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Swiss Chilanpore

The Way Forward for Pension Reform?

Dimitri Vittas

Swiss Chilanpore is a proposal for a pension reform strategy. It is based on a multipillar structure and aims to combine the best features of the pension systems of Switzerland, Chile, and Singapore — leaving behind their weaknesses.

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This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study how pension systems function. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please Contact Wilai Pitayatonakarn, room N9-003, extension 37664 (February 1993, 27 pages).

Many countries are considering far-reaching pension reform. This is happening in response to growing demographic pressures in some countries (especially in Western and Eastern Europe), to unsustainably generous benefits in others (especially in Latin America), or to failure to ensure the profitable investment of accumulated funds (as seems to be true with national provident funds in African countries).

Given the worldwide interest in reform, one could ask: Is there a blueprint for pension reform? Can lessons learned in different countries be combined in a best-practice structure usable in different countries' pension systems?

Vittas reviews the experience of Switzerland, Chile, and Singapore, countries with relatively successful economies and pension systems. He suggests a multipillar pension system — which he dubs "Swiss Chilanpore" — that would blend the hard-headed softness of the Swiss, the expensive yields of the Chilean scheme, and the ruthless efficiency of Singapore. He emphasizes that:

- There is no perfect pension system. All systems suffer from the problems of moral hazard, adverse selection, agency costs, and free riders.

- All well-functioning pension systems require good government and good management.

- All pension systems have to cope with the problems of long-term uncertainty.

For these reasons, Vittas favors a multipillar approach that diversifies across different providers. Swiss Chilanpore would have two compulsory and two voluntary pillars:

- A first pillar (drawn from the Swiss model) consisting of two parts: a flat-rate pension proportional to the length of a person's career and an earnings-related pension based on annual actualized lifetime earnings.

- A second pillar consisting of a central agency, which could be public or private, for record-keeping and other centralized functions, and private fund management companies for investing funds. The point would be to keep operating costs down and achieve high investment returns.

- A third and fourth pillars based on occupational pension schemes and personal savings.

The proposed structure would aim to combine the strengths and avoid the weaknesses of the three countries' systems, but Vittas cautions that no reform proposal would apply equally well in all countries, regardless of local circumstances and conditions.

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Financial Policy and Systems Division
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SWISS CHILANPORE

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INTRODUCTION

Many countries around the world are contemplating far-reaching reforms of their pension systems. In Europe, Italy and Greece are confronted with a financial crisis of their public pension system and suffer from highly fragmented private or semi-private sectors. Other OECD countries are faced with growing demographic pressures that put a question mark on the long-term sustainability of their pension systems. In Britain, massive fraud in the pension scheme of one large company group has endangered the occupational pensions of large numbers of workers, while in the United States extensive underfunding of a good number of large company-based pension schemes is putting a big strain on the finances of the Pension Benefits Guaranty Corporation. In Eastern Europe, the pension systems are unable to cope with the macroeconomic shocks afflicting these countries and have effectively reneged on their promises for overgenerous and unsustainable pensions. In Latin America, several countries are considering a fundamental reform away from unfunded defined benefit systems and toward structures that comprise as an important element fully funded schemes based on individual accounts. At the same time, countries in Anglophone Africa and Asia are moving away from national provident funds and toward defined benefit social insurance systems.

Given all this commotion and interest for reform, a basic question can be raised: Is there a blueprint for pension reform? Are there lessons from the experience of different countries that could be combined in laying down what could be described as best practice in creating a new structure for the pension systems of different countries? The purpose of this paper is to bring together the experience of three countries with relatively successful economies and pension systems. It puts forward a suggestion for the structure of a pension system that is dubbed Swiss Chilanpore. But before describing what Swiss Chilanpore is, it is important to make three basic points about pension systems and pension finance.

Point Number One: There is no perfect pension system. Funded or unfunded, private or public, defined benefit or defined contribution, redistributive or not, there is no system that can escape from the problems of moral hazard, adverse selection, agency costs and free riding. These afflict all types of financial and social contracts, but are especially acute in the case of pension contracts that span a period of 60 years or more.

Point Number Two: All pension systems require good government and good management to function well and to have any hope of accomplishing their objectives. A country that is deemed unable to run well a funded or unfunded public pension system, because of administrative inefficiency, shortage of skilled personnel, or political interference, would most likely also be unable to regulate and supervise a private pension system. Conversely, a country that can effectively regulate and supervise a private pension system can also run reasonably well a public pension system.

Point Number Three: All pension systems have to cope with the uncertainty that characterizes human existence and the simple, but inescapable, fact that we do not know the future. (These days we hardly know the present and we strongly dispute the past, but this is a different story.) All systems are exposed to the vagaries of macroeconomic imbalances, the peculiarities and unpredictability of fundamental demographic trends, and the implications of changes in the relative scarcity of labor and capital.

It is because all systems are imperfect, all require good governance, and all suffer from the effects of long-term uncertainty that a strong case can be made for establishing mixed pension systems. Swiss Chilanpore is such a mixed system. It is not a new type of Swiss cheese, but in the best traditions of good cheese-making, it combines contrasting features that bring out the best of its ingredients. A Swiss Chilanpore pension system would be based on the pension systems of three countries, Switzerland, Chile and Singapore, and would blend the hard-headed softness of the Swiss, the expensive yields of the Chilean scheme, and the ruthless efficiency of Singapore.

