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How Much Should A Person Save For Retirement?

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This paper is designed to help a person understand the need to start saving for retirement early and the need to save a significant amount each year to achieve a satisfactory standard of living during retirement. Advice on saving for retirement often starts with an advisor asking an individual to project his retirement needs as of a planned retirement date. The advisor then creates a savings program that will accumulate enough funds to produce that desired level of income, with such income indexed for inflation in most instances. This type of individualized projection can be very helpful for persons close to retirement. However, it is not that helpful for persons who are many years from retirement and trying to decide on a long term retirement savings rate. There are too many unpredictable events that will occur in the future for a young person to make a projection of this kind, including the lifestyle that a person and his family will develop over the years and want to maintain. The lifestyle he will develop and want to maintain will normally be a function of his career successes and future earnings levels.

This paper develops a savings rate for retirement a little differently from above so that persons many years from retirement can start a systematic savings program for retirement early. It does this by using a set of consistent assumptions to calculate the savings rate needed to achieve a projected income level during retirement that is equal to 70% of salary in the year just before retirement. Many pension experts believe that a retirement income level of at least 70% of a person's final salary is a good target level for people starting to save for retirement, especially for persons with moderate incomes and moderate standards of living.[1, 2] As people get closer to retirement (perhaps, within 10 years of retirement), they can perform the more personalized calculation of projecting actual retirement needs and expenses. In the meantime, they will have been saving for retirement and should be in a much better position to achieve a

[1] These guidelines are more important for low and moderate-income earners than for very high-income earners. High-income earners may have a lifestyle that exceeds the basic needs of life, and which could be cut back if necessary. In addition, high earners normally have many additional avenues and opportunities to accumulate savings.

[2] Pension experts suggest that a smaller income is needed in retirement than a person's income just before retirement because certain expenses should be reducing or disappearing as a person nears retirement. Children will have

satisfactory standard of living in retirement. They should also be more pleased with the results of their individualized retirement projection as they approach retirement because of their accumulated savings to date.

A basic assumption in this development of a rate of savings for retirement is that a person's standard of living at or near retirement and, therefore, his retirement income objective should be a function of his salary at retirement. It also assumes that during the period that a person is saving for retirement the average investment earnings on an investment portfolio of moderate risk will bear a direct relationship to the salary increases a person experiences during his career. After retirement, it assumes that investment earnings above a certain level (4%) and which could be attributable to inflation will be used to increase retirement income from year-to-year and not used to reduce the cost of saving for retirement. This design will provide a person with the opportunity to see his retirement benefits rise during retirement to keep pace with changes in the cost of living over time. This is similar to the design of variable annuities with a 4% assumed interest rate (AIR).

The design of the study and the stated assumptions will provide us with projected savings rates that are a function of salary and that are constant during a person's working career. They will not vary according to different projected investment earnings rates. Of course, if a person were to establish an investment risk profile that was very conservative and projected to earn a lower rate than that shown in the study, he should increase the percentage of salary that he saves for retirement. In contrast, if he does not want to use investment earnings after retirement for inflation protection but instead to reduce his rate of saving for retirement, he can do so. We will demonstrate how to adjust the projected rates of saving shown in the paper to accommodate these and other assumptions.

Recommendation

The study shows the advantages of starting to save for retirement at an early age and suggests that a person start to save for retirement no later than age 35. This would provide a thirty (30) year period to accumulate retirement income if a person chooses to retire at age 65. For a person currently age 35 who is earning about $40,000 per year and wants to retire at age 65, the study suggests that he save about 15% of his salary (before taxes) each year for retirement and not interrupt this year-to-year saving pattern unless absolutely necessary.

A person should also review his progress toward achieving his retirement goals every five or so years, but not make major changes in his annual rate of savings for temporary

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finished their education and, in many cases, be living on their own. Work related expenditures and saving for

favorable or unfavorable periods of investment earnings. These often correct themselves over time. However, if there has been a fundamental change in his investment earnings situation or salary, he will want to re-compute his retirement savings rate.

