Singapore versus Chile

SINGAPORE v. CHILE

COMPETING MODELS FOR WELFARE REFORM

THE ADAM SMITH PROJECT ON

Welfare State Reform

Singapore versus Chile

Competing models for welfare reform

Eamonn Butler, Mukul Asher and Karl Borden

Parsimony, and not industry, is the immediate cause of the increase of capital. Industry, indeed, provides the subject which parsimony accumulates. But whatever industry might acquire, if parsimony did not save and store up, the capital would never be the greater.... It puts into motion an additional quantity of industry, which gives an additional value to the annual produce.

Adam Smith, The Wealth of Nations, Book II, Chapter III

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About the Authors

Dr Eamonn Butler is director of the Adam Smith Institute. He has written, contributed to, or edited a number of books, reports, and articles on the reform of welfare policy.

Mukul G Asher is an Associate Professor of Economics and Public Policy at the National University of Singapore, specializing in public finances of developing countries, social security arrangements in Asia and issues in economic cooperation among nations. He has published six books and numerous national and international journal articles and has contributed chapters to several books. He has acted as a consultant to the World Bank, Asian Development Bank, International Labour Organization, UN-ESCAP, Oxford Analytica, Institute of Southeast Asian Studies (Singapore), Malaysian Institute of Economic Research and Employee Provident Fund of Malaysia. He was a member of the ASEAN-India Expert Group of Trade and Investment Relations set up in August 1994 and has served as an advisor on India to Singapore's Trade Development Board.

Dr Karl Borden is a professor of financial economics at the University of Nebraska. He is currently editor of the Society for Case Research Annual Advances journal. In 1993 he was awarded the National Small Business Forum Outstanding Research Paper award. The author of numerous articles on corporate finance and social security policy, Borden graduated from Colgate University, took a doctoral degree from the University of Massachusetts, and did postdoctoral work at the University of Cincinnati.

What model for UK welfare reform?
By Dr Eamonn Butler

The UK debate on pensions and benefits

Reform of the welfare state has risen to the top of the serious policy agenda in the United Kingdom. Quite suddenly, it seems, the general public has come to accept that our state pensions and benefits system will face severe financial strains in the not-too-distant future, and that only with deep and serious reform now can it possibly survive them.

Actuaries, of course, have been sounding their dire warnings for many years. Changes in life expectancy, earlier retirement, rising costs of medical and long-term care, all were building up the pressure on an already stretched system. In response, the UK government (like governments before it) began to tighten the eligibility rules for many state benefits and changed the basis on which the state pension is inflation-proofed.

While this early action may have postponed the crisis for a few years, it certainly caused many people to reassess what the state pension system was actually likely to provide for future generations in their retirement. Professional bodies such as the pension funds sought to make it clear to people that their expectations of living comfortably on the income provided by the state retirement pension were wildly exaggerated. They would certainly need another source of income for that.

Not just the pension professionals, but others in the world of public policy saw the dangers. Few, however, were willing to speak out. Perhaps the Conservatives felt obliged to defend their good management of the system; perhaps Labour could not admit that its grand design for postwar living might be cracked at its foundations.

A brave exception to the rule was Frank Field MP, who worked hard to spread an understanding that the value of the state pension would diminish over future years, and proposed that it should be supplemented by a new compulsory saving mechanism.

Meanwhile, other developed nations were facing crises in their own state welfare systems. In several countries in Western Europe, the demographic trends were even more alarming than ours, the benefits traditionally more generous, and the impending crisis larger because their politicians had been slower to curb expenditure or end the recession that was eating into revenues.

Pushing on the debate

The Labour Party was acutely aware that its supporters expected a great deal from the welfare state. While the Conservatives might well survive the erosion of a system they had always said was flawed, Labour would be expected to restore the welfare state they had created. Unfortunately, that would be costly indeed. A report from the Rowntree Foundation argued that the welfare state could survive in its present state if only another 5% of gross national product were spent on it; but when that figures was translated into human terms — a doubling of VAT or another 20p on income tax — it was clear that something would have to give.

John Smith, as leader, at least initiated a debate on this problem. Though much was expected from the high-profile "Commission on Social Justice" that reviewed the issue, this panel proved to be better at identifying the difficulties than proposing radical solutions. Disappointed at such lack of progress on a question that could make or break an incoming Labour administration, the new leader, Tony Blair, pointedly directed his welfare spokesman Chris Smith to "think the unthinkable" on the welfare state, and report back.

Perhaps more than anything in recent months and years — more than the actuaries' warnings, the system changes, the financial crises in France and other welfare-state countries — it was the shock that even the Labour Party felt obliged to consider fundamental changes to the welfare state which convinced the general public that reform was now inevitable. Today the debate is not about whether, but how to reform it.

The search for models

A model which has found early favour in Labour ranks is the state-run personal savings system of Singapore. Its broad structure is not so different from the compulsory savings plan advocated by Frank Field, and the very public visits of Tony Blair and Chris Smith to Singapore have stimulated a lot of interest in its mechanics.

Indeed, there is arguably too much interest in the Singapore scheme, to the exclusion of other models around the world that are even better at delivering improved social-insurance benefits within a financially sound system. The case of Chile, for example, must be particularly relevant to the UK because in 1981 it replaced a bankrupt pay-as-you-go state pension system with secure, funded, individual arrangement. Other countries in the region are now copying its clear success.

Rarely is it possible to take an administrative model from some other continent and expect it to work, without amendment, in Britain. If we are to consider other models, the first thing we must do is to understand how they work and the local culture and conditions that allow them to work. We must make a realistic assessment of their virtues and vices, and investigate not just how, but if they would work elsewhere.

It is in this context that the Adam Smith Institute has collected these important think-tank papers on the Singapore and Chilean schemes. They outline the essential features of the two systems, allowing those who are active in the debate on welfare-state reform to draw their own conclusions about the desirability and practicality of each as a model for the United Kingdom.

The Singapore model

General features. The survival of Britain's welfare state depends upon the inflow of taxation from current contributors being large enough to balance the outflow of benefits to current recipients.

In a static world this pay-as-you-go funding principle would be easily sustainable once the appropriate tax and benefit rates had been set. Unfortunately, the world is never static; and the effects of recessions and unemployment, of earlier retirement and greater longevity, of rising expectations and the inflation-outpacing rise in human-service costs, have all conspired to strain the welfare chain-letter to breaking point.

Elderly people in particular feel threatened by this financial strain. Through their reliance on state pensions, healthcare and long-term care, they consume most of the system's benefits, while those of working age (and their employers) contribute most of its income. The money comes straight in and goes straight out again; there is no permanent pot of money which will guarantee that future benefits are paid. It is no wonder that people of a certain age feel worried.

The system in Singapore is quite different. Singapore requires people to save for their own retirement, healthcare, and other lifetime needs. Instead of their money going straight out to finance present beneficiaries, it is invested by the city-state's Central Provident Fund. Nor is the money treated anonymously as it is in the United Kingdom; all members have named accounts, rather like building-society or bank accounts, which they can see growing on their behalf. Although there are many restrictions on the use of these individual savings accounts, they can be bequeathed or shared between family members, and are in other respects very much the property of the individual.

Advantages. Supporters of the Singapore system argue that it has greatly boosted the savings rate in Singapore (the gross rate being nearly 50% of GNP). It has, of course, saved Singapore from the future problems that now beset the rest of the world's mature pay-as-you-go pension and social insurance systems.

It is also of some special interest to the United Kingdom in that it was established by the colonial government back in 1955, and the fact that it has survived forty years with comparatively few problems makes it of broader attractiveness to other countries too.

Another attraction of the Singapore system is that it has evolved quite naturally from a pension-only plan into a much more comprehensive package of social insurance benefits. Today, members of the scheme keep three different accounts: an Ordinary account which can be used towards home purchase, insurance, and higher education, a Medisave account for medical expenses, and a Special account for old age and contingencies.

Disadvantages. On the other hand, the Singapore system has some very serious disadvantages. At 40% of wages, the mandatory contribution rate is high and is a barrier to employment. The tripartite account system and the restrictions put upon the use of accounts forces people to save for a particular mixture of benefits that may not in fact suit their individual or family needs; yet this forced saving into the scheme leaves them with less money for personal saving elsewhere.

Some commentators have supposed that being government-run must contribute to the strength and stability of the Singapore system. But we are unwise to assert the strength of any institution that enjoys a forced universal demand for its products but allows no chink of competition to enter into their supply. If allowed to compete for the same business, UK pension managers could probably run rings round the Singapore Central Provident Fund; the rate of interest which the CPF offers to savers is astonishingly low, and precious little information is divulged about how the funds are actually invested. Such lack of transparency is of course common in monopoly arrangements, particularly government-run ones.

The enormous concentration of money and investment power in a single agency must alarm those who see Singapore as a model for welfare-state reform in other countries. The rule that CPF funds must be invested in government bonds or approved monetary instruments, for example, is not one which UK reformers should wish to copy. Though it might make the transition to a funded system somewhat easier, it would also allow investors to be cheated if governments ran short of cash. It is for precisely this reason that the reformers in Chile decided not to oblige their new pension funds to invest in Chilean government securities.

Of course, it is harder for politicians to abuse such power when savings rest under the scrutiny of named account holders. By contrast a collective pay-as-you-go system almost invites governments to dip into its impersonal funds for their own benefit. But even though 'individuation' might thwart an obvious abuse, any government monopoly system could still allow politicians to cheat savers by offering them low returns while denying them information about how their funds are used and preventing their escape into other savings mechanisms.

The Chilean model

General features. While the Singapore system grew from scratch, the government of Chile in 1981 took the conscious decision to replace its bankrupt pay-as-you-go pension system with a mandatory, privately funded and privately administered set of plans.

Workers were given the option of sticking with the old system or making a contribution of 10% or more of earnings into one of a number of new, private pension funds. These savings are invested by the pension fund which the member chooses, and the money which accrues in the member's account can be used to pay a pension on retirement or benefits to a surviving spouse. Additional contributions from earnings go to finance basic social-insurance protection.

To reflect the fact that many workers who transferred to the new private system had in fact paid into the old state scheme for many years, the government gave them interest-bearing bonds that could be credited to their new accounts and used towards their pension entitlement.