SIMILARITIES AND DIFFERENCES

These three countries have a number of features in common, but they also exhibit some important differences. The first similarity is that they all have compulsory systems that cover nearly every worker, except self-employed people. The second similarity is that they rely to a substantial degree on funded schemes. The financial resources accumulated in pension funds are large in relation to national income in all three countries. The third similarity is that they represent relatively successful economies with high levels of national and household saving. This is particularly so in the case of Singapore and Switzerland. Chile has suffered from the high inflation that has long characterized most Latin American countries. But allowing for the negative effect of high and volatile inflation on national saving, especially on financial savings, the financial performance of the Chilean pension funds has been quite remarkable.

Of course, several other countries exhibit characteristics similar to those of these three countries. For instance, Britain and the US have large funded pension schemes, though unlike Switzerland employers in these countries are not compelled to offer pension schemes to all their employees. In Britain and the US less than half of private sector employees are covered by company pension schemes, against 100% in Switzerland. Korea, India, China, Italy, Greece and other countries have high rates of household saving, but they do not have compulsory funded pension schemes. Finally, France and, perhaps to a lesser degree, Germany impose compulsory participation in pension schemes on their residents, but these schemes are not based on funded pension plans.

As already remarked, the three countries also exhibit some important differences. The Swiss system, like those of most OECD countries, is extremely complex and opaque. Although it is often referred to as a three-pillar system, it is in fact more like those modern American houses that are known as split-level contemporaries. The complexity of the system makes it difficult to measure its cost or to assess the investment performance of the funded components of the system.

For its part, the Singaporean system is quite simple and, as will be argued below, operationally very efficient. However, it suffers from lack of transparency and produces relatively low returns and benefits to its affiliates.

The Chilean system is very simple and highly transparent and is also supported by very effective regulation and supervision. It has produced very high real returns, but suffers from very high operating costs. These afflict not only the pension system itself but also the private annuity market on which it is partly based.

Unlike Switzerland, neither Chile nor Singapore incorporate in their pension systems intentional redistribution in favor of low income workers. On the contrary, both may inadvertently cause unintentional redistribution that may be perverse by penalizing low income workers. Nevertheless, both countries offer some forms of minimum pensions.

THE SWISS SYSTEM

The Swiss pension system is typically described as a three-pillar system. The "first pillar" is a social insurance scheme that pays defined basic benefits, the "second pillar" consists of the compulsory company-based plans that pay complementary pensions aiming to achieve a satisfactory replacement rate, and the "third pillar" consists of voluntary savings, including fiscally supported pension plans for self-employed people and other workers not covered by company schemes. But, as already noted, the Swiss system is in reality a five level split system with two of its pillars split into smaller and uneven parts.

The first pillar is a defined benefit plan and is divided into two parts: the first has a redistributive objective and pays a minimum flat rate pension given by a base index that amounted in 1990 to 800 Swiss francs per month or about 20% of average earnings; the second part pays an earnings related pension equal to an additional 20% of earnings, subject to a limit that the total social pension cannot be higher than twice the annual base index. Thus, the maximum social pension does not exceed 40% of average earnings. The second part has an

intergenerational insurance objective, ensuring a replacement rate of at least 40% of lifetime earnings for average workers, irrespective of the investment performance of the funded pillars of the system.

The earnings-related part of the pension is based on revalued (actualized) average lifetime annual earnings, while the flat rate part is proportionately adjusted to the length of a person's career. Actualization of lifetime earnings is based on the wage index.

The Swiss social pension system is redistributive in favor of low income workers. In theory, it can achieve a replacement rate of over 100% for workers earning less than 25% of average earnings. The replacement rate falls to 40% for workers with average earnings and to 20% for workers with twice average earnings. In practice, replacement rates are affected by the revaluation factors used by the social security system and by the length of a worker's career.

The Swiss "first pillar" is a pay-as-you-go system, financed with a total contribution rate of 8.4%, equally divided between employers and employees. In addition, the state makes a contribution from general revenue to cover 20% of pension payments. Social pensions used to be indexed to prices, but since 1980 pensions in payment are indexed to the arithmetic mean of the wage and consumer price indices. Adjustment is made every two years or when the index increases cumulatively by over 8%.

Because it is based on actualized lifetime earnings and is adjusted for the length of a person's career, the Swiss social pension system avoids the problems that bedevil so many developing countries. These provisions weaken the incentive to misreport (understate or overstate) earnings during a worker's career. They also discourage moral hazard since workers will not be entitled to the minimum pension by participating in the scheme only for a minimum vesting period. OECD estimates indicate that the internal rate of return in the Swiss system is higher for low than for high income workers, which is in line with the intentions of the designers of the system (OECD 1988). The social pension system does not appear to suffer from extensive capricious or perverse redistribution.

Perhaps because of the proportionality of social pensions, many old age Swiss residents receive pensions that are inadequate for maintaining an acceptable minimum standard of living. The Swiss authorities have been forced to introduce a supplementary pension payable to old persons with insufficient means. This effectively represents a social assistance pension, funded from general budget revenues. In the terminology of a multi-pillar or split level structure, it amounts to an annex or an extension that is attached to the first pillar.

