system in which part of the mandatory system is largely pay-as-you-go and a distinct and separate component is funded. Specifically, the new system, which has also been actively promoted by the World Bank, contains three pillars (financing mechanisms):

– a mandatory publicly-managed tax financed pillar. This provides a social safety net for the old. The benefit formula can be flat (i.e. uniform benefit for all), means-tested or can provide a minimum pension guarantee. In some countries, this pillar is financed out of general revenues rather than a payroll tax.

– A second pillar of individual accounts systems, linking benefits actuarially to contributions. It is fully funded and privately competitively managed. Unlike the traditional defined-benefit plan, it is the contribution rather than the benefit which is defined, and the future pension depends on accumulated contributions plus investment returns. The

contributions are mandatory because a significant number of people may be shortsighted, may not save enough for their old age on a voluntary basis, and may become a burden on the society at large when they grow old. Empirical data show that publicly managed pension reserves typically earn low, even negative, returns largely because public managers are required to invest in government securities or give loans to failing state enterprises at low interest rates. In contrast, competitively managed pension plans are more likely to invest in a mixture of public and corporate bonds and equities, and earn higher returns. Prefunding also avoids large payroll tax increases, needed in a pay-as-you-go system as the population ages.

– The third pillar is designed to comprise private retirement savings options, offering supplemental retirement income for people who want more consumption in their old age.

Multi-pillar systems on a mandatory or contractual basis already exist in advanced countries such as Australia, Denmark, the Netherlands, Switzerland, and the UK. Recent reforms in Latin America and Eastern Europe are also based on this approach.

The principal advantage of a multi-pillar pension scheme lies in risk diversification. Not all of the retirement portfolio will be subject to political and demographic risks. In economic terms, a portfolio of unfunded social security wealth and funded financial wealth can enhance welfare by reducing the risk of insufficient income after retirement.

Managerial Arrangements

In practice, three types of managerial arrangements for old-age security are most common. These are:

Public Pension Plans

Public pension plans represent a mandatory formal system whose coverage is almost universal in high-income countries and widespread in middle-income countries. Public pension benefits – especially earnings-related benefits – are mainly financed through an earmarked payroll tax, usually with a ceiling on taxable earnings. The tax, generally shared between workers and employers, ranges from 3 per cent in a few African and South Asian countries with very young populations to more than 25 per cent in countries with a larger percentage of the old.

Public pension plans use a defined-benefit formula that promises a specified pension to retirees, thereby reducing the risk of income uncertainty in old age. An important characteristic of such plans is that they break the link between benefits and contributions. Annuities sold by private insurance companies make defined benefits contingent on contributions according to actuarial, market-based principles, but defined-benefit formulas used by public pension plans never do so.

As populations age, public pension plans consume a large share of a country's GDP and a much larger share of its tax revenues. Consequently, these plans have a major effect on labour and its productivity, on capital accumulation and its allocation, on the ability of the government to finance public goods and services and, as a result, on the growth of the economy.

Occupational Plans

Unlike public pension plans, occupational schemes are sponsored by employers, either on their own or as a result of collective bargaining. Their main advantage is that they can be launched with little direct government involvement and relatively low administrative costs. But their coverage is uneven, they differ significantly from one employer to another, and are often not transferable.

Pension plans sponsored by employers are often integrated with the government-run (public) plans. When combined with the government-provided retirement benefits, these plans are usually designed to replace 70-100 per cent of pre-retirement earnings of lower- and middle-income employees in developed nations. Benefits are usually lower for higher-income workers, who have to rely on direct personal savings for a larger part of their retirement income.

There are at least four reasons why the employers and/or trade unions sponsor retirement plans for their employees:

(i) Pension plans are an important incentive device in labour contracts because they affect employee hiring and turnover patterns, work effort, and the timing of retirement.

(ii) Employers often have better access than the plan's beneficiaries to information needed for preparing long-run financial plans tailored to the needs of the employees. In particular, sponsors have better knowledge of the probable path of future labour income for their employees. The corporate sponsor can, therefore, potentially save more efficiently than each employee acting individually.

(iii) Employers who acquire a reputation for taking care of their employees' retirement needs may find it easier to recruit and retain higher-quality employees. This improves motivation, and labour productivity automatically get enhanced.

(iv) Employees may not be able to buy certain kinds of insurance as individuals directly, but may be able to do so as part of an employees' group. For instance, there is considerable longevity risk that people will outlive their retirement savings. Group insurance through pension plans, which provides for a pooling of

longevity risk, is often seen as a solution to this problem.

Occupational plans can be defined-benefit or defined-contribution, and they can be either partially or fully funded. The defined-benefit plans provide an annuity based on a specified formula, as in public pension plans. The benefit usually depends on years of service and worker's salary over the last few years of employment. Sometimes, workers are required to contribute a percentage of their salaries to the pension plan, with the employer making up the difference.

Civil Service Retirement Schemes

Among the occupational plans, those relating to civil servants deserve a special mention. In many countries, the provision for old age and disability for civil servants, and compensation to legal heirs on death, pre-date the establishment of national social security schemes for private sector workers. Historically, these benefits were granted as a form of reward for long service. Long-term employment has been the norm in the civil services, and the prospect of receiving an adequate pension on retirement has traditionally been viewed as an inherent attraction of employment in the public sector. Even though these schemes established by the state for its employees are, in a sense, like ordinary occupational schemes, a major difference stems from the fact that the benefits in the case are usually paid from general revenues. This, in turn, impacts the national budget also.

Traditionally, retirement benefits for civil servants have been provided through defined-benefit plans. Countries that sponsor defined-benefit schemes generally pay retirement benefits from the time the employee retires till the end of his/her life. However, in some cases, it is permitted to commute a portion of the monthly pension for a lump sum payment.

The financing of civil service retirement schemes is primarily dependent on payroll taxes that are shared by the

employee and state (as employer), with the government covering any shortfall out of general revenues. The majority of public service pension schemes appear to be financed on the unfunded pay-as-you-go principle, where current demands for pension payments are financed by current receipts. No capital is set aside or accumulated to meet future expenditures, and all proceeds are merged into the state budget with no specific allocation for the financing of pensions.

Pensions and the State

Where the state is the employer, the costs and the financing of pensions do not have the same priority as for private employers, since the state's economic resources are of a completely different order. The cost of civil service pensions is small compared with the national budget as a whole. Should these costs rise sharply, the state can always increase revenue by raising taxes. The state's power to levy taxes is one of the reasons why it has usually been considered unnecessary in the public sector to secure pensions by pre-funding.

Because of the resources available to the public sector for the financing of its employees' pensions, special restraint is called for. It must be taken into account that other sectors may feel that pension benefits that are considered normal in the civil service should also apply in the rest of the labour market. Since the pension levels for civil servants thus tend to become the general norm, they make a disproportionate economic impact in relation to the number of employees in that sector. For this reason too the state as employer must accept greater economic responsibility than private employers, who are only responsible for the economy of their own company.

Source: SIGMA-OECD, 1997.

