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Session 4PD
Social Security: Is An Equitable Design Possible?

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Moderator: ROBERT M. KATZ
Panelists: ROBERT L. BROWN
DAVID M. KNOX
Recorder: ROBERT M. KATZ

Summary: Social security systems in some parts of the world have come under attack by various groups claiming that the systems are inequitable. At this session, the panelists discuss the issue of defining equity in social security systems and how well the U.S. and Canadian systems have achieved equity. A research paper, "The Development of Some Criteria for Equity in National Retirement Income Systems," is presented.

Mr. Robert M. Katz: I am on the staff of the World Bank, and I'm the moderator for this session.

Providing income security to retiree populations is one of the most critical issues facing the world today. Social security reform is on the political agenda of nearly every developed country and many of the developing countries around the world. There is no single, universally applicable solution to this problem. Thus, there is widespread debate about the design of social security systems and the financing of the systems' benefits. My fellow actuaries—whether you are an audience member of this session or reading the transcript on the SOA Web page—we are ideally suited, by education and training as well as by our knowledge and experience, to participate in these debates and develop solutions to this critical problem. I urge you to learn more about these issues and to get involved.

This session was motivated by the paper, "The Development of Some Criteria for Equity and National Retirement Income Systems," prepared by one of our Australian colleagues, David Knox. It is an honor and a privilege for me to welcome David to

Note: The charts for this session are not available online. Please contact Linda Blatchford at lblatchford@soa.org or call 847-706-3564 for a hard copy.

our meeting and this session. David is a Professor of Actuarial Studies at the University of Melbourne in Australia. He is also vice president of the Institute of Actuaries of Australia. Since completing his Ph.D. on the topic, he has researched, written, and spoken about various aspects of retirement income programs for almost two decades. The Institute of Actuaries of Australia also has a very interesting recognition of actuaries called the Actuary of the Year Award, and I am pleased to tell you that David was named the Actuary of the Year in Australia in 1996. He'd also like to point out to you that the Australian system is very different from those systems in North America, and he'd be happy to discuss that after the session.

Following David's presentation, Rob Brown will discuss how well the Canadian and U.S. social security systems have met the criteria for an equitable system. Rob is a Fellow of the Canadian Institute of Actuaries (FCIA), an FSA, and an Associate of the Casualty Actuarial Society (ACAS). He received a Ph.D. in 1997 in gerontology. He was the president of the CIA from 1990 to 1991. He has been the vice president for the Education and Examination Committee of the SOA since 1997 and will serve until 1999. He has been a professor in the Department of Statistics and Actuarial Science at the University of Waterloo since 1971.

Following Rob's presentation, we will open up the floor to comments and questions.

Mr. David M. Knox: The title of my paper is, "The Development of Some Criteria for Equity in National Retirement Income Systems." What I'd like to say at the outset is that we are talking about a total retirement income system. In the U.S., you might consider that to be Social Security. In some other countries it might be social security plus occupational pensions. You may wish to add 401(k) plans in the U.S. and Retirement Income Systems Programs (RISPs) in Canada. I'm talking about the type of system that may be a combination of public sector and private sector.

I'm aware that privatization of Social Security is a debate at the moment in North America (the U.S. in particular). We can put those debates to one side for this discussion because we're trying to talk about what constitutes a fair and equitable system in a total system. We are also trying to talk about it in a noncountry-specific context. So I'm not going to talk about the American, the Canadian, the Australian, or the Norwegian system. I'm going to talk about retirement income systems generically, and the characteristics of a fair and reasonable system.

Bob, in his opening remarks, has already commented that many countries are reforming their retirement income or social security systems. There are many reasons for that. First, we are aware that we have an aging population in many countries with increasing longevity and decreasing fertility rates. Second, many systems are facing financial strains of one sort or another.

Third, these systems are of political importance. In democracies citizens often vote with their hip pocket. If you're going to adjust the social security system, either at the contributions end or the benefits end, voters will respond. There's also political importance in some other countries in Europe. The European Union must deal with financial constraints on systems; therefore, what we are doing is politically important. What we can do may well have political constraints in a democratic system.

Fourth, we are aware that many countries face low saving rates, and governments want to do something about that. Fifth, we're aware that many systems grew up in an environment where people were expected to work 30 or 40 years full-time with one employer or even in one country. That system is changing. We're seeing people coming in and out of the workforce. We're seeing more casual workers and more part-time workers. We're in an international labor market. That's perhaps more common in a country like Australia than in the U.S.; nevertheless, I suggest it is a worldwide trend. Many of you are working for multinationals or international consulting firms who are moving their workforce around countries. We have different employment patterns and different retirement patterns. People retiring earlier has been a trend, yet we're living longer. So are we going to reverse that trend and force people to work longer? The system that we come up with has to take those changes into account.

Finally, on a worldwide basis, there is also a decline in other methods of support from family, children, and so on, particularly in some developing countries with increasing urbanization.

Let's discuss some background before we look at where we're heading. What are some sources of retirement income? In terms of the total system, what are we going to live on when we retire? I'll call the first source the public pension. You might call it social security. It is something paid from the government. In some countries it is means tested, income tested, and asset tested. In some countries, it is paid as a right. In some countries, the base pension might be paid universally, but it's called back for those with high incomes. That's a little bit similar to means testing. Other sources of public pensions can be a social security system where the amount you get is linked to what you put in—a contributions benefit relationship. You might have a combination or a flat pension and a contributions-related pension. What I'm really saying is that the first pillar comes from a public social security environment.

