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SOCIAL SECURITY SYSTEMS AROUND THE WORLD

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The panel will present different governmental approaches to providing financial security and health benefits for retirees. The panel will also discuss the problems associated with aging populations and the reduction in resources available to meet their needs. Among the systems to be discussed are those of Chile, Switzerland, and Singapore. "Facing the Challenge of Aging Populations," in Volume 21, No. 4B of the Record *is an open forum at which these issues and potential solutions will be discussed.*

MR. ROBERT M. KATZ: Our panelists will discuss social security developments in a number of different countries. Our first speaker is Don McIsaac, who will talk about the situation in Eastern Europe.

MR. DONALD A. MCISAAC: I will speak about a particular country in Eastern Europe, which I cannot name on account of ongoing developments. What has been proposed for this country is a so-called multipillar concept. You will hear more about this from other speakers and at another session on the World Bank Paper "Averting the Old Age Crisis."

In this particular country we're suggesting an interesting combination of a three-tier system. The first tier will continue to be a pay-as-you-go system. In addition, part of the mandatory contributions will be placed into a funded second tier which will be privately managed. The third tier will be the optional employer-pension-plan-type of structure which will, of course, also be privately managed. There will be a minimum pension payable by the state system that will essentially be a subsidy for the pension derived as above and that will be a subsidy to the combination of what's available from tier one and tier two.

As this country plans for implementation, it is now preparing legislation for the first tier or the so-called mandatory pay-as-you-go system. Initially, we expect that the mandatory pay-as-you-go system will consume the entire portion of the tax that is available for the old age benefits. At the same time, we'll be putting into place a system of regulation that will establish a supervisory body to run the voluntary third tier.

After an initial period we expect to be able to see a part of the mandatory contribution going into a second tier or type of savings-funded portion, and it will take some time before we get that underway. We're hoping that the experience with the supervision of the third tier now being launched will enable us to put in place the supervisory machinery and protect the interest of the public in the second-tier savings.

Getting back to the first tier, this is an interesting concept which comes from Sweden. Our consultants on the matter were the Swedish National Social Insurance Board. Those of you who are familiar with the process will recognize that we're taking a pay-as-you-go

system, but running it as though it were a defined-contribution system. Their benefits are computed using a formula that divides accumulated capital by the life expectancy. The life expectancy factor is an interesting thing for actuaries. In this particular case, it's a modified life expectancy which is a joint factor for a male and female mortality weighted by the accumulated capital for the males and females in the population. To receive benefits from the fund requires a five-year minimum period of service. Contributions are accumulated in notional funds on an individualized basis and they're indexed annually with the rate of real wage growth in the pay-as-you-go tier.

One of the unusual features of this system is that, in certain years, individuals do not make contributions because they're either not in the workforce because of unemployment or disability or perhaps they are in the military service. In those years notional contributions are deemed to be made on their behalf. The biggest problem in these situations is dealing with transition. In order to deal with transition in this particular situation, they're creating imputed or notional contribution histories for people who are close to retirement age. Persons retiring in the first few years after the system is introduced obviously, will not have a history of actual contributions. They'll be given credits on the basis of their work history, special credits for military, disability, and so on. One of the more interesting features is there's a special credit for anybody who has spent time in a concentration camp. A year in a concentration camp gives you three years of credit on the pension system. I don't know if that's fair compensation, but that's what they're going to do. These things create a substantial unfunded past service liability for the system and that is why they're going to stick to a pay-as-you-go system with the appearance of contributions rather than operate it as a strict defined-contribution system.

The advantages of this approach, as we see it, are that the use of contribution-based pensions creates an incentive for people to participate, to be contributing, and to report the full amount of their income. There's a serious problem of underreporting in this particular country, both underreporting of payroll records and, also, underpayment of actual contributions. This is a problem we see in many countries, and the idea is that an incentive like this will cause people to report their contributions more faithfully.

In addition, the system is adaptable to changes in life expectancy. That is to say as the life expectancy changes from time to time with improving longevity or other reasons, there's an automatic adjustment to the way in which pensions are calculated for retiring persons. Each age cohort is monitored carefully and, obviously, if a person is faced with rising life expectancy, he can do something about that by working longer and thereby increasing the factor of the accumulated capital for the pension calculation. In addition, this functions like a funded system and gives us a logical link to the second tier or the funded system.

The second tier, which I call mandatory funded, is one that you'll hear more about when we talk about Chile, but it is estimated that after three years or so, it will be possible for them to start diverting approximately 5% or one-quarter of the basic mandatory contributions into a privately managed account which will provide individual recordkeeping for the savings of people. Based on some of our projections, we estimate that the total funds for the first and second tiers could, over time, reach 25% of gross domestic product. This kind of savings accumulation is extremely valuable to the country and the type of thing that the World Bank wants to encourage.