Beginning with the 1980s, many industrialised countries realised the need for the civil service to be modernised, and started a trend to integrate civil service pension systems with national social security systems. Integration of civil service plan benefits into national social insurance plan benefits is prevalent in varying degrees in different countries. Total integration takes place when civil servants are not treated differently from private sector employees, as in Argentina and Peru, and throughout eastern Europe where preferential schemes no longer exist. A less complete form of integration occurs where a civil service pension system is operated by the state much like any other occupational

pension plan in the private sector. Examples of this can be found in the United Kingdom, Japan and certain other industrialised countries. Overall, an increasing number of civil service plans are being integrated in one way or the other into national pension systems. In countries where such integration has occurred, 60 per cent of these integrated frameworks were implemented after 1980.

Personal Saving and Annuity Plans

Several countries have made saving for retirement mandatory. The motivation for mandatory saving schemes is to solve the problem of shortsighted individuals who do not save when they are young and become a charge on the rest of society when they are old.

A publicly managed mandatory savings scheme is usually called a *provident fund*. Quite commonly, the government determines the use of the mandatory saving accounts and sets the rate of return. Contributions, which are compulsory, are paid into the individual worker's account in a national provident fund managed by a public agency. Today, some twenty countries, mostly former British colonies in Africa, Asia, and the Pacific islands, have such schemes. Mandatory saving schemes could also be privately and competitively managed.

Centralised provident funds are run by agents of the national government. In their ideal state, they invest productively and benefit from economies of scale that minimise operating costs. Malaysia and Singapore are examples of national provident funds with low costs and stable, though modest, returns.

Because of the fungibility of money, once it becomes part of the government budget, the real productivity of the provident funds is not known. The funds may increase government consumption or investment beyond what they would have been otherwise – or they may substitute for explicit taxes while keeping government spending unchanged.

In a privately managed mandatory savings scheme, the worker's pension is financed by the savings account that accumulates before retirement, and its size depends on the contribution rate, the growth rate of earnings, the interest rate, and the number of working and retirement years. The workers assume the investment, longevity and inflation risks of their retirement funds. Retirement income will be lower if investment performance is poor. And if people live longer than expected, they may outlast their retirement savings. Some schemes require workers to purchase annuities when they retire – to insure against unexpected longevity.

Until 1994, Chile was the only country that had fully replaced an existing public pay-as-you-go pension scheme with a mandatory saving scheme. It was also the only country whose mandatory savings programme was privately and competitively managed. The public pension system was replaced because of widespread evasion, unsustainably high contribution rates, and an inequitable benefit structure. For similar reasons, other Latin American countries, including Argentina, Colombia and Peru, are now replacing or supplementing their public pension schemes with mandatory competitive savings schemes.

3

Management and Administration

Funds Management

The monies set aside for the payment of pension benefits may be held by a trustee or by a life insurer. Under the trust fund arrangement, the employer, at periodic intervals, transfers to the trustee monies contributed by himself and, if the plan is contributory, withheld from the pay of his employees. The trustee invests the money and the earnings thereon, and on specific instructions from the employer, makes disbursements from the trust fund in satisfaction of benefit claims. The trustee assumes no responsibility for the adequacy of the trust fund and by means of various exculpatory clauses in the trust instrument attempts to avoid liability for those phases of pension plan administration that are deemed to be the sole responsibility of the employer or beyond the scope of a fiduciary's traditional obligations.

The fundamental duty of a trustee is to serve all the different classes of beneficiaries fairly. It is not the role of the trustee to represent the interests of any particular group or party, such as the employer, pensioners or trade union. Trustees' duties relate to the provisions of the trust and its beneficiaries.

A trustee should act prudently, conscientiously and honestly. The duty to act prudently is particularly relevant when dealing with the scheme's investments. It means acting in the way that a prudent person would act, in relation to his own affairs, such as making a proper assessment of the risks involved, obtaining and acting upon appropriate professional advice, and diversifying the scheme's investments. In order to avoid any conflict of interest, a trustee is forbidden from buying assets from or selling assets to

the fund. They must act in good faith and not make any personal profit at the expense of the trust fund.

Generally speaking, the basic investment policy is determined by the employer through his choice of the trustee and the instructions which he imparts to the trustee. He is usually motivated by the desire to maximise the investment return, consistent with safety of the principal, in order to minimise his contributions to the plan or, in exceptional cases, to provide more liberal benefits than would otherwise be possible.

In the absence of any specific instructions in the trust agreement, the trustee has the sole jurisdiction over the investment of the trust assets, but he must comply with the statutory and case law governing fiduciary investments. Many trust indentures give the trustee complete discretion in the performance of his investment function, and the employer holds the trustee to a commensurate degree of responsibility for the investment results. Such employers want to take full advantage of the investment skills of the trustee and to relieve their own officers of the burden of participating in the investment decisions associated with the trust. At the other extreme, some trust agreements stipulate that the trustee shall buy and sell only those assets that are selected by the employer and only on written instructions from the employer. Some employers charge the trustee with the responsibility of managing the investment portfolio but require him to have the written approval of the employer before any transactions can be carried out. Other employers specify the classes of investments and the approximate percentage of the aggregate portfolio to be invested in each class, and permit the trustee to select the specific assets to be bought and sold.

The benefits may be paid directly from the trust as they become due or, depending upon the terms of the trust agreement, the trustee may purchase an immediate annuity for each employee as he reaches retirement. The trust may also be charged with bearing all costs incurred in the establishment and administration

of the pension plan of which it forms a part, except the costs incurred within the employer's own organisation. It is customary for the trustee to be reimbursed out of the trust for its services, the principal charge being the investment fee. Fees for actuarial and legal services may be paid directly by the employer or out of the trust fund. Charging of administrative expenses to the trust fund is comparable in principle to the use of a portion of the contributions to an insured pension plan for the administrative expenses of the insurer.

In discharging their fiduciary responsibilities under pension plans, trustees are subject to the judicial control and supervisory mechanism applicable to any type of personal trust.

Investment Policy

Enunciation of a clear investment policy is the key to achieving good performance of a pension fund. It helps to define the investment objectives and long-term strategy of the fund and prevents ad hoc shifts based on market conditions. It specifies, apart from the investment objectives, the broad asset classes in which funds would be invested, the target investment levels and the permissible ranges for each asset class and the appropriate market benchmarks against which performance will be measured.

A fund's investment objectives would comprise a specific list of quantifiable investment results expected to be achieved over a given period. In an asset-only framework, the objective would be to maximise expected returns on investment while minimising its variability.

Research has shown that a fund's asset allocation determines its investment performance more than any other factor. Apart from being an expression of risk-return trade-off on the assets side, a fund's target asset allocation also determines how the fund would hedge its risks. The relative advantages and disadvantages of each asset class would need to be assessed. Long-term bonds may

provide the best hedge against variability of pension fund surplus, since the future obligations are discounted at the current long-term interest rates. However, long-term fixed rate bonds are a poor hedge against inflation and productivity gains, which drive real wage growth. Treasury bills or floating rate bonds tend to provide better hedge against inflation, but cause high variability in income streams as well as funding ratio. Equities may provide a better expected rate of return over a long period, but cause short-term fluctuations.

