CURRENT REPLACEMENT RATIOS

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A current look at objectives in retirement planning:

- How much is enough?
- How should postretirement health care benefits be reflected?

MR. JAMES A. KENNEY: The first speaker will be Dr. Bruce Palmer from Georgia State University with the Risk Management and Insurance Program. I'm from Coates Kenney, Inc. The opinions expressed are those of the speakers and not necessarily those of our employers. Dr. Palmer will be talking about how much of a replacement ratio is necessary for retirement, and I will be talking about how to achieve the replacement ratios necessary for retirement. We will begin with Dr. Palmer's presentation.

DR. BRUCE A. PALMER: I'm not a member of the Society of Actuaries. I majored in actuarial science as an undergraduate, but then I decided to take the academic route.

Some may have seen the earlier results from the income replacement project that we're going to talk about. The project has received a lot of national publicity and tipped most of the news wires, such as *U.S.A. Today* and, certainly, the *National Underwriter* and others. There has been a lot of publicity over time. I'm going to talk about the RETIRE project. RETIRE is an acronym for Retiree Income Replacement.

This project is sponsored by the Center for Risk Management Insurance Research at Georgia State University. I happen to be the project director. Funding is provided externally and we're very thankful to the Alexander & Alexander Consulting Group which provided a grant to the research center for us to conduct this research. Alexander & Alexander also does the computer work at my request out of the Atlanta office. Fred Munzenmaier, who is the vice president and managing director, has helped me with all three projects. Jeff Paciero has helped me with the current project.

The basic research issue that we look at is how much retirement income is needed to sustain an individual or a family's preretirement standard of living. In other words, given the standard of living prior to retirement, what amount of income is needed to sustain or maintain that standard of living as you enter into the retirement period, considering changes between pre- and postretirement taxes, savings and expenditures, and other categories. The basic way in which we measure this amount of income is in the context of what we'll call the income replacement ratio. The origin of the concept really goes back to the President's Commission on Pension Policy

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which was established under President Carter's administration. In 1981 there was a report published by that commission entitled, "Coming of Age Toward a National Retirement Income Policy." We basically follow the format that was used in that earlier report, but we do a lot of unique things in terms of the research that we enter into.

Alexander & Alexander approached us in 1988, primarily as a result of the passage of the Tax Reform Act of 1986. A lot of people in the industry, including Alexander & Alexander, felt that there was a need to have a new study on income replacement given the major changes in the income tax laws brought about by the 1986 tax law. Most importantly, we are talking about the decrease in the overall marginal tax bracket at the highest tax brackets from 50% to 28%. Those changes in income tax rates together with the 1983 social security amendments and some other changes in legislation really caused us to reexamine this issue.

We'll go through the definition of income replacement step by step. We use two different formulas. One is called formula A and one is called formula B. Formula B is the one that I normally talk about and I'll go through that with you right now.

Formulas

A. $$RR = \frac{PrRGP-PrRT-PrRS+PoRT}{PrRGP}$$

B. $$RR = \frac{PrRGP-PrRT-PrRS-WRE \ +/- \ NCASE \ + \ PoRT}{PrRGP}$$

Symbols

a. PrRGP = PreRetirement Gross Pay
b. PrRT = PreRetirement Taxes
c. PrRS = PreRetirement Savings
d. PoRT = Post Retirement Taxes
e. WRE = Work Related Expenditures
f. NCASE = Net Change in Age Related Expenditures

Basically, the way we compute income replacement or a replacement ratio is to start with an assumed gross salary from which we subtract preretirement taxes. Now those taxes will include FICA taxes and federal, state, and local income taxes. We also subtract preretirement savings. We estimate what individuals at that salary level are saving and we subtract that before we proceed through the calculation. Now some people get confused when I talk about subtracting savings. We're not going to replace savings. Just because we're subtracting it, we're not going to replace it at retirement. Some people object to that. They differ with me on that and think that we should replace it, but we do this research primarily with the intent that the output is to be used by employers. I think that most employers in this country would not want to design their retirement plans to incorporate replacement of savings. So that's why we subtract savings before we go on.

Maybe the most unique thing about our study is the next item which deals with changes in certain expenditures that we look at in moving from a working status to a retired status. Some of these expenditure changes, which I'll talk about later, are related to work and we don't replace work connected expenditures. Some

expenditures, on the other hand, might increase in the retirement years and we call those age-sensitive expenditures and we consider those. But before we actually do the research, we're not sure whether or not these changes will lead to an increase or a decrease in expenditures postretirement, so that's why I have the plus or minus in Formula B. Then we add postretirement taxes again and, of course, we're looking only at federal, state and local income taxes. We assume the person is fully retired, so we don't have any FICA taxes anymore. Also, we expect these taxes to be lower than the preretirement income taxes due to a lesser income and, also, due to larger standard deductions which will play a roll at lower income levels. Once we consider all those pluses and minuses, then we end up with the dollar amount of income needed at retirement to sustain the same standard of living. When we divide that by the gross salary we started with, we end up with the replacement ratio. So that's what we do in this study. We can use these percentages as our basis for the rest of the research that we work on.

A couple other things I wanted to mention before we proceed. One of them is that this research only generates averages for individuals. If you're trying to take these results and apply them to yourself, you really need to go through a separate individualized calculation that's tailored for your own needs; that is not really the objective of our research. The objective really is to provide standards by which employers can design their plans for large numbers of employees. So we compute averages and that's what all of these ratios will represent.

The main reason why the RETIRE Study is unique is because we use real consumer expenditure data. The Bureau of Labor Statistics currently makes available on an annual basis what they call the Consumer Expenditure Survey Database. It is available in the form of public-use tapes which we acquire. We do our own research based upon that data. The database itself collects information on about 20,000 consumer units. We utilize information on about 3,000 to 3,500 of those consumer units. But the Consumer Expenditure Survey Database is used to estimate itemized deductions, and state and local income taxes, both preretirement and postretirement. The database also is used to estimate preretirement savings and to estimate the changes in expenditures that we want to analyze. Once we estimate those elements, then we throw those variables into a federal income tax model which I've developed, but the database is essential in order to give us those estimates.

