International Section News

October 1999 – Issue No. 20

system does not accommodate depositing and withdrawing funds at different locations and most people do not use credit cards. The result? Policyholders can make premium payments only in the city in which they originally applied for insurance. This is also true for benefit or claims payments.

During the past two years, the Internet has garnered much public interest, especially in big cities where access has become quite fashionable. Analysts predict that the number of Internet users in mainland China will reach one million in the near future.

This new development has already attracted the interest of life insurance companies. Most of them have established home pages on the Internet, through which they are introducing life insurance products and recruiting agents. In 1997, the China Insurance Information Net—a window through which people can learn more about the insurance industry—was launched. No insurer sells insurance over the Internet, however, because of the constraints of the country's banking system.

Cao Qing Yang, FLMI, is deputy manager, Business Department, at The People's Insurance (Life) Company of China.

A Social Security System for the 21st Century: Part II

by Chiu-Cheng Chang & Geraldine Chen

Editor's Note: The first half of this article was published in the last issue of International Section News. *The list of 21st century trends immediately below summarizes key points included in the first portion of the paper.*

II. 11 The Trends of the 21st Century: A Summary

1) The population will be aging.
2) The spread of technology and information will engender a world that will be increasingly interdependent. Future technology will be so efficient that most of the time, it will be taken for granted. The indications are already there—for example the increasing use of the "Smart card"—of the move from technological complexity to technological transparency.
3) Politics will take a back seat to economics. The global corporation will become the agent of international economic integration and the catalyst for social and political change in developing countries, taking over some of the roles of governments and international organizations. Decision-making will be increasingly decentralized.
4) The consumer will be sovereign. Firms will seek ways of adapting their operations and management styles to maximize their responsiveness to consumer tastes that will evolve over time and differ across cultures. People and knowledge, brainpower and innovation will be the driving forces of the 21st century and access to markets will be the critical factor determining business success. Countries have responded by carving out their "markets of influence," most visibly through the formation of trade blocs.
5) Employees with innovative drive and the ability to harness and exploit information will expect and demand better remuneration, benefits and pension packages. However, with greater international labor mobility, the traditional pay-as-you-go social security systems will be increasingly anachronistic.
6) The availability of information, multinational production, trade and foreign investment will nurture a new global lifestyle. Present cultural and societal barriers to certain types of behavior and lifestyle patterns will break down.
7) Individuals will become accustomed to looking after themselves and taking responsibility for their actions and their lives.

The next two sections will outline the inadequacies and drawbacks of pay-as-you-go social security systems in the light of these trends and, using the Singapore pension system as an example, develop the essential characteristics of the social security system of the 21st century.

III. The Pay-as-you-go System

The pay-as-you-go defined-benefit system is the norm in the industrialized countries. Workers pay pensions, usually financed through payroll taxes or general revenues, to retirees today, with the expectation that their pensions will be paid by the next generation of workers. A pay-as-you-go pension plan's current revenues are just adequate to cover its current obligations. There is no stock of assets to pay future pensions.

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Pay-as-you-go funding has several advantages. Benefits can be vested immediately and they are fully portable. This is in contrast to occupational pension plans that traditionally have long vesting periods. As contributions immediately become benefit payout, there is no problem with indexing benefits to wages or prices to preserve real purchasing power as is the case with a fully funded scheme. Moreover, administrative costs are relatively low under such a scheme.

III.1 Why not Pay-as-you-go?

What then are the reasons for the pay-as-you-go public pension crisis? Pay-as-you-go systems are usually defined benefit schemes where the pension amount accruing to a person depends on income, number of years of employment and salary levels toward the end of working life. Since benefits are fixed, the contributions of each working adult will depend on the total number of working adults and the number of elderly which have to be supported, which in turn is dependent on mortality, fertility, migration and labor force participation rates. As has been discussed in section II.1, the elderly dependency ratio is rising in both developed and developing countries. A two-year-per-decade increase in life expectancy among retirees could double both the dependency and contribution rates over the lifetime of the working population. Given the current situation, each working cohort will, in all probability, be succeeded by a smaller cohort, making pay-as-you-go systems untenable in the long run.