The "second pillar" is based on company pension schemes, the offer of which is compulsory since the enactment of the law on professional pensions in 1985. This law implemented the constitutional amendment on pensions that was first voted by the Swiss public in 1972. There is considerable uncertainty as to whether the second pillar is a defined contribution or defined benefit scheme. In theory, the law specifies some minimum provisions which relate to the contributions that need to be paid each year. These take into account some targeted level of replacement rate, but employers do not appear to be required to make up any shortfall that may arise because of insufficient investment returns, except that they have to credit each retirement account with interest at a minimum (nominal) rate of 4%. Thus, if the nominal return is less than 4%, employers are presumably forced to make up the difference.

The target replacement rate seems to be an integrated pension of 60% of final salary, though many large employers, especially in industry and finance, aim for 70% or more. These employers appear to offer defined benefit plans and to be prepared to make up any shortfall on investment performance. These schemes can in theory at least be seen as a separate part of the second pillar and to add credence to the argument made above about the split level nature of the Swiss system.

The constitutional amendment of 1972 and the implementing law of 1985 did not have as large an impact on the provision of company pensions as might appear at first sight. This is because most large and medium size employers have long operated pension schemes for their employees. The new law has had a much bigger impact on small employers, who have tended to set up contracts with insurance companies and commercial banks.

The law specifies that the contribution rate should vary by age and sex and should be divided equally between employers and employees. The rate starts at 7% for young male workers between 25 and 34, rises to 10% for those between 35 and 44, 15% for those between 45 and 54, and 18% for those between 55 and 65, which is the normal retirement age for males. The rates are the same for female workers except that the higher rates apply respectively after age 32, 42 and 52. The normal retirement age for women is 62. Contributions must be made on covered earnings, which are given by the difference between the annual base index and up to six times that level. Employers are of course free to cover earnings in excess of these limits and to offer defined benefit pensions.

Employers are required either to establish separate legal entities, often in the form of foundations for these pension schemes, or to entrust their insurance and management with financial institutions, such as insurance companies and commercial banks.

The investment performance of pension funds has not received as much attention as, for instance in Chile or in Britain. Although there are investment rules placing maximum limits on different types of assets, there are no requirements for minimum (absolute or relative) investment returns. In fact, despite the private management of the funds and the benefits of competition, the real rates of return have on average been very mediocre. Investing institutions appear to have emphasized safety at the expense of return.

Detailed data on the investment performance of private pension funds are not readily available. Estimates based on macrodata and on the known asset distribution of the portfolios of the pension funds suggest that the average annual real rate of return over the past quarter of a century amounted to 1.5% (Davis 1992). This was lower than the average annual growth rate of real wages which was 3.2% (an highest among the more advanced OECD countries). Thus, the negative gap between the real rate of return and the growth rate of real wages was quite significant at 1.7%. In recent years, there has been an attempt to improve on the investment record of the pension funds as both insurance companies and commercial banks have started to

compete more aggressively, to shift their investment policies towards domestic and foreign equities, and to stress investment performance in their publicity material.

Although most company schemes are effectively defined contribution plans, they appear to suffer from vesting and portability problems. Swiss law requires immediate vesting for employee contributions, but partial vesting after 5 years of service and full vesting after 30 years for employer contributions. The law is unclear about vesting rights with regard to accumulated investment income.

The portability of funds is the subject of much controversy. Funds can be transferred to the pension system of the new employer or they can be used to purchase a restricted insurance policy from an insurance company or to open a restricted account with a bank. However, the calculation of the pension rights to be transferred raises issues of actuarial fairness that are difficult to resolve.

Final salary defined benefit plans of the "second pillar" also favor high fliers (especially managers who get promoted and receive big salary increases late in their career) at the expense of slow plodders. Thus, company pension schemes may give rise to perverse redistribution from early leavers to long stayers as well as from slow plodders to high fliers. In addition, unintentional redistribution may occur by significant variations in real rates of return for members of defined contribution plans. A guarantee fund, financed by premiums assessed on covered wages, insures workers against insolvency of the pension foundations set up by employers.

The "third pillar" consists of voluntary savings in the form of bank deposits, insurance policies, other financial assets, or real assets such as housing. In this pillar, an important part is played by personal pension plans for self employed people and other workers not covered by company schemes. These plans, as well as additional voluntary arrangements for old age pensions, are supported by favorable tax treatment.

Contributions to the social, compulsory company and voluntary pension systems (up to specified limits) are tax deductible, as is all investment income. Thus, unlike other OECD countries, the tax treatment in Switzerland does not discriminate against the social system. Moreover, the government contribution to the first pillar may be justified as an attempt to equalize the fiscal benefits across pillars. Pension benefits are generally subject to income tax.

Because of the complexity and opaqueness of the system, it is not easy to calculate its total operating costs and the required total contribution rate for achieving targeted pensions. Estimates by consulting actuaries indicate that a full career worker with a salary equivalent to average earnings would receive a pension equal to 54% of pre-retirement pay at a total contribution rate of 12.3%, of which 7% is paid by the employer and 5.3% by the employee (Wyatt 1990). However, this contribution rate appears quite low by comparison to the rate of 8.4% for the first pillar and the rates ranging between 7% and 18% imposed by the law on professional pensions.

In summary, the first pillar, supported by its annex, appears to achieve well its redistributive and insurance objectives and does not seem to be exceedingly costly. But the second and third pillars are highly complex and opaque, with little attention being paid on investment performance and administrative efficiency. A considerable amount of unintentional and for the most part rather perverse redistribution appears to be taking place in the second pillar.