Advantages. Again, supporters of the Chilean model see it as an important contributor to Chile's high savings rate (a little below 30%, and much higher than most Latin-American countries) and growing capital markets. In turn this growth of the markets has provided a pool of capital that has made possible the privatization of the state telephone, power, forestry, and other industries which has deepened economic democracy in Chile.

The fact that Chile has actually succeeded in replacing an old pay-as-you-go system also makes it of interest to the United Kingdom and other countries now facing problems. It is instructive that other countries in the region are now copying Chile's example.

The extensive use of special mechanisms to overcome political barriers is also instructive. Among these one must include the issuing of bonds to reflect people's past contributions into the old system, the fact that existing contributors were not forced to switch, government promises to make up the pensions of switchers whose accounts proved too small to buy a decent retirement income, and the regulations on investment and structure designed to guarantee the security of the new pension funds. In consequence, nearly everyone opted for the new scheme, knowing that they could not be made worse off as a result.

Another advantage of Chile's new system is that it reduces the role of politicians in the administration of the system, and therefore the extent to which they might divert funds from savers and into their own favoured programmes. Although people are obliged to save, the choice of where to save is theirs, and the funds they select are independent of the government. True, the political authorities retain some regulatory control over the investment strategies of the pension funds; but this is clearly intended to increase the funds' security, and does not enable politicians to interfere with investments for their own sectional gain.

The fact that there is a multiplicity of funds (originally 14, now more) means that the Chilean system enjoys a competitive stimulus that is absent from the Singapore model. Accounts are portable, and the threat of members leaving for another fund administrator ensures that all providers keep their performance high and their costs low. The investment performance of the funds, even restricted to the more secure forms of investment as they are, is nearly double the overall rate of Chilean economic growth, and far outpaces the return offered to members of Singapore's state monopoly system.

Application to the UK. In his original paper for the Cato Institute, Karl Borden made some suggestions about how to develop Chilean-style personal pension accounts into countries such as the United States. Like the United Kingdom, the US has a well-developed system of personal and company pension schemes already, making it an intellectually and financially fertile environment in which to plant the seed of the successful Chilean reform principles. Dr Borden's strategy for the United States can be quite easily translated into the UK context, as it has been here.

A future Adam Smith Institute report will review in greater detail how the Chilean approach to pension finance could be built on the foundation of existing PEPs, TESSAs, unit trusts, company and personal pensions, and other widespread financial products in the United Kingdom.

The Chilean scheme provides us an excellent working model for the reform of state pensions. But the fact that it concentrates so heavily on retirement income means there is less evidence about how the approach might deliver the wider range of insurable state benefits. From Singapore we know that delivering insurable benefits along with retirement savings is certainly possible; but we need to interpolate that experience into the Chilean system if Chile is to provide us with a comprehensive model for reform of the welfare state.

There are many ways in which one could build a comprehensive social-insurance system on the lines of Chile's competitive provision approach. The Adam Smith Institute has already floated proposals for combining pensions, savings, and insurance functions within a single personal account in our report The Fortune Account, but undoubtedly there are many other possible ways of structuring a comprehensive service.

Conclusion

It seems, then, that the Singapore and the Chilean models both have something of interest to say to state pensions and welfare reformers in the United Kingdom. The Singapore system is interesting for how it combines the savings and insurance elements of the package, the Chilean system for how it uses the power of competition to overcome the threat of politicization and to maximize the potential returns to savers.

The Chilean system too is more relevant in the way that it deals with the political problems of moving from a collective pay-as-you-go system to an individual and funded system. The UK already has a world-beating expertise in managing pension funds: indeed, the amount invested in UK pension funds is already greater than that of the rest of Europe put together. Given that vast reservoir of knowledge and expertise, there seems no real reason to shy away from using the competitive market to deliver the state basic pension and social-insurance benefits. We are fortunate that we have a working model to show us how to go about precisely that.

The Singapore model
By Mukul G Asher

Outline of the Singapore system

Unlike most countries in the world today, which finance their social security systems on a pay-as-you-go basis, Singapore requires people to save for their own retirement. The institution through which the saving takes place is the Central Provident Fund (CPF), founded in 1955.

While CPF accounts belong to the individual, monthly deposits are paid both by employees and their employers. Currently, the required contribution rate is 40 percent of wages, up to a salary ceiling of S$6,000 (about £2,885) per month (average annual earnings equal S$30,038; about £14,441; at S$2.08 = £1.00).

All compulsory savings, both at the time of deposit and at the time of withdrawal, are tax exempt. The funds are used to finance a wide range of benefits and options including allowing people to purchase homes, invest in stocks and bonds and nonresidential property, pay for health care, purchase life and disability insurance, finance a college education and save for retirement. As a result of this system, about 85 percent of the population live in homes they own — the highest home ownership rate in the world.

The high rates of contribution, along with rising wages, have meant that the CPF system has been an important contributor to Singapore's savings rate — also the highest in the world.

- Depending on definition, CPF saving equals between 16.3 and 30.4 percent of gross national saving.

- Gross national saving, in turn, equals about 48 percent of GDP.

Members maintain three accounts with the Central Provident Fund — Ordinary, Medisave and Special accounts. Among them, the total contribution of 40 percent of income is credited as follows:

- 30 percentage points go to the Ordinary account, which can be used to purchase a home, make certain investments, purchase certain types of insurance and pay higher education expenses.

- 6 percentage points go to the Medisave account for medical expenses.

- 4 percentage points go to the Special account for old age and contingencies.

This use of different accounts for different targeted purposes encourages members to spend money on some goods and services (e.g., housing, health care, etc.) rather than others. In effect, Singapore has targeted certain "merit goods" — goods that are often provided by government in other countries — and devised a system that enables most people to purchase these goods themselves.

Contributions to a Medisave account provide funds for hospital treatment during a person's working life and during retirement. Members can also join the Medishield program, which provides catastrophic insurance coverage for major medical bills.

Origins of the Singapore system

The issue of financing retirement pensions and health care expenses for the elderly has received considerable attention in recent years. In the future, it will receive even more. In 1990, almost half a billion people, slightly more than 9 percent of the world's population, were over 60 years old. By the year 2030, the number will triple to 1.4 billion, and more than half of them will live in Asia. Singapore is expected to experience a surge in the number of elderly and in the proportion of the population who are elderly:
In 1990, 8.5 percent of Singapore's population (about 250,000 people) was above 60 years of age.

- By the year 2030, 29.4 percent of the population is expected to be over 60.

The reasons for the rapid ageing of the Singapore population are a low birth rate and increased life expectancy:
In 1994, Singapore's fertility rate (the number of births per woman of childbearing age) was 1.75, well below the 2. 10 required to replace the population, and an increase appears unlikely.

- In 1990, life expectancy at birth was 71.9 years for males and 76.5 years for females, and this is expected to increase.

Unlike most countries in the world today, which finance their social security systems on a pay-as-you-go basis, Singapore finances its social security system through a publicly managed, mandatory program of private saving.
The vehicle for the saving is the Central Provident Fund (CPF). This study analyzes the impact of the CPF on economic growth and on the provision of so-called merit goods, including retirement pensions, housing and health care.
How the Central Provident Fund works

Singapore's provident fund system, established by the colonial government in 1955, has become the primary vehicle for saving for most Singaporeans. Since its inception, the CPF has expanded to incorporate a wide range of programs and options, including home ownership, investments, health care, insurance and college loans (See Table 1). With about 2.4 million participants, CPF held member accounts totalling $57 billion, or 72 percent of GDP, at the end of 1994 (See Table 2). Because of its size and the inclination of the government to use it for a variety of purposes, the CPF plays a very important role in the economic and social life of Singapore. Its design, structure and management are of crucial importance, since the well-being of most Singaporeans is tied to its performance.

Table 1: Components of the CPF System

Purpose	**Programme**	**Year Introduced**
Home ownership	Approved Housing Scheme	1968
	Approved Residential Property Scheme	1981
Investment	Singapore Bus Services (1978) Ltd Share Scheme	1978
	Approved Investment Scheme	1986[a]
	Approved nonresidential Properties Scheme (ANRPS)	1986
	Share Ownership Top-Up Scheme	1993
Insurance	Home Protection Insurance Scheme	1982
	Dependent's Protection Insurance Scheme	1989
	Medishield Scheme	1984
Others	Company Welfarism Through Employer's Contribution (COWEC) Scheme[b]	1984
	medisave Scheme	1984[c]
	Minimum Sum Scheme	1987
	Topping-up of the Minimum Sum Scheme	1987
	Financing of Tertiary Education in Singapore	1989
	Edusave Scheme	1992
	CPF Top-Up Scheme	1995

Notes: a From October 1, 1993, divided into Basic and Enhanced investment schemes

b Present status of the scheme is unclear.

c From 1993, self-employed persons must contribute to the Medisave scheme.

* Programmes are explained in the text.

General features of the fund.

Most citizens of Singapore are required to be members of the Central Provident Fund. The accounts belong to the individuals; deposits are made by both employee and employer and, currently, deposits are 40 percent of wages up to S$6,000 (about £2,885) per month (the average annual wage, including the employer's contribution, is S$30,038 (about £14,441)). All savings, both at time of deposit and time of withdrawal, are tax exempt.

Members of the CPF get annual account statements. A telephone hotline allows members to check on their accounts' status at any time. Members also can write to the fund at any time for information.

Because a CPF account belongs to the individual, it affords its holder a number of options that are not available under pay-as-you-go social security systems. The accounts are portable, remaining with the employee through job transitions; the entire deposit belongs to the member's estate at death; and account funds may, to a limited degree, be shared with members of the account holder's immediate family.