The second pillar is from an occupational pension plan, often with taxation support. Traditionally, that has been linked to employment, but it might not be in the future. I'll give you an example. In Australia we have recently introduced a tax incentive for spousal contributions. I have a nonincome-earning spouse—I won't say nonworking because she does work a lot. I can contribute to her pension plan. It then becomes her money, but I get the taxation support. So, it's not employment related at all. It is, of course, a defined-contribution (DC) plan or arrangement, but that's a second pillar.

A third pillar is personal savings that may be voluntary outside a pension system. There is a fourth pillar, and I think it is one that is going to become increasingly important. We have to recognize that people are going to earn income in their retirement, maybe on a part-time or casual basis. It may be less predictable, but it is really part of four, fundamental sources of retirement income.

If that's our overall system, let's concentrate on the first two pillars, the social security public pension pillar and the occupational pension as an additional pillar. What characterizes a fair system? Here are some broad issues to start with. Some people would claim that we should have a minimum level. In an advanced society like we all live in or that we think we live in, there should be limited poverty. Those above a certain age are entitled to a minimum level of income. What is that level? We'll leave that to our society. Should we have a minimum level? It's a basic question. The World Bank, in its 1994 report, noted that a system is not sustainable in the long term if it is inequitable. It didn't actually go on to define what it meant by inequitable. That's what we're going to try to do. Fundamentally, what I think it's saying is if a system in a democracy is blatantly unfair, it will fall, and it will be changed.

In terms of fairness and equity, we also have intergenerational and intragenerational issues. We have different cohorts going through who gets different deals. What's fair between different cohorts? That's a difficult question. If we look at an intragenerational or single cohort, we must ask, how is income distributed within that cohort? It makes it a little bit easier to assess what's fair. Is a particular system advocated under a fair and equitable program? Are we going to say it has to be pay-as-you-go or fully funded? Are we going to say it must be defined benefit (DB) or DC? My answer to that is, no, I'm not advocating a particular system. All I'm advocating is characteristics of a fair system. You might have a multitude of systems that all meet these criteria that we will develop. What we're trying to do is develop benchmarks by which to assess a system.

Actuaries love the concept of fairness and equity. If you go back to life insurance, we were the arbiters who got bonus rates, who got this out of the surplus, and so on. Actuaries have had a tradition of equity and fairness. What do we mean by fairness if we put on our actuary's hat? First, I want to comment on fairness, and we must realize it is different. There are fundamental differences between social security and private market-based insurance. If we have full market-based insurance and it is unfair, then it will collapse. There will be selection against the insurer or whatever. If, for instance, we don't distinguish between smokers and nonsmokers in the life insurance context and a particular company does, then there will be selection against certain insurers and the system will start to fall apart.

Broadly speaking, if there were no government constraints, most of us would say that insurance must have an element of fairness to it. In any public program that link is not necessary because the government of the day believes that there are appropriate cross-subsidies, redistributions, or whatever in a public system. We have to be very clear that there is a fundamental difference between a private market-based insurance program and social security when we think about equity or fairness.

In terms of a public scheme, what we mean by rate of return may not matter because it's part of what society agrees to. There are other factors that we do not have time to discuss. In the public system, as I've already mentioned, we might consider that there is an element of minimum adequacy and a minimum benefit that relates to social need. It's a little bit like our keynote speaker advocating that there should be a basic level of health care provided to everybody almost as a right. That was what I understood would be his perfect system if he were a dictator, which he is not and we are not. Just as an example, the Institute of Actuaries of Australia suggested, in a submission made to the government, that adequate provision should be made for nonearners and low earners. That's the whole concept of minimum level of benefits.

An American actuary named Reinhard Hohaus in 1938 talked about social insurance and said, "...its first objective should be that those covered by it will, so far as possible, be assured of that minimum income, which, in most cases, will prevent their becoming a charge on society. [There's that minimum base.] Not until this is accomplished should financial resources be considered as available to provide individual differentiation...." So, he's really saying get a base. Once you have that base, then think about individual equity, if you like, on top. He's saying adequacy comes before individual equity.

We really need to recognize that there is a distinction between two types of funds. H.W. Gillion in 1993 said that under a pay-as-you-go scheme we are looking for some sense of equality, but under funding we are looking for some sense of equity. We can use those words in different ways, but, again, I think you see the theme.

Here's a longer quote from the Institute in Australia: "A retirement income system should aim for financial equity amongst those who contribute and amongst different generations [there is the intragenerational and intergenerational], whilst ensuring that adequate provision is made to low earners and nonearners." Once again, we see a call for balance.

Now, where does all that leave us? Before we go on, we have to think about the various systems in the world and some economic concepts because the economists are inevitably bought into this argument as well. There are two traditional schemes that we sometimes look at. One is Bismarck, the German social security system where there were links between benefits and contributions. That's one characteristic, whereas Beveridge, in the U.K. after World War II, talked about a flat rate and a basic allowance. So even amongst the economists we're starting to see these two trends. The Beveridge proposal was really a redistributive approach. Give a basic allowance in terms of social adequacy. All the economists, and probably all the actuaries, would agree that the issues must be decided by a society. As I said earlier, there were intergenerational issues. Should all generations receive the same rate of return from a social security plan? The answer is probably no. It's probably impossible to guarantee that, and it has been shown that over time as social security schemes have matured, later cohorts have received a lower rate of return than earlier cohorts because of transition. People who are in the system early had fewer years of contributions but received the benefits.