A plan with a mature (aged) workforce will usually have lower inflation and wage growth risks to cover, and may, therefore, be inclined to invest in long-term bonds. A plan with a young workforce tends to have a higher degree of uncertainty in its future obligations. It will also have a longer time horizon and an incentive to hold a more aggressive asset mix with an emphasis on equities. But, while having a better chance of meeting its obligations in the long-term, it is exposed to short-term fluctuations as equities are volatile and consequently affect the sponsor's balance sheet.

In order to mitigate the risk of lower yields on investments, most countries that have introduced a second, mandatory pillar have also introduced some form of guarantee on second-pillar returns. Private pension guarantees can take the form of insurance against the default or failure of private company pension funds, such as is provided by the US Pension Benefit Guarantee Corporation, which assures to continue pension payments offered by defined-benefit pension plans even if their sponsoring corporations become bankrupt with an under-funded pension plan. They can also include partial or complete protection against rising prices, as is provided in Japan and the United Kingdom. Another kind of guarantee has been developed in Chile, in the context of its pioneering system of mandatory private accounts. Chile's system includes four types of state guarantees. First, the government pays a social-assistance benefit of about 12 per cent of the average wage to old people not covered by the mandatory

saving plan. Second, for workers who have contributed to the mandatory saving plan for at least twenty years, the state guarantees a minimum pension of about 22-25 per cent of the average wage. Third, a minimum profitability rate is guaranteed for each pension fund relative to the average for the country. Any shortfall in rate of return is covered first through the profitability reserve, then through the investment reserves of the fund managers, called AFPs *(Administradoras de Fondos de Pensiones)*, and finally by the state. Fourth, the government guarantees annuity payments for old-age pensions and disability and survivorship benefits in case the insurance company fails. The guarantee covers 100 per cent of the minimum pension and 75 per cent of the rest of the benefit involved up to a specified limit. These guarantees are financed out of general revenues.

Relative guarantees, such as those introduced in Latin America, attempt to deal primarily with incompetent/inefficient asset management, fraudulent behaviour, and other agency risks. They do not attempt to deal with market risk. Absolute guarantees such as those introduced in Switzerland and to some extent in Hungary attempt to deal with market risk as well.

Institutional pension funds may offer some form of a guaranteed minimum rate of return on investments, underwritten by the government or a specially created insurance fund. In some cases (for example, Chile and Peru) risks are moderated by compensating the poorest performing pension funds out of the earnings of all pension funds. While governments have generally not provided formal guarantees for possible second-pillar losses, they may well end up bailing out failed private funds. In fact, developing countries should try to avoid public guarantees of occupational pension plans because they may lead to large future fiscal outlays and may also create moral hazard problems – that is, workers and their employers may take larger risks than before, knowing that their pensions will be protected. But avoiding guarantees may be difficult, especially because many occupational pension plans are offered by public enterprises and political

pressures often make guarantees implicit even if they are not explicit. The best course is to establish strong fiduciary rules and monitoring mechanisms for occupational plans from the start so as to minimise the probability of financially unsound schemes getting off the ground.

Administrative Costs

Prefunding makes the financial sustainability of the system less sensitive to demographic shocks, and reduces the need to increase taxes as populations age. With prefunding comes the need to manage the funds. One of the biggest criticisms levelled against the 'defined-contribution' individual accounts system is that they entail high administrative costs. Many countries now in the process of adopting individual accounts system are concerned about these costs and are seeking ways to keep them low.

The term administrative costs captures the total cost that is paid by the individual or worker affiliated to a particular private pension plan, be it in the form of lower pension benefit promise or as a fee or charge. The latter comprises the fees paid by the workers to their funds, the fees paid by the funds to their managers, and the direct expenditure incurred by the managers, such as salaries, marketing costs, brokerage and banking fees.

When private pension plans provide a significant portion of retirement income, administrative costs can play a crucial role in determining the extent to which the total pension would remain above an income benchmark. Further, whenever affiliation to private pension plans is mandated by the state, the purchase of a private sector service entails a restriction on individual choice and, therefore, it can be expected that in such cases governments will attempt to ensure that workers' retirement incomes are not reduced by high administrative costs.

In Chile and most other Latin American countries, administrative fees are front-loaded, which means that workers

pay a one-time fee on new contributions rather than an annual fee based on assets. Specifically, this one-time fee is about 2 per cent of wages in virtually all cases, and about one-third of this is for marketing. It is estimated that if the current fee schedule is maintained, the average Chilean worker who contributes for 40 years will pay the equivalent of less than 1 per cent of assets per year, which is not excessive from the lifetime point of view. Competition may further bring down costs in the long run.

Administrative costs are also more of a concern in personal than in occupational plans, since the former are negotiated in the retail market, while some of services provided by the latter are negotiated between plan sponsors and external service providers. In occupational pension plans, the bargaining power of employers in negotiating fees and their ability to fund some of the expenses of pension plans can limit the adverse impact of fees on pension benefits. In addition, individual choice tends to be more constrained in occupational than in personal plans, which further reduces administrative costs. Within occupational plans, there is also a wide variety of options, ranging from defined-benefit plans (which offer no choice to individuals) to defined-contribution plans where contributions can be invested in a variety of savings instruments. Clearly, the more choice individuals have, the higher will be the costs of pension plans, unless policies are in place to either limit these costs or ensure that employees have a good understanding of the options they have and the consequences of their choices for their retirement income.

Some analysts believe that administrative costs would be lower under a group plan and hence favour choice by the employer or the union. Such group plans may be better positioned to benefit from economies of scale in decision-making, greater financial expertise, and lower marketing costs. This is one rationale given for employer and/or union choice of the investment manager in OECD countries. However, because employers or union representatives make the investment decision while workers bear

the risk, such plans can also open the door to financial abuse and principal-agent problems; employers might choose investment managers or strategies that benefit them even if this implies lower returns for their workers. In Switzerland, employers tend to deposit retirement funds with those banks with which they have had long-standing financial relationships, without exploring other options carefully.

The voluntary Thrift Saving Plan for US federal employees uses a competitive bidding process for the rights to manage a small number of portfolios for its members. An international bidding process was recently used in Bolivia, as a result of which it expects to have much lower administrative costs than Chile. The dangers here are the difficulties in insulating the auction and investment process from political manipulation, corruption and collusion, and providing incentives for good performance, when entry and price are limited. Otherwise, while these mechanisms may bring about lower marketing expenditures, they may also result in lower investment returns. Much lower costs can be achieved if the process is properly handled.

In order to minimise transaction costs in investment management, Sweden has introduced the idea of a clearing house called the 'public pension agency'. Rather than establishing separate pension funds, the Swedish government builds on the existing infrastructure of collective investment institutions. All mutual funds can participate subject to levying fees set by the public pension agency. This agency also collects contributions, keeps their records, aggregates individuals' contributions and makes a single transfer to each fund. This limits the costs of fund managers in respect of managing funds. On the other hand, it still makes it possible for them to compete by offering the best net-of-cost returns. Countries coming after Sweden, e.g. Croatia and Latvia, which plan to have larger second-pillars than Sweden but also have substantial pay-as-you-go first-pillars, are working with the Swedish clearing house model.