Table 2: The CPF System: Financial Statistics
(Money amounts in S$ millions)

Excess of Contributions	1982	1984	1986	1988	1990	1992	1994
Over Withdrawals (during period)	2659.8	1874.5	935.5	974.6	3170.7	3609.9	3987.0
Member's Contributions	3901.1	5385.2	4777.8	4985.1	7174.2	9208.2	11279.0
Withdrawals:	1241.3	3510.7	3824.3	4010.5	4003.5	5418.3	7292.0
(percentage of Total)							
· Approved Housing Schemes[a]	64.2	76.7	69.2	69.2	56.4	66.7	48.0
· Under section 15[b]	33.1	21..2	22.9	19.6	25.5	18.7	18.7
· Medical Schemes[c]	n.a.	0.5	2.7	4.2	5.9	5.1	3.8
· Others[d]	2.7	1.6	5.1	7.0	12.1	9.5	30.0
Implicit Interest Rate paid of members[f]	5.4	5.7	5.3	2.9	3.5	3.6	2.5
Inflation Rate:							
· Consumer Price Index	3.9	2.6	(1.4)	1.5	3.4	2.3	3.1
· GDP Inflator	4.2	0.7	(2.5)	5.5	5.9	2.1	3.6
· Real Interest Rate[g]	1.2	5.0	7.8	(2.6)	(2.4)	1.5	(0.6)
Members' Balances (End of Period)	15655.5	22670.4	29341.4	32529.3	40646.4	51526.9	57649.0
Members' Balances (as % of GDP)	46.4	57.3	74.0	67.5	70.9	79.6	72.0
Member (thousands)	1725.3	1852.5	1933.8	2063.4	2195.2	2322.8	2521.8
Contributions (thousands)	927.5	943.0	912.0	963.8	1021.7	1074.0	1138.9
Contributions / Labour Force	74.0	72.3	70.2	69.9	65.4	66.3	67.3
Contributions / members	53.4	50.9	47.2	46.7	46.5	46.2	45.2

Notes: n.a. — not available
p — preliminary
a — Housing schemes include public housing and residential property schemes.
b — Section 15 of the CPF allows withdrawals on any of the following grounds: (i) member having reached the age of 55 years; (ii) leaving Singapore and West Malaysia; (iii) physical incapacity; (iv) unsound mind; (v) death; (vi) Malaysian citizen (leaving Singapore).
c — Medical schemes include Medisave and Medishield.
d — Includes various investment schemes, financing of tertiary education in Singapore, minimum sum scheme and others.
e — Sharp increase in the share of this category in 1993 was due to withdrawals for purchases of divested share of Singapore Telecom.
f — Calculated as interest credited to members' balances (during period) / members' balances (end period).
g — Calculated as the difference between the implicit rate of interest and the GDP deflator.

Sources: Calculated from Republic of Singapore Yearbook of Statistics, various years.

Participation is compulsory for most people. As Table 2 shows, about two-thirds of the total labour force actively participates in the CPF. This represents a decline from about three-quarters of the labour force in the early 1980s. Although exact details about the one-third not covered are unavailable, foreign workers, who constitute about 18 percent of the labour force, generally are not covered.

Also not covered are casual and part-time workers and certain categories of contract workers. The self-employed are covered by the Medisave program (to be discussed later) and can make tax-advantaged, voluntary contributions to the other programs. Pension benefits are provided for certain categories of government personnel (e.g., the president, political office holders, Members of Parliament, certain civilian and military public officers). Beginning April 1, 1995, instead of pension payments being met from current revenue, a separate pension fund has been established.

While most Singapore citizens and permanent residents not covered by the CPF (e.g., most of the self-employed and those with government pensions) will be able to cope financially with retirement, a significant minority of workers will face financial difficulty because their ability to save for retirement has been extremely limited.

The rates of mandatory contributions are high. Singapore has the highest savings rate in the world, and one reason is that the rate of mandatory savings through the CPF is high.

- At the time of its inception in 1955, employees and their employers each contributed 10 percent of the employee's net wages, with a maximum of S$50 per month.

- The rate increased steadily, reaching a high of 50 percent of the net wage (25 percent each from employee and employer) in July 1984.

- In April 1986, in response to a recession, the rate was reduced to 35 percent.

- Since July 1994, it has been 40 percent (20 percent each by the employer and the employee), with a maximum contribution of S$2,400 per month.

The government has announced that 40 percent, which is the highest contributions rate in the world, will be the long-term rate. It applies to those earning more than S$363 per month, with lower rates applicable to those earning less. Since July 1988, lower rates of contribution have also applied to those ages 55 to 60 (20 percent since July 1994), ages 60 to 65 (15 percent) and above age 65 (10 percent). The rates were lowered to reduce the cost of hiring the elderly, thus increasing demand for their services. But even at the lower rates, the mandatory contributions — particularly for those ages 55 to 60 — create disincentives for labour force participation.

The high rates of contribution, along with rising wages, have caused the CPF system to become an important contributor to Singapore's high savings rate:

- Depending on how CPF saving is defined,
 in 1991 its contribution to Singapore's savings ranged from 16.3 to 30.4 percent

of gross national saving (GNS) and equalled 7.8 to 14.6 percent of GDP.

- In 1991, Gross National Saving was 47.9 percent of GDP.

More than two-thirds of GNS is public sector savings.
The share of private, voluntary saving is rather low. Thus, it is public sector policies and demographic factors rather than cultural differences that account for Singapore's uniquely high saving rate.

Deposits and withdrawals are tax free. Contributions by both employers and employees are excluded from taxable income, as is any buildup in the account.
Withdrawals at age 55 and beyond are also tax free. Balanced against these tax advantages is the fact that the interest rate paid on CPF balances is much lower than the return paid in the private capital market.

As discussed below, members can invest some of their funds in private securities, and the return on funds contributed and quickly withdrawn for other investments is much higher than on the long-term accumulations in the CPF. However, because members must have a minimum balance before withdrawing funds for other investments, higher-income groups are better able to withdraw and invest quickly.

The Singapore system proves to be slightly regressive, though there is nothing inherently regressive about a provident fund (forced savings) system.
Governments may choose to subsidize investments in any number of ways, and they can also manipulate other taxes in order to create more progressivity, or overall neutrality.

Components of the system

Members maintain three accounts with the Central Provident Fund Board — Ordinary, Medisave and Special accounts. Among these three, the total contribution of 40 percent of income is credited as follows:

- 30 percentage points go to the Ordinary account, which can be used for housing, approved investments, certain types of insurance, loans for college education expenses and topping up parents' retirement accounts.
6 percentage points go to the Medisave account for hospitalization expenses (8 percentage points for members age 45 and above).
4 percentage points go to the Special account for old age and contingencies.

This use of different accounts for different targeted purposes encourages members to spend money on some goods and services (e.g., housing, health care, etc.) rather than others. Presumably, society as a whole has an interest in encouraging people to obtain these so-called merit goods, which in other developed nations are provided by the government through taxes. The targeting of accounts for specific purposes also may encourage members to regard their

CPF contributions as personal savings rather than as taxes, thus ameliorating the work disincentive effects of the contributions.

Retirement income. When a CPF member reaches age 55, he or she is permitted to withdraw from his or her account all money above a minimum sum of S$40,000 (about £19,231), which the government requires be left in the account. Two-thirds of CPF members reaching age 55 have accounts exceeding the minimum sum, and most withdraw all but the minimum sum and apply that money to other, more lucrative investments.

At least S$4,000 (about £1,923) of the S$40,000 minimum sum must be in cash, and the remaining amount may be a member's pledged property.
However, if a member sells this property, he or she must ensure that the CPF board gets the required minimum amount in cash. A member may dispose of the minimum sum in one of three ways:

(1) Obtain a fixed-term annuity from the CPF board. The board will pay a fixed monthly amount to the member beginning at age 60 and continuing until the account is exhausted.

(2) Obtain an annuity from a private insurance company. The member can purchase a fixed-term annuity or any annuity that pays until death from CPF-approved companies.

(3) Place the funds in banks as fixed deposits. Under this option the bank has instructions from the CPF to release only a certain amount on a regular basis, similar to the first option.

Because the first option provides such a low rate of return on investment, most people choose one of the others.

Medisave accounts. Beginning in 1984, the government of Singapore extended its program of forced savings to require that a certain portion of CPF contributions be put into a Medisave account to fund hospital treatment both during a person's working life and during retirement. Currently, 6 to 8 percent of an employee's salary is placed in a Medisave account, with a monthly maximum contribution of S$360 (about £173), until the balance reaches S$17,000 (about £8,173).
Once that total is reached and maintained, additional contributions are automatically placed in an individual's Ordinary account. At age 55, a minimum balance of S$11,000 (about £5,288) must be left in the account to pay medical bills during retirement. Any excess may be withdrawn. Contributions above that figure are automatically transferred to the Ordinary account.

While the government generally has limited the use of Medisave funds to hospital care, it has been expanding its list of approved expenditures. For example, it now permits members to use Medisave funds for psychiatric care, renal dialysis and chemotherapy. However, members are still prohibited from using Medisave funds for outpatient care, physicians' fees, outpatient renal dialysis or long-term care. If money runs short, family members can pool their Medisave balances to pay a hospital bill, and some government hospitals allow patients to settle their bills from future Medisave deposits.

These savings have stimulated a growing demand for better hospital accommodation and treatment. The Singapore health care system relies in large part on individual self-insurance rather than third-party (private or government) insurance, and its hospital system accommodates people with different spending preferences. Thirteen of the country's 23 hospitals are run by the Ministry of Health. The other hospitals are private. Hospitals run by the government offer four levels of rooms, or "wards," which receive different levels of government subsidies. Class A wards are the nicest rooms, with private or semi-private accommodations, and are meant to compete with the private sector. Patients must pay 100 percent of the cost of these rooms. Class B1 wards receive a 20 percent government subsidy, with the patient paying the balance, and accommodate four people to a room. Class B2 wards have six patients per room and no air-conditioning, but patients pay only 35 percent of the cost. Class C wards have 10 to 20 people in the room and are the least expensive, receiving an 80 percent subsidy from the government.

Over the years, as Medisave accounts have grown, so has the desire for the higher-class accommodations. According to one study, patients opting for Class A accommodations grew from 2 percent in 1982 to 8 percent in 1992, while the number choosing a private hospital, where patients receive better accommodations, grew from 16 percent to 24 percent during the same period.

The Medishield option.