By way of background, the 1988 study, the first study, looked at 1984 consumer expenditure data, and threw it into a 1988 income tax model. The 1991 study used 1988 expenditure data and 1991 income taxes. The current study uses 1993 income taxes and 1990 data. Originally we had a four-year lag time and now we have a three-year lag time between the expenditure data and the tax model. I hope to get that down to two years the next time we run this. I doubt that I can ever get it below that because the Bureau of Labor Statistics has to collect the data, then it must sort through it all for data errors and everything else. Then they do their own analysis before they release the public-use tapes, so there is a considerable time lag before we can get the data.

I want to talk briefly about the various expenditure categories that we examined. I've categorized them into three subsets: age-related expenditure changes, work-related expenditure changes, and gifts. I won't really attempt to go through each one of

those individual categories, but I want to talk briefly about the process that we use to estimate these changes, and then I want to talk briefly about the gifts element or the gifts variable.

This study involves a cross-sectional analysis of the data. We'd prefer to use time series. We'd like to examine people who are working right now and approaching retirement and then follow them for five years or so into the retirement period. But we don't have the money to do that. That would cost hundreds of thousands of dollars and the Consumer Expenditure Survey Database doesn't do it that way either. So we're limited to a cross-sectional approach. In this cross-sectional approach, we look at the expenditure variables for a group of working individuals, and we currently define that group to be a group of workers age 50 to age 64. We compare those expenditures with a group of retired people who are between the ages of 62 and 74 and then we look for the differences. By comparing those two groups, we estimate our age-related and work-related values.

Another potentially controversial issue here is the way in which we deal with gifts. We didn't really address this in the 1988 study. We looked at it in the 1988 study, but the gifts variable wasn't very important then. In the 1991 study, we discovered a large amount of gifts by the retirees. We felt we should not attempt to replace that in terms of developing our income replacement ratios. So beginning with the 1991 study and carrying over into this study we have chosen to eliminate from our analysis any changes in the giving away of wealth between the preretirement period and the postretirement period. Our argument is simply that the employers are not interested in providing a large replacement in order to allow people to give away their wealth to their sons and daughters and so forth. So that is a change from the two latest studies to the original study.

Let me go through a brief example using $50,000 to show how we compute these replacement ratios. I'll use our 1993 numbers and they're based on a single individual. Later I'll talk about both the single individual and a married couple, but these numbers are for a single individual making $50,000 in the year immediately preceding the retirement age of 65. We estimate that person's preretirement taxes, including FICA taxes, to be $14,753. We also estimate, based upon our latest data, individual savings to be about $1,600. We really weren't sure what would happen in terms of the net change in all of our expenditure categories that we looked at, but we found that for this person, at $50,000, expenditures went down by $1,920.

Once we get that net amount of income, we add in estimated postretirement taxes, which are substantially lower than the $14,753 estimated for preretirement. Now of that $14,753, about $3,800 is FICA taxes, so the working individual is still paying about $11,000 of federal and state income taxes versus $3,000 postretirement, so there's a huge difference. The main reason for that difference is that when we calculate these postretirement taxes, we have to make an assumption with regard to the nature of the retirement income. Is the retirement income taxable or is it not taxable? And the assumption that we make is simply that the retirement income is coming from one of two sources. It's either coming from social security benefits or it's coming from a tax-favored or tax-deferred retirement plan. Any money coming from the tax-deferred retirement plan is coming out as taxable income. Social security benefits will not be taxable at lower incomes and portions of them will be taxable at

higher incomes. This person is low enough in terms of income so that not very much of his or her social security benefit is going to be taxable. When you get to the higher salary levels a much bigger percentage of the social security benefits will be taxable. So we end up with a needed amount of postretirement income of approximately $35,000. You divide that by the salary of $50,000 and you end up with 70%.

FROM THE FLOOR: Are you saying the $34,870 needed is from social security and a qualified retirement plan?

DR. PALMER: Right.

FROM THE FLOOR: What percentage did you assume from social security versus a private pension plan?

DR. PALMER: The question is what does the $34,870 really represent? The answer is the $34,870 is coming from social security benefits and a qualified retirement plan, or an IRA, or some other tax-deferred vehicle. We figure out what portion of that is social security. We compute the social security portion by taking the person's last yearly salary and project it backwards based upon national average wage level increases and then that will determine what amount of social security is payable.

MR. KENNEY: I'm curious about the $1,900 drop in expenditures. Do you have any idea as to what that's related to?

DR. PALMER: No. One of the things I guess I should have said earlier is that I've not written the report yet, which also means haven't completely finished the analysis, and that's one of the things I'm going to try to look at. We did that type of analysis in the two earlier studies, but that's something I need to work on. The only thing I can tell you about the expenditures variable is that it has been less significant for this study than it was in the 1991 study. So the $1,900 is less this time around than it was two years ago. But I can't tell you exactly how that $1,900 is apportioned to health care, food, and transportation, because I haven't gotten that far. That's really the last piece I need to look at.

Let's discuss some of the new numbers for a single individual and for a married couple. In both of the earlier studies we looked only at a married couple assumption and I talked in general about what would happen for a single individual, but we never really calculated them, so the single numbers are new for 1993. Now let me give you the assumptions. We're assuming retirement in both cases is at age 65. So we're talking about somebody retiring today at age 65. These numbers are not going to be as useful for some of you who are 30, 35, or 40 years old because your retirement age might be 66, 67, 68 or older. Of course, that's important from the standpoint of what the social security program will pay. This assumes retirement at age 65. For the married couple, we assume a spouse who is three years younger, so we're talking about an age-65 worker and an age-62 spouse. Now that will affect the social security benefits that are payable. It will have a minor effect on the postretirement federal income taxes, but the major effect will be on the social security benefits that will be payable.

FROM THE FLOOR: What differential in income do you assume between the age-65 worker and the spouse?

DR. PALMER: This particular assumption assumes a one-wage earner. We are doing some analysis with two-wage earners. That's almost complete but not quite. The assumption we're making right now is about a 60/40 split. I'm trying to get a run of the current population survey data, which is another survey that the Bureau of Labor Statistics does every year to try to estimate in terms of two-wage-earner families, both working full-time, what the average percentage is for one spouse. I don't know what that particular real life apportionment is yet, so the one we're running is a 60/40 split.

FROM THE FLOOR: What would explain the rates turning up after about $20,000?

DR. PALMER: Let me defer answering that question for a while. If you go back and read all the pension textbooks and everything else published about this in the 1970s, you'll read about replacement rates that should be a constantly decreasing function of an increasing salary. Well, our 1988 study disproved that theory and so does the 1991 study.