Generally, in mandatory individual account plans, contributions are remitted by employers (and the self-employed on behalf of themselves). The employers can either remit the contributions to the tax authority along with other taxes, or directly to the investment manager. In the first case, the advantage should be a minimisation of costs for businesses and for the government. The argument is that if the tax authority is already collecting part of the contribution (to the pay-as-you-go pillar), there is essentially no marginal cost of collecting contributions to the second-pillar as well. The disadvantage is that there may be a lag between payment of contributions and remittance to the investment manager. In the second case, the advantage is that the money goes straight to the investment manager. The disadvantages are that (a) monitoring compliance is much more difficult, and (b) economies of scale in record-keeping are lost. However, use of computer technology should help in overcoming both these disadvantages.

4

Regulatory Framework

The regulation of pension funds originates with the identification and assessment of risks. These risks can be grouped in three major classes: (i) portfolio or investment risks, (ii) agency risks, and (iii) systemic risks.

One of the main objectives of regulation is to ensure that portfolios are well diversified, while some risky and illiquid assets are eliminated from the range of investment opportunities. Even after proper diversification, plan members face the risk of fluctuations in the market. This could be due to a variety of reasons, such as normal fluctuations in asset prices, bubbles and crashes in the equity market, and unexpected jumps in inflation. Though the exposure to market risk tends to decline with increased extension of time horizon and holding periods, an element of risk always remains.

Agency risks arise when the interests of fund administrators and asset managers are not fully aligned with the interests of fund members. The most immediate and obvious agency risk is the potential for fraud, misfeasance, malfeasance, or outright theft of assets. The well-publicised cases where the fund's assets are transferred to personal accounts in exotic locations are the most obvious manifestations of agency risk, but there are other, more subtle channels through which fund administrators and asset managers can siphon the value away from plan members. Self-investment, investment in related companies, directed fee arrangements, and kickbacks constitute other examples.

Systemic risks arise from the links between the pension industry and other segments of the financial system. Pension funds

may be affected by banking crises, that can result in a sharp collapse in asset prices leading to the insolvency of several banks. To the extent that fund managers are subsidiaries of banks, there is an overall erosion of capital protection in the pension industry. Among employer-sponsored arrangements, sectoral losses in employment leading to early or bunched retirements may result in payout requirements that may coincide with negative investment returns.

The main components of regulation typically include licensing criteria, governance rules, asset segregation rules, independence of the custodian, external audit/actuary, disclosure requirements, investment regulation, guarantees, minimum capital and reserves, and regulations on costs and fees.

Licensing criteria are adopted in almost every country. Countries allowing only open funds operated by management companies seek to limit agency and systemic risks by imposing extensive licensing procedures. This limits entry to a relatively small number of entities, making in-depth oversight practical, and provides a significant source of security. Systems utilising the trust/foundation approach impose less stringent licensing requirements, although they may verify the qualifications and reputation of the trustees.

Governance Rules: In occupational funds, the boards usually perform a number of important functions: setting broad investment strategies; delegating responsibility for the management of funds to a range of service providers; and monitoring performance. Clear rules on board composition, voting rights, and duties and responsibilities of board members can help improve fund governance and minimise agency risks. Trust laws typically impose greater personal liability for responsible parties, including attachment of personal property.

Asset segregation rules aim at separating the fund assets from the assets of the sponsor/management company in order to

protect members' balances and vested rights, thereby limiting systemic and agency risks.

External custodian rules are also essential to limit agency risks. Asset managers are not permitted to directly hold legal title to the assets of the pension fund and opportunities for fraud and theft are minimised by requiring a separate party with defined responsibilities to execute all transactions. Custodians can also help enforce prudential regulations by refusing to endorse transactions that violate investment guidelines and other rules.

Disclosure requirements involve a number of important rules, such as asset valuation rules, the frequency of asset valuation, and the distribution of relevant information (for example, on returns, costs, levels of capital and reserves) to fund members and the general public. Open funds in most Latin American countries are subject to extensive disclosure requirements, which usually include daily asset valuation on a 'mark to market' basis, distribution of account statements to members several times a year, and publication of detailed information on the industry by the supervisory agency in its quarterly and annual bulletins.

Disclosure Norms for Pension Funds

Under Employee Retirement Income Security Act (ERISA) in the US, pension funds must provide each plan participant with a summary of the Annual Report outlining the plan and its administration, information on the right to receive pension benefit, and the status of individual pension benefits. In the UK, under the 1986 Pension Schemes Regulation, trustees are required to disclose trust deeds and rules on request; annual reports must be provided free of charge, covering information such as the names of trustees, actuaries and fund managers, number of beneficiaries, contributions, increase in benefits to current pensioners – distribution of assets, an actuarial certificate saying to what extent the scheme is financially viable, presenting results of performance measurement of fund managers and how they are remunerated. Every three years a more detailed valuation report must be included, giving a view of long-term viability. It is particularly crucial that members receive such information in defined-contribution plans. In Switzerland, similar to the UK, audited annual accounts and an individual benefit statement must be made available to members.

Source : Policy Research Working Paper 1229, E.P. Davis, The World Bank, 1993

External audits of pension fund accounts are required in every country, although the scope and quality of external audits may vary substantially from one country to another. External audits not only provide an accurate and independent assessment but also constitute the most important tool of supervision.

Investment regulations in most countries aim to ensure diversification, and to minimise portfolio risks. However, while some countries impose strict quantitative and qualitative restrictions, others require managers to follow prudent behaviour. The former approach, has often been used to direct pension capital to specific types of investment, in particular, domestic bonds issued by public institutions and domestic corporations. The latter approach, adopted by the United States, has forced managers to develop internal prudential rules, and to diversify into more varied investment instruments outside the United States.

Taxation

One of the main determinants of the scale of benefits and advantages of pension funds, as a means of saving, is exemption of contributions from taxation. Tax codes typically offer incentives to investors in both mandatory and voluntary pension pillars. Pensions may be taxed at three points; when money is contributed, when investment income is earned, and when retirement benefits are paid to scheme members. Specifically, income spent on periodic investments in the pension system can be made deductible from the taxable income, or the pension capital can be allowed to accumulate tax-free until withdrawal, or the accumulated capital in the pension account can be withdrawn at retirement free of taxes on income. The frontloaded incentives have an immediate and transparent budgetary cost and provide the most tangible immediate benefit to savers. The back-loaded incentives have a future and more uncertain fiscal cost, provide the highest potential benefit to savers, and are easier to administer because savers simply do not owe any taxes on the accumulated savings.

Tax incentives may also be targeted to specific groups or purposes. For example, tax-free pension investments or withdrawals may be restricted to lower income groups, or access to pension savings before retirement may be limited to financing of health care or education expenses. This may be justified on the grounds that housing or educational expenditure in most instances offers an opportunity to diversify savings into non-financial assets or increase future earning potential. However, introducing such provisions complicates tax administration and can lead to significant revenue loss for the government.

Most countries allow workers and employers to deduct pension fund contributions from their taxable income and exempt investment income from tax, but treat pension benefits like any other taxable income. Tax deferral is especially valuable to high-income workers, because their initial tax savings are higher and they are likely to be in a lower tax bracket when they retire and pay taxes on their pensions. But to compensate for these deferred revenues, higher taxes must be imposed elsewhere, government spending should be cut, or government borrowing should be increased.