THE SINGAPOREAN SYSTEM

The pension system of Singapore is organized on national provident fund principles. All workers, except self-employed people, are required to participate in the Central Provident Fund (CPF). The CPF is a public agency that administers the system, collects contributions, keeps records, pays out benefits, and invests the accumulated funds. The last-named function is very simple for the CPF since nearly all the funds are invested in government instruments. The investment decisions that matter are taken by two other very important government institutions,

the Monetary Authority of Singapore (MAS) and the Government of Singapore Investment Corporation (GSIC).

The CPF was first established in 1955 after a long debate that appeared to favor the creation of a social insurance system, but was overruled by the London Colonial Office (Queisser 1991). Contribution rates were initially quite low, no more than 10% divided equally between employers and employees. The system was a pure mandatory retirement savings scheme, forcing workers to save for their old age and allowing lump sum withdrawals on reaching age 55.

Contribution rates were raised to 13% in 1968 when a decision was also made to allow interim, but controlled, withdrawals for the purchase of houses. Since then, there have been several increases in contribution rates, which reached a staggering total of 50% in 1984. Subsequently, however, because of the negative impact on employment creation during the recession of 1985/6, the total contribution rate was lowered to 35% by setting the employer's rate to 10% (Vittas and Skully 1991). More recently, the contribution rate has stabilized at the still very high level of 40%, with a long-term aim to divide this equally between employers and employees. Because contributions are divided equally between employers and employees, this corresponds to an effective rate of 33%, since contributions of 40 are paid out of total payroll of 120. An innovation of recent years is the institution of lower contribution rates for people aged over 55, while from the very beginning workers earning less than a specified minimum were exempt from making contributions.

Over the years, additional investment opportunities for investments in approved securities and for spending for education were allowed, while health insurance was also included among the benefits of the system. Also, since 1987, workers are required to keep a minimum sum in their account after reaching 55. This is fixed by the CPF and is adequate to purchase on retirement at age 60 a minimum life annuity equal to about 25% of average earnings.

The CPF is a defined contribution system with no intentional redistribution. Its primary objective is a forced saving one for old age. These days it is not a purely retirement savings scheme since it allows use of funds for several other purposes. Thus, its secondary objective is to encourage spending on merit goods (health, housing, education). Although redistribution is not among its objectives, it is often argued that the CPF creates perverse redistribution because of the low rates of interest credited on account balances. This is particularly so because only high income workers can avail themselves of the opportunities to invest in other approved but high yielding assets (Asher 1991).

Although the CPF is a mono-pillar system, the Government of Singapore operates a public assistance pension scheme that offers to destitute old people a small pension that is half the size of the minimum pension imposed under the CPF and amounts to about 12% of average earnings.

One of the strengths of the CPF is its high efficiency and very low operating costs. In 1990, total operating costs, including depreciation provisions, amounted to 0.53% of annual contributions, 0.21% of wages and 0.10% of accumulated assets (CPF 1990). These ratios are very low by international standards and compare very favorably with those achieved by large employer-based company schemes in Britain and the US. For instance, Postel, the company managing the pension funds for the employees of British Telecom and the British Post Office, has total operating and investment management costs of 0.1% or 10 basis points of total assets. This is divided between 6 basis points for operating costs and 4 basis points for investment management costs.

Apart from the lack of redistributive objectives, two fundamental weaknesses of the CPF are its very high total contribution rate and the low rate of interest credited on account balances. The latter has fluctuated over the years but appears to have averaged around 2% in real terms between 1960 and 1990 (Table 1). Since 1987, the CPF rate of interest has been linked to the average of the rate on savings deposits and the rate on 12-month fixed time deposits with banks. In view of the long-term and contractual nature of CPF balances, a higher rate would appear

more appropriate. Given a growth rate of real wages of over 4%, the real rate of return appears low to secure a high replacement rate, despite the very high contribution rate. For instance, when pensions are indexed to prices, working life is 40 years, retirement life (with an allowance for survivor pensions) is 20 years, a contribution rate of at least 25% may be required to achieve a replacement ratio of 43% of final earnings, when the growth rate of real wages is 4% and the real rate of return is 2% (Vittas 1992, Schwarz 1992). In Singapore, the effective contribution rate is 33%, but a substantial part of savings is used for investments in housing and other assets as well as for the purpose of financing education. Some of these assets could provide economic support in retirement, though it is clear that not all CPF savings would be available. Moreover, it should be noted that even with a low replacement rate, the absolute level of the pension would be quite high as a result of the high growth rate of real wages.

Table 1

Central Provident Fund of Singapore

Nominal and Real Rates of Interest

	1960s	1970s	1980s	1960-90
Nominal Rate	4.62	6.20	5.27	5.36
Inflation (CPI)	1.09	6.45	2.35	3.27
Real Rate	3.50	-0.24	2.86	2.02

It is not easy to understand why the CPF rate of interest is low although, unlike most other national provident funds, it has on average been positive in real terms. Nevertheless, Malaysia which has also long operated a national provident fund has been able to pay a higher real rate of interest than the Singaporean CPF (Table 2).

One explanation for the low rate of interest is that this is what members prefer because the rate of interest on mortgage loans from the Housing Development Board is also linked to the same index. However, a low mortgage rate favors high income employees and also encourages excessive investment in housing. In Singapore, it is claimed that over 90% of people are owner

occupiers, an impressive achievement on the face of it. But the ratio of house prices to annual income appears to be near or even above 10. By comparison, the house price to income ratio in the US is less than 3. This implies a very high price for the privilege of owner occupation in Singapore. Part of this may be explained by the shortage of land, but the heavy demand for owner occupied housing, supported by the forced savings scheme of the CPF, may also be a factor.