There is an issue of what I'll call differential mortality. We know that low-income earners die earlier. Robert Brown, in his paper in the April 1998 issue of the *North American Actuarial Journal,* "Social Security: Regressive or Progressive?" spent quite a bit of time looking at those issues. How important is that relationship between mortality and income? If high-income earners live longer, do they get more benefits out of the social security system, and is that unfair?

The columnists like to talk about equity in terms of tax in two different ways—horizontal and vertical. In some ways social security contributions can be considered a tax. Horizontal equity means people in the same circumstances are treated in a similar manner. The problem is, how do we define the same circumstance? How do we guarantee that an employee earning $50,000 a year and a self-employed person earning the same amount is treated in the same manner? What about someone who earns $100,000 in a 12-month period and then takes a year off, and someone else who earns $50,000 for 2 years? Should they be treated in the same manner given that their lifetime contributions for those two years are identical? There can be great difficulties. Vertical equity in terms of tax is basically redistribution; that is, high-income earners, or those with a capacity to pay, support low-income earners.

I'd like to demonstrate that these issues vary enormously between different societies. In 12 European countries, people were asked which system they would support—a minimum social security system with very limited benefits or a maximum social security system with a broad range of generous benefits. The support for the minimum system, which I call the minimalist position, was lowest in Germany at 27%. The highest was Denmark, where 54% supported the minimum. Support for the maximum position ranged from 53% in the Netherlands to 82% in Portugal. Here we have 12 countries on 1 continent that were asked the same question, and we ended up with quite a range of support. There is not one system, and whatever answer you come up with will be dependent on the society you live in. That's, in a sense, all background, but I think it is important when we are thinking about how we develop social security.

The four proposed criteria that we feel should be used as benchmarks in the development of any retirement income system within a nation is, first, there should be an adequate minimum income for everybody. Second, outputs or benefits that people receive from the system should be positively linked to inputs or their contributions. There should be a positive relationship. That may not be strict actuarial fairness. It might not be exact actuarial equity, but there should be a positive relationship. Third, the redistribution should be progressive. It should take into account the amount you put into the system, your levels of income, and differential mortality. The extent of redistribution will be chosen by each society and may well change over time. It is not fixed in concrete. Fourth, similar benefits should be provided to those in similar circumstances, however we define them.

What we're advocating here is that these criteria are for the total system. Each system will almost certainly have two, three, or four different elements. It may be that one particular element doesn't meet these four criteria. What we are talking about is the total system when you add all the elements up. I know actuaries love graphs and not numbers. How do we express that graphically? Basically, what we are saying is that those with low lifetime income or low lifetime contributions have a level of retirement income that's at a minimum. The actual level of that minimum is up to society. As you put more money into the system, your level of benefits will increase. That was the second criteria. The third criteria is that the shape will be concave or have an element of progressivity to it.

The curve in Chart 1 actually suggests that the model might flatten out, and you'll get almost no money for your contributions. Again, that level of progressivity is determined by society. That slope is not going to go horizontal. It will continue in that sort of upward slope.

For those who want it expressed a little bit more mathematically, the formulas below show that your net retirement income is greater than a particular minimum. The first derivative is positive; that is, your retirement income increases as you put more contributions into it. C stands for contributions. The second derivative is negative. It has that concave shape.

$$\text{Net RI} > k \text{ (a minimum)}$$
$$dRI/dC > 0$$
$$d^2RI/dC^2 < 0$$

The fourth criteria is that people in similar circumstances receive similar benefits. I couldn't actually put that in an equation, but what that means is that two people who make similar lifetime contributions receive similar benefits. You might need to present value that or value it over time. We're not necessarily talking about absolute dollars.

Let's look at some systems that could meet the program. In Chart 2, we start with our baseline. One system is what I'll call the universal or base pension payable to everybody plus an actuarial pension. I'll use the term actuarial because your benefits are linked to your contributions. Everybody gets the base pension. On top of that they're putting in contributions and they're entitled to a gross actuarial pension. The government claws back some tax in a progressive nature—as you earn more income, you pay proportionately more tax—so that your net position is the top solid line, labeled "Net Retirement Income." That seems to fit the criteria that we established.

An alternative way of doing that is to have it all within a state system so that you have a national scheme with implied taxes so that the benefits from the state system decrease as you move up the benefit scale (Chart 3). Again, you might have a net pension. Here is your net actuarial pension because there's a decrease of benefits as you contribute more, and your overall position is the top line (Net Retirement Income). Again, that might be totally within a social security system. It seems to meet the criteria.

An alternative approach is a means-tested base pension or a pension with a claw-backing, which a number of countries have or are thinking about having (Chart 4). You have your base pension, and then you claw it back as people earn more income, such that it eventually becomes zero (the lower dotted line). At that point, you also have your gross actuarial pension which is taxed (and that should be the negative). What happens or what can happen is that your net retirement income, because of the combination of tax and the means testing, actually has a funny slope to it and doesn't meet the criteria because some people are, in fact, getting more dollars for their contributions than others because of the combination of the claw-back and the tax. That can really pose a major problem because there is a lack of incentive for many people if you have a significant claw-back and tax combination.

Let me just use Australia as an example. We have a system where, if individuals voluntarily contribute a dollar now, their net value is about 25% or 30%. They get 25 or 30 cents for their dollar contribution because of the combination of claw-back and tax. Furthermore, it is inaccessible until they retire. They wonder why they should get involved. I think one of the fundamental problems is that it doesn't met that criteria of progressivity. It has kinks in it.