When a person reaches age 55 or so, he can review his progress toward his retirement goals more frequently, such as every two or three years. During this period, he can engage a financial advisor, or his pension plan administrator, for a more personalized projection of his retirement needs and progress in attaining them. These conversations should be more pleasant for a person who has been systematically saving for retirement during his entire working career.

The Study

If we assume that an individual will want to retire at an income level that is about 70% of final salary, we can determine a savings level, as a percentage of salary, to achieve this based on certain consistent assumptions about the future. The principal assumptions include future investment earnings rates and future salary scale increases. We discuss each of these below.

Investment Earnings Rate Assumption

Many economists consider an investment earnings rate to consist of three elements. The first element is the risk free rate charged for the use of money. It could vary from year to year, but many economists would consider this element of the earnings rate to be in the 2% to 4% range. The second element would be an inflation or cost of living element. Historically, this element would be about 3%. The third element would be the risk element. A premium should be received over time because of the risk of default or volatility associated with any investment. For bonds the risk premium might be in the 1 to 2% area, while for stocks the risk premium could be in the 3% to 4% area. If we assume that a person invests in a portfolio split evenly between bonds and stocks, we could assume an investment return of about 8% on this portfolio over an extended period.

After deciding on 8% as an appropriate earnings rate, it is important to develop a salary increase assumption that is consistent with this earnings rate assumption. We discuss this next.

Salary Scale Assumption

Just as there are three elements for an investment earnings rate assumption, there are three elements for a salary increase assumption. The first is an overall productivity increase for the economy under the assumption that over time, productivity improvements in the economy

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retirement will be over and home ownership expenses, such as a mortgage, should be reducing.

will find their way into workers' compensation. Over the years, this salary increase factor might be about 2%. There is also a cost of living element that is similar to the cost of living element discussed above for investment earnings rates and, as above, assumed to be 3%. In addition, most individuals will have a salary increase associated with promotions or movement through the ranks as they progress from entry-level positions to higher levels of responsibility. Examples of this would be entry-level instructors in the education field advancing to full professor or entry-level police officers advancing to captain. This factor could average 1 to 2% during a person's working career. When we add up these three elements, a reasonable assumption for a salary scale increase might be 6%. This 6% salary scale increase assumption would be consistent with the 8% investment earnings assumption noted above. We will also provide calculations using a 5% salary scale increase assumption that might be applicable to persons who do not anticipate major promotional increases during their career, or who are in a field where there are no clear progressions to higher levels of responsibility. We will also provide calculations using a 7% salary scale increase assumption for persons who are high achievers.[3]

Age of Retirement And Cost of $1 of Retirement Income at That Age

Before talking about a person's age at retirement, let us discuss the interest rate and expectation of life factors that might be appropriate to use for calculating annuity pay out rates[4] for a person saving for retirement now. The investment earnings rate used to calculate the cost of $1 of retirement income for life (annuity pay out factor) would be equal to the previously calculated 8% earnings rate reduced by the cost of living element in such earnings rate (assumed to be 3%) and by another 1% margin to provide for other contingencies and a small standard of living increase during retirement. This should enable a person's retirement income to keep pace with inflation over time so that his purchasing power and standard of living in retirement does not decline. This would lead us to choose 4% as the earnings rate to calculate the cost for a retirement payout.[5] For the expectation of life, we are assuming mortality rates according to the A2000 MGM mortality table set back two years, which is a mortality table used by insurers to

[3] These salary scale increase assumptions may appear high in today's environment, but they are consistent with the 3% CPI increase assumption and the 8% earnings rate assumption. And it is the consistency of the assumptions that is most important when deciding on a long-term savings rate for retirement that is a percentage of salary. If both the investment earnings and salary scale assumptions are modified by the same amount, the results should not change dramatically. This assumes that we use an interest rate after retirement that does not include the inflation element, as explained later.

[4] An annuity pay out rate is the cost to provide $1 of lifetime income to a retiree and its calculation requires both an investment earnings assumption and a mortality table.