Private savings accounts managed by private fund managers provide many advantages such as the development of the capital markets, the people's awareness of their savings, the more sensitivity towards the need to save for retirement and so on. When you talk about a fund growing so rapidly and to such a large extent which, as I said, is 25% of gross domestic product, that's really wishful thinking because no one really knows what will happen. But it gives you the idea of the possible impact. There is also something called the buffer fund which the expert from Sweden put together to indicate the fact that because of the baby boom there will be an extra drain on the public part of this system in that period when the baby boom reaches retirement age.

The third tier, or the voluntary system, is one that we're hoping to get started as soon as possible. We expect that individuals with higher-than-average levels of income will want to create their own savings. We have to examine, for example, the tax treatment of pension contributions which, in many countries in Eastern Europe, is not a reality and not something that has been considered in the past. We also have to make sure that we have a strong regulatory system and we need to talk about the type of protections that will be available. In many of these countries, there's no confidence in institutions. We've just had banking failures in some countries in Eastern Europe, so if you tell a person that their savings may be invested in an institution that may be guaranteed by the government, they may not feel comfortable with that notion. It's going to take some time to build up the confidence in institutions and we're working on different ways to do that. Also, as I said, supervisory institutions can be put into place.

Finally, let me talk about the next steps. The first thing to do is to prepare the social insurance system for the new accounting and control requirements of a pay-as-you-go tier-one system which is based on contributions. The second and probably the most important thing is the public information campaign. How can we get people, first, to understand what we're trying to accomplish and, second, to feel confident enough to put their savings into it? At the same time, we'll be launching the third tier or the privately managed pension system which will give an impetus, we hope, to the development of a private life insurance industry. These things are all taking place now.

MR. KATZ: Our next speaker is Fernando Troncoso, who will talk about Latin America.

MR. FERNANDO J. TRONCOSO: I will speak about South America, specifically Chile. I'm going to go through the process of what was done in Chile, what the program was before the current one was established, what problems they had before the current system, and how they have solved the problems.

There are four problems to talk about. The first is the inefficiency of the system because of the large bureaucracy, particularly in the area of social security. A second problem is demographics, which seems to me to be one of the biggest problems that we have faced in many of the Latin systems; in particular, the demographic pyramid has been very wide-spread. At the beginning there are many people under age 30, very few people retiring, and a life expectancy of 65–70. With the advance of medicine and other health developments, the life expectancy is increasing. However, there is reluctance to increase working life. People still want to retire at 65. In my view that is another major problem.

A third problem is income to the social security system. This is an economic situation in which a country needing cash to fund the social security system is tempted to divert this

money for infrastructure developments, with the intention of paying into the system later on. Often these funds are not paid back, so the fund is completely drained. And that's how the system becomes pay-as-you-go. In order to meet its obligations the government is then forced to borrow from outside the country, which causes inflation.

The fourth problem that we have seen is the lack of savings power. Nobody believes in the institutions, so savings becomes a matter of owning your own business or putting your money under the mattress. I'm going to concentrate on these four problems and describe how they were solved with the new system.

First, I want to talk about what happened before 1981. Social security in Chile, according to the books I have read, originated around 1925. This was initially intended to provide potential benefits to only some sectors, then others were added. Some were private, and some were provided by the government. In 1952 there was reform by way of a pay-as-you-go system. They thought that by bringing in revenues on a year-by-year basis they could pay pensions on a year-by-year basis. Their premise was to assume that the young population would work until death, so that benefits would not be payable to them.

In the years after 1952 benefits have been expanded. If you go to any Latin American country and ask for social security, everybody immediately thinks of pensions, workers' compensation, and hospitalization. In the U.S. when we think social security, we might think family income, but Medicare is something that comes after retirement. We don't think about it being available during our working life. In Latin America, it is available during working lifetimes and regardless of the inconveniences of receiving care, services are available. Most people who are in the medium-to-high-income class will not use the medical service; basically the poor people use them in Latin America.

Problems arose in 1974 and they had to increase contributions. Remember that this was the time in which Mr. Pinochet was in power. Then in May 1981, the new pension law was enacted. That was a defined-contribution system not heard of anywhere else.

The money going into the system is basically 13% of salary, paid by the employer. That goes into an account like an IRA and is administered by special companies called AFPs. Employees can decide which company they want, and they can switch them without limitation, except that they cannot touch the money until retirement.