Reasons for taxing pensions relatively leniently include: (i) the need to assist people to save enough to maintain post-retirement living standards; (ii) a desire to encourage people to save and thus cut the cost to the state of means-tested social security benefits; and (iii) to raise the general level of saving. The first is the most important, and is largely paternalistic. It suggests that people are generally myopic, and/or that there is a sort of moral hazard in that they assume that they will be cared for by the state even if they do not save.

5

Crisis and Reforms

Most publicly managed systems of old-age security are financed by payroll taxes on a largely pay-as-you-go basis. However, most existing systems fail to provide adequately for the old, since benefits are not always indexed. Besides, in maturing systems, providing a constant level of benefits to a growing number of retirees requires high pay-roll taxes. High tax rates lead to evasion, defeating the very purpose of a mandatory system. They also lead to manipulations by the workers in order to escape much of the tax but still qualified for benefits, thereby causing financial difficulties for the system. This eventually increases the burden on the public treasury and leads to rising fiscal deficits, crowding out investments in other essential areas, such as infrastructure, education and health services. When deficits become much larger than can be covered by current tax rates, the alternatives are a rise in taxes or a cut in pension benefits.

Many countries with pay-as-you-go or unfunded schemes are facing current-period deficits, that are covered by a combination of general taxes and public debt. Today's problems arise largely from over-generous increases in pension benefits that have already pushed contribution rates to the limit. Americans worry about a social-security contribution rate of 12.4 per cent of pay, but Germans have to put up with 19.1 per cent, and even that does not make German pensions self-financing – without a subsidy from general taxation, the contribution rate would have to be 25 per cent. In Italy, the contribution rate is an astonishing 33 per cent of eligible pay. If the system is to be made sustainable, something will have to be given up: either benefits must be reduced in relation to average incomes, or contribution rates – already oppressively high in many countries – must increase, or

the retirement age must go up. If governments leave matters as they are, they would eventually have to borrow to bridge the gap between future pension outlays and tax revenue. Standard & Poor's, a credit-rating agency, has recently calculated that some countries in the EU, where pensions are especially generous, could pile up liabilities on the scale of war debts. By 2050, nine of the EU's 15 member states would have accumulated gross debt of 150-300 per cent of the GDP.

Developing Countries

India

According to the population projections the number of persons aged 60 and above in India is expected to rise from 54.5 million in 1991 to 113.0 million in 2016. While the total population is projected to increase by 49 per cent from 846.2 million in 1991 to 1263.5 million in 2016, the number of aged will rise by 107 per cent over this 25-year period. The share of the aged in the population will rise to 8.9 per cent from 6.4 per cent in 1991.

As a result of these demographic changes, large unfunded liabilities have been built up in the current pension systems in the country. It is obvious that if the ratio of senior citizens to working citizens continues to rise over time, the survival of senior citizens on the basis of taxes paid by younger people, i.e. the pay-as-you-go system, may not be a self-sustaining mechanism unless productivity gains are large enough for the working citizens to share these gains with the old.

Fiscal problems of the state reflecting the large unfunded liability of the pension systems relating to the formal sector mainly concern the following three areas:

Civil Services Pension System

The combined membership of the civil service pension plans at the state and national level was 12.25 million in 1998. The total

number of pensioners for the same year was 7.3 million. Pension spending for civil servants has risen dramatically in the last few years. For the central government, the pension bill expressed as a share of the GDP doubled between 1995 and 2000. There were also dramatic increases at the state level. In some states this ratio trebled during the 1990s. In the most populated state, Uttar Pradesh, for example, the ratio of pension spending to the gross state domestic product (GSDP) rose from 0.4 per cent to 1.2 per cent between 1990 and 2000. In Rajasthan, the ratio rose from 0.8 per cent to 2.3 per cent over the same period.

Indian Railways are a classic example of how an organisation, despite being fully aware of what the future held in store, allowed its pensionary burden to grow to an extent that today its finances are no longer able to sustain the system. Railways did start out well by setting up a pension fund in 1964, but the contributions to the fund fell far short of the requirements based on actuarial calculations. In March 1970, the actual balance in the fund was only Rs.80.02 crore as against Rs.332.34 crore assessed by the actuary. The shortfall in the funds was never made good and over a period of time, the practice of carrying out periodical actuarial valuations itself was abandoned.

This inaction has taken its toll. As more employees retire and live longer (today there are 67 retirees for every hundred employees), the retirement income to be paid to them has continued to rise. Already, pensions consume nearly 15 per cent of railways' gross traffic receipts. A recent study has estimated that if the present trend continues, the Indian Railways will face the prospect of having to pay out almost half of its gross traffic receipts as pensions to its retirees by 2020 (see Annexure E). This can have serious repercussions on the railways' core business of transporting passengers and goods, which is already under threat from cheaper airlines and better highways.

Uttar Pradesh is one among the several states in India which find themselves burdened with escalating pension liabilities. As it

is, its financial condition is a cause for great concern to the state government: a revenue surplus of Rs 250 crore in 1987-88 has been transformed into a revenue deficit of Rs 7,253 crore in 1999-2000, equivalent to 3.8 per cent of the GSDP. In the same year the fiscal deficit was 6.3 per cent of the GSDP.

Other statistics are equally alarming. The expenditure on pensions of the state government employees has increased from 2.77 per cent of the state's revenue receipts in 1991 to 9.21 per cent in 1999-2000, i.e. a three-fold increase in a span of ten years. Similarly, the outgo on pensions as a percentage of the revenue expenditure has moved up from 2.42 per cent to 7.25 per cent over the same period. In absolute terms, the expenditure on pensions of civil servants has increased from Rs 231 crore in 1991 to Rs 2,173 crore in 1999-2000. This expenditure is likely to rise rapidly when the employees who joined service during the period between 1972-73 and 1993-94 (when a larger number of persons were recruited) start retiring and add to the number of retirees. In the long run, therefore, the government will be left with two options: to either reduce benefits or to impose heavier taxes to generate additional resources. Admittedly, both will be politically hard decisions. But unless a clear decision is taken now, other priority programmes of the state, such as those relating to education, health, etc. could be affected adversely.

Employees Pension Scheme

The Employees Pension Scheme (EPS), which covers nearly 23.18 million workers in the organised sector, and is administered by the ministry of labour, is also unlikely to be financially sustainable in the long run. The World Bank estimates that the cash-flow deficit in the EPS will grow to almost 1 per cent of the GDP in the next few decades. It further notes that the implicit 'real' rate of return on contributions necessary to fund pensions 'abstracting from survivor and disability benefits and any indexation for inflation' is 4.5 per cent. This rate of return is well beyond the feasible return under the current restrictive investment.

The survivor and disability benefits and any ad hoc indexation of benefits actually increase the imbalance.