There are really three replacement ratios that are important to consider. The one that I've talked about is the gross replacement ratio. But the other two replacement ratios are the social security replacement ratio and then, of course, the net replacement ratio which is the difference between the two. And the net replacement ratio is the one that employers really ought to be focusing on. When I talk with my students who are in their 20s, they don't want to consider social security at all. They assume the probability of benefits being there for them is zero, so they just want to look at the gross replacement ratios. They're not interested in the net. But I assume that most employers today or most of your clients are still going to be interested in the net replacement ratio.

Let me just point out one other thing here and that is that the retirement and savings piece has to come from either individual savings or an employer plan. I'm making no prognostication here as to how that ought to be split; that's really the employer's decision in a sense. The net amount is what has to be developed over time from one or more sources in order to allow the individual to sustain the same standard of living. Of course, when you look at a social security piece and you see the 51% at $50,000 dropping down to 15% at $90,000, you realize that relationship is something you've known about for years. The social security program is a transfer program that provides replacement ratios that decrease as a function of increasing income. Of course, this leads to the conclusion that the net income replacement ratios must go up as a function of increasing income. The net ratios will range from about 25% or 26% at the low end up to 66% at the high end based upon our assumptions embodied in the 1993 study.

MR. KENNEY: What you're really saying then is that you have to give two-and-a-half times as much to a $90,000-a-year worker than a $20,000-a-year worker.

DR. PALMER: Absolutely. It's justification for an integrated plan. Congress, in the 1986 tax law, curtailed to some extent the ability of employers to integrate the plans.

Our research shows that law probably should not have been changed. Our research conclusively shows that there is still an important need there to permit integration in qualified plans.

FROM THE FLOOR: Do you assume that they're going to use their preretirement savings to live on during retirement?

DR. PALMER: Yes, Jim's going to talk about how much you need. The savings rates that we observed in our research aren't nearly large enough to generate those kinds of replacement ratios.

FROM THE FLOOR: In the data that you have on the savings rates before retirement, is there any indication whether it is 401(k) money versus just savings?

DR. PALMER: No. Again, let me defer that question because I'll talk about savings and I'll show you how we compute savings.

FROM THE FLOOR: Just one other factor. The social security will have increases for cost of living. How does that affect your analysis.

DR. PALMER: These ratios are at the moment of retirement. Of course, social security will provide an inflation adjustment. You have to deal with that separately in terms of meeting the 66%. For example, if the defined-benefit plan provides 66% and it's not adjusted for inflation, then you may still need 401(k) money to pick up the cost-of-living piece. These percentages are at the moment of retirement.

MR. KENNEY: I'll be talking about inflation later.

DR. PALMER: Now we'll discuss the married couple with the one-wage earner assumption. The social security benefits or the social security replacement ratios will be higher because now you have a married couple and you have the wage earner receiving 100% of his or her primary insurance amount (PIA) and then the spouse at age 62 is getting another 37.5%. So those numbers for social security should be 37.5% larger than the numbers in the previous example. That creates a corresponding reduction in the net replacement ratios with bigger reductions at the lower salary levels than those at the higher levels. It's not that much of a difference at the higher salary levels, but at the lower salary levels, of course, you have bigger differences in the net income replacement ratios.

MR. KENNEY: So now you need four times as much instead of two-and-a-half times as much for the $90,000 worker as you need for the $20,000 worker.

DR. PALMER: Well, you need more than that. It would be four-and-a-half times as much.

MR. KENNEY: So that's quite a difference.

DR. PALMER: Let's talk about how the current results are similar to or different from the two earlier studies. The differences certainly indicate that you need to look at these results more in terms of estimates than simply numbers that have 100%

credibility. The numbers jump around, particularly in the $80,000 and $90,000 categories in the current study in relation to previous studies. There are a couple of blank spots in the 1988 study simply because we didn't break out the $70,000 and $90,000 income levels separately. In fact, we lumped them all together at the $80,000 level. We went from $60,000 to $80,000 in 1988, so $80,000 really was a very broad salary bracket that included everybody from $65,000 to $95,000. In the two latest studies we broke out the $70,000 and the $90,000 salary levels. The 1993 study is really more consistent.

FROM THE FLOOR: If the proposed tax increases come to pass, would there be an even more pronounced upturn at the higher compensation levels?

DR. PALMER: For social security tax, taxation of benefits, or income taxes?

FROM THE FLOOR: Income taxes.

DR. PALMER: I'm not sure about that. I guess at this point not necessarily. Let me address the issue of the taxation. It's my belief that it's not so much the level of the income taxes that determines the shape of the replacement ratio curve, but rather the way in which taxes might differ between pre- and postretirement. As long as an increase in taxes has the same effect both preretirement and postretirement, I don't think that the shape of the curve would be altered.

FROM THE FLOOR: From the proposals that are out there it seems like preretirement income is more likely to fall more quickly. Taxes would go up preretirement. Preretirement income would fall more quickly than postretirement income because of the heavy tax on the very high income level. My guess is that the replacement ratio would come down.

DR. PALMER: An overall increase in taxes will cause the replacement ratio to go down, and it will cause the curve to go down. The relationship between preretirement and postretirement will affect the shape of the curve.

MR. KENNEY: Actually though you can argue there would be an indirect feedback effect, because if the taxes go up, the amount that can be saved goes down and, as you'll see from Bruce's presentation later, when the savings portion goes down the replacement ratio goes up. So, an increase in taxes may well cause the replacement ratio to go up rather than down because of the effect on savings.

FROM THE FLOOR: Are these all in constant dollars?

DR. PALMER: No, they're current dollars. They're not constant.

FROM THE FLOOR: Not adjusted?

DR. PALMER: They're not adjusted. I had a couple of people ask about the differences and why there is the upturn in the curve at the upper income levels? Certainly a major reason why there are differences between the 1988, 1991 and 1993 studies is based upon the savings variable. You have to understand how the savings variable

works in terms of the calculation of income replacement ratios. If you don't understand, then you may be advising your clients improperly.

Let's look at the savings variable for just a minute. I'll give you rates of savings at all the levels shortly, but for example, let's just look at the $50,000 salary level. Our data shows that our savings rate, as we measure it, decreased from 11.7% in the 1988 study to 4.7% in the 1993 study. Now what that means then is from the 1984 database to the 1990 database, (for a six-year period) we saw savings rates go down by 7% and, of course, other measures of savings verify the overall decrease.