Once you reach retirement age, you can use your lump sum money to purchase an annuity from an insurance company, or you can stay with the AFP, which will pay you a pension. But that pension is not guaranteed for life—it is guaranteed only until the funds run out. So what do you want to do? You can take a large amount initially if you think you're going to die soon, but if you want security to age 110, you might buy an annuity from an insurance company.

How has the system survived? What were the key elements that made the system successful? And why are other countries at least looking into what the Chileans did? First, one of the elements that we always have to understand is inflation. In the U.S., back in the early 1980s, we saw inflation reaching close to 20%. That is inconsequential compared to a country like Argentina, where six years ago monthly inflation was 15%. With inflation like this people use their paychecks immediately to buy goods because the

money is worthless the next month. This kind of problem has existed in many Latin American countries.

The Chileans decided not to create a currency but a unit system instead, called *unidad de fomento* (UF). Initially, the UF was pegged at one-to-one to the peso. But as inflation went up, the value of each unit went up. When you retire in Chile and you want a pension, you have so many UFs. Then, of course, the UF has a value in pesos and you get currency that is not losing its purchasing power. In my book, that is the most important element that the Chilean system did to attack the pension problem. The UF is the basis for both contributions and benefits. Although the Chilean currency is the peso, and people buy things with pesos, they're always thinking in the UF. I think you will find that, by and large, because of this, people there are more educated in economics than I have seen in other countries, even in the U.S. A key element is that the funds, administered by the AFPs, have provided real returns on investment, meaning above inflation, because of the UF.

One of the problems the Chileans faced at the beginning was that they didn't have the market for investment. At the beginning, the government was hesitant to allow the AFPs to invest outside of Chile. But now that Chile has a very good economy and outside investment is allowed.

Today there are about 17 AFPs covering about 5 million people, with Chile having a population of about 30 million people. They have accumulated assets of about $25 billion, which represents 45% of the gross domestic product. Chile is one of the very few countries that has now reduced its external debt to other countries because they now have more money and they can make some payments.

The problem of inefficiency experienced earlier has been solved because the AFPs now have to compete for business—either you are efficient or you are out of the game; employees can look at the paper and compare your performance against the other AFPs.

You now have a fully-funded pension by the time you retire. You don't have to hope that the social security system will have enough money to pay your pension. The money is there and you know it because you have seen it build year after year. Now it's up to you to go either to an insurance company and buy an annuity or to stay with the same AFP.

One key economic element, in my view, is that the government in Chile does not have to make contributions to the system. In the pay-as-you-go system, the government was supposed to put in part of the contribution, but the government never did put in all its contributions. Now they don't have to because the employers contribute. The employees handle the money, passing it from one AFP to another. They no longer have to face the issue of waiting to get the money to invest later, because it's available now. The savings element that they used to lack before this new system has now come into effect because it's basically forced.

Those four problems I mentioned have been solved as I see it, at least in general. There are some flaws in the system, but I think that, by and large, this big switch of 180 degrees in their system has been a success in Chile.

The positive effect of this new system is that the people save. They now know where their money is because they can see every month how much they have. They can start planning ahead and they know the money is there. Labor leaders also like the idea. So now when you go to union organizations, pensions are not an issue anymore. There could be some other benefit issues, but the basic social security system is now off the hook.

On a fully-funded system, the country uses those internal savings for development. We heard, at the beginning of the year, how Mexico had a great deal of quick money that came from investment, and it was foreign money. In Chile, through this system, they now have internal savings and through the payment of interest, can keep the money in the country. That creates confidence in the currency, that creates more work for the people, and that benefits the economy.

On a pay-as-you-go basis, a country borrows foreign money for development, as in the case of Mexico. The social security system in Mexico is on a pay-as-you-go basis. The government borrows a lot from outside to develop internally because they don't currently have a good savings system in Mexico.

Let's look at trends in other countries, particularly those that have already either changed to a defined-contribution system or added a defined-contribution system. In Peru two years ago, they switched from a defined-benefit to a defined-contribution system. While there are transition problems, they have already issued the first annuity in Peru. In Argentina, the defined-contribution system is the Chilean model with an added part. They didn't do away completely with the old system, but they added what I would call a second pillar. It's working. They looked at the Chilean model, changed some things about it, and adopted it to the Argentinean economy.

Columbia copied the Chilean model, but with one problem: you, as an employee, can choose every three years to go back to the old system, but if you go back, you stay three years, and then after three years you can go back to the new system. I don't know how that's going to work and I suspect there may be problems with it.

In Mexico, they added a defined-contribution element, which is equivalent to 2% of pay, paid by the employer. This may not create a significant amount of savings, even over 35 years of service, but it was, in my view, a political compromise. The social security system was under a lot of pressure from labor, who wanted to retain the old system. There has been a cradle-to-grave mentality about the state taking care of the people and they didn't want to do away with it. But sources have told me that there are ongoing studies to see if this new defined-contribution system will eventually take over the other one.