[5] Any earnings above 4% would be used to increase future benefit payments so that a retiree's income would stand a good chance of increasing over time to keep pace with inflation.

price pay out annuity purchases. We could make adjustments to the mortality rates for persons many years from retirement to reflect continued mortality improvement. However, these refinements were not made because these modifications would not change the results dramatically and I do not want to give the impression that these calculations are precise. (e.g. 20 years of projected mortality improvement of 1% per year might increase a recommended savings rate by about 5% which would increase a projected savings rate from about 10% to about 10.5% – to be checked). The figures presented are intended to provide guidance, and not precision. At the end of the paper, we will talk about modifications to the figures shown that could also affect a person's saving rate for retirement.

Assumed Retirement Age

We have chosen age 62 and age 65 as the two retirement ages for which figures will be presented. Age 62 was the earliest age chosen since it is the earliest age at which a recipient can receive Social Security benefits. It is a rare and very fortunate person that will have accumulated the financial resources to retire at an earlier age.

Sources of Retirement Income

There are three primary sources of retirement income. These are:

1. Social Security
2. Private Pension, and
3. Personal Savings

We will discuss each of these savings sources as we develop a recommended savings rate for retirement. First, we define the calculation process.

The Calculation

The first part of the process is to calculate the retirement benefit objective of 70% of final salary. This is done using a person's current salary and the salary increase assumption. We then provide estimates of projected Social Security benefits, subtract it from the projected 70% of final salary objective and calculate a savings rate needed to achieve retirement income equal to the balance. The Social Security benefit level will be based on current Social Security benefit levels, increased by average Social Security wage base increases for future years. This yearly wage base increase should be approximately 1% to 2% less than the 6% salary scale assumption previously calculated since promotional increases would not be a factor in Social Security wage

base increases. Social Security benefit increases should be proportional to Social Security wage base increases during a person's working career. This would result in a 4% per year Social Security benefit increase assumption to be consistent with our other assumptions.

Table I below shows the projected Social Security benefits as a percentage of final salary and the projected annual savings rate needed for a person to achieve a retirement income objective that is equal to 70% of final salary (after subtracting Social Security benefits) for various starting ages and starting salaries. It assumes payments under the Single Life Annuity payout option, which annuity option continues payments for as long as a retiree survives. The earnings rate assumed prior to retirement is 8% while the post retirement earnings rate is 4%. The salary scale increase assumption is 6% while the Social Security wage base increase assumption is 4%. The assumed retirement age is 65 and mortality is assumed to follow the A2000 MGM, set back 2 years mortality table.

Table I

Savings Rate As A Percentage Of Salary To Achieve A Retirement Income Equal To 70% of Final Salary At Age 65

(1)	(2)	(3)	(4)	(5)
Starting Age	**Starting Salary**	**Social Security As % Of Final Salary**	**Saving Rate As % of Salary Needed For A Benefit Equal to 70% of Final Salary**	**Reduction in Column (4) Savings Rate For Each $10,000 Saved By Starting Age[6]**
25	20,000	30%	9%	NA
25	40,000	22%	11%	NA
25	80,000	13%	13%	NA
35	20,000	32%	13%	2.23%
35	40,000	25%	16%	1.12%
35	80,000	16%	19%	.56%
45	20,000	35%	20%	3.07%
45	40,000	28%	24%	1.54%
45	80,000	19%	30%	.77%

[6] To use this column, divide one's accumulated savings by $10,000. Multiply the resulting fraction by the percentage shown in column 5 for one's current age and subtract the result from the saving rate shown in column 4. The resulting answer is an estimate of the saving rate, as a percentage of salary, to achieve a retirement income that is about 70% of final salary.

45	120,000	13%	33%	.51%
55	20,000	41%	38%	5.62%
55	40,000	32%	48%	2.81%
55	80,000	22%	61%	1.41%
55	120,000	16%	69%	.94%

Assumptions

1. Premiums are received monthly; earnings rate prior to retirement is 8%; post retirement earnings rate is 4%
2. Salary scale increase is 6%; social security wage increase is 4%
3. Retirement age is 65; mortality according to the A2000 MGM, set back 2 years table
4. Single Life Annuity payout option; benefits after retirement are paid monthly and projected to increase to offset inflation.