While most Singapore citizens can use their Medisave funds to cover smaller health care expenditures, most accounts are not large enough to cover a catastrophic illness. For example, in 1993, only two-fifths of those reaching age 55 had the required minimum Medisave balance (S$11,000; about £5,288). In response, the government created the Medishield program in 1990 to provide catastrophic event insurance that complements the Medisave program. Medishield is neither need-based nor income-based. Eighty-eight percent of those eligible have opted for it. Annual premiums vary with age, and it is available to members up to age 70. It has a yearly claims limit of S$20,000 (1993) and a lifetime limit of S$70,000. It does not provide coverage for preexisting conditions. In 1990, Medishield covered 7.6 percent of the bill for Class A wards, 16.5 percent for Class B wards, and 21.7 percent of Class C wards for a hypothetical case of a 19-day hospital stay.

The government has established an endowment fund (Medifund) and uses the income to assist those with limited financial resources who need medical care and meet stringent means tests.

Home ownership. To encourage home ownership, the Approved Housing Scheme (AHS) was set up in 1968. It allows members to use their CPF savings to buy housing units built by public sector statutory boards, of which the Housing and Development Board (HDB) is the most important. Members are allowed to withdraw CPF savings for the down payment (usually 20 percent) and monthly mortgage payments for housing loans offered by the HDB. Since 1986, the maximum repayment period has been 25 years and the mortgage interest has been pegged at 0.1 percentage points above the interest rate paid on CPF balances. When CPF savings are used to purchase housing, members must repay their CPF accounts the amount they withdraw — with interest — if they sell the property before reaching age 55.

This programme has been enormously successful. About 85 percent of the people in Singapore own their own homes, the highest rate of home ownership in the world.

The government is now upgrading these housing units, with the homeowners bearing 25 percent of the cost and the government 75 percent. In addition, in 1981 the government began to allow members to use their CPF balances to purchase private residential properties, and in 1986 to purchase nonresidential properties as well. The rules governing these purchases have been progressively liberalized.

Interestingly, CPF balances have not been used to provide loans to government or to statutory bodies to build housing or any other infrastructure. The government has financed all current and capital expenditure consistently from operating revenue, and so has not needed to tap into CPF balances.

Investment options. The Approved Investment Scheme (AIS) was introduced in 1986. It allows members to invest a portion of their balances (initially 40 percent, subsequently raised to 80 percent, but only above a certain minimum balance set by the CPF board) in stocks approved by the CPF board and traded on the Singapore Stock Exchange, in approved unit trusts (mutual funds), in convertible loan stocks and in gold.

On October 1, 1993, the government converted the AIS into the Basic Investment Scheme (BIS) and the Enhanced Investment Scheme (EIS). Under the BIS, members may use up to 80 percent of their CPF balance (this percentage includes savings already withdrawn for housing, education and other investments) in excess of S$35,400, or the balance in the Ordinary account, whichever is lower. Permitted investment instruments are about the same as they were for the AIS scheme.

Under the EIS, a member may use 80 percent of the CPF balance in excess of S$50,000 cash savings in the Ordinary and Special accounts, or the balance in the Ordinary account, whichever is lower. In addition to investments permitted under the BIS, a member may invest in non-trustee shares, loan stocks of approved non-trustee stock companies, approved unit trusts, bank deposits, endowment policies (similar to annuities), fund management accounts and government bonds.

Since January 1, 1995, members have been allowed to buy foreign stocks and bonds. Initially, they could invest only in foreign securities listed locally or on the stock markets of Hong Kong, Malaysia, South Korea, Thailand and Taiwan. Now they may invest in regional markets through approved CPF managers. Approved CPF unit trusts will be permitted to invest in these markets beginning in 1997. Beginning in 1999, investments in the stock markets of Western countries, purchased through approved fund managers or unit trusts, will be permitted.

Investments in foreign assets are currently limited to 20 percent of the market value of a unit trust fund. The percent of foreign investment permitted will be raised to 40 percent in 1997 and 50 percent in 1999.

These moves suggest that the government is prepared to allow individuals to diversify their investments from CPF balances and to position Singapore as a fund management center. By allowing individuals to make more investment decisions, the government also hopes to reduce the political risks of having government manage all of the CPF accumulated balances. Persistently low returns that undermine the real value of people's CPF savings could have adverse political consequences for the ruling party.

As of December 1993, some 308,261 members (12.6 percent of the total members) had directed the investment of more than $7 billion of their CPF savings.
In 1994 only about one-fifth of the 339,922 people who invested their CPF funds in shares (and other permitted investments) made profits — totalling $236 million.
Of those who lost money on their outside investments, three-quarters sustained very small losses.

Another investment option is the Share-Ownership Top-Up Scheme (SOTUS). Under it, government provides grants to CPF members so they can purchase shares of enterprises the state is divesting. Shares bought through SOTUS apparently do not confer voting power on the individual shareholders. Thus, the government subsidizes the purchase of such shares without losing control over the divested enterprises.

Insurance options. Three types of insurance programs are a part of the CPF system. First, the Home Protection Insurance Scheme (HPIS) provides required mortgage payment insurance
for members purchasing public housing from CPF funds. Second, the Dependents' Protection Insurance Scheme (DPIS) provides optional term insurance against death or permanent incapacity before age 55. Although the DPIS is optional, about 80 percent of the eligible members have opted for it. The annual premium in 1993 ranged from S$30 to S$190 (about £14 to £91), depending on age. The scheme pays a S$30,000 (about £14,423) benefit, roughly the same as the average annual wage. The third insurance provider is Medishield, the catastrophic coverage discussed above.

College education expenses. Members may borrow from their Ordinary account to pay expenses for attending or sending a family member to college in Singapore. The amount has to be repaid, however.

Top-Up. Under the CPF Top-Up Scheme announced in fiscal year 1995, the government provides a grant of $200 (about £96) to each CPF member.

Investment performance of the CPF board

A distinction needs to be made between members' funds left in the CPF and the insurance funds
, which are managed by institutional fund managers and invested in fixed interest-bearing deposits, negotiable certificates of deposit, equities and bonds. Although the insurance funds are of relatively minor importance, in 1993 the implicit rate of return
on the Medishield fund was 6.7 percent — considerably higher than the 2.5 percent rate of return the CPF pays on members' funds.

According to statutory requirements, CPF funds must be invested in government bonds and in advanced deposits with the Monetary Authority of Singapore (MAS), which eventually converts the monies into bonds. In 1993, S$44.6 billion (85.3 percent of the total balances) was invested in government bonds and S$7.7 billion (14.8 percent of the total) in advanced deposits with the MAS.
Given that the government enjoys budget surpluses, and that amounts borrowed are not used to finance infrastructure, how and where are the CPF balances invested? They are invested by the government through the Singapore Government Investment Corporation and other channels, and most are believed to be invested abroad. However, no information is available on either the investment portfolio or the returns obtained.

CPF members' interest is calculated as an average of the 12-month deposit and monthly savings rates of four major local banks, subject to a minimum rate of 2.5 percent. The rationale for payment of short-term interest rates on long-term funds is not clear. As Table 2 shows, the real rate of return (the interest rate minus the inflation rate) has been slightly positive or negative since 1986. This contrasts sharply with the return on Medishield funds noted above. To the extent returns on CPF balances invested by the government are higher than what is paid to the members, the difference is an implicit tax on members, although this may be offset by tax subsidies. The implicit tax is likely to be regressive, as those with low balances have a greater proportion of their (forced savings) assets with the CPF.

Assessing the CPF

Since Singapore's fertility rate is below the replacement rate, its population will eventually peak and then decline, as those of the U.S. and many other industrialized countries already have begun to do. Fortunately, Singapore never attempted to maintain a constant replacement rate that required an ever-increasing payroll tax. Rather, Singapore's CPF has provided a solid and sustainable base for financing a competitive and affordable social security system.

Advantages. Among the most important advantages of the plan are:

- The plan firmly establishes that individuals and families are responsible for providing for their own social security benefits.

- Forced savings under the CPF system helps to develop the savings habit in the population as a whole.

- The pool of savings the plan generates can help stimulate the city-state's economic growth by providing a long-term, predictable and large flow of funds for investment; higher growth rates, in turn, lead to higher income levels which produce more economic security both before and during retirement.

- Defined-contribution plans, such as Singapore's, are by nature fully funded and do not generate the distortions and welfare losses associated with systems that pay benefits to one generation by imposing taxes on another.

Qualifications. Despite the attractions of the overall system, there are some important qualifications.

- Without government subsidies, a system such as Singapore's cannot provide social security immediately, since it takes a long time for an individual to reach an adequate level of savings. The transition to a satisfactory result can take decades.

The success of the plan depends on accumulated savings balances. In order for individuals to share in future economic growth, they need to be able to invest in stocks. Yet successful investment requires competent and sophisticated investment strategies, which nevertheless give high priority to fiduciary responsibilities.

Some the benefits of forced savings may be offset by a reduction in other savings by individuals.

- Defined-contribution plans can be adversely affected by inflation and longevity. Unanticipated inflation can affect the real value of accumulated balances. Since contribution rates are usually based on average life expectancy, individuals who live longer may have inadequate resources for their final years.

- As with any other retirement system, the CPF system works best if economic decision-making is insulated from interest-group politics.

Lessons for other countries. Singapore's experience shows the value of emphasizing saving and individual responsibility to finance one's old age.

Thus, the first lesson Singapore teaches is that each nation's social security system needs to be consistent with its social-political environment and its need to compete economically. While a too-generous system can impinge upon international competitiveness, a too-parsimonious system can create anticompetitive social tensions.

Second, each nation must keep its social security administrative and compliance costs as low as possible. In 1990, operating cost as a percentage of annual contributions was only 0.53 percent in Singapore as compared to 1.99 percent for Malaysia and 15.4 percent for Chile. Its city-state status and high contribution rates give Singapore an advantage in this regard.

A contributory pension system, backed up by policies that place greater responsibility on the individual for financing old age, can create new opportunities for self-discipline in saving.
This approach can help to increase investment in human capital and in physical assets such as housing. It also can increase the individual's share in financing such services as health care.

Countries that practice pay-as-you-go policies — including the United Kingdom — would do well to incorporate features of Singapore's funded and individualized savings mechanism into their own social security systems.

How Chile broke the pensions chain letter
by Karl Bordern

A case study in privatization

In 1924 Chile became the first country in the Western Hemisphere to initiate a government-sponsored pension scheme. In 1981 the Chilean government became the first in the world to replace its public system with a mandatory, privately funded, privately administered plan.