Bolivia is looking at having the government give everybody a prefunded account with, I believe, $600. This would be an incentive for people to participate, since that would be a condition to have the account established. The system is not in place yet, but is being considered. Ecuador is looking into reform and so is Costa Rica, although Costa Rica is very proud of its social security system. Venezuela also has looked several times at social security, but they are having big problems now with so many banks defaulting that I think they will need to defer any changes.

MR. KATZ: Our next speaker is Krzysztof Ostaszewski, who will compare the Polish and Chilean systems.

SOCIAL SECURITY SYSTEMS AROUND THE WORLD

MR. KRZYSZTOF M. OSTASZEWSKI: I'm at the University of Louisville and I have received a research grant to study the social security system in Poland. I would like to give you some comments comparing the systems in Poland and in Chile and discuss the meaning of social insurance in the process.

Albert Einstein said that all of science was just an extension of common sense. I would say that social insurance, especially funding of social security like retirement benefits, is an area where we live in a fairytale land, more or less. We have created extremely sophisticated myths about it that are not extensions of common sense. I would like to submit to you, for example, that pay-as-you-go systems are fully funded. They are fully funded with securities that fluctuate in value when legislature is in session. Your Medicare security extremely volatile now. If you don't believe that a pay-as-you-go system is fully funded, then I would like to know how your recently purchased Treasury bill is funded because if we don't hear from the Congress and the administration by November 15 about raising the debt limit, then it's not funded. There's no money there. How is that different? It's not different. It's a very sophisticated myth that there is a difference. It's a security in either case except in one of them the issuer reserved very sophisticated options to adjust the value of the security as the legislature meets. But, no man's life, liberty, or property is safe as legislature is in session. That's a new meaning of that expression.

Social insurance is generally defined as a universal, mandatory system of insurance which is administered or supervised by a government authority. Generally, it's insurance so it's self-funded and there is a relationship of premiums to benefits. However, those premiums and benefits are set by statutes and any subsequent regulatory body's interpretations of those statures. The value of the insurance, or the security it provides, fluctuates when legislature is in session.

In the U.S., we have several systems of social insurance and there are several of them in Canada as well. In the U.S. it's sold as security and disability income, hospital insurance and supplementary medical insurance or Medicare. And now there is no such thing as a system that perfectly meets the conditions and the definition. We know that supplementary medical insurance (SMI) is not a system that is run in the standard way. In fact, the people who had participated and pay premiums receive a budget subsidy. So I wouldn't argue that if something doesn't meet the conditions and the definition perfectly, then we can't analyze it as social insurance. I would actually ask you to be open-minded about it, just like I'm asking you to be open-minded about the fact that we often live in a dreamland when we talk about social insurance.

Why do we have systems of social insurance? Now here is the part that I think is extremely important to remember—social insurance is an instrument of public policy. I would like to bring about another myth that is extremely important now. Chile was successful in its reform. That's one of my cases. As a result, we hear all over the world the cry, "Let's just do exactly the same thing as Chile. It doesn't matter what our situation is, let's just copy it."

Why did the original systems exist? I could name two reasons. The government wanted to run an insurance company. In the early 20th century, it was very popular for government to run shoe production, car production, clothes production, or anything. The government also runs insurance companies in the 20th century. However, we should never ignore the fact that social insurance systems exist because there are certain

important public policy goals that are to be met through those systems. The public policy goals of the social security system are: to provide a minimum flow of income for retirees and certain disabled persons; to partially override the principle of individual equity with the principle of social adequacy; to promote social compromise by acquiring contributions from those employees and employers to guarantee the receipt of benefits through government backing, and the inflation factor to guarantee a real purchasing power.

I'd like to point out that Chilean reform addressed several of these issues and I'll discuss this in just a moment. When we discuss these issues, we have these very fundamental questions that should never be abandoned: What are the public policy goals or, as a speaker at the AAA session said, "What is the national pension policy?" If you're a proponent of the free enterprise system you may feel uncomfortable with the need for a national policy. I think and I am a proponent very much of the free enterprise system, but I think that we need to have a discussion. If we have certain public policy goals that are accepted by the public and we ignore them in any reform, this reform will not succeed. It's impossible. These public policy goals appeal to the public, they are important to the public, and we must address them. If we specify them, then we need to ask ourselves how they should be met. Should they be met by government administration? Should they be met by a free enterprise system with government supervision or unrestricted free enterprise? I would like to suggest to you that there is no such thing as a completely government-run system. In the U.S., yes, we do have social insurance systems, but we have a very large private sector system for provision of retirement benefits.