Tax Preferences

The tax preferences in the current pension system add to the strain on government finances. Employers' contributions to the employees provident fund and to the employees pension scheme up to 27 per cent of salary are treated as business expenses. Employees' contributions receive tax rebates of 20 per cent of the amount contributed up to a maximum contribution of Rs 70,000. Interest income and lump sum withdrawals from provident funds are also tax exempt, but benefits and annuities are not, creating a counterproductive incentive to realise benefits as lump sum distributions rather than annuities.

Recent Policy Initiatives

The general parameters of the system that provides pensions to the formal sector in India have not changed substantially in the last fifty years. But the old system is now being reconsidered in the light of several important developments.

A number of pension policy initiatives are under consideration, which may bring fundamental changes to the system that has prevailed since Independence. The central government and an increasing number of states, struggling with the mounting cost of pensions for their employees, are exploring reform alternatives and estimating their pension liabilities.

Perhaps the most important motivation for reform is the growing burden of civil service pensions. In just five years (1997-98 to 2001-02), the central government pension bill alone has almost doubled as a share of the national income. In fiscal year 2000-01, it consumed more than 15 per cent of central government tax revenues. The growth of pension spending for state-level civil servants is even more dramatic (see Annexure F). In present value terms, the World Bank estimates that the 'pension debt' has now reached almost one-third of the country's GDP.

In February 2001, the government announced that all new civil servants at the federal level would join a new defined-contribution scheme. A high-level expert group has been formed to design the new system. The ministry of finance has also set up a working group to assess the government of India's liabilities for civil service pensions. It is clearly a response to the government's concern for the recent rapid increase of central government spending in this area.

For the informal sector, the Old Age Social and Income Security (OASIS) project is perhaps the most important recent pension reform initiative in India. It aims to establish a system based on privately managed, individual accounts with low costs and widespread accessibility. The new system would rely on a limited number of private asset managers, each offering three investment portfolio options to the individual savers. The managers would be selected through a competitive bidding process that would use, among other things, a criterion of low administrative costs. A new entity, the Indian Pensions Authority, would be created and would select the asset managers.

Other Developing Countries

In recent years, the issue of pension reform has been high on the agenda of many developing countries. To a large extent, this reflects common concern regarding demographic trends of declining birthrates and increasing life expectancies that have cast serious doubt on the sustainability of the current pension systems. Most countries have attempted to shore up their pay-as-you-go systems through a combination of reduced lifetime benefits and higher social taxes. However, a majority of these reforms are limited to tinkering with an existing pay-as-you-go defined-benefit system, rather than reforming the overall system of pension provision. Consequently, while these reforms help in alleviating some of the fiscal burdens, fiscal problems tend to reappear in the long run and, therefore, do not provide a lasting solution.

Chile was the first country to undertake a major reform of its pension system, switching over from an exclusive pay-as-you-go system to a mandatory defined-contribution, fully funded system for all workers. Mexico, Bolivia, El Salvador and Kazakhstan have followed Chile's example of using the fully funded defined-contribution system as the primary system.

Other Latin American countries, such as Colombia and Peru, have also made the fully funded defined-contribution the primary system, but have given workers the choice of a pay-as-you-go defined-benefit as the primary system, if they prefer. In Argentina, a residual pay-as-you-go scheme supplements the funded scheme. Uruguay, Costa Rica and Ecuador have also retained a significant defined-benefit scheme managed by the government by carving out a new, privately managed and funded component. Among the European countries, Hungary has retained a pay-as-you-go defined-benefit scheme as the primary system, but has given workers an option to choose a fully funded defined-contribution scheme for a mandatory supplementary system. Poland and Latvia have converted their pay-as-you-go schemes into notional accounts schemes with a mandatory second pillar that is fully funded defined-contribution.

Major reforms of this type also entail decisions on transition mechanisms. Typical transition mechanisms, used in Chile, Colombia, and Peru, are to issue recognition bonds to workers, in recognition of what they are owed on the basis of their accrued rights under the old system, which become payable at retirement age. Upon retirement, individuals will convert to an annuity both their own accrued funds plus the principal plus interest from these recognition bonds. In Argentina and Hungary, by contrast, individuals receive a pension from the old system in direct proportion to years served under the old system. In Uruguay, all years served, under either system, are used to qualify a person for a first-pillar pension. Mexico has the most unique mechanism for recognising acquired rights: workers with contributions to the old system have the right to the benefits they would have been entitled

to under the old system or what has been accrued under the new system, whichever is higher.

Conclusions

Cross-sectional analysis shows that public spending on formal pension plans increases exponentially as populations age. It now exceeds 15 per cent of the GDP in some industrialised countries and will do so in many more countries as the demographic transition proceeds. With such large sums involved, how this money is generated and spent can affect the entire economy and, therefore, the size of the GDP itself. Hence, two overarching criteria should be used to shape and evaluate these programmes: they should protect the old and they should promote economic growth.

The major options for reform are essentially three-fold: the first is to reform the pay-as-you-go system. The second is a rapid and nearly complete shift to a mandatory funded system. The third is a gradual shift to a multi-pillar scheme, in which there is a mix of pay-as-you-go and funded pensions; the exact mix will depend on a country's initial conditions and constraints in financing the transition. The usual strategy is to effect continuous marginal changes to an existing benefit structure – what might be termed the 'parametric' approach to reform. Instances of parametric reforms are: increasing the normal retirement age, tightening conditions for early retirement and disability pensions, lowering benefit rates, raising payroll taxes, enhancing administrative efficiency or strengthening social security institutions. All these aim at preventing the financial collapse of traditional unfunded pension systems. This approach, however, is unlikely to yield positive results, because it is so unattractive to the political class. A possibly more promising strategy for pay-as-you-go reform employs a 'paradigm shift', which means introducing major reforms which substantively change the system of pension provisions, e.g. from defined-benefit to defined-contribution or from pay-as-you-go to full funding.

A shift to a fully funded system brings with it much-needed savings and capital market effects. It, however, also brings with it several major problems. The first is the repayment of, or making explicit, the public debt implicit in the commitment not just to current retirees but also to workers who have acquired rights under the pay-as-you-go regime. The second is the need for making a country's financial infrastructure, regulatory capacity and political economy equal to the tasks demanded by a funded scheme. The third is the need for addressing the risks in financial market fluctuation adequately and explicitly, while not overly restricting the pension savings from flowing to their best economic uses.

The World Bank and Pension Reforms

At the end of the 20th century, the world of pension reform has changed dramatically. While 10 years ago, a move towards funded pension schemes was considered an adventure taking place in a few countries of the world only, today such an approach is being discussed in many developed and developing countries. And quite a few have started the reform preparation or implementation. This change reflects the reaction to the unsuccessful reforms of unfunded schemes, emerging pitfalls with centralised funded schemes, and the prospect that a move towards decentralised funded schemes contributes to economic growth.

While the reforms en route signal the feasibility of a comprehensive pension reform approach which gives funded retirement provisions an important place, the efforts required to make it a success and to keep the risks limited are sometimes underestimated. In view of the risks each country faces, making the move towards partially or fully funded pension scheme a success is imperative. While the recipe for this success is not fully known, the suggested ingredients are: flexibility, ownership and credibility, sound reform criteria, knowledge transfer, and capacity building. Discarding these ingredients while wanting to keep up with the neighbouring countries – a dangerous policy band-wagon effect – may be expensive in social, economic and political terms.