MR. KENNEY: Bruce, how do you get the savings? Do you take it from the consumer data? I mean do they somehow know how much people are saving or is it what's left over after you subtract everything else including taxes from their wages?

FROM THE FLOOR: Bruce, what is the savings used for after retirement? In other words, if you've had a higher level of savings preretirement, does this go to post-retirement expenditures? Does it go to postretirement income needs? I mean, what do you do with these savings once you've hit the point of retirement?

DR. PALMER: If you looked back at the formula, if somebody is saving 8% of their preretirement salary the year before they retire, then we're not going to replace that. There is going to be an 8% reduction ignoring the income tax effects of that. That's going to create an 8% reduction in the replacement ratios. Now we're assuming that person is putting that 8% somewhere. Now they're putting it in a 401(k) plan, or an investment portfolio, or whatever, but we don't deal with what they do with that money. We ignore what they do with it. We just estimate their savings to use it to determine what replacement ratio is needed. Now the question has been asked, how do we define savings? Our definition of savings is not a perfect measure, but I don't think anyone has a perfect measure of savings. Of course, Jim has asked a very important question – how do you develop it? Is it simply what's left over after you subtract everything else, which is kind of the government's measure of saving, or do you actually look at what people are putting in stocks and bonds or in 401(k) plans or whatever? I think the latter approach is better and that's the kind of approach we take. We look to see where they're putting their money and then we add these things up. Of course, the deficiency or qualification with our savings variable is that we're constrained by the way in which the Consumer Expenditure Survey Database collects these data. In other words, we have pulled these items out of the database, we find what these amounts are for all of the people, and then we average those to get our estimate of savings. Again, it's not a perfect measure of absolute savings, but I think it's a pretty good measure of relative savings. So we use this information to measure what has happened to savings over time when you identify or define savings that consist of those seven separate values. We have not changed the definition of our savings variable at all in the three studies. We're still aggregating all of the savings values, and the savings has gone down.

MR. KENNEY: But in the 1988 study you were really looking at 1984 savings data.

DR. PALMER: Right.

MR. KENNEY: In the 1993 study, you were really looking at 1990's savings data.

DR. PALMER: Right.

MR. KENNEY: So you're comparing 1984 and 1990.

DR. PALMER: Right.

FROM THE FLOOR: Before and after taxes?

MR. KENNEY: Before and after the tax law change, yes.

FROM THE FLOOR: Is this on different K levels? Are these data based on different K levels?

DR. PALMER: We go into our database which has income listed up to $100,000. Anyone with income above $100,000 are top coded. Now what top coding means is that they're just treated as a $100,000 income. The reason they do that is for privacy purposes. There may be one person in that small community with this high income and although you don't indicate the name in the database, you know that person's income is listed at $250,000. Everybody else might be able to figure out who that is. So anybody above $100,000 is top coded at $100,000. So those at $100,000, $200,000, $300,000, or $500,000 income levels are listed at a $100,000 level. We ignore those levels and look at data between $12,500 up to $95,000 and we break the $12,500 to $95,000 into salary brackets which have median values of $15,000, $20,000, $25,000, $30,000, etc. Within the median salary bracket, we average the savings data and all other data within that salary bracket and attribute it to the median value.

There's a big drop in savings if you compare the two studies, and that is going to be one of the most important explanatory variables as to why we see the upturn in replacement ratios at the higher income levels. In the 1991 study, we found dis-saving at the very low salary levels.

Let's look at that $90,000 person. Now, again, that $90,000 figure reflects an average of people making between $85,000 and $95,000 who are between the ages of 50 and 64 and still working. We didn't consider any unemployeds. Our estimate based upon our definition of savings was only about a 7% or a 7.5% rate of savings of after-tax income. Of course, there's no way that 7.5% is going to buy you a 66% or a 60% replacement ratio.

FROM THE FLOOR: What percentage of the population has a salary level below $100,000?

DR. PALMER: I don't know what it is currently. I suspect 95% would be under the $100,000 level.

MR. KENNEY: If I remember correctly, the social security wage base is pegged at about the 90% level. So people under $100,000 would be considerably larger than 90%.

DR. PALMER: There is a big drop in savings at the lower levels from the 1988 study to the 1991 study. Then we saw a big drop at the higher levels between 1991 and 1993 and that certainly is having an effect on the shape of the replacement ratios themselves.

MR. KENNEY: Now is this table based on families, couples, single people, or is it a blend?

DR. PALMER: It's a blend. We would like to go into the database and pull out singles and married couples. If we were to do that we probably would not have a large enough sample to come up with reliable results. So the savings rates themselves are coming from a blended population, and we actually use the same savings rates for single individuals and married couples in our analysis.

MR. KENNEY: When it says salary is that a couple's salary? Is that the combined family income or is that the income of one worker in the family?

DR. PALMER: We blend that, too. We use the married couple and the single individual assumptions for purposes of our tax model. When we use the database we throw everybody in the kettle, because we wouldn't have enough people in the retired category; for example, we don't actually pull out those who are unmarried or those who actually had two wage earners. We do it in the tax model and, of course, that's the limitation of the study.

FROM THE FLOOR: I think analyses like the data here contradict the results of the study because some of it is based on $90,000 at age 50. If they receive a shortage of retirement income, they should be able to save for it. It seems that if they drop their savings from 14% down to 7%, then they're not worried about their current situation.

DR. PALMER: Is it that they're not worried or is it that they can't do anything about it? I suspect it's the latter. I think it's just very difficult for people to save.

FROM THE FLOOR: Well, I think it's a lot easier to save at the $90,000 level than it is at the $20,000 level.

FROM THE FLOOR: Not necessarily.

DR. PALMER: I mean I'm making a lot more today than I was making 20 years ago, but my problems are still the same because I've adjusted my standard of living.

FROM THE FLOOR: But is it the employer's job to change their retirement plan because their workers aren't saving so much?

DR. PALMER: No, not necessarily. No, I'm not arguing that.

FROM THE FLOOR: Well, I'm just throwing it out as a thought.

DR. PALMER: I think it's important for employers to encourage employee savings. At the same time, I wouldn't argue that the employers ought to offer a more

generous defined-benefit plan because employees are saving less. That would be the employer's decision. I wouldn't advise the employer one way or the other on that either, but I would encourage the employer to make it possible for employees to save more when they can.