When I asked Mr. George Will, the keynote speaker, he said a provision of retirement benefits is not insurance and annuity is not insurance. I am a bit surprised. However, the public, Mr. Will included, unfortunately, is somewhat uninformed about the fact that this is our business. We need to ask ourselves what is the meaning of life, property, casualty, and pension, and other lines of business. We need to explain to the public the meaning of our business. Pensions are a natural, private business. We can do that; however, we cannot forget about the public policy goals. I would also like to suggest to you that if we try to impose a total government system it will not be because people will walk away from it. However, there is no such thing as completely unrestricted free enterprise because when people speak about that, generally, they mean anarchy. There is no anarchy in Chile.

Now I would like to discuss two case studies, Poland and Chile. Poland is a country that was the first to institute reforms in Eastern Europe. However, when it instituted them, the attitude was that the social insurance system should be talked about in the future. Interestingly enough, it is now the number one problem of the country. There is nothing that even comes close in importance to the crisis of social insurance in Poland.

Chile was the first country to institute a social insurance retirement benefits system in the Western Hemisphere and the first one to privatize it. But I would strongly suggest that you keep in mind that it's not a system where there is no government involvement whatsoever. There is a function for the government in the system. The government in Chile provides certain important features to the system even though it's a privatized system.

Poland has one centralized social insurance company that is more or less a monopoly in terms of the retirement benefits provision. It also provides disability, unemployment, and

workers' compensation coverage. There was really no significant reform of that system that resulted from the economic reform started in 1990. What we have now is a very deep crisis of that system. The entire budget deficit of the Polish government is a subsidy to the social insurance system. There is a big debate about indexation of benefits. The retirees feel they are not fully indexed and yet they are indexed to wages so we would expect them to have rather generous benefits based on that.

There are dangerous demographic trends. They had a baby boom and there is an amazingly twisted incentive structure. The incentive structure results in nine million recipients of benefits and 15 million people employed. And for these nine million recipients of benefits, you need to add an additional three million who are unemployed. The nine million are retirees and disabled persons. There is, of course, a big national debate in Poland about what to do about this.

Current payroll tax in Poland is 48.3% and is paid by the employer; that tax has amazing consequences. You wouldn't imagine the schemes they design to not pay it. Poles save 25% of their incomes and they barely make any money. They lie about their incomes. There is no certainty of long-term solvency and the system is more or less abandoned by the legally-working and illegally-working people. Everybody tries to avoid paying the tax and everybody tries to collect the benefits.

The Chilean success story started intentionally on May 1, 1981. I'm saying that it is a universal fully-reportable index system created within the private sector; I'm claiming that it is possible to do that. However, I'm claiming that it's probably impossible to do that without government involvement. The idea of the system, in my opinion, was to float accumulated actuarial obligations. They became marketable bonds, if I can put it that way. Think about it please.

Yes, it's officially a success story, but I'd like to debate why it's a success story. The success is illustrated by very high rates of return, very high rates of participation, and high growth rates of the economy. Yes, definitely we would like to see all those things. We would like to make a lot of money in our retirement account. We'd like the economy to grow. This is very good.

However, in my opinion, it all relates to my favorite area of actuarial science, which is asset/liability management. What is the meaning of life insurance, property, casualty, pensions, and other lines of business? What kind of business are we in? I believe we are in the business of crafting dividend securities. We are option peddlers. We create securities out of those issued by the corporate sector to match the needs of the household sector. That's really what we did. We take the cash flows that exist and craft them to match the demand for cash flows and so does the social insurance system. Well, then where are the assets? Are there no assets? Yes, there are. The taxable payroll is an asset. It's the asset that has to be managed. If we create a liability structure that causes the taxable payrolls to decline, we are mismanaging the social insurance system. If we are creating a structure of assets and liabilities in a social insurance system, which harms the growth rate of the economy, we are mismanaging the social insurance system. Let's remember that we can't expect the participants to not act in their own self-interest. Those who will not act in their own self-interest will not survive economically. They will become less significant economically. They will act in their own self-interest and this has to be built into the design of the system. We need to understand that.