Source: World Bank Approach to Pension Reform, Holzmann, 1999.

Costs of Transition to a Funded System

Redirecting pension contributions from the current pay-as-you-go system to funded individual accounts also reduces revenues in the short and medium term without reducing benefits. This problem has been at the forefront of the authorities' deliberations. The transitional deficit can be financed through

either fiscal adjustment – a combination of higher taxes and reduced government spending – or increased debt. The first option – which, in effect, requires the prefunding of the current generation's pensions – would be expected to lead to higher savings in the long run. However, this option is likely to be met with political resistance from the transitional generation, that is being forced to 'pay twice' for pensions. Financing at least a portion of the deficit via borrowing would help share the cost of transition between the present and the future generations.

The shift from a pay-as-you-go system to a fully funded system would come about at a significant cost for the transition generations. While some portion of payroll tax revenue would be shifted to the fully funded pillar, the current working generation would still be required both to support the current retirees and pre-fund a large part of its own retirement. In addition, workers who contributed to the old system will have less in their individual accounts than those who work the same number of years, but throughout under the new system. To maintain equity, Chile, Colombia and Peru issued 'recognition bonds' to workers in recognition of what they are owed on the basis of their accrued rights under the old system, which becomes payable at retirement age. This postpones the day when cash will be needed, since the recognition bond cannot be encashed until the worker retires. Besides, it gives the worker greater certainty that the pension debt will eventually be repaid.

One of the important factors that influence the transition to a funded system is the size of the implicit pension debt (IPD), i.e.the present value of the pension promises that are owed to current pensioners and to workers according to their years of participation in the old system. The IPD is inherent in the pay-as-you-go system, where workers expect to get a specified pension in return for their contributions, but assets are not accumulated to cover this liability. The IPD is especially large in countries with high coverage, generous benefits and older populations (see Annexure D). Most developing countries have small IPDs because

of their low coverage rates, and are, therefore, able to change their systems to partial funding before the debt becomes unmanageable.

The difficulties of both the pay-as-you-go approach and the fully-funded approach may naturally lead to the adoption of the multi-pillar system, in which part of the mandatory system is largely pay-as-you-go while a distinct and separate component is funded. A multi-pillar approach has several distinct advantages: it allows a distinction to be made between poverty reduction and income replacement goals; it builds risk diversification into a country's measures for retirement income support; and it also minimises the burden of fiscal transition while preserving much of the economic gains of the fully-funded approach.

A multi-pillar system demands, however, that both the funded and the pay-as-you-go components be carefully designed. For many countries, therefore, the first step towards a multi-pillar system is a well-functioning pay-as-you-go system that should facilitate movement, at some later date, to one that contains a funded component.

Annexure A

Projections of Population Aged 60 and More

Country or area	Number (thousands)		Percentage of total population	
	1999	**2050**	**1999**	**2050**
World	593,111	1,969,809	10	22
More developed regions	228,977	375,516	19	33
Less developed regions	364,133	1,594,293	8	21
Least developed countries	30,580	180,983	5	12

Key:

- More developed regions comprise all regions of Europe and Northern America, Australia/New Zealand and Japan.
- Less developed regions comprise all regions of Africa, Asia (excluding Japan) and Latin America and the Caribbean and the regions Melanesia, Micronesia and Polynesia.
- Least developed countries comprise 48 countries of which 33 are in Africa, 9 are in Asia, 1 is in Latin America and 4 are in Oceania. They are included in the less developed regions.

(United Nations, UNDP, Population Ageing 1999)

Source: Charlton and McKinnon, 'Pensions in Development' (2001).

Annexure B

Actuarial Valuation of Pension Plans

The adequacy of any fund accumulated for the purpose of honouring the employer’s commitments under a pension plan will depend upon the accuracy with which is predicted the future behaviour of those factors that determine the amount of benefits to be paid. These factors include mortality, interest, turnover, disability, rate of retirement, and changes in rate of compensation.

The dominant purpose of the periodic valuations of the liabilities of a pension plan is to apprise the employer of the rate at which the obligations under the plan are accruing so that appropriate financial arrangements could be made to meet such obligations.

Each year, actuaries must calculate how much the employers should contribute to the plan trust in order to ensure that the plan has accumulated enough money at each employee’s retirement date to pay the promised benefits. It is the function of the actuary to prepare cost projections and to recommend a schedule of contributions that will meet the estimated costs of the plan; it is the responsibility of the employer to see that the necessary funds are set aside. The actuary operates in an advisory capacity and cannot compel the employer to conform to any particular funding policy. The actuary may estimate the costs of a pension plan with the greatest care and recommend a funding pattern that is wholly adequate and appropriate to the circumstances, but if the employer does not maintain the schedule of contributions recommended by the actuary, the plan will be under-funded and security of anticipated benefits will, to that extent, be jeopardised.

There are no universally accepted standards of actuarial soundness. There is not even an agreement as to what is meant by the term ‘actuarial soundness.’ Actuaries of equal skill,

experience, and judgement can examine the same set of plan specifications and employee data and come up with widely different estimates as to the probable cost of the plan. Some of the largest employers, with pension plans covering tens of thousands of employees and accounting for hundreds of millions of dollars in assets, have their own actuarial staffs. Such a staff may perform all the actuarial functions associated with a pension plan or may operate within limited areas, with one or more functions being contracted out to independent consulting actuaries. Even when the employer's actuarial staff performs all the necessary functions, outside actuaries may be brought in from time to time to evaluate the assumptions of the 'captive' actuary or actuaries, to conduct special studies, or to provide a fresh point of view.

Annexure C

Comparison of Defined-Contribution and Defined-Benefit Plans

	Defined Contribution (DC)	Defined Benefit (DB)
Retirement Income Security	Eliminates risk of losses in DB funds when individuals have many employers, which arise especially when accrued benefits are not indexed or vesting is slow (DC is better suited to economies with high labour mobility). Even for an individual with a single employer, tying the pension effectively to average earnings over the career may be less risky than final salary. Diversifies employment and investment risk more effectively. Actuarial fairness is more readily ensured in DC funds. Allows individuals to choose their own preferred pattern of saving and accumulation. Pensions are vulnerable to the size of early contributions, which may be omitted or dissipated on transfer between employers. Risk of inadequate contributions if they are not set at a high mandatory level. Replacement rate is dependent on the returns obtainable in the market, and hence is vulnerable to protracted low returns, to capital market volatility just prior to retirement to quality of investment management and to changes in annuity rates.	Offers forms of retirement income insurance and risk sharing protecting the worker against risks to capital markets, by fixing the replacement rate; (i) risk sharing between employee and firm, which is efficient if real wage risk is diversifiable to employers and not to employees; and (ii) transfer of risk of asset price volatility from old to young workers. In some countries, DB funds also benefit from state insurance. Provision in the form of contractual annuities protects worker from longevity risk. If integrated with social security, may provide protection against social security cuts. Disablement cover and survivors' benefits usually included. Vulnerable to underfunding of benefits in case of bankruptcy of sponsor. Even if well funded, provision of DB guarantee requires continuing existence and financial viability of sponsor. A final-salary base makes pension sensitive to salary levels late in the career; vulnerable to strategic manipulation and internal transfers e.g. to managers (an average-salary scheme avoids this problem). Risk of losses on transfers between firms particularly when