The above table shows how significant the annual savings rate as a percentage of salary can be to achieve a 70% final salary benefit level, especially if one starts to save later in life, or is earning a high salary. The last column (column 5) shows how this rate can be reduced significantly if a person has accumulated some retirement savings as of the starting ages shown. For each $10,000 that a person has accumulated as of that starting date, he can reduce his annual rate of savings by the percentage shown in column 5.

Table I clearly shows the need and advantage of starting to save for retirement early and to save fairly significant amounts, especially for persons earning higher salaries. When a person reaches age 60 or so, he or she can start to develop more precise calculations based on a projection of estimated retirement needs.

Most pension experts would suggest that a person start saving for retirement no later than age 35. Assuming retirement at age 65, he would have a 30-year period to accumulate savings for retirement. If he is earning about $40,000 at that time, Table I suggests that he should save about 16% of his salary (before taxes) from that point on to achieve a retirement lifestyle that, to a large degree, continues the type of lifestyle he was accustomed to prior to retirement.[7]

[7] Persons of moderate-income levels will normally develop a lifestyle that consumes most of their disposable income. As indicated earlier, certain basic expenditures, including saving for retirement, should be eliminated or reduced during one's retirement years. Therefore, a retirement income level equal to 70% of one's final salary should help a person achieve a retirement lifestyle that is consistent with his pre-retirement lifestyle.

A person can also use Table I to periodically update his retirement savings rate if circumstances change. This would occur, for example, if there was a dramatic change in his salary which would presumably impact his lifestyle, or if there was a period of time during which he had to forgo saving for retirement. This would be done by entering Table I at his current age and salary level. He would then use the column (4) and column (5) percentages to calculate a new savings rate. Of course, a person should not recalculate the retirement savings rate every year because of investment earnings or salary scale increase rate variations since there will be expected year-to-year fluctuations in these rates. However, every three to five years or so, a person might want to recalculate his retirement savings rate for any fundamental or long-term change that is occurring in his salary or investment earnings situation. Starting at around age 55, a person will want to obtain a personalized projection of his retirement needs and savings to achieve this objective. A financial advisor could help with this calculation. A person could also establish a different retirement benefit objective (e.g. 80% of final salary) and request Table I type calculations for this benefit objective from his retirement plan sponsor or financial advisor.

A Measure Of Progress Toward Reaching A Retirement Goal

The tables in the attached Exhibit D may also be helpful to a person trying to measure progress toward meeting his retirement income objectives. The Exhibit D table shows the retirement assets as a percentage of current salary that a person should have on hand at quinquennial ages up to age 65 if his retirement assets and salary are accumulating according to the assumptions used in Table I. A person could look at this table periodically to determine the progress being made toward accumulating assets that are sufficient to meet his retirement income objectives. Of course, a person should not expect his retirement assets to grow in lock step with the targeted and steady accumulation of assets as a percentage of salary that are shown in this table (Table IA). This would be unrealistic as there will be expected volatility in a person's actual investment earnings and salary growth versus the assumptions. However, if a person's actual accumulation of assets as a percentage of current salary remains significantly different from the numbers shown in Table IA, it indicates that a review of progress toward meeting his retirement objective is appropriate.

Table IA in Appendix D can be used by those persons adopting the savings guidelines of Table I. Similar tables could be developed for persons adopting the savings guidelines shown in Tables II through V, which we discuss next.

If Salary Increases At A Lower Rate Each Year

Table II below is similar to Table I except that it uses a 5% salary increase assumption instead of a 6% salary increase assumption. As indicated earlier, this table might apply to persons that are in a profession where promotional increases are not large.