And one final comment. I think the main reason why problems with the social insurance system in the world exist is not because of the old-age crisis. It's not funding versus not funding. It's pricing of capital. If we have a system where the cash flows on the asset side are free, it's no problem. We can just tax the payroll. We don't see the cost of capital, so we will pay for it. The reason why capital markets exist is to price capital. All the speculators do a good job for the economy by pricing capital. The efficient frontier is really a price list of capital. By instituting mandatory systems we're abandoning the competitive bidding for the funds. We had relatively low interest rates in the 1980s even though we had record budget deficits. It was quite easy to borrow from the social security system, and these funds were not bid for. There was no competitive bidding, yet competitive bidding is where the prices are formed and these become true prices of capital. We cannot expect a centralized government system to set prices. It's unrealistic. This has been tried in the early 20th century in almost every area. We know that it's simply not possible. Government has a different function and we should keep in mind that the same functions in capital markets. Capital markets do exist for the reason of pricing of capital and placing it efficiently. And I think that this must be an idea that we keep in mind together with the public policy goals. We can't abandon either. We need to price capital efficiently, and we need to keep in mind the public policy goals.

MR. KATZ: Our final speaker is Barry Watson, who will be summarizing a paper by Chiu-Cheng Chang, who was unable to be with us to present it himself.

MR. CHARLES BARRY H. WATSON: I am substituting for Professor Chang, who was going to present a summary of his paper describing the social security system in Singapore.

I'm actually going to begin with a quotation that he used at the start of it; it's rather interesting. It comes from a book by Nina Boddin called *Walking Naked* and says, "Old age is Indian country, unchartered and dark. Even when we have parents still living to provide us with maps, show us over the rising hill, the crest of the road, we don't want to look. Fear perhaps not of death so much as of all of the indignities lying in wait for us." And this, of course, relates to the public policy goals that Krzysztof referred to previously. Because we must never forget that the purpose of any system that is intended to provide income security for people in their old age and in other situations of indignity is that they should be able to live with decency. One of the worst things that can afflict us is the risk of untimely life and if we live too long and our resources are not good enough, we have grave difficulties.

Singapore is a country which was one of the first to introduce a defined-contribution system that was fully organized to meet certain public policy goals, which included goals of the state as well as goals of the individual. There have always been some countries in Africa that have had what you would call providence-fund-type arrangements, but the major examples of countries that set up a very organized and structured system are Singapore and Malaysia, and Singapore has done it with a vengeance. The system in Singapore is called the Central Providence Fund. It is a totally defined-contribution system. It is financed by mandatory contributions from both the employer and the employee.

It began in 1955 with a contribution of 5% from both employees and employers. However, over the years, and for various reasons, this contribution rate increased to

approximately 50% of the payroll up to a certain maximum limit. Again, 25% from each. The contribution rate was clearly designed to meet the economic situation of Singapore, because the basic intent from the system from the Singapore government's point of view was to provide capital to build the infrastructure of that city/state at the end of the Malaysian peninsula. Singapore, obviously, had difficulties—it had no natural resources. What it could do was provide an economic and trade program which could be successful. For that they needed infrastructure, and so they increased the contribution to this enormous rate of 50% in 1984. But when you get an economic recession, the government can immediately change it. In 1986 the employer's contribution was reduced from 25% to 10%, because of an economic depression, and the employees' rate was also reduced. Ever since then, it has varied depending upon the economic situation. It is no longer necessary for the employee and the employer to contribute equal amounts.

The rate now is about 40% of salary up to age 55, but then it drops to 20% of salary for those between 55 and 60 and 15% for those between 60 and 65. This is really the reverse of what is necessary to provide any sort of constant purchasing of an accrued benefit, but again, the intent is to think that as people near retirement they have, in effect, less money. I'm not sure that's true, but this is what the government of Singapore believes.

This money is accumulated. It is a minimum-credited rate which is fixed by the government. It's based on the average of the 12-month savings account rates of four major Singapore banks with a minimum rate of 2.5%. However, there are some additional rates. Also, employees are now allowed to take certain portions of their money and invest them in other forms of investments which include such things as stocks, bonds, gold, foreign investments, and so on. So there's some considerable flexibility in that, but with a government guarantee relating to it. This is different from what we've seen in Latin America.

Another major difference is that the money in the Singapore system can be used for a variety of purposes provided there is a certain minimum amount of money kept in to provide a retirement income. Again, these are public policy goals as far as Singapore is concerned. It's intended to help the people buy houses, protect their homes and families, pay for education and hospital, surgical, and medical expenses. That's one of the obvious purposes and it enhances their savings to approved investments. The fact that you can take out money for purposes other than retirement perhaps indicates that the Singapore government does not agree with Fernando's comment that they really won't survive to age 65 and, therefore, don't need it for retirement purposes. But, again, this is viewed as being a satisfactory public policy goal.

They have very elaborate systems of home ownership where you can use your money. One of the major purposes is to provide the money in the account to purchase the home in its entirety or in part supplemented by cash or loans from a central means to finance public housing.

Another interesting aspect of the system is that it is possible for individuals within the system to devote part of their funds to build up the accounts of their parents. This is designed to carry on the concept of intergenerational solidarity and, also, the concept of an extended family.