	Defined Contribution (DC)	Defined Benefit (DB)
	Adverse selection in annuities applies strongly to personal DC funds. They may even offer lump-sum as the only option, increasing longevity risk. Risk-sharing of the type present in DB funds is not feasible. Informed individual choice is dependent on understanding of complex financial information.	accrued benefits are not indexed or vesting is slow. (Better suited to economies with low labour mobility). Issue of disposition of surplus arises, which is not present for DC funds (where returns as well as risks accrue to workers). Surplus striping or even benefit cuts may occur in take-overs if regulation is weak.
Financing Issues	For Occupational funds, DC is less costly and risky to the sponsor as the 'insurance' element of DB need not be provided. Administrative and regulatory costs are often lower than for DB. Agency costs affecting the efficiency of investment for occupational DC plans, as the employer has less incentive to maximise return (asset managers may be chosen for relationship reasons, or portfolio risk limited to avoid lawsuits from employees). Risk-averse individuals may impose a cautious investment policy, contrary to their long-term interests.	For occupational DB funds, the employer will seek to maximise returns on assets so as to reduce his costs. Administrative costs are typically higher than for DC by a factor of 2-3. Subjects the sponsor to much higher costs of regulation than DC funds. Strict minimum funding rules (by increasing the risk of shortfall) may increase the cost of provision by limiting holdings of volatile assets. For the state, insurance of DB obligations may lead to a danger of large and unexpected losses, if risk and moral hazard are poorly controlled.
Effects on Labour Markets	Labour market flexibility is increased by the relatively higher transferability of DC pensions. As DC funds are actuarially fair, contributions are likely to be seen as saving, thus minimising distortion to incentives. DC funds usually vest immediately, thus further	DB funds reduce costs of labour turnover for employers, (such costs are linked in particular to the firm-specific human capital that older workers may develop). May encourage employers to invest in training their workforces. Because pensions typically depend on earnings at

	Defined Contribution (DC)	Defined Benefit (DB)
	enhancing labour market flexibility.	retirement, provides incentives to work hard throughout career. DB funds are more likely to generate early retirement incentives, thus engendering losses of productive workers to the economy. DB funds are likely to reduce labour mobility, as transfers typically lead to losses of accrued rights (exceptions are industry-wide funds, or funds with 'transfer circuits').
Effects on Capital Markets	DC funds may be more cautiously invested given the direct risk to the individual member, particularly when members are in control of investment decisions (for occupational DC funds, firms may also invest cautiously owing to fear of litigation in case of price falls). The demand for bonds may be higher and equities lower than would otherwise be the case.	Because of risk sharing, investment of DB funds may be less risk-averse; and because of costs to firm, employers are more likely to press asset managers to perform well. On the other hand, investment strategies of defined-benefit funds may be distorted by the minimum funding rules (if there are considerable costs to shortfalls, bond investment or hedging may be encouraged), tax exemption and accounting practices.
Country Examples	Denmark, Australia	Netherlands (externally funded), Germany (internally funded).

Source: E. Philip Davis – EBRD Working Paper No. 31 (1998).

Annexure D

Implicit Pension Debt During the Early 1990s

Country	Implicit pension debt as a percentage of gross annual product	Percentage of population over 60
Senegal	27	4.3
Mali	26	4.9
Burkina Faso	15	5.0
Venezuela	30	5.6
Peru	37	5.8
Cameroon	44	5.8
Congo	30	6.1
Brazil	187	6.7
Turkey	72	7.1
Albania	67	8.1
China	63	8.9
Uruguay	214	16.4
Croatia	350	17.8
Ukraine	141	18.7
Hungary	213	19.3

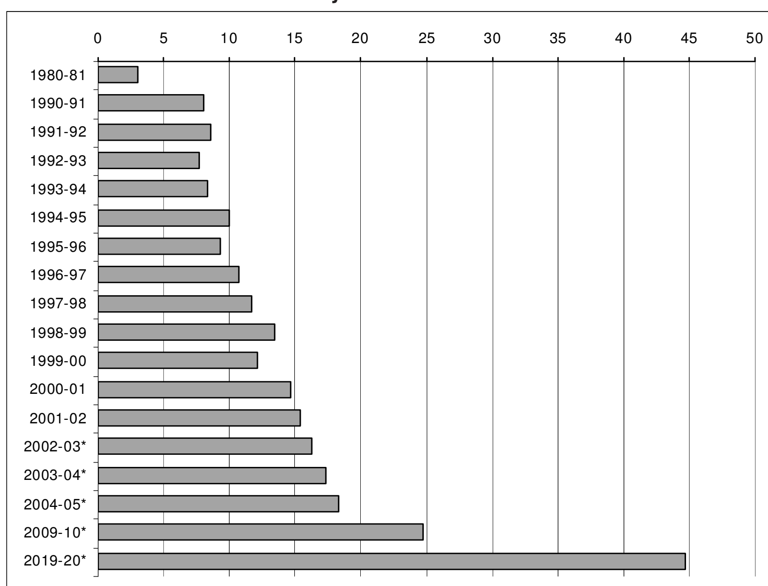
Note: Assuming a 4 per cent discount rate.
Source: Kane and Palacios (1996).

Annexure E

Pension Expenditure on Indian Railways (in Rs crore)

Year	Gross traffic receipts (GTR)	Pension payments
1980-81	2620	80
1990-91	12100	970
1991-92	13730	1180
1992-93	15690	1200
1993-94	17950	1500
1994-95	20100	2010
1995-96	22420	2090
1996-97	24320	2620
1997-98	28660	3370
1998-99	30900	4140
1999-00	33130	4020
2000-01	35430	5170
2001-02	37720	5800
2002-03*	41830	6820
2003-04*	46380	8030
2004-05*	51430	9450
2009-10*	86240	21290
2019-20*	242430	108220

Pension Payments as a % of GTR



* *Estimates by Thomas and Srinivas (2002).*

Annexure F

State-wise Pension Expenditure in India (in Rs crore)

	1997-98	2001-02
Andhra Pradesh	11,390	22,950
Arunachal Pradesh	180	450
Assam	2,480	5,870
Bihar	7,770	17,810
Goa	300	800
Gujarat	7,620	15,180
Haryana	2,580	6,560
Himachal Pradesh	1,650	4,700
Jammu & Kashmir	1,970	5,700
Karnataka	8,090	17,540
Kerala	9,130	18,030
Madhya Pradesh	7,530	11,660
Maharashtra	9,190	22,340
Manipur	540	1,680
Meghalaya	220	690
Mizoram	160	480
Nagaland	390	1,020
Orissa	3,170	12,440
Punjab	4,340	10,100
Rajasthan	5,960	17,040
Sikkim	60	210
Tamil Nadu	12,870	30,240
Tripura	580	1,780
Uttar Pradesh	10,540	21,780
West Bengal	7,910	20,340
Total	1,16,610	2,67,380

Source: The Financial Express (October 16, 2002).

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