To summarize, we're suggesting that any social security or national retirement income program should be benchmarked against these four criteria. The four criteria do not design a system. Each society must decide a number of issues, such as what is the minimum level of income? Is it 15% of the average wage? Is it 30% of the average wage? Is it linked to process? Is it linked to wages? What are the relationships between taxes, contributions, and benefits? There is not one correct answer. What is the shape of the progressivity? If we come back to the curve, each community or society must decide on the shape of progressivity, and that will change over time.

What are the benefit forms? At what ages are the benefits paid? Should it be age 60, 65, or 70? Who contributes to the system? Is it employers? Is it employees? Is it out of general taxation? These are systems that the criteria don't define. What we're hoping is that the criteria provide a benchmark against which any system can be judged and, therefore, it can be deemed as to whether it meets these criteria. On top of that, the community adds its own individual characteristics.

Mr. Robert L. Brown: I was asked to take David's paper and apply it to the systems that exist in Canada and the U.S. and see how the criteria fit. I am supposed to come back with some responses based on this experiment. We'll just go through a quick rundown of the systems. Most of you here will be very familiar with what exists in the U.S. but not so familiar with what exists in Canada.

We have three parts to social security, and I'm going to focus on what the government provides as part of the total system that David described. In Canada, we have a welfare-based system called the Guaranteed Income Supplement (GIS). It is income tested. It's based on your tax returns from the previous year. Every time you bring a dollar of personal income into the system postretirement, you lose 50 cents of your GIS, so it's clawed back at a 50% rate. It is not taxable income. The total tax on it, if you will, is exactly 50%, and 50% over the full range of income. The benefit for a single person is $483 a month, and for a couple it is $315 times 2, so it is not twice the individual rate. Two can live more cheaply than one. It's financed by general tax revenues. The progressivity comes from the progressivity of the tax base.

We add to that a second tier which, when it first started, was a demogrant benefit; anybody age 65, passing certain residence requirements, received old-age security (OAS). It was and is taxable income, so there's some progressivity there, but in 1989 the government added to the progressivity and to the targeting of the benefit a claw-back, which has been an extra 15% tax that starts at $53,000. So, if you have income of your own right of $53,000, you start to lose your OAS; basically it runs out at about $83,000 of other income. Anyone who has total pension income postretirement, including investment income, that exceeds $83,000 per annum does not receive OAS. The benefit is $400 a month, and this is financed by general tax revenues. We do not see contributions for either the GIS or OAS in Canada.

The third part of the Canadian social security system is the Canada-Quebec Pension Plans (CQPPs) which are contributory pension plans. It's similar in some sense to OASDI in that there are a whole lot of different benefits. About two-thirds of the benefits are retirement income benefits, but only one-third of the benefits are for disability income, orphans, death benefits, and those kinds of things. It is contributory. The contributions are paid by employers and employees on a 50/50 split. The benefits are strongly earnings related, and not truly one-to-one because we have a weird thing in Canada called the year's basic exemption. You do not contribute on the first $3,500 of income, but you do if you have, for example, income of $3,600 in a given year. You would contribute on $100, but you would earn benefits on an earnings base of $3,600. So, it's not quite a one-to-one, earnings-related benefit, but it's strongly earnings related. If you earn the average industrial wage or above, you will get 25% of the average industrial wage if your career earnings are between the year's basic exemption and the average industrial wage. The retirement benefit is basically 25% of your career earnings. They're indexed to average wages. The maximum benefit, $745 a month, is indexed to cost of living.

Let me just point out one thing to you. In Canada, if you always earn exactly the average industrial wage, the government will provide you with about a 40% replacement—about 25% from the CQPP and about 15% from that basic demogrant system called OAS.

Now I'm going to assume that many of you already know what OASDI looks like. You know that it's an earnings-related plan, but it has this very skewed primary insurance amount (PIA). Think about the Canadian system, which is welfare based, has a GIS, a demogrant constant dollar benefit, and an earnings-related CQPP. Then juxtapose that in your mind with OASDI, which is an earnings-related plan with a skewed PIA. What you really have then are two remarkably different plans. However, if you earn the average industrial wage throughout your lifetime in the U.S., the government will provide you with a replacement ratio of 40%. This is the first indication that we have two completely different systems that somehow arrive at a very similar outcome. It is absolutely fascinating.

Consequently, OASDI comes at this issue of providing retirement security in a completely different way. It has this skewed PIA. Now, you've all written Course 200 or the equivalent, so you learned all about that skewed PIA. In Canada people can actually understand how the system works. You get a basic welfare benefit. There's a demogrant benefit for which everybody knows the amount. There is also the CQPP; if you earn whatever it is, you're going to get a 25% replacement ratio up to the average industrial wage.

There are two different ways of providing retirement income security—one that you can understand and one that you can't. You might say that's a really big advantage of the Canadian system—you can actually understand it. I am going to force you to think about that before you leave.

OASDI benefits, once you retire, are indexed to the consumer price index. Prior to retirement, of course, everything is indexed to wages. Canada and the U.S. are very similar in that respect. The benefits are now becoming taxable, and, because of the way the legislation was passed, more and more people will pay more and more tax as time goes along. The funding is by payroll contributions. But that's just a tax by another name. You do have a welfare part to your postretirement economic security in the U.S., but it is minimal, and it is really just welfare. It's a supplemental security income (SSI). Maximum benefits are given there. Couples do not get twice the single rate, and there's a very strong claw-back. Except for some small benefits from OASDI and a little bit of earnings, you lose a dollar on every dollar you bring into the system. There are not many incentives, if you're really poor, when you qualify for SSI, to do anything but collect it. It is financed by general tax revenues.