It is worth examining in detail key elements of the Chilean plan for several reasons. First, it is the only experience available from which to learn about the practicality of moving from a public to a private pension system. Second, a growing number of the proposals for state pensions reform in developed countries such as the United States and the United Kingdom, now make reference to Chile as a useful model. And third, those references are almost universally incomplete in their understanding of what Chile did and of the consequences for the Chilean pension system and economy.

Failure of the old system

It is not necessary to detail here the elements and problems of the old Chilean pay-as-you-go system that was replaced in 1981. It suffered from many of the same conceptual flaws as our own system, as well as several others flaws that we have avoided. It may suffice to know that "by the late 1970s, [Chilean] social security expenditures began to outstrip social security revenues. This was primarily due to the gradual ageing of the Chilean population, which substantially reduced the ratio of social security contributors to beneficiaries." Depending on which figures you believe and whether you are optimistic or pessimistic, the United States will reach that stage somewhere between 2005 and 2012. Americans have already seen that the "trust funds" that are supposed to take up the shortfall thereafter are an accounting chimera. Although the United Kingdom has taken early and radical steps to stave off its own crisis, deep problems are nevertheless likely to set in between 2020 and 2040.

Features of the new system

The new Chilean system, which went into effect on May 1, 1981, is a true "defined contribution" pension plan with mandatory contributions of 10 percent of earnings for programme participants. The pension available from the system is simply that which is actuarially computed from the accumulated contributions.

When the new system began, participants in the old system were given the option of switching to the new. After 1982 all new employees were required to join the new system. As of 1992 approximately 90 to 95 percent of all persons under the old system had shifted.

Contributions to the system are paid entirely by the employee; there is no employer payroll tax. At the initiation of the system, however, all employers were required to increase all employees' wages by 18 percent, which approximated the increased cost of the new system to the worker but was less than the reduced cost to the employer.

Pension funds are invested in security portfolios administered by private organizations known as adminstradoras de fondos de pensiones (administrators of pension funds, or AFPs). Twenty-one AFPs, which compete with each other on the basis of investment returns and service, are closely regulated; they must comply with government-mandated financial and investment requirements.

Each worker chooses the AFP in which he or she wants to participate and may transfer fund balances at his or her own discretion up to four times per year.

Like any other mutual fund, an AFP invests fund balances in a portfolio of securities and charges the portfolio an administrative fee for its services. Fees are a combination of a flat monthly percentage plus a percentage of earnings, and the AFP fee charges are well-publicized so that individual workers may consider the charges in their choice of funds. Fees average 1 percent of total wages, down from more than 2 percent since the system was started.

Several of the funds, in fact, are owned and operated by U.S. investment firms. Provida, with 25 percent of the system's assets and the largest AFP, is 42 percent owned by New York-based Bankers Trust (acquired as part of a $45 million debt-for-equity swap in 1986), and Santa Maria, the second largest AFP, is 51 percent owned by Aetna Life & Casualty of Hartford, Connecticut.

AFP asset allocation, however, is strictly regulated by the government. Portfolios must consist of no less than 50 percent investment in government obligations and "agency" issues of other government-guaranteed securities, leaving no more than 50 percent of the portfolio that may be invested in private-sector securities. Common stocks may make up a maximum of 30 percent of the portfolio; no more than 7 percent of the portfolio may be invested in any one company, and the portfolio can have no more than 7 percent of the capital stock outstanding of any one company. Finally, only stocks on a government-approved list may be purchased. No foreign securities have made the list.

The entire system provides for automatic market indexation by translating contributions into investment units. Investment unit value is calculated much like mutual fund net asset value: the total current value (in pesos) of the total funds of the AFP is divided by the total number of investment units of all members at a given point in time.

Benefits. Standard retirement ages are 65 for men and 60 for women. Participants may, however, retire earlier if the pensions payable are at least 50 percent of their average earnings over the previous 10 years and at least 100 percent of the legal minimum monthly wage. Three alternative methods for determining the pension value are available at the participant's discretion:

- The accumulated contributions may be used to purchase a life annuity from a private insurance company. Annuities must be government approved and must include survivor benefits for dependents.

- The retired person may elect to receive a pension paid directly from the AFP. It is calculated using the life expectancy of the family group applied to the balance remaining in the account, which continues to earn income based on the AFP's performance.
- A partial withdrawal may be used to purchase a private annuity with the remainder paid out directly from the AFP.

Disability cases have a two-year contribution requirement. The minimum pension is set at 85 percent of the government-mandated monthly minimum wage but does not apply to workers in the "informal" labour market who have never contributed to a plan.

Disability and survivor benefits are not paid from the 10 percent contribution to the AFP. An additional required contribution (which varies by AFP and averages about 1.5 percent) is collected by the AFPs and paid to private insurance companies to purchase private insurance coverage for the group of workers contributing to that AFP.

Transition arrangements

Perhaps the most innovative feature of the new system was the means by which the Chilean government sought to provide for transition to the new system. The government issues bonos de reconocimiento (recognition bonds), which effectively recognize the value of the obligation incurred by the government (the taxpayers) to those who have paid in to the old system.

Bonos are available to any worker who had at least 12 months of contributions to, or coverage under the old system in the 60 months preceding the start of, the new system. The calculation of the bonos due to an individual system participant is technically complex but provides the financial mechanism for the transition to the new system. Bonos are essentially government bonds that pay 4 percent annual interest and supplement the accumulated contribution value of the AFPs at the time of retirement.

Interest on the bonds is paid out of the government's general revenue fund and does not impose a burden on the new pension system. A minimum retirement pension is payable to individuals with at least 20 years of contributions to the old and new systems combined.

Assessing the new system

The Chilean plan is not true privatization. In many ways, in fact, it merely rearranges the accounting system to remove the retirement liability from the government's books; it leaves with the nation's taxpayers the ultimate responsibility for the provision of a minimum pension. Nevertheless, it is by far the most radical move toward reform that any nation has taken yet, and it serves to reduce some of the anxiety of those who have little faith in private markets to regulate human behaviour.

If we are to draw lessons from Chile, we must be realistic in assessing its achievements. Outcomes that have been attributed to the new system include a lower overall cost of labour, higher net wages, increased national savings, greater retirement system equitability, and a large infusion of capital into domestic financial markets. A few simple facts paint the real picture:

1. It may seem irrational that both the cost of labour and net wages could improve under the new system, but that in fact seems to be the case. Increasing workers' pay by 18 percent, eliminating the old worker social security tax of 8 percent, and subsequently requiring a 17 percent (approximate) contribution to social insurance programs result in a net wage increase of 6.46 percent — [(1.00 - 0.08) / (1.18 * (1 - 0.17)) (1.00 - 0.08)] = 6.46. But eliminating the 29 percent social security payroll tax for employers and substituting an 18 percent wage increase results in an approximate 4.86 percent reduction in the cost of labour.
The shared savings for employer and employee can be explained by the large reduction in the costs of the inefficient government administration of the old system.

2. Admirers of the new system often claim large increases in the Chilean national savings rate. "The buildup of funds in the workers' retirement accounts has produced a 29 percent savings rate ... Instead of resenting the rich, Chile's workers themselves are becoming rich."
Such claims, however, are probably exaggerated and may be misleading. Marco Santamaria, an economist at the Federal Reserve Bank of New York who studied the plan, points out that the effect on both private and public savings must be taken into account. "Investment in an economy must be financed by the sum of national and foreign saving ... The effect of the new private pension system on Chilean public savings can be expected to be negative ... [as] the elimination of [pension] taxes ... was not matched by an immediate reduction in [pension] expenditures, which thereby reduced the government's ability to save."
His conclusion is that the net effect of changes in private and public savings is probably zero. "Thus, although there seems to have been a shift in the type of saving from public to private, there is little evidence to support the claim that, to date, there has been an increase in overall saving."

3. Also common to admirers of the system is the observation that rates of return on AFP portfolios have far exceeded what would have been achieved under the old system, generating substantial fund balances and promising generous pensions to program participants. In a decade in which the Chilean economy averaged 7 percent real annual growth, the average AFP achieved a 13.0 percent real annualized rate of return on investments.

Such rates of return, however, are unlikely to continue, for several reasons. First, as long as fund assets are required to be invested within the Chilean economy, it is not reasonable to assume that long-term rates of growth will exceed those of the Chilean economy as a whole. Throughout the 1980s, Chile's economy grew at a rate of 6 to 7 percent per year at the same time that AFP portfolios were realizing 13 percent rates of return. Those relative rates of return are obviously not sustainable.

Second, the average AFP portfolio at the end of 1990 consisted of 44.1 percent government issues (treasury or central bank securities), 17.4 percent bank time deposits, 16.1 percent mortgage bonds, 11.3 percent common stocks, and 11.1 percent private-sector bonds and debentures. Almost two-thirds (61.5 percent) of the portfolio is invested in government securities or government-guaranteed bank time deposits, the implications of which should not be ignored.
Low-risk government securities provide stable returns but cannot outperform equity markets in the long run. The high rates of return that AFPs have achieved to date result from normal variances in fund performance over time. More realistic long-term rates of return for such a low-risk portfolio will probably return to the 2 to 4 percent (real) range.

Lessons from Chile

Some conclusions can be drawn from the Chilean experiment. First, we should recognize that the Chilean plan is not true privatization. The government is still responsible for the provision of a minimum pension to all participants, and the government is maintaining a heavy hand in the capital allocation process. If portfolio growth rates slow down, Chilean taxpayers will finally be responsible for the guarantee. The plan ignores the basic financial principle that systematic risk cannot be reduced, only shifted, in a zero-sum game.

In its other attempt to reduce risk, the Chilean plan has managed only to reduce returns in the long run. The requirement that at least half of portfolio assets be held in government securities is an improvement over the state systems (where 100 percent of contributions go to the government). But the requirement leaves taxpayers with significant responsibility and condemns the portfolios to low rates of return on investment. A strong government hand in the choice of allowable private-sector securities, including a de facto exclusion of foreign securities, means the almost inevitable politicizing of the capital allocation process. Lower rates of return are inevitable as the bureaucrats charged with maintaining the list of permissible investments will not want to include risky alternatives. What is more, they are likely to shy away from securities that may have a significant amount of nonsystematic risk, which is easily diversified away in an investment portfolio but very prominent politically when an individual company fails.