One of the things that you really have to be careful about anytime you talk about replacement ratios is what I would call the circular relationship between savings and replacement ratios. If you think back to how we calculated replacement ratios at the very beginning, we subtract savings. We don't replace savings in terms of determining the replacement ratio needed. Now what I mean by the circularity, or the circular relationship, is that as savings decreases, which we've seen, preretirement consumption goes up. As preretirement consumption goes up, replacement ratios are increased accordingly. As replacement ratios increase, there's a greater need for savings and as savings goes up postretirement consumption goes down and your replacement ratios go down. So you have to be careful when you use these results in the context of determining the appropriate level of savings. This kind of comes back to your question: what is the appropriate level of savings on the part of the individuals versus what we see occurring in this empirical research? Now this is empirical research. It's not theoretical research. So you have to remember that there is this circular relationship between savings and replacement ratios and understand the effect of that on the resulting numbers, particularly if you're going to use this information to advise a client about the design of their defined-benefit plan, or 401(k) plan, or something else.

Let me talk about what happens if we alter some assumptions, but I will not have time to discuss all of them in detail. Formula A is another method that we use to calculate replacement ratios. The difference between it and what I've been showing you is that formula A does not consider expenditure changes. A number of people I talked with don't want to consider that there might possibly be changes in expenditures between pre- and postretirement, so they would prefer not to even consider that. Normally when you use formula A, so that you don't consider expenditure changes, your ratios will be higher.

What if the spouse were also age 65 instead of 62 and still a one-wage earner? You have an age-65 worker, an age-65 spouse, but only one is a wage earner. Well, the logic here is that the social security benefits will be higher because the spouse is now getting 50% instead of 37.5%. So the big difference will be in the net replacement ratios. The net replacement ratios will go down. Second, because the person is now 65, the postretirement taxes will be a little bit lower at lower incomes because of the larger standard deduction; therefore, the gross ratios will be a little lower. So, in summary, gross ratios are a little bit lower. Net ratios are considerably lower because the social security benefits are higher.

Now I talked about two wage earners a little bit earlier, and since I'm running out of time I don't want to come back to that, but the last thing I want to talk about is the Clinton proposal to tax up to 85% of social security benefits. Clinton's proposal to tax up to 85% of social security benefits will, of course, have no impact on people with lower incomes. What we find for married couples is that beginning at about $70,000, there will be about a 1% increase in gross replacement ratios. At $90,000 levels, it's up to 5%. For a single individual, the difference starts at $60,000 and it

ranges between 3.5% and 4% between $60,000 and $90,000. So if that proposal is adopted, which I would guess there is a good chance that it will be, then the numbers I have presented in terms of gross replacement ratios need to be increased.

When I get back I'll be starting to write up the report. If any of your firms are interested in having a copy of the 1991 report, we charged $25. It might stay the same or it might increase a little bit this time if we do a little bit better job in terms of appearance and production. If anybody would like to order a copy, just give your business card to Jim and he can send them all to me.

MR. KENNEY: My presentation is going to be quite different. Bruce was focusing on consumer data and the analysis of those data. It was a very empirical study on what the worker needs to replace income. I'll discuss the problems that the employer and the employee have in replacing that income. A lot of this may be familiar to you, but I think putting it together in one package will bring it into focus.

Chart 1 shows the curve of the social security replacement ratios. They start with a high of roughly 50% at the $1,500 a month level and they drop to 25% at the social security wage base level which is about $55,000. Actually, I think it's $57,000. And from there on it's a hyperbolically decreasing function because the social security benefit is fixed and the worker's pay doesn't matter anymore in terms of calculating the benefit. At $200,000 at the far end of this chart, the replacement ratio of social security is roughly 8% of pay in comparison to 50% of pay at the $20,000 level. You can see there's a real problem created by the curve here for the upper-level-income worker, particularly when you consider what we are trying to replace for that worker -- according to the study you've just seen it is 80% of pay. You'd get 8% of pay. So there's a big difference between what is needed and what social security will provide.

CHART 1
Social Security Replacement Ratios
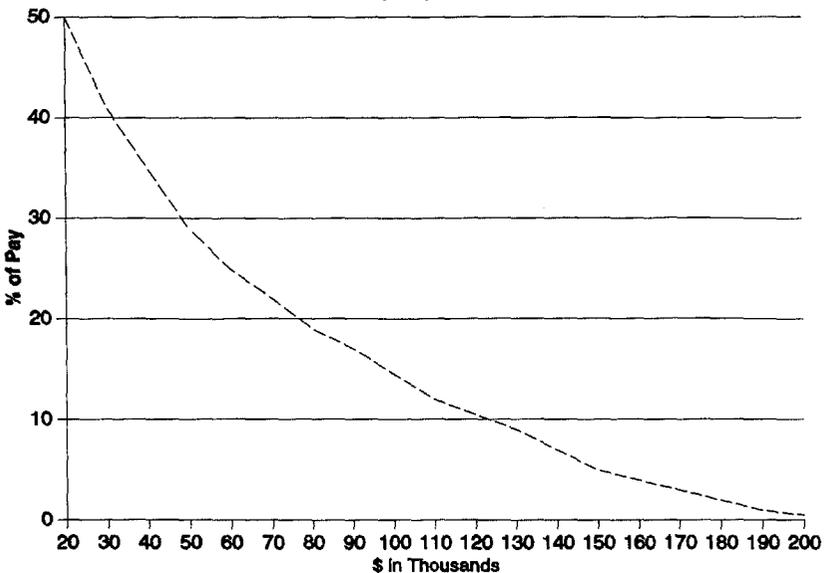
Chart 2 very briefly shows the curve of the social security for a constant income. This is $30,000 worth of income. The social security formula has some bumps and kinks in it which are year-of-birth related. And, as you can see, there's a big drop at 1938 and another drop at 1954. What you're looking at here is the age-65 benefit and the drop occurs at 1938 and 1954 because of the change in social security retirement age. Personally, I think that it's going to be difficult to break the psychology of age 65 as a retirement age. I know I was born after 1938. I imagine many of you in the audience were also.