These are the two systems. Now we stack them up against the criteria from David Knox. First, is there an adequate minimum income for all retirees? Second, do the benefits increase with contributions—the input/output relationship? Is there progressive wealth distribution and, in some sense, redistribution? Fourth, do we have similar benefits for those in similar circumstances?

You can accept, with an understanding of the formulae, that people in similar circumstances are treated similarly. There are no large discontinuities in the systems. If you're just slightly under a line or slightly over a line, there's not a sharp break in the function. I'm going to take four as a given, and we can discuss that or argue about that later if you wish to.

I then ran a model where I assumed that we had a worker who labored for 40 years, from age 25 through age 64, and retired at age 65 in 1998. The worker's wages were a constant function of the average industrial wage. The wages stayed the same in terms of the comparison to the average industrial wage. If you started at 30% of the average industrial wage, you retired at 30% of the average industrial wage. This was a very simplistic assumption that allowed me to do a lot of things. We're going to look at workers over the full spectrum of income levels. This person retires with a 70% replacement ratio, and whatever the government doesn't provide him, he brings in from some other source. I did that because there are claw-backs and taxation, and I wanted to see what the end result of the social security systems were after the claw-backs and the taxation. Do understand that you retire with a 70% replacement ratio. Part of it comes from the government. Part of it might come from an employer-sponsored pension plan or individual savings. Everybody in this model retires at a 70% replacement ratio.

Chart 5 shows the Canadian system. Running across the bottom is OAS, and you can see that it starts to disappear for people at higher incomes. It doesn't start to disappear at $53,000 because this is the preretirement salary that is gauged across the bottom. You would have to take 70% of the x-axis to see what the income was postretirement. This graphs preretirement earnings to postretirement benefits, and the relationship is 70%. This is what the government is providing; OAS slowly disappears. Then we have the Canada pension plan which, once you get to the average industrial wage, is a constant dollar amount. We then have the GIS, which is only paid to the relatively poor. The minimum benefit is around $10,700. There is a pretty strange shape. Also notice that the Canadian system claw-back—both OAS and GIS—is based on postretirement income. This is really important to me. They're based on postretirement income that can be controlled, to a great extent, by the retiree. You can play games with this system. I can give a lot of money to my kids. I can buy a retirement villa and not have very much income.

Chart 6 shows the U.S. The dark bars are the SSI. The rest is OASDI, and you can see the skewed PIA coming into force. This looks a lot like David's graphs, and Canada didn't, by the way, look very much like David's graphs at all. The minimum is just slightly more than $6,000 U.S. Even adjusting for currency exchange rates, the Canadian minimum is about 25% in excess of the U.S. minimum. In terms of adequacy, if you want to be poor and retired, be Canadian. We can see a strong sense of the relationship between input and output. Also notice that what you get postretirement in the U.S. depends on your preretirement earnings.

Now, if I went up to a 31-year-old worker and said, "I'm going to give you a raise," I doubt if that person is going to say, "Well, you know, I'd like to think about that for a while because I understand the skewed PIA. . . and if I add my postretirement income tax to the fact that I won't get a full increase in my. . . Maybe I won't take that raise after all." How many 31-year-olds do you think are going to react that way? But by the time you get to postretirement in the U.S., you don't manipulate what's going on. It's based on preretirement earnings, whereas in Canada a lot of it is based on postretirement income. There is a really important difference in terms of people manipulating the system. You don't manipulate this system.

Now we go to replacement ratios for Canada (Chart 7). There are bars for zero to $10,000, but starting at $11,000 the government will provide you with a 110% replacement ratio. This is made up of OAS, CQPP, and your GIS. We see some interesting replacement ratios there. By the time you get to the far right, you're looking at less than 25% because the CQPP stops at the average industrial wage in terms of supplying you with retirement income. Of course, everything else has disappeared.

Chart 8 shows the U.S. At $11,000 you're getting slightly more than a 60% replacement ratio, but it then tails off very slowly and gradually. Philosophically we're trying to do many of the same things, and we're achieving many of the same outcomes, but we're doing it in two completely different ways. These are not wildly different outcomes, even though we have remarkably different approaches to solving the problem.

Let's go through the criteria. I think I have shown you that Canada seems to give greater weight to adequacy with larger minimum benefits and larger replacement ratios for those at the poor end of the economic scale, whereas, for the U.S., there's an indication of greater weight being given to equity, just relatively speaking between the two countries. With respect to progressivity, you will have to go into the paper to see the full discussion and proof of this, but both systems are clearly progressive. There are bigger benefits to the poor per dollar of contribution, and this even accounts for any adjustment that you have to make for mortality differentials. As David said, having quoted a famous author, there are indications now that wealthier people live longer and poorer people die sooner, but even adjusting for the change in life expectancy, they are progressive. In Canada this comes from a combination of claw-backs and taxation, and in the U.S., except for SSI, it comes from the skewed PIA.

Remember that I've said that people in similar circumstances receive similar benefits. Do the benefits increase with contributions? One of the questions I have is, are general taxes that fund SSI, GIS, and OAS contributions? If general taxes are contributions, then in Canada benefits do not increase with contributions. They actually go down. People making greater contributions get smaller benefits in Canada from the government. In the U.S. it does fit David's curve. You saw quite clearly that beyond SSI it fit David's curve. Coming from Canada, when my model doesn't fit the criteria I have to question the criteria. Can you see that the Canadian system is "wrong"? David has alluded to the fact that you have to take into consideration the total retirement income system. I haven't truly included pension plans, but keep in mind that I can find Canadians who have exactly all of the points in that distribution. You voluntarily save in Retirement Savings Plans, or you may or may not have employer-sponsored pension plans. There are people for which this statement is true. For extra contributions, they receive smaller benefits. Is that a criterion that we really should have?