Table II

Savings Rate As A Percentage Of Salary To Achieve A Retirement Income Equal To 70% of Final Salary At Age 65

(1)	(2)	(3)	(4)	(5)
Starting Age	**Starting Salary**	**Social Security As % Of Final Salary**	**Saving Rate As % of Salary Needed For A Benefit Equal to 70% of Final Salary**	**Reduction In Column (4) Savings Rate For Each $10,000 Saved By Starting Age[6]**
25	20,000	37%	6%	NA
25	40,000	30%	8%	NA
25	80,000	19%	10%	NA
35	20,000	39%	9%	2.52%
35	40,000	31%	12%	1.26%
35	80,000	20%	15%	.63%
45	20,000	42%	15%	3.34%
45	40,000	33%	19%	1.67%
45	80,000	23%	25%	.83%
45	120,000	16%	29%	.56%
55	20,000	47%	28%	5.80%
55	40,000	37%	40%	2.93%
55	80,000	25%	55%	1.46%
55	120,000	17%	65%	98%

[6] To use this column, divide one's accumulated savings by $10,000. Multiply the resulting fraction by the percentage shown in column 5 for one's current age and subtract the result from the saving rate shown in column 4. The resulting answer is an estimate of the saving rate, as a percentage of salary, to achieve a retirement income that is about 70% of final salary.

Assumptions

1. Premiums are received monthly; earnings rate prior to retirement is 8%; post retirement earnings rate is 4%
2. Salary scale increase is 5%; social security wage base increase is 4%
3. Retirement age is 65; mortality according to the A2000 MGM set back 2 years table
4. Single Life Annuity payout option; benefits after retirement are paid monthly and projected to increase to offset inflation.

Table II above shows a required savings rate that is lower than in Table I. This occurs because of the more modest salary increase assumption relative to the 8% assumed earnings rate. However, even here, the required savings rate can be quite high if a person does not start saving for retirement at an early age. For an age 35 person earning about $40,000, a retirement savings rate of about 12% per year would be required to achieve a retirement benefit equal to 70% of final salary.

If Salary Increases At A Higher Rate Each Year

Table III below is similar to Tables I and II, except that it uses a 7% salary increase assumption. The figures in this table might apply to persons that are expecting more significant promotional salary increases in future years.

Table III

Savings Rate As A Percentage Of Salary To Achieve A Retirement Income Equal To 70% of Final Salary At Age 65

(1)	(2)	(3)	(4)	(5)
Starting Age	**Starting Salary**	**Social Security As % Of Final Salary**	**Saving Rate As % of Salary Needed For A Benefit Equal to 70% of Final Salary**	**Reduction In Column (4) Savings Rate For Each $10,000 Saved By Starting Age[6]**
25	20,000	24%	13%	NA
25	40,000	17%	15%	NA
25	80,000	9%	18%	NA
35	20,000	27%	17%	1.97%
35	40,000	20%	23%	98%
35	80,000	12%	24%	.49%
45	20,000	30%	25%	2.82%
45	40,000	25%	29%	1.41%
45	80,000	16%	35%	.71%
45	120,000	11%	38%	.48%
55	20,000	36%	46%	5.40%
55	40,000	28%	56%	2.70%
55	80,000	20%	67%	1.35%
55	120,000	14%	74%	.90%

[6] To use this column, divide one's accumulated savings by $10,000. Multiply the resulting fraction by the percentage shown in column 5 for one's current age and subtract the result from the saving rate shown in column 4. The resulting answer is an estimate of the saving rate, as a percentage of salary, to achieve a retirement income that is about 70% of final salary.

Assumptions

1. Premiums are received monthly; earnings rate prior to retirement is 8%; post retirement earnings rate is 4%
2. Salary scale increase is 7%; social security wage base increase is 4%
3. Retirement age is 65; mortality according to the A2000 MGM set back 2 years table
4. Single Life Annuity payout option; benefits after retirement are paid monthly and projected to increase to offset inflation.

Table III above shows a required savings rate that is higher than the rates shown in Tables I and II. This occurs, of course, because of the higher salary scale increase assumption. For a person age 35 earning about $40,000 a year, a retirement savings rate of about 20% would be required to achieve a retirement benefit equal to 70% of final salary.

If Investment Earnings Are Lower

Table IV below is similar to Table I above, except that it uses a 7% investment earnings rate instead of an 8% investment earnings rate. All other assumptions remain the same. It shows that a person earning about 1% less per year in investment earnings will have to increase his projected savings rates by about 10% (e.g. from about 16% to about 18% for our model 35 year old earning $40,000). This more modest investment assumption might apply to a person with a more conservative investment portfolio.