Professor Chang lists four points as being distinctive features of the social security system.

- It provides an emphasis on saving and personal responsibility, with saving from both the individual and the employer, but the individual has personal responsibility for how the money is used and, to some degree, how it is invested.

- It provides emphasis on employer responsibility. When you started off, Fernando, you said that the employer paid the whole thing. You corrected it later, but it is important to note that in Chile it is an employee-pay-all system even though there was initially an increase in the employee salaries to allow for that. That's fine with the beginning situation, but it hasn't taken care of the situation since then.

- It is a fully-funded system, as most of these are.

- It is a fully-vested system. It's also fully portable in that it covers all employers within Singapore. It is fully equitable and there's no subsidy of any one person for another. It is intergenerationally independent under any sense of obligation, but it does encourage private intergenerational transfers, as I have noted. Basically it's a very interesting system. It's different from the others, but it does appear to meet the goals at least of the Singapore government as far as we know, and seems to be reasonably satisfactory for the residents of Singapore as well.

MR. CHRISTOPHER DAVID DAYKIN: As you know, there are many different ways of running a social security system. That's one of the things one learns as soon as one begins to look internationally at this type of arrangement—every country does it differently. There are enumerable and different combinations that can and do work in different situations. What works in Singapore is the very centralized approach, the government-run providence fund. This has been totally disastrous in some African countries like Malawi and Zambia where the real returns on their providence funds have been about –10% a year and there's been steady erosion of the value of the capital. Chile has done something different by having private investment of the funds but in many of the countries where that solution is now being explored, there are no capital markets and the whole concept and whether this is going to work and produce real returns is, to some extent, debatable.

All countries are facing some similar issues and the question of demographic aging is affecting populations all over the world (but not so much yet in the developing countries), especially Europe and the industrialized world. Eastern Europe and many other countries are facing this aging problem which is leading to the increasing burden of supporting the elderly, however you arrange that, whether it be through a public system or a private one.

Schemes that were set up earlier in the century and, particularly, those set up since World War II are maturing rapidly and so the cost is going up. There have been problems with the recession and high levels of employment, which increase the burden on those who are still working and, of course, the cost of paying unemployment benefits in countries where that's covered. Inflation has been a real problem in many countries and, as Don said, so has collection of contributions, particularly in systems where there is no incentive to pay your contributions because the benefit isn't directly dependent on your contributions.

People have explored a variety of possible solutions. The obvious thing to do is to keep pushing up the tax or contribution rate, but there's a limit on how far you can go. Many of the European social security systems already have tax rates in the range of 25–35% of

income and they're expected to double over the next 40 years because of demographic changes. That's something with which politicians are becoming more uncomfortable. Can contribution rates really be sustained at this level?

What else can you do? You can push up retirement age. It reduces the number of pensioners and it increases the number of people paying contributions, or at least it does theoretically because you can't necessarily get all of these extra people into work. In many of these countries the average retirement age is well below the state pension retirement age already. Another possibility is to cut back benefits. That's not usually a very politically acceptable solution for the population, but it can be done. It can be done by not revaluing the benefits fully in line with inflation. We've had a policy for many years in the U.K. described by politicians as fully maintaining the real purchasing power of pensions which means cost-of-living increases. We estimate that by the year 2030, the basic state pension will have dropped from being something like 20% of national average earnings to being about 7% or 8% of average earnings. So regarding benefits, purchasing power is being maintained, but it's still a reduction in most people's terms.

The other great solution that everybody comes up with is to develop a complementary pension provision, occupational schemes, and personal pensions. This is the big cry at the moment in most countries. It's seen as offering more flexibility and takes the pensions out of the political area, and puts it more into the private sector. It gives a greater sense of individual ownership to people, they actually have their own pension rather than simply subscribing or depending on the state system. It creates the possibility of funding and having investments which may be of great benefit to economic development.
In Europe we have a history of some very substantial social security systems which are fully entrenched in the way of thinking of the people and are tremendously loved and loyally adhered to.

The French are perhaps a prime example of having this very strong sense of solidarity, as they would describe it, between people and between generations. They have a basic pay-as-you-go pension scheme, but they have a system of pay-as-you-go complementary schemes as well as defined-contribution pay-as-you-go schemes. This is, I think, in some ways an unusual concept because you pay your contributions and for every contribution you pay you get points and you accumulate your points during your career. The points are revalued with the intention of keeping them in line with earnings. But when you get to retirement age, they ascribe a value to the points just like the Chilean and U.S. system. But the flexibility they have to choose the value of the points means that they can, in effect, balance the account between what's being paid in and what's being paid out, so they can adjust the value so as to create a balance. That gives some flexibility not to get totally hung up on the demographic changes.