Table 2

Employees Provident Fund of Malaysia

Nominal and Real Rates of Interest

	1960s	1970s	1980s	1960-90
Nominal Rate	5.20	6.69	8.25	6.71
Inflation	0.91	5.89	3.27	3.34
Real Rate	4.25	0.75	4.82	3.26

A second explanation for the low interest rate is that this represents official policy that accumulates hidden reserves for the future needs of the Singaporean economy, an economy that is otherwise without natural resources. The CPF invests nearly all its funds in specially issued and nontradable government bonds and in liquid deposit balances placed with MAS. These funds are not used for domestic investment purposes but are part of the massive foreign exchange reserves of Singapore. As is well known, Singapore has by far the highest level of foreign exchange reserves on a per capita basis. It is claimed, though no statistics are published, that very high real returns have been realized on foreign assets, especially by GSIC, which invests in foreign equities in perhaps a similar fashion to the Kuwait Investment Office (KIO). There is no reason to doubt these claims although, because of the complete lack of transparency and publicity, it is also impossible to corroborate them.

To summarize, the Singaporean pension system is a defined contribution scheme with a very high contribution rate and a rather modest but positive real rate of return on accumulated balances. It is characterized by very low operating costs and by the build-up of massive hidden

reserves through the accumulation of allegedly high yielding foreign exchange assets. The system does not have redistributive objectives, though a very modest public assistance pension is paid to destitute old people and some unintentional but perverse redistribution may take place. Its main objectives are forced saving for old age and spending on merit goods.

THE CHILEAN SYSTEM

The new Chilean system was introduced in 1981. It is a mandatory retirement savings scheme that was created to replace an insolvent social pension system that operated on a "pay-as-you-go" basis. The scheme requires all employees to contribute 10% of their earnings until their normal retirement age, which is 65 for men and 60 for women. No contribution is imposed on employers, although they are required to withhold employee contributions and transfer them to the account holding companies. On retirement, workers must either purchase a life annuity from an insurance company or arrange a schedule of programmed withdrawals from their account. Lump sum payments are allowed only if account balances exceed the sum required to purchase an annuity equal to 70% of final pay.

Like the Singaporean CPF, the Chilean system is a defined contribution system based on individual capitalization accounts, where pension benefits depend on the contributions made over a person's working career and the investment income earned on accumulated balances. Workers are required to purchase term life and disability insurance and to pay an additional commission to cover the premiums for these insurance policies as well as the operating costs of the system.

The Chilean system has some unique characteristics. It is government mandated and regulated, but completely privately managed by a number of authorized pension management companies, known as Administradoras de Fondos de Pensiones or AFPs. To ensure simplicity and transparency, regulations impose a strict limit of "one account per worker" and "one pension fund per AFP" (Vittas and Iglesias 1992). Affiliates receive regular statements with information about the credited contributions and the investment income of their fund.

To ensure the solvency of the system, the pension funds are legally separated from the management companies. Strict rules are imposed on AFPs, both regarding their capital reserves, the investment of pension fund assets, and their performance relative to the average for the AFP industry as a whole. Investment rules emphasize safety and profitability. A certain amount of diversification is required and for this purpose maximum limits are imposed on portfolio shares in different classes of instruments as well as in instruments of different issuers. No attempt is made to direct the investment of funds in high priority economic or social projects. The system is subject to strict, even draconian, regulation and to very close and effective supervision.

A very important feature of the system is the individual choice granted to affiliates to transfer their accounts between AFPs. Individual choice is expected to maintain pressure on AFPs to compete and operate efficiently, though experience has shown that unlimited choice to transfer accounts may result in very high operating costs, mostly because of publicity and marketing expenses and the actual account switching costs. Individual choice in the purchase of annuities has also given rise to high publicity and selling costs.

During the first ten years of its operation, the AFP has been remarkably successful. The annual real rate of return on pension fund assets has averaged over 13% and total balances reached nearly 30% of national income. Although this impressive performance of the AFP system is the result of the economic recovery of the Chilean economy and is linked first to the rise in real interest rates and then to their substantial fall, there is little doubt that, but for the existence of the AFP system, the vast majority of Chilean workers would not have been able to partake in the high investment returns and remarkable appreciation of capital values of the late 1980s.

As a defined contribution system, the Chilean system is ostensibly a mono-pillar system with no intentional redistribution. Some redistribution may take place, however, through the government guarantee that workers with at least 20 years of contributions will always receive the minimum pension. It is not clear how many workers will benefit from this guarantee. Clearly, this depends on the future relationship between wage growth and real returns.

Estimates put the proportion of workers that might benefit to between 40% and 50% (Gillion and Bonilla 1992), though the burden on the government may be rather small given that it will only have to make up for the shortfall between a worker's AFP pension and the minimum pension. Some estimates put this burden at no more than 1% of GDP, though these calculations are extremely sensitive to assumptions regarding the values of basic parameters (Schwarz and Vittas 1992). The Government of Chile also pays minimum pensions to destitute old persons, but the number of potential beneficiaries appears to be small and eligibility is subject to strict means testing.

In addition to the guarantee regarding minimum pensions, the authorities impose on AFPs, and guarantee in case of AFP failure, a minimum investment return relative to the average for all pension funds. The government also guarantees, subject to specified limits, the value of life annuities with insurance companies.