CHART 2
Social Security Replacement Ratios by Year of Birth
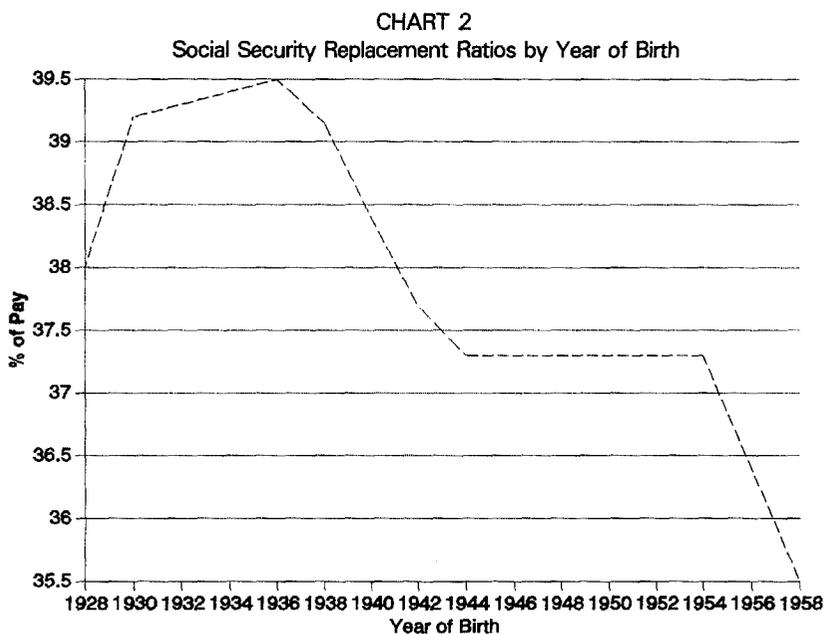
FROM THE FLOOR: What's this a ratio of?

MR. KENNEY: This is a ratio of the pay.

FROM THE FLOOR: Divided by what?

MR. KENNEY: By $30,000 in income. This is a constant $30,000 pay across all years of birth and it's been projected forward and backwards. To go on, I think that it will be hard to break the age-65 psychology. Yes?

FROM THE FLOOR: Just a comment on that. I think part of the reason that is hard to break is even though social security has raised the retirement age, in the private pension plan we have 100% vesting at age 65. There has been no movement there.

MR. KENNEY: As a matter of fact, you see early retirement windows. You see the downsizing of the work force. It's going to be hard to break that psychology even though the government on the social security side of things is trying to do so. On

other sides of things, it is not. For instance, one way the government could do this would be to ratchet up the exemption increase from 65 to 66 and 67 at the appropriate times with social security, but they haven't built that into the tax system yet, thank goodness. Basically what this curve means is that for lower-paid workers, there's a real drop in social security benefits, and it amounts to about 10% for the workers who were hired after 1954. By the time you get to 1958, you're replacing 35.5% whereas, a worker born in 1936 is replacing 39.5%. You have a 4% drop in absolute terms which is about a 10% drop in the amount of the benefit itself.

I'm sure you all remember the famous three-legged stool approach towards replacement ratios. You have the social security, you have the employer provided pension, and you have personal savings. What I'd like to talk about now is the problem of the truly higher paid worker. How can the replacement ratios that we've been seeing in the prior presentation be achieved? Social security does not help much and the private employer plans have built-in limitations in the tax code. There's the 415 limit and the 401(a)(17) limit. Table 1 shows the relationship of those two limits. Currently in 1993, the 415 limit is $115,641. The 401(a)(17) limit is $235,840. That equates to roughly a 50% relationship between the two. You have a 25-year career worker. The pension plan needs to provide roughly 2% of pay in order to achieve the maximum benefit for the worker making at or above the 401(a)(17) limit. That's a generous formula but it's not unheard of.

TABLE 1
Relationship of IRC Sections 415 and 401(a)(17) Limits

1993	
415 Maximum Benefit at age 65	$115,641
401(a)(17) Maximum Compensation	$235,840
Ratio 415/401(a)(17):	49%
25-year Accrual Rate:	2%
Clinton Proposal	
415 Maximum Benefit at age 65:	$115,641
401(a)(17) Maximum Compensation:	$150,000
Ration 415/401(a)(17):	77%
25-year Accrual Rate:	3%

Under the Clinton proposal, the 401(a)(17) limit will be cut considerably to $150,000 and it will change the relationship between the 401(a)(17) limit and the 415 limit so that it's now over 75%. In other words, for a 25-year employee, the pension plan would have to provide an accrual rate of 3% of pay. That's a very sizable difference. There are very few plans in this country that provide 3% of pay. It would involve at least a 50% increase in the contribution rates and the problem is, this just gets the higher-paid worker to the 415 limit. This table shows that to get anyone making above $150,000 to the 415 limit you're going to have to seriously increase benefits for the rest of your workers, and employers are not going to be willing to do that.

Even if we could go to the 415 limit Chart 3 shows the percentage of pay that can be replaced by the 415 limit and by the 415 limit when you throw in the social

security benefit. It covers the range from $100,000 to $500,000. As you can see, for the worker with $100,000 in income, you can replace over 110% when you look at 415 and social security together. When you get out to the $500,000 level, you're replacing about 30% of pay. If you're targeted at 80% of pay you must get another 50% of pay from either savings or some other form of employer-provided postre- tirement income. That means a nonqualified plan. This creates some nonqualified plan issues. The first issue is that the Department of Labor (DOL) definition of the highly paid worker does not coordinate with the IRS definition of a highly compen- sated employee. In fact, nobody really knows how the Department of Labor defines a highly compensated employee. It varies by industry. It varies by company. It varies by the pay systems of the employer. One DOL spokesman said, "Well, if you really push us we'll probably come up with a number like $200,000." Most people seem to feel comfortable with numbers like $125,000 or $150,000. Very few attorneys that I've talked to feel comfortable with numbers under about $70,000 or $75,000. They tend to be rather nervous at that level. So it's unclear as to whether you can deliver benefits through a nonqualified plan. Remember, in order to get the worker up to the 415 limit, we're going to have to go to 3% plans. We're not likely to go to 3% plans; therefore, you're looking at a situation where nonqualified plans are going to become a lot more important and you're going to want to move that level down. The fact that the DOL has such a vague definition of when you can consider somebody capable of being covered by such a plan is going to become more of a problem. That's assuming that the Clinton proposal goes through, which it looks like it might.