On the other hand, if it really does impact on the value of the points then people will begin to realize that, in fact, they're just balancing the budget by changing the amount of the pension. Up front, they have a real concern that a system that is totally pay as you go has not created any opportunity for investments. And there is no mechanism for funding through the private market of generating finance and of smoothing the demographic transition through the market. Therefore, the ministry of finance is pressing heavily to introduce supplementary pension provisions on a funded basis, but the entrenched interest of employers, the employees, unions, and the whole panoply of the complementary pension scheme are absolutely dead set against this whole concept.

Italy's another country where they have had thousands of people striking in the streets because of an attempt to change the social security system. Italy has a bankrupt social security system. The system is already unable to meet the outgo and they're having to borrow from other bits of social security and public pensions in order to pay the current benefits. They offer benefits that are approximately 80% of final salary and, through a public system, unfunded. It was set up on the basis of projections of five or ten years of flow and it was quite clear, as soon as any actuaries looked at it over 40 or 50 years, that the whole thing was totally unsupportable. But now it's in place. They now have a decree to push up the retirement age from 55 to 60 for women and from 60 to 65 for men and, ultimately, to 65 for both. That will help and they're just beginning to adjust the issue of trying to bring back the level of benefits and encourage the formation of complementary pensions. However, the transition issue that Don raised is still a problem, given the very high level of commitment that there already is there to a public system.

Germany has a system in which all the employers make provisions, not by putting money into an external fund, but by making promises which they then back by book reserves in their company accounts. It's a completely unsecured system, but then it is backed by a system of insolvency insurance with all the employers, that are required to contribute to provide the benefits in the event that the employer becomes insolvent. Unfortunately, it only covers vested benefits and vesting in Germany only occurs after ten years of service. Within the first ten years of service, the companies that are less than ten years old offer no protection.

I'll conclude with what's happening in Sweden because that relates to the test case that Don referred to. Sweden has one of the most developed public sectors anywhere in Europe. There's a very high level of social contribution and they are now just reforming their social security system. They introduced a variable retirement age which is determined so as to maintain the expectation of life at retirement constant. It will be reviewed regularly as mortality improves so the retirement age will go up. They've shifted from the defined-benefit pay-as-you-go pension scheme to a defined-contribution system, similar to the French, but it has two parts. One part of the defined contributions is indexed in line with earnings and the other part goes into an actual fund which goes up in line with the investments.

People are playing with all sorts of different possibilities in this area. It's very exciting to watch what's going on, but never be lulled into a sense of thinking that there's only one way of running a social security system.

MR ROBERT J. MYERS: Mr. Troncoso has given an excellent account of the many good things about the Chilean system. I'd like to speak about a few of the things that aren't so good. I was in Chile at the request of the AFP to make a study of their system. I concluded that what they did was pretty good for Chile, but it wasn't necessarily good for other countries and, most certainly, is not good for the U.S. In Chile there supposedly is compulsory coverage of all employees imposed by military dictatorship. Guess what is the only employee group not covered? The military. There's great noncompliance in Chile. People either do not report their earnings or very much underreport their earnings because the defined-contribution plan doesn't do them any good because there's a high-minimum pension that will override anything that they might accumulate. The administrative expenses in Chile are quite high, 12% or 13%, and that's before they're paying many pensions which will raise the administrative expenses.

The investments are not necessarily going to increase the growth of the national economy. Over 40% of the investments are in government bonds that are indexed to produce a high real rate of return, so there's no investment genius at work there; it's really a laundering of the funds. They have prior service credits, which is necessary and desirable. They also have very high minimum pensions, about 30–35% of the minimum pay in the country. It is for this reason that many people don't contribute or don't contribute much because they want to qualify for just this minimum pension. How do you finance these huge government obligations and government payments? Chile, unlike most countries, can do this because it has budget surpluses. Other countries like the U.S. have budget deficits and you can't finance things with budget deficits.

Finally, it's often said that the labor leaders in Chile think this is the greatest program. This isn't true. There was a recent meeting in Washington of Chilean labor leaders and they came up with many complaints about the new system. I also want to try to shoot down one myth that has been often said, and I think was said here about the U.S. system and how it's financed on a pay-as-you-go basis—this is not the case. It should be financed on a pay-as-you-go basis, and we wouldn't have some of the problems we have now of social security hiding our mammoth budget deficits. I think the true definition of the actuarial funding basis as established was a temporary partial funding that is eventually going to turn to pay-as-you-go or something 75 years from now. It is definitely not on a pay-as-you-go basis even though it ought to be.