Some features of the Chilean scheme give rise to regressive redistribution in favor of high income workers. This arises from two main sources. First, because the structure of commission charges includes both a flat fee and a per valorem fee, low income workers are effectively credited with a much lower rate of return than high income workers. Data for the first ten years of the AFP system show that low income workers obtained a real rate of return of 7.5% against 10.5% for high income workers and 13% for the totality of the pension fund (Vittas and Iglesias 1992). The difference is caused by the imposition of the flat fee, which in the initial years of the scheme was quite high, but which has declined significantly in real terms. In fact, several AFPs have now abolished their flat fees altogether. Unintentional redistribution may also arise from variations in returns among AFPs, though these are limited by the required minimum relative investment returns on pension funds.

The second perverse redistribution arises from the forced use of annuities. In theory, life annuities should take account of the shorter life expectancy of poorer people or people from particularly arduous occupations. In practice, however, it seems that low income workers, not only do not benefit from lower annuity prices, but may also pay much higher commission

charges for their life annuities than high income workers. The extent of perverse redistribution through the use of life annuities is not known, but appears to give rise to concern among Chilean policy makers and analysts.

Another point of concern is the high level of operating costs. Operating costs charged on affiliates, after deducting the premiums paid for term life and disability insurance, amount on average to 15.4% of annual contributions, 1.54% of wages, and 2.3% of total assets. A comparison of the experience of Singapore and Chile shows that, depending on which ratio is used, the Chilean system was 29, 7 and 23 times more expensive than the Singaporean scheme. Operating costs in Chile are higher than those of the Employees Provident Fund in Malaysia. although they are much smaller than those of the Zambian national provident fund (Table 3).

Two of these three ratios can be very misleading. First, the ratio of operating costs to contributions is distorted by the size of the contribution rate. Given that most expenses of a pension system depend on the number of affiliates and are insensitive to the size of the contributions, a country with a high contribution rate will tend to report a low ratio of operating costs to contributions, and vice versa. Singapore with a contribution rate of 40% of nominal wages has a much higher flow of annual contributions than Chile where the contribution rate is only 10%. Malaysia had a nominal contribution rate of 20% in 1989 (raised to 22% in 1992), while the Zambian rate was 10%. Second, the ratio of operating costs to total assets is affected by the age and maturity of the system. A mature system with a large accumulation of balances will tend to report a lower cost to assets ratio. In contrast, the third ratio, the ratio of operating costs to annual wages, is unaffected by these distortions and is perhaps the most relevant for comparing operating efficiency. This still shows the Chilean system to be seven times more expensive than the Singaporean one.

Operating costs are high in Chile for two main reasons. First, computerization is much less advanced than in Singapore and there is considerable duplication in both computer systems and branch networks for the collection of contributions and payment of pensions. Second, expenditure on publicity and advertising is quite high in order to encourage switching between

AFPs. Because of the lack of a central computer and clearing system, account switching costs are not insignificant. Although often overlooked, account switching also imposes heavy costs on employers, who are required to withhold contributions from payroll and pay them over to individual AFPs according to the choice of their workers. High marketing costs also bedevil the life annuity market. The Chilean authorities are considering various measures to reduce operating costs. These include restrictions on the frequency of the right to transfer accounts and restrictions on the nature and size of marketing costs. Some consideration is also given to the regulation of the structure of commissions paid to agents, especially in the life annuity market.

Table 3

Operating Costs and Investment Returns

	Singapore 1990	**Malaysia 1989**	**Zambia 1988/9**	**Chile 1990**
Operating Costs as % of				
Annual Contributions	0.53	1.99	51.7	15.4
Average Total Assets	0.10	0.18	6.8	2.3
Covered Annual Wages	0.21	0.40	5.17	1.54
Real Investment Returns on Individual Accounts (during 1980s)	2.86	4.82	-55.0*	7.5-10.5

* guesstimate based on nominal rate of interest of 5% and average inflation rate of 135%.

The data on investment returns, which are calculated after the deduction of operating costs, show that Chilean workers did better on balance than either Malaysian or Singaporean workers, although investment returns in these two countries also benefitted from the high real interest rates that prevailed in many countries during the 1980s. However, the concern in Chile arises from the realization that the very high investment returns of the 1980s are unlikely to be

continued in the future and lower operating costs may then become crucial for the net financial results of the system.

To summarize, the Chilean scheme is a government mandated but privately managed system. It is a defined contribution system based on individual capitalization accounts. It is very simple and transparent and is supported by strict and effective regulation and supervision. The system benefits from important government guarantees that include the provision of minimum pensions, which implies that it is not strictly speaking a mono-pillar system. Over the first ten years of its existence, the Chilean system has achieved abnormally high real rates of return, but it has also been characterized by very high operating costs.

SWISS CHILANPORE: THE WAY FORWARD?

The idea of Swiss Chilanpore is based on a pension reform strategy that combines the best features of each country, while avoiding their weaknesses. Thus, a reformed pension system would be a multi-pillar system comprising two compulsory pillars and one or two voluntary ones.