In addition, the current exclusion of foreign companies from the list means that the portfolio returns are tied to the strength of the Chilean economy, ignoring the benefits of international economic diversification and the ability of fund managers to direct capital toward rapidly growing economies.

Positive lessons. On the positive side, the innovation of issuing Chilean government bonds to recognize the government's current obligations is a significant step forward and should be examined by UK reformers. In addition, the plan has an innovative solution to the determination of an optimal retirement age. Allowing individual participants to act on their own preferences leaves them the freedom to choose a retirement age as long as their plan accumulations have reached a minimum level. It is impossible to predict whether the result will be a lower or a higher average retirement age for the population as a whole, but the rule is an unusual recognition of the value of maximizing individual choice.

Another advantage is the use of the private insurance market to provide the annuitized value of pension benefits, which is a true privatization element of the plan.
Elimination of the employer contribution is economically rational thinking, even though it may pose political problems for reformers elsewhere. Total compensation for labour in a free labour market will settle on the demand/supply equilibrium point regardless of whether compensation is paid to the individual or to the government in the form of payroll taxes. That is to say, an employer considers all costs associated with an employee in determining the compensation of the employee. Payroll taxes are as much a part of the cost of hiring a worker as are the actual wages paid to the worker. Having determined the maximum cost that he is willing to pay for each worker, an employer will reduce potential wages by the amount paid in taxes. Thus, payroll taxes ultimately are paid by the employee.

The elimination of the employer contributions means that transaction costs are reduced by requiring only one accounting method to move funds into the pension system (as opposed to contributions by both the employee and employer). However, public understanding of that principle is often limited, and perceptions of employers' "getting away" without paying seem to be rising in the Chilean political environment.
It is certainly true that as new employees are hired, the 18 percent increase in wages will be inconsistently awarded across the marketplace, depending on the supply of, and demand for, different labour skills. The overall result, however, should be an increase in labour market efficiency.

The requirement of an automatic increase in wage rates of 18 percent may grate on free-market ears, but it is probably a necessary transitional element of the plan. The ultimate increase in labour market efficiency as new hires replace old and labour contracts are renegotiated will in short order erase temporary market inefficiencies caused by the rule.

Regarding savings rates, the conclusion that there is probably no net effect on the national savings rate from privatization is both technically correct and conceptually flawed. It is technically correct because there has merely been a change in the method of accounting for pension receipts, creating another accounting illusion that looks like increased savings. Santamaria concludes that, "essentially, there was a change in accounting of [pension] contributions. Under the old system, contributions were classified as taxes. Under the new system, they are classified as contributions to saving."

But other elements of a true privatization plan should in fact increase savings and, ultimately, national wealth. To the extent that pension contributions are shifted to private investments (limited in the Chilean plan), economy-wide capital allocation should become more efficient and rates of return for the economy should increase. Since we can never know what would have been the case without the new system, it is not possible to provide the skeptics with proof of the superiority of free-market capital allocation; but anecdotal evidence abounds. The Chilean AFPs have provided a third of the capital for the Compania de Telefonos de Chile's $1.6 billion expansion and Celulosa Arauco's $1 billion forestry and pulp project. Hydroelectric projects throughout the nation have been financed with AFP bonds, and the Santiago stock exchange has outperformed any other in Latin America over the past decade.
Governments are incapable of consistently and efficiently allocating capital. When all the hits and all the misses are added up, private markets allocate capital more efficiently to investment opportunities with higher rates of return to the economy. In the short run, we may be able to offset "public" dissavings with "private" savings and conclude that no net quantitative change in national savings has taken place. But there is a resultant qualitative change in national savings that is inevitable.
It is that qualitative change that finally produces the higher growth rates in private retirement plans that are capable of both eliminating the long-term need for government subsidy and increasing expected pension benefits. Without such a qualitative assumption, there is no basis for the privatization alternative. One must logically either accept it as a premise or reject privatization as a policy choice.

Overall, the Chilean plan must be viewed as a great step forward. It has moved pension plans outside the direct control of government, has placed at least a portion of the funds in the hands of the private sector where capital allocation processes are qualitatively superior, and has created individual property rights to accumulated system reserves. Government control is still significant, but there is reason to believe the system will move toward a larger allocation of assets to private securities in the future.
Even the country's trade unions, which initially denounced the system, have changed their position: the leader of the nation's textile workers' union admitted that their original position was "a mistake" and that the private system is "very popular among workers."
Perhaps most important, Chilean officials chose to bite the bullet and recognize the sunk costs of past liabilities to current participants and contributors to the old system. Rather than continue the payroll tax system that supported those payments, Chile has transferred current cash obligations to the general fund and lived with the impact of those obligations on current and future national budgets. The obligation has a decreasing effect on national accounting as the private plan assumes a larger role in the nation's economy, but in the meantime the Chilean government is recognizing both its liability (in the form of bonos) and the explicit cost of liquidating that liability.

Chile has sparked a privatization revolution in social security systems worldwide. Within the last two years Peru, Argentina, Colombia, and Italy have all, to greater or lesser extents, privatized significant portions of their social security systems along the lines of the Chilean model.

And Mexico has implemented a new, privatized system operating alongside the old, state-run model.

As Augusto Iglesias, chief economist for the pension fund Habitat, states,

The Chilean social security system is based on very simple and reasonable principles: that people care about their money, that they will work harder if they see the benefit to themselves and that putting it in private hands is more efficient than with the government.

Applying the lessons of Chile

As one commentator has put it pithily:

> Privatization should be guided by two basic principles. The first principle ... is that there are certain functions or activities government should undertake, and certain others it should not. The second principle is that in what it does — in other words, those functions and activities it retains — government should be effective and efficient.

Principles of reform

Those who seek a practical political solution to the pension finance problem, and one that retains the principle of maximizing human liberty, should advocate the use of the least intrusive public policy mechanism that will ensure that all citizens have a minimum level of financial security in retirement. A good start on identifying the operating principles underpinning a practical privatization plan was provided by David Ranson, a general partner and senior economist H. C. Wainwright & Co. Economics, in an article written for the Cato Institute in 1985.

Ranson identified four "axioms" on which a privatization plan should be based and drew operational conclusions based on those axioms.

Economic efficiency. The redesigned programme should be actuarially sound and should impose a one-to-one link between future contributions and the actuarial value of benefits earned.

That axiom led Ranson to the conclusions that in all cases any redesign of the system should rely on market solutions and that the system should be entirely removed from the government's tax base in order to avoid the capital allocation inefficiencies created by tax preferences.

Recognition of sunk costs. The programme would not try to reverse past redistributions of income. That critical axiom applies the lesson learned in Chile and separates the privatization decision from any perceived need for a new system to carry the burden of the current system's failings. That is an important enough concept, and so frequently misunderstood, that a lengthier explanation is in order, and Ranson provides it:

One of our greatest political problems is the fate of the many individuals who already receive (and many of whom depend on) social security [ie. pension] benefits. A powerful constituency opposes benefit cuts outright because it fears establishing a precedent for much larger cuts. On the other hand, it is sometimes argued that reforming the system would necessitate reducing future benefits.

This is untrue. Perhaps continuing the system as presently designed would require benefits to be cut. But the design of a new system has nothing to do with the liabilities that (rightly or wrongly) have been accrued in the past. Even though they have yet to be paid, these claims on the present system are a sunk cost. They have now taken their place in the distribution of wealth. Whether to interfere with this distribution of wealth by repudiating some of these liabilities or to finance them somehow is a political decision. Only if we insist on saddling a redesigned system with the liabilities of the past does this apparent dilemma arise.

In a way, this axiom is an application of the old proverb that two wrongs don't make a right. Sunk costs should not be allowed to influence future decisions. The decisions we make about a new, redesigned system cannot affect the liabilities we have already incurred. Thus, the manner in which we choose to pay for (or repudiate) those liabilities is irrelevant to our decision about a redesigned system.

Depoliticization. The new system should be immune from short-term political changes. That axiom led Ranson to the conclusions that market prices must dominate in the new system's valuation processes and that the system must be as isolated as possible from the short-term political and fiscal decisions of the government.

Openness. The new system should be utterly simple and understood by the electorate, and nothing should be hidden. That principle implies that the system should be narrow in its focus, stripped of all "noninsurance" elements, and directed purely toward the provision of minimum pensions for the nation's retired population.

In addition, it should be simple in order to avoid general confusion and encourage broad, active public participation in the planning for and management of one's own retirement. One lesson we should learn from Chile is that, with sufficient public exposure and education, even a relatively uneducated and unsophisticated population can understand and accept the system's principles and embrace its operating philosophy with enthusiasm.

A second implication is that participants should be kept well informed of their personal financial stake in, and property rights to, the accumulating fund balances of the system. Confidence in the system will be enhanced by the individual participants seeing growing fund balances that are their own to manage and, eventually, disburse.

Practicalities of reform

With the mission clear and the foundation principles established, we may now identify certain operating elements of a rational private national pension plan for the United Kingdom. I would emphasize, however, that what follows is one of many approaches that can be developed within the confines of the mission and principles discussed. Consistent with Ranson's fourth axiom, the plan will not be a complex one. It is, however, deceptive in its simplicity, as its implementation would mean a radical change in the manner in which a major portion of our national economy is managed.

Establish PRAs

The combined employer-employee contribution to the basic state pension element of the national insurance system should be redirected towards personal retirement accounts (PRAs) that are chosen by individual employees.

PRAs would operate much like current personal pensions. Contributions would be made from pretax income, accumulate tax-free, and be subject to tax only upon distribution, thus removing the accounts from the distorting effects of fiscal policy on capital allocation. Government tax receipts would be collected from national personal income or changed to another basis, but the manner of that collection process is an issue unrelated to the operation of an efficient national pension system.

Full property rights to PRA fund balances should accrue to owners, including the right to include fund balances in an estate. Whenever any fund balance is included in an estate, it will be immune from inheritance tax if transferred directly into the PRA of the beneficiary.