Then I made up my own criteria and called them laudable. The CIA got into the discussion about funding of social security in Canada. We came up with this amazingly complex actuarial formula, and we called it smart funding. These are laudable criteria, and they parallel David's to a great extent. We must have a liveable minimum benefit, and that will have to be decided by society, but here's one that I think is important. The system has to be affordable. The taxpayers must be able to buy into it. You can't take 79% of my wages. It needs to be progressive. How highly progressive again is the decision for society. And here's one. It shouldn't create any perverse incentives. It shouldn't cause people to not want to work, or it shouldn't cause a retired person to cash in his or her annuities and buy a home in Maui and collect welfare. It shouldn't create perverse incentives. Here's a social security system. We want to have a minimum, adequate benefit. We want it to be progressive. And in between we can't have a slope that is claw-backs plus taxation; that creates perverse incentives.

Because I'm a university professor, I'm giving you an assignment. You can hand it in by the end of the term. You must design that system. That's a very big question as to whether you can get all of these criteria in one system, and if you don't believe that, go ahead and try. We'll turn things over to Bob Katz now.

Mr. Katz: I hope that each one of you will not only listen today but reflect on what each of these people has said and perhaps try Rob's assignment. It's something that is happening around the world. So many countries now are looking very seriously at the issue of either implementing social security systems or changing social security systems. They are trying to find out how they can perhaps meet these criteria, while at the same time be affordable and not encourage the perverse incentives.

David and I had the chance to go through this exercise about a year ago, so he knows what I'm going to say. Rob does not, but I think we've talked enough about this that it won't be too much of a surprise. After listening to what each of these very learned people had to say about this, I do interpret equity, in their minds, as being social equity or financial equity. I've defined a different kind of equity which is called political equity. Regardless of how good a design there is and regardless of how equitable it is, if politicians won't pass legislation that effect this kind of plan, it doesn't make any difference how good the system is. The concern that I have when I look at a global picture (and this is certainly a concern about the U.S. and Canada as well) is that politicians are not necessarily driven by what makes the most sense, but rather, by what they can sell to win votes to be reelected or to elect their immediate associates to follow them.

My assignment would be, after you've designed the perfect system, figure out whether you can sell this sufficiently in the real world of politics so that the politicians will pass it and we can, in effect, end up with the right system.

Mr. Ron Gebhardtsbauer: I've been giving speeches around the country where we take polls from the people. They have these gadgets in front of them, and they vote on which of the 10 options they want to fix social security. The two that they like the most are the ones that penalize somebody else. That would mean raising the wage base. One person suggested raising the wage base to $97,000. The other one that they really like is the means test, and, as Rob was pointing out, you get some perverse incentives. The three options that they hate the most are decreases in the benefit and the cost of living adjustment or taxing the benefit more, even though I tell them in my description that taxing social security benefits more under the thresholds by eliminating the $25,000 threshold and just taxing the whole benefit doesn't really hurt low-income people because they're not going to be taxed anyway. They are under the $13,000 or $14,000 limit, so they won't get taxed anyway.

Congress is going to have a lot of pressure to do a means test, and I guess you weren't sounding very hopeful. You were sounding sort of pessimistic that they may not do the right thing because the pressure is pushing a means test. We haven't had one so far on Social Security. All the policymakers don't like means tests, and I guess our job is to keep on showing the problems of a means test.

Some good ideas are coming out. One idea is, in fact, in response to what Rob is doing. You mentioned that the SSI has a claw-back in the U.S. dollar for dollar. The National Commission on Retirement Policy is suggesting that Social Security stay the way it is, and just move the retirement age up but have the minimum benefit equal to poverty. Then you wouldn't have SSI and the claw-back anymore.

It would be in that one Social Security formula that nobody understands, but maybe the mystery's OK because it works out OK. I just wonder, what do you think about that idea of having a minimum benefit equal to poverty in the Social Security benefit?

Mr. Brown: I just said that I think there might be advantages for the fact that nobody can understand how your system works because it can't create perverse incentives. On the other hand, I think you're already trying to do too many things in one system, and I think there are advantages to keeping them separate. During a forum with both U.S. and Canadian actuaries, I suggested the idea of a larger minimum but welfare-tested system like a U.S. version of the GIS. The response was, "We don't want another welfare scheme!" I don't think that I would vote in favor of trying to make OASDI be everything to everybody.

Mr. Knox: As I indicated, in Australia we have a basic pension of 25% of the average wage, but it's means tested in terms of the incomes and assets. That avoids some of the gaming. There are also limits on gifts. Again, that tries to prevent some of the gaming, but there are many perverse incentives. In Australia, there is a 50% claw-back plus tax on the remaining 50%. You end up with an effective tax rate of something on the order of 65%, which is the highest tax rate for anyone in the country. I think means tests have little problems. We've lived with it for basically 80 or 90 years. We've always had a means-tested pension. If you're going to introduce it, we can teach you lots of negatives about it.

Mr. Brown: Some of those people in Canada, at the worst possible point, are paying 77 cents on their last dollar that they bring into the system. They're giving 77 cents back to the government. You can imagine the incentive that creates.