The inclusion of compulsory pillars is based on the need to support retired workers with low lifetime earnings and limited savings (redistribution) and on the presumption that individuals, especially younger workers, are myopic with respect to their retirement needs and will not save adequately for their old age (forced saving). It is also based on the need to discourage moral hazard and free riding behavior by those who fail to provide for their old age and intend to rely on the generosity and charity of their fellow human beings. Given the way society treats the very poor and homeless people, this argument has always sounded to me a little spurious and a concoction of academic theoreticians. But although one may have doubts about its practical significance, it is difficult to deny its intellectual relevance. Compulsory participation may be a more pragmatic consideration in overcoming the adverse selection bias that afflicts annuity markets. Finally, an important factor is the provision of insurance against correlated risks such excessive longevity and high inflation

Whatever the rationale for compulsory participation, it is important to emphasize the responsibility of government to ensure that compulsory pillars function properly, are fair and equitable, and achieve their financial and social objectives. However, government also has a responsibility to regulate and supervise voluntary pillars, especially if it provides fiscal incentives for their promotion or, as is almost always the case, the private markets suffer from information asymmetries and the problems of moral hazard, adverse selection, agency costs and free riding mentioned in the introduction of this paper. Thus, government has a role to play even in the case of voluntary pillars, although its responsibility is clearly much stronger in the case of compulsory ones.

The First Pillar

The first pillar would be a defined benefit plan and would follow the approach of the Swiss first pillar. It would be based on the principles of solidarity (i.e. it would operate on a "pay-as-you-go" basis) as well as the principles of proportionality, indexation and actualization, and lifetime earnings. As in the Swiss system, the first pillar would consist of two parts: a flat rate full career minimum pension; and an earnings related pension. In addition, a public assistance pension, perhaps equal to half the minimum pension and subject to strict means testing, could be paid to old people with insufficient means.

The first part would pay a minimum pension that would be fixed irrespective of salary level. The full minimum pension would be paid for a career of say 40 years (though a shorter or longer full working career may be used) and would be pro-rated by the actual length of each worker's career. The minimum pension could be set equal to 15% or 20% of average earnings. Ideally, all pension payments should be linked to net earnings, i.e. earnings after the deduction of payroll contributions to the pension system. This part would have a redistributive objective.

The second part of the first pillar pension would be earnings related. It would be based on average actualized lifetime earnings and could amount to an additional 15% to 20% of net average earnings. Actualization of lifetime earnings could be based on the wage index or on the

price index. The second part would provide an affordable level of intergenerational i..surance with regard to a desirable minimum replacement rate for workers with average wages and full careers.

Both elements of the first pillar pension would be indexed, although the choice of indexation could be either to prices or to wages. Perhaps, the Swiss solution of using the arithmetic mean of the two indices would be a good compromise, especially in countries where real wages do not follow a constant upward trend.

The contribution rate for the first pillar would depend on the demographic structure of the labor force. A rate between 5% and 10% would be adequate for most countries. In addition, a reasonable state contribution might be appropriate. If the old age dependency ratio were to increase to such an extent as to require a higher contribution rate for financial equilibrium of the first pillar, consideration should be given to increasing the normal retirement age (or what amounts to the same thing, an increase in the length of a full career). This would clearly lower the old age dependency ratio or the effective replacement rate and would mitigate the financial pressures on the pillar.

The Second Pillar

The second pillar would be a defined contribution plan with individual capitalization accounts. It would be based on the principles of private management and individual choice, simplicity and transparency, safety and profitability, strict regulation and effective supervision, and operating efficiency.

The second pillar would aim to pay a pension equal to 30% to 40% of actualized average lifetime net earnings (or of final year net earnings). There would be a minimum rate of contribution that would be set in the light of projected growth rate of real wages, real rates of return, and normal lengths of working and retirement lives. A contribution rate between 10% and 15% would be adequate, unless there was a big negative gap between real returns and the

growth of real earnings. Because the first pillar would be based on a combination of a flat rate full career minimum pension and a lifetime-earnings-related pension, individual workers could be allowed to increase their contribution rates (up to a specified ceiling) if the second pillar were to be based on final year earnings in order to achieve a 70% integrated replacement rate. The fiscal treatment would be based on tax deferral to provide an incentive for compliance, although to minimize its regressive impact, tax deferral could take the form of tax credits rather than full deductibility of contributions.

The second pillar would be very similar in structure and regulation to the Chilean system, except in one very important respect. To avoid the apparently excessive level of operating costs, the system would include a central agency that would be responsible for record keeping, collecting contributions, paying pensions and sending out financial statements. The central agency could be a public body or it could be jointly owned by all the private companies that would be allowed to participate in the investment management of the pension funds. Its role would be similar to that a clearing house in banking or futures markets.

The investment of pension funds would, however, be entrusted to authorized and well regulated and supervised private companies. Individual workers would have the choice to transfer the management of their funds between different companies, although account switching would then involve little more than a series of appropriate entries in the computer of the central operating agency. As in the case of Chile, investment rules would emphasize safety and profitability, there would be limits to ensure adequate diversification of risks, and there would be strict regulation and supervision by an appropriate supervisory agency. To keep marketing costs under control, there would be strict rules on advertising and a regulation of the structure of commissions paid to agents. There would also be detailed rules on the sale of annuity products.

Consideration could be given to limiting the range of products offered by both pension fund management companies and by life insurance companies. For instance, the regulations could include such rules as "one account per worker" and "one investment fund per fund

management company", which are essential elements of the current Chilean scheme. Alternatively, pension management companies could be allowed to offer a small range of investment funds (say, an equity, bond and money market fund), but the allocation of individual account balances among these three funds could follow strict age-related rules. Similarly, limits could be imposed on the offer of annuity products, perhaps opting for life annuities with ten year certain payments.