The increasing incidence of early retirement worsens the system's dependency ratio. The pay-as-you-go system, by breaking the link between benefits and contributions, creates incentives for evasion and reducing the legal retirement age. Moreover, many public pension plans in industrial countries have an earnings test that strongly encourages older people to stop working lest they lose their pensions. In addition they generally have high wage replacement rates that are earnings-related, skewing benefit payouts in favor of high-income workers. Benefits structures under pay-as-you-go systems distort the labor market by reducing the labor supply that is inefficient if the cost of the output foregone is greater than the value of the increased leisure. The same is true under most occupational pension plans under which the value of pension wealth generally stops increasing after the worker reaches a specific age such as 60 and 65, inducing workers to retire. Early retirement is a defacto substitute for layoffs and a way of dealing with the declining productivity of older workers, especially those whose wages rise with tenure. What is not immediately apparent is that early retirement reduces current production costs but raises long-run pension costs. This problem is aggravated by the provision of generous disability benefits.

"Early retirement is a defacto substitute for layoffs and a way of dealing with the declining productivity of older workers..."

Defined-benefit social security programs involve public intergenerational transfers from the young working population to the elderly retirees. Benefits and contributions are intergenerationally dependent. Slow income and productivity increases will reduce the ability of the younger generation to continue to make such transfers. In the years when members of the baby boom generation began entering the labor market, each successive working cohort could be expected to be larger than the last. Thus each cohort's retirement benefits would be paid by the contributions of an even larger cohort. However, given the present and projected trends in fertility and mortality discussed above, this method of financing will not be viable.

IV. Criteria for the Social Security System of the 21st Century

Social security schemes, irrespective of how they are funded, are a means of transferring wealth from workers to retirees. The economic function of a pension is to smooth out consumption over time. This is true for an individual and can be true for a society as a whole. Nevertheless the method of funding will have different impacts on labor markets, savings and capital markets and on the structure of society as a whole. For these reasons, we believe that the social security system of the 21st century should have certain features. These are discussed below.

IV.1 Emphasis on saving and personal responsibility

The economics literature abounds with studies on the role of savings in development, the impact of savings on economic growth and the reasons for differential savings across countries. One observation that has been repeatedly made are the savings rates, in excess of 25% of GDP, of the East Asian newly industrializing countries of Hong Kong, Taiwan, South Korea and Singapore which are correlated with strong economic performance over the past two decades, and the comparatively low savings and growth rates of many Latin American countries. The direction of causality has been the subject of much debate: do high economic growth rates imply higher savings or are higher savings causing higher growth by allowing increased investment? A recent study showed that one of the strongest contributory factors to high savings is rapid economic growth, and as countries get richer, they can save more, creating a virtuous cycle of higher growth and higher savings. A greater proportion of people under age 15 and over 65, and a high level of urbanization were found to effectively lower savings rates, as does a relatively underdeveloped financial infrastructure.

Mandatory retirement savings schemes are one way of increasing private savings. Chile has the most successful private pension system in the world as well as the highest savings rate in Latin America. Singapore and Malaysia have relied on their provident fund schemes for the last two decades to help generate their savings rates of around 30% of GDP.

A mandatory savings pension scheme has several positive features:

a) It emphasizes personal responsibility for one's own welfare rather than dependence on others. It helps to overcome the problem of shortsighted individuals who do not save voluntarily when young and become a charge on society when old. This is consistent with a general trend where people are moving away from reliance on public institutions to greater reliance on themselves. Saving for one's own future consumption is but an extension of this trend.

b. It encourages long-term planning rather than short-term expedience. The American Academy of Actuaries has launched a program to encourage American wage earners to prepare for a financially secure retirement by informing themselves of their social security and pension benefits and then beginning a program of personal saving for retirement. As businesses are also moving towards planning for the long term, they will be in a position to help their employees think long term.

c) It facilitates understanding of the cost of living and financing for retirement.

d) As contributions are a function of salary or earnings, this type of scheme creates incentives to take up or remain in employment or to generate earnings through business. This is in direct contrast with public pensions that have built-in disincentives to work.

e) Properly channeled, the accumulated savings can provide resources for economic development

One point to note is that under a mandatory savings scheme, the contribution rates have to be high enough to offset the decline in voluntary saving such that total savings increase.