Immunity from inheritance tax is an important component of the system, as "perverse incentives" arising from tax effects need to be avoided. The funds will be taxed on distribution, whether to the current owner or to his beneficiary, but allowing the funds to be taxed in an estate is a form of double taxation that encourages irrational spending rather than continued saving as death is anticipated.

Additional voluntary contributions. Voluntary contributions in excess of those mandated would be allowable up to reasonable limits (say, the present limit on personal pension contributions, plus the pension element of employee and employer NI contributions).

Ensure minimum retirement security. PRA fund balances would be of two kinds. All funds up to a calculated minimum requirement would be designated "basic" fund balances. Basic fund balances would be subject to asset allocation restrictions that would limit the risk to which they could be subjected.
Basic fund balance limitations would be calculated by determining (say) 110 percent of the present value of the actuarially determined retirement annuity

necessary to provide a real monthly income after retirement equivalent to the current income support level.

In practice, the private securities industry would inevitably develop a range of products that would provide a market price for the purchase of an annuity, given certain standard underwriting assumptions. Variable annuity products today, for instance, already provide a good market pricing mechanism that can be used to estimate the cost of insuring a portfolio against market downturns for survivors' benefits (with such insurance purchasable for as little as 0.006 percent of fund balances per year).

The result would be the development over time of a basic PRA fund balance that was restricted to low-risk investments but that guaranteed a minimum level of retirement security for all working people, fulfilling the basic mission of a privatized national pension plan.

Allow personal risk preferences. Funds accumulated above the basic fund balance would be "discretionary" fund balances. Discretionary PRA balances would not be subject to the asset allocation restrictions on basic balances. Because the basic balance would ensure the accomplishment of the system's mission, no further limitations on personal liberty associated with the disposition of one's private property should be applied to discretionary balances. The full range of risky to risk-free investment alternatives for those balances should be available to system participants.

Choose retirement age. Any worker would be allowed to retire and begin to withdraw retirement benefits from the system when his or her PRA basic fund balance reached a level equal to 110 percent of "full funding," thus assuring the individual of a life income equivalent to the real income support level (which is of course larger than the basic state pension today).

Allow rollover of pension plans. At the initiation of the system, all citizens with fund balances in any defined contribution private pension plan would be eligible to close those accounts and roll over all vested balances to their new PRAs.

Simplify distribution options. PRA fund distribution options after retirement would differ for basic and discretionary balances. Basic balances would be available under three options:

1. A 100 percent payout to purchase a income support level annuity from the private insurance industry. Annuities would be required to include disability and survivors' benefits.

2. Withdrawals as desired with only one constraint: the amount remaining in the account after withdrawal must always be at least 110 percent of the amount necessary to purchase a life annuity guaranteeing an income at income support level.
3. A combination of 1 and 2 with the purchase of a partial annuity and voluntary withdrawals up to 110 percent of the amount necessary to purchase

the remaining income support level annuity.

PRA discretionary fund distributions would be unlimited after retirement and would be taxed when distributed to the plan participant. Once funds were removed from the PRA their immunity from taxation would end and any further investment income or transfers (such as gifts or inheritances) and would be subject to ordinary personal income tax regulations. In addition, the choice of official "retirement" would be a one-time, lifetime election. Once a person moved into "retired" status, no additional contributions to a PRA discretionary fund would be allowed, even if the participant chose to reenter the workforce. Should basic fund balances ever chance to fall below 110 percent of the actuarially appropriate amount required, however, additional pre-tax, tax-deferred contributions would be allowed to that account. Transfers from discretionary balances to the basic fund would be automatic to ensure maintenance of minimum required basic fund balances.
Minimize regulation. PRAs would be managed by the same sectors of the financial securities industry that today offers personal and company pension plans to the investing public. In addition, they would be regulated by the government using standard audit techniques similar to those currently employed to audit private pension plans, with statistical samplings by employer and a range of fund alternatives required by employers. Rollovers from one employer's choice of available investment funds to another's would be automatic with a job shift. No government agency would manage or directly administer any plan, and the role of the government would be limited to auditing compliance with a minimum set of government regulations consistent with those discussed here.

Transition arrangements

Despite Ranson's second axiom, the need for the recognition of sunk costs, it is really beyond the scope of this paper to provide for a smooth transition from the old system to a new, more economically rational one. That is because

The axiom of sunk costs means simply that we should acknowledge the liabilities that have accumulated up to now as a debt of the present, regardless of when they are to be paid off in the future. The accrued cash outflow should be regarded as something we have to deal with. But it is illogical to assume (as many do) that any system we build in the future must be saddled with this burden — perhaps in addition to the burden of being self-financing. Nevertheless, some lessons can be learned from Chile's transition to a partially privatized system. "Recognition" of sunk costs means that in some manner our national accounting system must reflect the accrued liabilities we have to those who have, to date, participated in the system. And it is politically naive to think that any proposal to reform the national insurance system will receive a serious public hearing without at least some attention given to how to get from here to there.

Of course, one option is to repudiate all our obligations to past system taxpayers. Such an option, however, would almost certainly be disastrous social policy and is no doubt politically unacceptable as well. Assuming, then, that we accept our liability to a portion of our own number, how do we get from here to there?

There are two, nonmutually exclusive approaches to the problem. One has been partially addressed by proposals already discussed, and the other is a derivation from the Chilean plan.

Limited defaults. The first answer to our current unfunded liability problem lies in recognizing that the choices available to us exist on a continuum between the extremes of defaulting on our intergenerational social contract and paying everyone everything they feel is due them. In practice, the entire process of liquidating our existing moral obligation is a zero-sum game of wealth transfer from taxpayers to system recipients. Since transaction costs are only increased with the number of transfers, it is more efficient to attempt to isolate the net winners and losers and limit the transfers to those population segments that are net "winners."

That process can be approximated by "limited defaults" to those groups that are more likely to contain large numbers of net losers. Such proposals include the plans to means test certain portions of state benefits, as well as suggestions for payout limitations set at income support levels, or the taxation of benefits, other formulas that would avoid the transaction costs of wealthy taxpayers' transferring funds to themselves.

My own preference is for a radical reduction in our liability to ourselves. Although I know of no study to support my conclusion, I suspect that the transaction costs associated with transfer payments to ourselves cut quite deeply into marginal wage cohorts, resulting in net system losers well down the economic scale. I would therefore propose that system payouts be limited to (and government bond issues described below made only to) those system participants now over the age of 50 for whom posttransition system accruals accumulate at the point of retirement to a balance less than the purchase price of a minimum lifetime annuity.

But any suggestion, however extreme or generous, that limits future benefit payouts is essentially a default and allows us to reduce current and future taxation needed to pay the promised benefits. Moving retirement ages upward, reducing survivors' benefits, altering indexation formulas and indexing by measures of inflation rather than wages, changing the definition of the cost of living index, and altering eligibility rules and benefit rates are all variations on the same theme of limited defaults on our implied intergenerational contract. Political rhetoric will necessarily couch the reality in phrasing more acceptable to the voters' ears, but the reality of default remains.

Bonds. The second "solution" to the problem of unfunded liabilities is one that provides for the recognition of the present value of those liabilities to be issued to current system participants and taxpayers in the form of government bonds. Once we have decided on the extent of the limited defaults the system will tolerate, it is not a difficult calculation to determine the moral (if not legal) stake each working person currently has in the implied promise of the current state pension system.

Normal retirement age is now 65 for men and 60 for women, but it will equalized soon (and could rise further with further system defaults).

Given the indexation of future pension rates, the present value of the actuarially calculated pension due to each system participant may then be easily calculated by discounting at the Treasury-Bond rate, and each system participant can be issued zero-coupon Treasury-Bonds maturing at his or her projected retirement date. The bonds would be placed in each individual's PRA.

It is important that those zero-coupon Treasury securities then be allowed, in turn, to trade on the secondary market. Within the limitations already described for basic fund balances, both current retirees and prospective retirees should immediately begin to manage their PRAs according to their own risk preferences, thus increasing the diversification benefits of individual PRA portfolios and maximizing personal choice.

Transition to the new system, then, should further maximize personal choice by providing each system participant with two options:

1. Remain with the old state pensions system, including the old tax schedule and old benefits schedule (altered to reflect any partial system defaults). For those who choose this option, the pension element of their national insurance contributions should simply be forwarded to the government as a tax payment. The income should be credited to the general fund, as it is out of that fund that all future system liabilities should be paid.

2. Accept an immediate payout of government zero-coupon Treasury-Bonds, in an amount and with a maturity date calculated as determined above. Those bonds would be placed in the individual's PRA, accruing first to the basic fund accumulation and above that amount to the discretionary fund accumulation.

Conclusion

It is time to recognize that our present state pension system violates the fundamental principles of financial economics. It is not a government pension program offering retirees reasonable benefits in return for their taxes. Rather, it is an unfunded pay-as-you-go system, fundamentally flawed in concept and analogous in design to a chain letter.

While politicians may talk of a national insurance "fund", excess receipts are, in fact, spent immediately. The liabilities already created, unrecognized by the government accounting system, represent sunk costs that cannot be recovered. Only adjustments in spending patterns can pay for those commitments. The choice now is between continuing to support a bankrupt system and building a financially sound structure for the future.

Short-term fixes to increase revenue or reduce benefits will be unsuccessful in the long run. The system design itself is fatally flawed and cannot be repaired. It must instead be replaced by one reflecting market economic principles and given its dynamics by the freedom of its members to make individual economic decisions in their own self-interest.

Reform is long overdue. If we fail to act soon, our children will either inherit a bankrupt system or be forced to pay an impossibly high level of taxes. Politicians have long understood the coming catastrophe, but they have been unwilling to confront the hard choices necessary to meet it. The question now is whether they will have the courage to act, or whether our children will be the next victims of a failed and unsustainable system.