Mr. Katz: I'm a native of Washington, D.C., so I have lived my entire life with politics. Being optimistic about Congress is something that's very difficult to do. Even with that kind of background, perhaps I can be an eternal optimist and hope that we'll overcome that.

Ms. Anna M. Rappaport: David talked about similar benefits and similar circumstances and also about the issue of progressivity. I'd like to suggest that we think about equity in a different way and that we think about adding something else to our criteria. I'm going to give you an example to show why I'm so concerned about this issue. I'm concerned about equity between different family types and also about the relationship of benefits to a widow compared to the benefits to the couple before the person was widowed. I'm concerned about divorced persons. If we look at the U.S. system today, and we look at people who are in similar situations, we see some very different benefits.

Let's look at 2 families who earn $34,000 a year. These are middle Americans. In one of these families, the husband is the sole earner, and the wife is working hard at home taking care of the kids and the family. In the other family, there are still kids, but both of them work and they earn $17,000 each. Both families pay the same Social Security taxes, but the two-income family gets significantly lower retirement benefits, and after one dies, we can see that survivor benefit becomes even more dramatic. In this case this was a 1998 retiree, and the person died right away. In the single-earner family, the widow's benefit would be around $1,100 a month. The 2-income family would get $675. That is $675 versus $1,100 a month. That's a huge difference, so I think equity across family types is an issue. If we're concerned about poverty and minimum benefits, at least in the U.S. (but I think this is true in other countries as well), the people most likely to be in poverty are elderly women living alone. They are frequently widows and they are sometimes divorced. The situation is worse for divorced women. There's this question of dropout or years not spent in the workforce and also those not married. I'd like to see us add to the criteria equity across family types as well as this issue of progressivity.

Mr. Knox: I have no problems with what Anna is suggesting. I guess that fourth criteria of similar benefits and similar circumstances was very broad and deliberately so. There are certainly many different family types, and I think we must recognize that the traditional family type with a husband, wife, and 2.1 children is no longer with us, at least even in the majority. There are a whole range of different circumstances, and we have to make the system more flexible and fairer to accommodate those ranges. It may be that the system needs a redesign to take into account households and not individuals. I'm not an expert on the U.S. system, so I wouldn't comment, but to me, a designed system is not a problem when it comes to criteria. The criteria are there. I would say they meet what Anna's saying, but I agree with her that when you're talking about similar circumstances, you have to look at a whole range of different individual and family circumstances. In terms of her comment about the elderly women and widows, most of our very old people are, in fact, females. Many of them now have had very little family support because they're in their 90s, and we have to assess, in terms of an advanced community, what is fair and reasonable to them as a minimum income, and that's the adequacy issue.

Mr. Bernard Dussault: Dave, what do you mean when you say that the rate of return is not relevant for a social security program? I think it's very relevant for many reasons. First, over the last seven to eight years in both Canada and the U.S., some government representatives have said that the contributors to the social security program will not get their money's worth, meaning that for each dollar of contributions, they would get less than one dollar in benefits back.

Second, if you want to look at the equity aspect of a program, you have to look at the rate of return and consider looking at what has been put into the plan in terms of contribution and what has been taken out in terms of benefits. You must take into account the taxes that apply to that. I'd like you to comment a little more on that.

I have a very basic question for Rob. The benefits you have shown are on a combined basis for bi-level of earnings for the OAS, GIS, and Canada Pension Plan (CPP) benefits. Were these benefits measured before or after taxes? I got the impression that it was before taxes.

Mr. Knox: What I was trying to say was that in terms of a pure social security program, where you have taxation going in and benefits coming out, it is like a social contract where society has deemed what goes in and what goes out, and there's an agreement. In that sense it's not a fund, and rate of return is less relevant than in something like a CPP where there was a direct link between benefits and contributions. If you then move into the private sector pension plan, it is clear that rates of return are important. The point I was making was, if, as individuals, we make an investment, we choose 401(k) plans or a registered retirement savings plan, that rate of return is one of the criteria we're looking at. If we're in a compulsory social security contract, there are many more things than rate of return that are part of that contract. I'm not saying it's totally invalid, but there is a broader picture than rate of return. In the extreme situation, there may be no contributions going into the social security plan. It may be coming out of general taxation, in which case, what is the rate of return?

Mr. Thomas F. Wildsmith: One thing that I'd like us to talk about a little bit more is what value there is in understandability. The reason I say that is the charts demonstrate very clearly that the U.S. Social Security system places a very strong emphasis on individual equity; despite that, there seems to be a constant and increasing interest in rates-of-return analysis, money's-worth analysis, and individual accounts in Social Security. I think that that is symptomatic of people not understanding what sort of equity they're getting out of the system. There is a concern that, in some sense or another, they're not getting a fair deal. I suspect that that may also be the reason for the often-quoted comment that young people are more likely to believe in UFOs than receiving their Social Security benefits. While there's some benefit in policymakers being able to tweak the formula to get certain socially desirable benefits, does a lack of understandability of the system, when you get into an environment where funding is difficult, ultimately run the risk of undermining the public support for that system?

Mr. Brown: If you want understandability, you're really going to have to scrap the system that you call OASDI. You could go to a system very similar to what we have in Canada—a targeted, income-tested base, and then an earnings-related second tier. I don't think there's any way that you can make small changes to OASDI and make it understood, although I'll give you one that would be a step in the right direction, and that's your flexible retirement reductions, which are something like 5/9% per month in the first 36 months of early retirement, followed by 5/12% per month beyond 36 months. In Canada it's 0.5% a month. Guess what? You can actually remember and understand 0.5% a month. The difference between 0.5% a month and 0.42 is 0.042. So, who cares? Make it understandable if the difference is 0.042.