CHART 3
Maximum Replacement Ratios
from Qualified Pension Plan and from Social Security
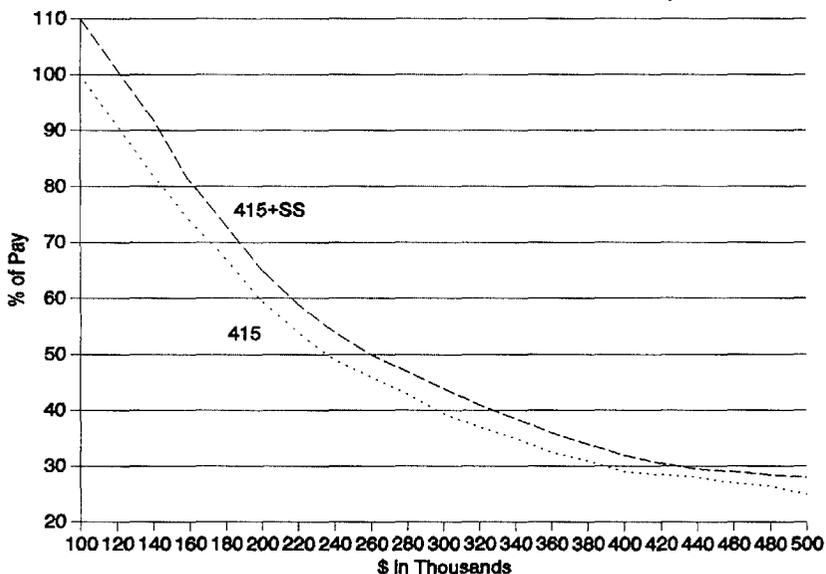
Probably one of the major problems with the nonqualified plan approach is that the benefits are not covered by an irrevocable trust and the general creditor's rights are the same as the retiree's. What this means is a considerably less secure form of postretirement income. If the employer has financial difficulties after the employee terminates service, this could seriously impact the retiree's income. Similarly there's no deduction for advanced funding which exacerbates this problem. You can't even set the money aside. The only way to set money aside is when the employee is involved in a nonqualified deferred compensation program and the employee is setting aside his or her own potential income into the nonqualified plan. And even then there's no guarantee that that money will be there when the worker retires because that money is subject to the general creditors even though it is the employee's own money.

A final issue is that when you get to the end of the road, there's no IRA rollover and there's no income averaging on distribution. So, if you're going through a deferred compensation arrangement, and you're deferring sizeable portions of your pay, when you get to the retirement age, if the money gets paid to you all at once (which is the safest way of getting the money out of the employer), you have a huge tax hit right then and there. If you string it out over 10 years or 15 years you don't get the huge tax hit right away, but the money is still subject to the risk of forfeiture on financial difficulty of the employer. So nonqualified plans will become considerably more important vehicles in the delivery of benefits if the Clinton proposal does pass, but they have some real problems with them.

We were talking about savings earlier. That's the so-called third leg of the stool. Table 2 indicates what percentage of final pay can be replaced through accumulated savings. Interpreting the table is a little bit tricky. The numbers going down the side are the ages at which the savings began. The numbers going across the top of the chart are the percentages of pay that have been saved by the worker and then the matrix of percentages are final pay that can be replaced through personal savings. The assumptions that underlie this table are a 7% investment income on personal savings, a 5% salary increase rate during the worker's lifetime, and a 40% tax bracket. Of course, the problem with accumulating retirement income through personal savings is unless it's a 401(k)-type plan (and that kind of plan does not help the highly paid very much), the investment income on the personal savings is subject to tax. If you take 60%, which is the after-tax portion of the investment income, of 7% you get 4.2% which is below the assumed salary increase. We've all been taught that the money you save in the earlier years is worth more than the money you save in later years, but actually under this kind of arrangement the money you save in the later years is going to provide a higher rate of income replacement for you, as shown in this table. Some of the problems with the personal savings being a source of retirement income is we generally have a very low savings rate in this country, as I'm sure you're aware. Our rate of savings is considerably lower than other industrialized countries, particularly the Japanese, but also many other countries.

TABLE 2
Effect of Personal Savings on Retirement Income
% of Final Pay Replaced by Accumulated Savings

Age Savings Began	% of Pay Saved		
	5%	7.5%	10%
Males			
60	3%	4%	5%
55	5	8	11
50	8	12	15
45	10	15	20
40	12	19	25
35	15	22	29
30	17	25	34
Females			
60	2%	3%	5%
55	5	7	9
50	7	10	13
45	9	13	18
40	11	16	22
35	13	19	26
30	15	22	29

Another problem is that people tend to get a late start on saving. When you're in your 30s retirement does not seem nearly as important as when you're in your 50s and so the savings rates are not uniform by age. The younger the worker, generally speaking, the lower the savings rate. And then, of course, you have the tax element on the buildup of the savings.

If you look at this and assume that we are trying to replace 30-50% of pay by personal savings, you can see that if you save 10% of your pay and you start at age 35, and you're a male, you can replace 29% of your pay. If you're female, and you start to save 10% of your pay at 35, you can only get 26%, because, of course, women live longer. Most people do not start saving seriously at 35. To be more realistic, if you started at 40 and you saved 10% of your pay, you're going to pick up 25% replacement. If you start at 35 and you save 7.5%, you're going to pick up a 22% replacement. If you're trying to get to the 50% level, which people at the $500,000 income level need, you're not looking at 7.5% or 10% of pay; you're looking at more like 15-20% of pay. This is a staggering rate of savings. Most people are not accomplishing that. Bruce showed savings rates based on 1991 data. Those data went up to the $90,000 income level, so it may not really reflect the savings rates of people at higher income levels. The workers earning $90,000 were only saving 7.5% of their post-tax pay and that was the savings rate among the age-50-65 workers. This is the age group that is most aware of their postretirement need and that age group is only saving roughly one-half of what's needed.

FROM THE FLOOR: Do you consider things like equity built up in a home and appreciation and value of a home as a form of savings?