These restrictions on the range of products under offer could be justified on the grounds that allowing unlimited individual choice in the selection of investment funds and annuity products would go against the myopic behavior argument for justifying the institution of compulsory pillars in the first place. The risk aversion of unsophisticated investors who tend to select short-term, low-yielding instruments that are not suitable for the long-term contractual nature of these savings would be another justification.

As the second pillar would be a defined contribution plan, indexation of balances would not be appropriate. However, balances may be protected from the vagaries of high and volatile inflation by requiring or encouraging pension funds to invest in indexed long-term securities or in instruments that provide effective hedges against inflation. On the other hand, annuity products should be fully indexed.

A possible variation in this approach would be to entrust the central agency with the selection of investment fund managers on the basis of transparent procedures and clear investment guidelines. This would minimize marketing costs and would ensure that all workers participate in the same national pool. The risk of political interference with the utilization of funds and the awarding of fund management contracts would be strong arguments against such centralization of decision making, though adequate safeguards could be developed. This approach is being gradually adopted by the Employees Provident Fund of Malaysia, though its experience with the new approach, which has been prompted by the reduced borrowing needs of the Malaysian Government, is still limited.

Voluntary Pillars

In addition to the compulsory pillars, voluntary pension schemes may also be set up. These could be created by employers or they could be established by individuals who would like to aim for higher replacement ratios than those envisaged under the compulsory pillars. As a rule, voluntary schemes should benefit from the same fiscal incentives as the compulsory pillars. In general, the fiscal treatment should allow the deductibility of contributions (perhaps up to specified ceilings) and exemption of investment income (perhaps also up to specified limits), while pensions should be treated as any other source of income.

Although voluntary, employer pension schemes should be regulated to protect the interests of workers and ensure equitable and non-discriminatory treatment. Thus, there should be minimum vesting and portability provisions, while in defined benefit schemes, pensions should be based on actualized average lifetime earnings rather than final year earnings (this would eliminate the favorable treatment of senior managers and other high fliers). There should also be prudential, fiduciary and custodial regulations, though given the financial responsibility of employers detailed investment rules may not be necessary.

The scope for voluntary company-based schemes would be much more limited under a system with two compulsory pillars. To the extent that companies need to encourage loyalty and firm-specific training or to operate flexible employment policies, they would have to develop alternative compensation schemes that would be unrelated to the provision of occupational pensions.

Voluntary personal pension plans and annuity products would also need to be regulated to protect the interests of consumers. Such regulation and supervision should follow broadly similar lines to that of banking and insurance companies and should emphasize stability, efficiency and fairness.

CONCLUDING REMARKS

This paper has addressed some of the issues raised in establishing a pension system. The main focus has been on creating a system that can cope well with the objectives of solidarity, redistribution and insurance against correlated risks, operating and investment efficiency, and accumulation of sufficient balances for the payment of adequate but affordable pensions.

The paper does not discuss several important issues such as ensuring high coverage and compliance with the compulsory pillars of the system, the interaction between regulation and financial market development, or the problems of transition. Two points that should perhaps be stressed is that the proposed new structure envisages a continuing, though reduced, role for a public pension pillar and a much reduced role for company-based pension schemes.

A question that might be raised is why favor a Swiss Chilanpore system and not a Dutch one. The main difference between the first pillars of the Netherlands and Switzerland is that the Dutch system includes only a flat rate pension under its first pillar. This is targeted at about 40% of average earnings and is financed with contributions from all residents equal to 14.8% of their earnings. The cost of the Dutch system is clearly much higher than the Swiss. Although flat rate systems are preferred by economists because they involve fewer distortions in incentives, the existence of an earnings related part in the first pillar would help provide some insurance about a minimum replacement rate for workers with full careers and average earnings. A less generous flat rate system than the Dutch one would fail to provide a floor to the replacement rate. Thus, the argument for including a two parts in the first pillar is very much one of keeping costs down while minimizing risks by diversifying across different providers.

The much reduced role of occupational pension schemes can be justified on two grounds. First, occupational pension schemes suffer from many shortcomings related to intentional and unintentional redistribution among members of different schemes. To the extent that they are used as a personnel management tool, they are bound to penalize some workers more than others. Eliminating these shortcomings by appropriate regulations regarding minimum vesting,

portability and indexation standards would weaken the incentive of employers to continue sponsoring such plans. The second argument is that, with declining stability in employment patterns, company-based schemes would become exceedingly unsuitable for providing employment-based social benefits such as pension and health insurance.

Finally, a word of caution is needed about the applicability and relevance of a pension reform strategy based on the outlines of this proposal. Despite the rhetorical question in the introduction of this paper, there is really no blueprint for any type of reform that can be applied in all countries, regardless of local circumstances and conditions. For instance, in countries where national provident funds have failed patently, as has been the case in most African countries, because of underdeveloped capital markets, weak administration, and political interference, the proposed multi-pillar structure would not have many chances of success, unless capital markets were reformed and the regulatory machinery was much strengthened and improved. In such countries, social insurance systems might be a preferable alternative at this juncture, especially if they benefit from very favorable demographic structures and if they are properly designed to avoid the distortions that have afflicted the social insurance systems of Latin American and Eastern European countries. However, governments in such countries should not lose sight of the need to reform further their emerging social insurance systems in the long run and to restructure them in due course towards the multi-pillar approach advocated in this paper.

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