Notes

1. The World Bank, Averting the Old Age Crisis (New York: Oxford University Press, 1994).
2. *ibid*
3. *ibid*
4. In addition, Singapore has an extremely limited and stringently means-tested programme of old-age assistance. However, the government encourages families to provide support for elderly parents through incentives and disincentives. For example, the law requires adult children to financially maintain their parents in old age. Those failing to do so can be prosecuted.
5. Lessons must be drawn with care. The social security institutions of each country need to be consistent with the country's own basic philosophy and social, political and economic systems. See R. Rose, "What Is Lesson Drawing?" Journal of Public Policy, Vol. 1, No. 1, 1991, pp. 3-30.
6. All amounts in Singapore dollars are preceded by "S." The current rate of exchange is about S$2.08 = £1.00.
7. The savings are managed by the governing board of the CPF, which consists of a chairman, deputy chairman and nine additional appointees. The board has at least two representatives each from the government, employers and employees. All board members are appointed by the Minister of Labor, who oversees the CPF.
8. Foreign workers earning below a certain wage are given work permits and are subject to a foreign worker's levy, the revenue from which accrues to the government.
9. This new pension fund is being funded from accumulated budget surpluses held by the government. A portion of these has been converted into an endowment fund, from which the income will repay the surpluses.
10. From August 1, 1995, all foreign workers, including those on an employment pass, are excluded from the CPF system. They have no recourse to the tax-advantaged retirement scheme in Singapore. As a result, their tax liabilities will increase, resulting in a substantial cut in their take-home pay. Very little advance notice was given before the provision became effective. In view of Singapore's dependence on foreign manpower and its need for predictable and consistent policies, the measure is perplexing. It could even increase overall labour costs, thereby impinging on Singapore's international competitiveness. As a result of adverse reaction, the government subsequently announced certain modifications, though the underlying exclusion remains.
11. The sustainability of this high rate remains to be seen.
12. The reason is that people are forced to save more than they prefer to. Thus mandatory contributions are less desirable than wages — even though the contributions are not taxed and the wages are.
13. Alternatives are: (1) CPF contributions plus accrued interest; (2) changes in CPF balances plus withdrawals for housing; (3) changes in CPF balances.
14. Government budget surplus on the current account, plus current

surpluses of statutory boards and government companies.

15. The 1995 individual income tax rates range from 2.5 percent to 30 percent, with 14 brackets. However, Singapore makes extensive use of tax incentives to achieve its social goals for businesses and individuals. As a result, the difference between the nominal and effective tax rates is large, though no empirical estimates are available. In general, Singapore does not tax capital gains, and estate duties are light (a two-rate structure of 5 percent and 10 percent).
16. Most social security systems tend to be somewhat progressive, paying a higher rate of return on payroll tax contributions, the lower a person's income. By contrast, the Singapore system is slightly regressive in three ways. First, people get back exactly what they put in, plus any buildup. Second, although the practice of not taxing social security contributions (at least the employee's share) is common throughout the world, this practice also favours those in higher tax brackets. Finally, the investment options discussed in the text favour higher-income earners.
17. When parents have a low CPF balance as a result of low wages through their working life or purchasing a house with money from their account, their children may top up the parents' account by transferring money into it. Such contributions are tax-advantaged, but a primary reason for helping the parents is that adult children are legally required to provide for their parents if needed.
18. For members ages 45 and above, the amount going to the Ordinary account is reduced to 28 percentage points to offset the Medisave increase.
19. Incrementally, this amount will be increased to S$80,000 by July 2003, of which at least S$40,000 must be in cash. The increase in the cash amount is to help ensure that retirees will have an adequate income after retirement.
20. There is no way of determining what the average Medisave balance is, but it probably runs between S$3,000 and S$4,000 (about £1,442 - £1,923).
21. William C. Hsiao, "Medical Savings Accounts: Lessons from Singapore," Health Affairs, Summer 1995, pp. 262-63.

22 Some employers also purchase private insurance for their employees. However, they are permitted to deduct no more than 2 percent of payroll for health insurance. Employer-provided policies are the least expensive high-deductible policies covering only basic care.

23. The existence of Medishield does not solve the financial problem of those who have an inadequate Medisave balance, but it is an improvement over Medisave alone, since it gives people a way to pay for catastrophic costs.
24. Coverage is intentionally low in order to keep costs low.
25. Utilization rates of Medifund are not made public. Thus it is not possible to evaluate the programme's effectiveness in helping the needy. Because the requirements are so stringent, very few people have access to Medifund.
26. The land, however, is owned by the government.
27. This rule also applies to purchase of private residential housing and nonresidential properties, discussed below.
28. Stocks approved by the CPF board are called trustee stocks; approved unit trusts are mutual funds; and convertible loan stocks are loans that can be

converted into equity at a specified future date.

29. This is the minimum reserve as of April 1, 1994, in the Ordinary and Special accounts.

30. Fund management accounts are personal accounts placed in the hands of an investment manager.

31. Transactions under these programs can be undertaken by opening a CPF investment account with an approved agent bank. Except for the Hong Kong Bank, approved banks are locally owned. Only approved institutions are permitted to handle money market accounts, and EIS investments must be made at approved institutions.

32. 1994 was the first full year of BIS and EIS schemes.

33. The Straits Times, March 3, 1995.

34. This is similar to a "credit life" policy in the United States. It pays off an outstanding note should the borrower become incapacitated or die.

35. The market value of this fund was S$142.6 million at the end of 1993.

36. This is calculated as income and profit on sale of investments divided by the beginning balance plus half of premiums paid for the year.

37. This largely explains the existence of the government's large internal debt. In 1993, Singapore's internal debt was S$69,810.4 million — an amount equal to 75.6 percent of GDP, or 92.0 percent of indigenous GNP, which excludes contributions to GNP by nonresidents. This large debt has been incurred in spite of the government's running large budget surpluses consistently over many years.

38. For individuals to accumulate sufficient balances, prolonged periods of high employment are necessary.

39. Such strategies are not easy to implement, either by the individual or by the government investment boards.

40. According to the psychological theories of saving, "...behaviour may be governed primarily by habitual rules regarding the disposition of resources rather than by rational life-cycle planning." D.B. Bernheim, The Vanishing Nest Egg: Reflections on Saving in America (New York: Twentieth Century Fund, 1991), p. 71. Individuals mentally separate their resources into separate accounts, some of which are easier to invade than others. Moreover, according to the psychological theories, the rate of saving is sensitive to the composition of income and wealth. Public campaigns stressing the virtues of saving can also affect the rate of saving. An individual is more likely to behave in a socially desired manner if a great many of his fellows act the same way. A. Lindbeck, "Hazardous Welfare-State Dynamics," American Economic Review, May 1995, pp. 9-15.

41. Marco Santamaria, "Privatizing Social Security: The Chilean Case,: Columbia Journal of World Business (Spring 1992): 39.

42. Many people did not switch simply because they could not meet the minimum contribution level requirement of the new system before planned retirement. Myers, p. 54.

43. The 18 percent includes the costs of other benefits such as disability and survivor benefits (3 percent) and health insurance (4 percent). Santamaria, p. 41.

44. There are 21 APFs as of this writing. APFs may be created by the private

sector at any time with government approval and their numbers are proliferating.

45. Saul Hansell, "The New Wave in Old Age Pensions,' Institutional Investor, November 1992, p. 81.
46. Rita Koselke, "A Better Way to Do It," Forbes, October 18, 1991, p. 158.
47. Ibid., p. 160.
48. Santamaria, p. 41.
49. Myers, p. 49.
50. Not detailed are some other adjustments in social insurance payroll taxes that were differential depending on worker classification and resulted in slightly higher than average decrease in the cost of blue-collar labour.
51. Robert Genetski, "Privatize Social Security," Wall Street Journal, May 21, 1993, p. 10.
52. Santamaria, p. 45.
53. Ibid., p. 47.
54. Genetski, p. 10; and Myers, p. 51.
55. Hansell, p. 80.
56. Robert Myers draws a similar conclusion and projects long-term growth for the Chilean portfolio at 2 to 3 percent real. Myers, p. 52.
57. Ibid., p. 47.
58. Santamaria, p. 46.
59. Hansell, p. 81.
60. Fund directors have expressed the opinion that returns would be better if more capital could be put into the stock market, and the Chilean government is expected to soon allow investing in a limited number of securities outside the Chilean economy.
61. Steve Hanke, "Is Chile on the Italian Menu?" International Economy, July-August, 1992, p. 79.
62. Alexander Estrin, "Peru's Privatization Option for Pension and Health Systems,: Social Security Bulletin 55, no. 3 (Fall 1992): 79; G Ricardo Campbell, "Argentina Approves a Privatization Model for Social Security," Social Security Bulletin 56, no. 4 (Winter 1993): 99-100; G Ricardo Campbell, "Columbia Moves Closer to the Privatization of Social Security," Social Security Bulletin 56, no. 2 (Summer 1993): 52; and G Ricardo Campbell, "Italy Creates Private Pension Funds," Social Security Bulletin 56, no. 2 (Summer 1993): 92.
63. Hansell, p. 83.
64. Quoted in Koselka, p. 160.
65. James C Miller III, "Privatization: Challenge and Opportunity," Phi Kappa Psi Journal, Spring 1990.
66. David Ranson, "Criteria for Reforming Social Security," in Social Security Prospects for Real Reform, pp. 139-55.
67. Ibid., p. 146.
68. Ibid., p. 143.
69. Although many such formulas to restrict such risk are possible, I propose the following: 100 percent of basic fund balances could be invested in a diversified portfolio of corporate and government bonds with a portfolio duration matched to a planned retirement age. No bond rating requirements would apply, but a diversification would have to be

adequate to eliminate 95 percent of nonsystematic risk from the portfolio. No more than 25 percent of the fund could be invested in government securities, "agency" issues, or government-guaranteed debt. Up to 50 percent of the portfolio could be invested in diversified funds if equity securities. Equity securities would be limited to those traded on the Stock Exchange, and portfolios would have to be sufficiently diversified to eliminate 95 percent of nonsystematic risk. Although investment in broad-based index funds would be permitted, no trading in derivative securities would be allowed other than those necessary for hedging strategies associated with reducing cash demand risks and smoothing variances from index returns. Systematic risk for eligible portfolios would be limited to a portfolio maximum of beta of 1.05.

70. The future annuity cash flow could be discounted using the current one-year Treasury-Bill rate, providing an expected real rate of return without long-term inflationary expectations.

71. Ranson, p. 147.

72. Pamela M Terrell, "Social Security: The Search for Fairness," Editorial Research Reports by the Congressional Quarterly, April 5, 1991, p. 193.