Mr. Wildsmith: I guess what struck me so powerfully is the current Social Security system seems to meet fairly closely the criteria that we've laid out in this session, yet there seems to be a great deal of political pressure to add things like individual accounts that would bring it much more in line with or make it more similar to the Canadian system perhaps. What I'm getting at is my suspicion that what's driving that is the desire for that understandability that you suggested may get in the way of developing the ideal system.

Mr. Brown: Go home and ask yourself how much of the desire is being driven by brokers who want fees on placing money in the stock market, and I do not mean that lightly.

Mr. Knox: I just have two comments. The comment to encourage transparency or understandability is a very important one. If a community, through their parliament or their politicians, is going to make changes to any social security or retirement income structure, we have to understand the consequences of those changes, and before we can understand the consequences of those changes, we have to understand the system. Reflecting on our experience down under, we're moving to more and more individual choice not driven by government. It's driven by a philosophy at the government level. I'm not saying it's right or wrong, but individuals are given more choice. Now, they can only make that choice if the system is transparent and understandable and people are educated accordingly. I won't comment on whether our experiment will be good, bad, or indifferent, but I'm just making the point that transparency and understandability is very important as soon as you give people choice. It seems to me, based on some of the vibes of the debate in North America at the moment, that some of the politicians are now being given a choice about reform and they need to understand the consequences of those choices; therefore, they need to understand some of the basics of the system. Understandability is a very key plank in any reform, and I think actuaries

can play an important part in educating the community to understand what the system is all about.
Rob might be correct that the whole issue of individual accounts is being driven by Wall Street. I think there's a second plank there, and that is it's being driven by consumerism. Individuals are increasingly wanting control away from the collective pool to their individual pool. Again, I'm not sure that's a good trend in the community or in our society, but I have a hunch that we are becoming more selfish and want control of our money. We do not want to leave it with somebody else. One of the worldwide trends of consumerism is individualism, and it's also being pushed internationally.

Mr. Katz: I would come back to how politicians will present a change, regardless of whether the plan is understandable or not. In the U.S., the debate is over which party is trying to take away benefits from the elderly, and it really doesn't make any difference whether the underlying plan is brilliant or not. If one party can accuse the other of tampering with benefits, it wins the day. The understandability issue has to be put in the context of how it will be sold politically. I'm sorry to be so pessimistic about this, but if we can make it politically neutral, then perhaps we'll have something. As long as one party can accuse the other party of taking away benefits or increasing taxes, it doesn't make any difference. Again, I'm the pessimist on that side.

Mr. Joshua David Bank: This relates to Rob Brown's list. I applaud your laudable objectives. It's kind of a two-part question. Was the reason that you did not have, as one of your objectives, a DB system versus a DC system, because it's a "no-brainer"? If so, then why is a great majority of the developing world trashing their DB systems and going completely to just saving systems with some kind of minimum?

Mr. Brown: I didn't really go into the issue of DB versus DC. There is a paper that I wrote for the *North American Actuarial Journal* , entitled "In Defense of Pay-as-You-Go (Paygo) Financing of Social Security," Vol.1, No. 4, debating pay-as-you-go versus funding. There's a huge section in there about DB versus DC and also a review of the classical Chilean system, which was the first one to trash DB and move to DC. I'm very much against trashing DB and moving to DC, and I think many of the social characteristics and attributes that David has alluded to are behind quite a bit of the driving force there.

In all fairness, the Chilean system was in a lot of trouble, but it could have been redesigned as a DB system. After Chile coincidentally changed social security with about 167 other pieces of legislation, I'm not convinced that the resulting legislation or what happened economically had anything whatsoever to do with the fact that they now have an "apparent funded social security system." On a personal level, I would very much argue against moving to DC, but I can understand many of the attitudes that have now become pervasive. These attitudes are that there will be forces that will push us toward more individual control, which means DC.

Mr. Katz: To answer your question about why are countries scrapping DB systems in favor of DC, first of all I take exception to that since outside of South America, most countries are putting in combinations. If you look at what has happened in South America, the motivation for DC systems has been as much to generate capital flows into their financial markets as it has been to redesign social security systems. The interest has been in an influx of funds in the capital markets generated by DC social security systems. Second, in South America where this has occurred you have a very different population situation from the rest of the world or at least from the rest of the semideveloped world in that your aging population is not nearly as critical an issue as it has been in the developed world, certainly North America and Europe. You don't have this really difficult issue of paying for current retirees while trying to save money for current workers. When looking at what different countries are doing, I think it's necessary to take into account all the circumstances—not just that countries are scrapping DB systems. I would just ask you to look worldwide at the different circumstances.

Let me once again thank David Knox for joining us from Australia and presenting his very thought-provoking paper on equity. I'd also like to thank Rob for his very thorough analysis of the U.S. and Canadian systems and also his amendment, if you will, to the equity criteria. I hope this discussion is the beginning and not the end of a discussion within our profession and with the public on the issues that are so critical and so important to the ongoing debates. Please learn more about this. Get involved. Become participants in the debate. I think our profession has a great deal to contribute to it. We certainly have some individual practitioners like David and Rob who are doing so. I'd like to see us all get involved. I think it's really important for worldwide success and for providing income security to retirees. I don't mean that to sound as melodramatic as it has come across, but it's something I believe very strongly in, and I hope you all will take this and accept the challenge and become participants in this great debate.