MR. KENNEY: Yes, I think all of that stuff really needs to be considered, although to some extent, the equity built up in the home is not really going to do the worker a whole lot of good unless the worker is really willing to move at retirement. For instance, I live in the San Francisco Bay area. The appreciation of housing in that area has been so high that when I retire I could sell my home and move to a rural community and if I buy a considerably cheaper home, I would have a whole lot of equity that I would use to fund my retirement at that time. Generally speaking though, people have friendship patterns built up and they are reluctant to make this kind of move. It's very disruptive emotionally. In addition, if they are making that kind of move, they frequently move to places like Florida where there are a lot of people in the same bracket and it's not all that much cheaper. What you really need to do is move to a place where housing is cheap so that you can take maximum advantage of the buildup of your equity in your home; otherwise, even though it may be a form of savings, it just isn't going to buy groceries or really help you. Your savings must be in a form that you can spend in order to replace the income that you're losing upon retirement. So one of the real problems with this whole thing is, although the higher paid workers have a great deal of income, they tend to get used to that income. Their savings rates are not at the level that they should be in order to replace that income and unless they start to save at that rate it is possible that when they retire, they're going to have to accept a lower standard of living. So for the higher paid group, the only real answers are either a nonqualified plan, a personal saving rate of about 15-20%, or a cutback in the standard of living at retirement. I guess we should all have these problems.

Let's turn away now from the higher paid and go back to the rank-and-file worker. One of the things I'd like to talk about are the problems that have been created and will be created in the future by the tremendous shift from defined-benefit plans to defined-contribution plans. There has been an enormous change in the vehicle used to deliver postretirement income. One effect that everyone is familiar with is the transfer of investment risk. Under the defined-benefit plan, the investment risk is borne by the employer. During the mid-1980s, when rates of return were staggering, this did not seem like it was a problem. In fact, it seemed like a real blessing and the worker was able to really take advantage of these high rates of return. Now that the rates of return have dropped considerably, we're seeing that the transfer investment risk cuts both ways. It can be a blessing during high rates of return, but it can be very damaging during times of low rates of return.

A more subtle transfer of risk is the transfer of mortality risk. Actually it's the transfer of longevity risk. Under a defined-benefit plan, the pension will be paid as long as the worker is alive or as long as the worker and the spouse are alive. Under defined-contribution plans, the workers get to the end of the road, the employers pay the lump sum, and that's it. If the worker outlives the lump sum, that's too bad. So there's been a very subtle transfer of risk which is the longevity risk.

Another problem created by this shift is the growing popularity of participant directed investments. Everybody likes these. They're very popular, but studies have shown that the participants do not make the wisest choices. They're not nearly as good as

money managers who have more discipline and are able to take a broader view.
Two things happen. One is that the participants tend to go into the lower risk and
lower return items. Second, the participants tend to panic. In my own personal
experience, I saw quite a number of people in 401(k) plans transfer out of stock fund
after the 1987 stock market crash. How many of you had this experience in
administering plans? That's the worst possible time to transfer out. It was very
foolish, yet there was a lot of money being transferred out of the stock market at that
time. It's typical of a participant-directed investment decision, but it's the poorest
possible decision.

A fourth problem created by this shift is the risk of dissipating the retirement savings
upon payment of a lump sum distribution. As our work force has become consider-
ably more mobile, people get paid out from plans. They get lump-sum distributions.
Those distributions are often spent by the younger workers. I can't verify this
directly, but one of my colleagues told me that the Department of Labor Statistics
indicates that less than 20% of all lump-sum distributions are rolled over into IRAs.

A final problem is the voluntary nature of the 401(k) deferral process. Some partici-
pants will defer quite a bit; others will defer nothing. The overall result of all these
factors will be considerably greater disparity in retirement income by workers in
similarly situated employment. This shift to defined-contribution plans is essentially
dividing the country into ants and grasshoppers where the ants have a retirement
living and the grasshoppers do not. The choice then becomes either accepting higher
tax rates, to support the grasshoppers, or allowing the grasshoppers to starve. So
that's part of the problem that we face that has been created by this shift. That
problem didn't exist to this extent when defined-benefit plans were the primary
vehicle delivering retirement income.

Some of the long-term issues that face the rank-and-file worker are inflation, medical
care, increasing longevity, and the stability of the social security system. Very few
privately sponsored plans provide automatic cost-of-living increases. Those of you
who have looked at any of the studies about how frequently ad hoc increases occur,
know that they have been occurring about once per plan in the last ten years. So
during the decade from 1982 to 1992, most plans provided only one cost-of-living
increase. There was quite a bit of inflation during the earlier years. Some of the
inflation is sheltered for the rank-and-file worker because our social security system
has cost-of-living built into it although there's a real potential for restricting those social
security cost-of-living increases. We recently saw a proposal floated to do just that.
It was defeated, but there will be more and more pressure on the social security
system in the future. Another means whereby the inflation is somewhat lessened is
through home ownership where the cost of owning your home does not increase
with the same speed as inflation. Counterbalancing that is medical care where there's
a hyperinflationary effect.

One of the big effects of the *SFAS 106* opinion has been to cause cutbacks in
postretirement medical care programs offered by employers in this country. I just read
a survey that indicated that in 1992, 6% of employers sponsoring such programs
eliminated them and 20% of employers sponsoring such programs cut back the
benefits provided under those programs. That was in one year. Now, admittedly,
that's a year in which *SFAS 106* was really starting to hit, but I think that *SFAS 106*

is going to cause a serious cutback in postretirement medical benefits offered by employers. This is bound to have long-term implications for the retirees. Another problem with the medical care inflation is increasing longevity. The fastest growing sector of our population is people over age 85. That group has significant medical care issues, including long-term care which is quite expensive; it's typically not provided under Medicare or most employer-sponsored medical programs. Increasing longevity means that the inflation effect is exacerbated as the worker lives longer and longer, because it has a compounding effect.

Finally, we reach the stability of the social security system. Chart 4 shows the social security cost rates based on the middle-of-the-road assumptions used to project the financial status of the social security system. As you can see, they are currently a little below 15%. Even though we are collecting over 15% in taxes, the costs are still a little below 15%. By the time I turn 65 in 2012, the rate will be approximately 17%. That's not so bad. In the year 2022, when I will be 75, the rate is estimated to be 22%, and in 2032 when I hit 85, should I live so long, the rate will be 25%. That's a real increase in the cost of the system, and this is based on Alternative Two assumptions. If you looked at the worst case assumptions used by the analysts of the Social Security Administration, those cost rates would be 20% when I'm 65, 28% when I'm 75, and 37% when I am 85. There's no way that these tax rates will be paid. What this means is, and you can see it in this curve, social security benefits will have to be cut. When those benefits are cut, it's going to create real problems for the workers of our country. Whether they will be cut for our generation or whether they will be cut for the generation that follows us or both is unclear at this point, but I would suspect that it would be both. I think you'll also see elimination of the social security benefits for the high-paid worker.

CHART 4
Projected Social Security Cost Rates

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