IV.2 Emphasis on employer responsibility

Pensions have long been part of companies' overall wage and benefits package. A good, solvent pension plan is a means of retiring older employees, attracting new talent and enhancing the reputation of the company. Knowing that their employer takes responsibility for their welfare during and after their active working life helps to raise and preserve employee morale within the company and in so doing, foster good labor-management relations in industry as a whole. The provision of an adequate pension is part of employers' moral obligation.

Pensions are essentially deferred wages, to help employees smooth out income and consumption between the periods of employment and retirement. As such, in the ideal social security system of the future, employers should continue to contribute to their employees' welfare in retirement.

IV.3 Fully funded

Under a mandatory savings scheme, contributions are deposited into personal accounts and the amount available in old age is dependent on contributions plus the investment return. The scheme will be fully funded at any time.

Full funding arises from defined contributions during the active working period, which in turn would depend on the level of salary. To ensure that the total pension is adequate to provide for a minimum level of consumption from retirement to death, the rate of contribution should depend on projections of mortality, disability, termination and the target wage replacement rate. In Singapore, defined contributions are elicited from both the employer as well as the employee and at present, for employees under 55 years of age, employers and employees contribute, subject to a ceiling, 20% of their gross salary into their provident accounts which can be withdrawn upon retirement.

IV.4 Fully vested

Occupational pensions in Europe at the turn of the century, usually with defined benefit formulae, had long vesting periods to encourage employers to provide and workers to undertake on-the-job training. Under limited, partial or staggered vesting, benefits are vested in or owned by the employee only after a qualifying period of employment. If workers quit or are dismissed before vesting, they lose their rights to the pension benefits. Employers also had perverse incentives to fire workers just before vesting, increasing the probability of making them liabilities of the state.

Pensions in the United States also operate with delayed or staggered vesting. Employees are vested after a minimum length of service (usually five years) or are vested in stages. For example, 20% of the pension is vested after three years of service, 40% after four years, 60% after five years and so on. Delayed vesting rules in essence divest the employer of accountability for the employee during the probationary period and hinder labor mobility.

When economic conditions change rapidly, impeding labor mobility reduces efficiency in labor allocation. Pensions should therefore be vested immediately. Employees and companies are also beginning to accept the necessity of training and constant upgrading and in the future, training will be provided and undertaken regardless of incentives. Benefits under the Singapore provident scheme are vested immediately for members without any minimum age or length of service conditions.

IV.5 Fully portable and fully reciprocal across national boundaries

The discussion in section II.7 indicates that labor will be mobile not only between jobs and occupations within national boundaries but more so across national boundaries. Full vesting allows full portability but in the future, pensions will also have to be portable across national boundaries.

Some countries already have a unified social security program administered by one agency, which comprises representatives of employers, employees and governments. Bilateral and multilateral conventions or treaties exist among

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many countries, especially in Europe, which guarantee equal treatment of aliens and citizens, payment of benefits outside the country and the pooling of transfer re-cords to meet qualifying periods.

A "totalization" procedure is sometimes used. The countries agreeing to do this count the earnings record of the individual as part of his earnings record in the given country for purposes of determining benefit eligibility. Pension credits obtained in one country would be handled in such a way so that a movement to a job in another country would be administered like the continuation of work in the given country. Under a fully funded defined contribution scheme, contributions made in all jobs would be credited into the employee's account by any signatory country to the agreement.

IV.6 Intergenerationally independent

One major disadvantage of pay-as-you-go systems is the separation of contributions and benefits. More to the point, the pension costs of this generation are borne by the next: the system is intergenerationally dependent. A long-term steady state solution to a problem cannot exist when costs are deferred to the next generation.

As outlined in the previous section, businesses are beginning to think long term, and the long-term solution to the pension question lies in personal responsibility for one's future pension and consumption.

IV.7 Encourages late or flexible retirement

Many public pension schemes pay out benefits only if the earnings of the individual are below a certain threshold. This encourages individuals to stop working even when they are capable of and wish to continue working. Early and/or mandatory retirement at a fixed age is costly, particularly when the labor force is shrinking, and inefficient when individual utility could be raised by continued employment. A mandatory savings-based pension scheme with salary-based contributions has a labor-supply inducing effect and reduces the incentive to take early retirement.

Many countries have a customary retirement age. In Singapore, this was recently raised by 5 years to age 60, and will be raised in stages to 67 years. To compensate for the perceived lower productivity of older workers, the contribution rate for employees above 55 years is half the norm and declines in stages thereafter. Nonetheless there seems to be some social pressure for older individuals in larger organizations to retire to make way for younger colleagues, and for individuals to withdraw their due pensions at the legal withdrawal age of 55. Any attempt to raise the withdrawal age, at least in Singapore, would probably not be feasible. Still, several corporations have begun to tap older workers in an increasingly tight labor market. A flexible retirement age is logical. Individuals differ greatly in their financial conditions, health status, work attitudes and life philosophy and they should be able to work for as long as they choose.

IV.8 Encourages private intergenerational transfers

One of the criticisms levied against savings schemes is that their redistributional impact between the different income groups in society is minimal. If an individual is in a low-wage job, his contribution (and his employer's contribution) to his pension will be small and he will probably have a retirement income insufficient or barely sufficient to meet his basic needs. The low income\low pension cycle is perpetuated.

Many Asian societies rely on a system of informal support whereby children accept that they have to ensure the welfare of the elderly in their family, notably through sharing of income and provision of basic needs. The provident fund scheme in Singapore has institutionalized this system of private intergenerational transfers by allowing and encouraging children to top-up their parents' provident fund accounts. Income redistribution takes place within the family and some say that this emphasis on care of the elderly will help to reinforce the strength of the family unit.

IV.9 Provides for disability and medical expenses

One of the biggest public expenditure items is health care, particularly for the elderly and infirm. The United States currently spends about 14% of national income on healthcare and this proportion is projected to rise as the population ages. The reasons for the escalation of healthcare expenditures are extensively documented in the literature and will not be repeated here. Suffice to say that pension schemes should require in-dividuals to plan for medical expenses and insure against catastrophic illnesses and disability. In Singapore, premiums for approved medical insurance schemes can be paid with provident funds.

The new lifestyle of the 21st century will involve changes in living habits. Current trends indicate that there will be many more couples with few or no children, many more people remaining single and probably a new class of unmarried couples living together. There is evidence that mortality rates differ significantly according to marital status (Trowbridge, 1994) with unmarried mortality higher. It is highly likely that morbidity rates will also favor marrieds.

Couples with few or no children will have few resources to fall back on in the event of long-term illness or disability, a problem that will be more acute for singles and unmarried couples. These changes will alter the relative importance of life vis-à-vis disability insurance. Life insurance will become relatively less essential for individuals with few or no dependents. What is critical will be the ability to support oneself if one is disabled and cannot be employed. Total and permanent, as well as partial disability that affects employment, will cause individuals without adequate insurance protection to be liabilities for their families and the state.

One reason why disability insurance benefits have not been widely available in Asia is because the definition of disability may be a source of dispute. If an eye surgeon develops an affliction which results in his being unable to perform operations, but he is otherwise able to undertake other types of employment and activities, is he regarded as disabled? Should an occupation-specific or an all-occupational definition of disability be used?

The recent past has witnessed more and more people, particularly the elderly, refusing treatment in the face of terminal illness. Many wish to save on medical costs. In 1993, the United States spent US$152 billion on Medicare, 28% of which was estimated to have been for patients in their last year of life. Of that, half was spent in the last 30 days of the patients' lives. There is also a growing acceptance that the terminally ill should have the freedom to choose to die earlier instead of being kept alive by machines. More people will be willing to confront the subject of death and make living wills, and the social security system of the 21st century should encourage this practice. Singapore has just recently begun to consider this subject.

V. Concluding Remarks

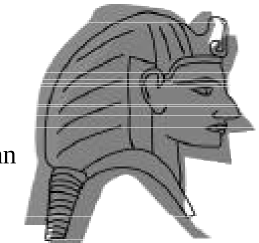
This paper outlines some of the key characteristics of the viable social security system of the 21st century, based on trends that are expected to prevail at the time. Social, political and economic conditions vary and even if all countries adopted these principles, implementation will differ according to circumstances and conditions. Issues such as whether the social security system should be publicly or privately managed, how systems can be unified, whether withdrawals should be phased or lump sum, whether contributions made in one country can be withdrawn in another are best decided by the governments or corporations concerned. Flexibility should be a guiding principle in system as well as implementation.

Chiu-Cheng Chang, Ph.D., FSA, FCIA, FAIRC, FSII, CLU, ChFC, is a professor and director of the business department at Chang Gung University in Tao-Yuan, Taiwan. He is also assistant editor of International Section News.

Geraldine Chen, Ph.D, is a professor at Nanyang Technological University in the Nanyang Business School in Singapore.

The Egyptian SOA

by Mohamed F. Amer



Preamble

The Egyptian Society of Actuaries (ESOA) was established in February 1999. The founders are ten Egyptian professional actuaries:

- Two Fellows of the UK Institute of Actuaries
- Two Fellows of the USA Society of Actuaries
- Four Associates of the UK Institute of Actuaries
- Two Associates of the USA Society of Actuaries
- Twenty five affiliated members who are studying for actuarial examinations

The Main Objectives of the Society

- ✔ Promote and maintain high standards of conduct and competence among its members
- ✔ Issue guidance notes and professional guidance standards
- ✔ Increase awareness of actuarial science
- ✔ Organize meetings and seminars to discuss practical actuarial problems of professional interest so that the affiliated members may acquire skills and information in the areas related to the profession
- ✔ Exchange views and experience with other societies
- ✔ Express views and opinions in all matters related to the actuarial profession
- ✔ Form an actuarial library

Education and Training

In Egypt the shortage of actuarial personnel had become acute. Most of the existing Egyptian actuaries were aging and there were only very few new potential actuaries.

In 1995 an actuarial education program was started at Cairo University for the degree of B.Sc. in actuarial science. Members of the ESOA and professors of the university teach courses in this program, which is a joint effort of Cairo University, City University in London, the Insurance Federation of Egypt and the Institute of Actuaries.

Through the Cairo University program, students are able to obtain exemptions on up to eight of the UK Institute of Actuaries' examinations. Twenty-five students have already graduated, in both 1998 and 1999, and have obtained the degree of B.Sc. in actuarial science. Some of them received the full exemption of eight examinations of the Institute of Actuaries, and they are now affiliate members of the IOA.

A steady stream of new entrants is starting actuarial studies each year at the university.

There are two examination centers in Cairo for examinations of the USA Society of Actuaries and the UK Institute of Actuaries.

The ESOA is not conducting its own exams now and does not plan to do so in the foreseeable future. We will depend upon both the USA Society of Actuaries and the UK Institute of Actuaries.

Membership

For admission to the ESOA, the prospective member should have a good reputation and the board of directors must approve his/her application for membership.

The membership of the Society consists of two classes:

1) **Active members:** Fellows and Associates of the Society of Actuaries or the Institute of Actuaries who are included in the

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