Table IV

Savings Rate As A Percentage of Salary To Achieve A Retirement Income Equal To 70% of Final Salary At Age 65

(1)	(2)	(3)	(4)	(5)
Starting Age	**Starting Salary**	**Social Security As % Of Final Salary**	**Saving Rate As % of Salary Needed For A Benefit Equal to 70% of Final Salary**	**Reduction in Column (4) Savings Rate For Each $10,000 Saved By Starting Age[6]**
25	20,000	30%	12%	NA
25	40,000	22%	14%	NA
25	80,000	13%	16%	NA
35	20,000	32%	15%	1.96%
35	40,000	25%	18%	.98%
35	80,000	16%	22%	.49%
45	20,000	35%	22%	2.81%
45	40,000	28%	26%	1.41%
45	80,000	19%	33%	.70%
45	120,000	13%	36%	.47%
55	20,000	41%	39%	5.38%
55	40,000	32%	51%	2.69%
55	80,000	22%	64%	1.34%
55	120,000	16%	72%	.90%

Assumptions

1. Premiums are received monthly; earnings rate prior to retirement is 7%; post retirement earnings rate is 4%
2. Salary scale increase is 6%, social security wage base increase is 4%

[6] To use this column, divide one's accumulated savings by $10,000. Multiply the resulting fraction by the percentage shown in column 5 for one's current age and subtract the result from the saving rate shown in column 4. The resulting answer is an estimate of the saving rate, as a percentage of salary, to achieve a retirement income that is about 70% of final salary.

3. Retirement age is 65; mortality according to the A2000 MGM set back 2 years table
4. Single Life Annuity pay out option; benefits after retirement are paid monthly and projected to increase to offset inflation

If Early Retirement Is Desirable

Table V below is similar to Table I, except that it uses a retirement age of 62 instead of a retirement age of 65. The investment earnings rates prior to retirement is 8% while the post retirement earnings rate if 4%. The salary increase assumption is 6% while the Social Security wage base increase assumption is 4%. Mortality is assumed to follow the A2000 MGM, set back 2 years mortality table.

Table V

Savings Rate As A Percentage of Salary To Achieve A Retirement Income Equal To 70% of Final Salary At Age 62

(1)	(2)	(3)	(4)	(5)
Starting Age	**Starting Salary**	**Social Security As % Of Final Salary**	**Saving Rate As % of Salary Needed For A Benefit Equal to 70% of Final Salary**	**Reduction in Column (4) Savings Rate For Each $10,000 Saved By Starting Age[6]**
25	20,000	23%	12%	NA
25	40,000	18%	14%	NA
25	80,000	11%	16%	NA
35	20,000	25%	18%	2.2%
35	40,000	20%	20%	1.1%
35	80,000	13%	23%	.5%
45	20,000	28%	29%	3.3%
45	40,000	23%	33%	1.6%

[6] To use this column, divide one's accumulated savings by $10,000. Multiply the resulting fraction by the percentage shown in column 5 for one's current age and subtract the result from the saving rate shown in column 4. The resulting answer is an estimate of the saving rate, as a percentage of salary, to achieve a retirement income that is about 70% of final salary.

45	80,000	15%	38%	.88%
45	120,000	11%	41%	.59%
55	20,000	33%	69%	7.82%
55	40,000	26%	83%	3.91%
55	80,000	18%	97%	1.95%
55	120,000	13%	107%	1.30%

Assumptions

1. Premiums are received monthly; earnings rate prior to retirement is 8%; post retirement earnings rate is 4%
2. Salary scale increase is 6%, social security wage base increase is 4%
3. Retirement age is 62; mortality according to the A2000 MGM set back 2 years table
4. Single Life Annuity payout option; benefits after retirement are paid monthly and projected to increase to offset inflation

Table V indicates that a person must save a significantly greater percentage of salary if he wants the option to retire at an earlier age. The higher contribution rate is required because Social Security benefits are provided at a lower level than if received at the normal retirement age, and the cost of providing $1 of retirement income is greater at age 62 than at age 65. In addition, there is a loss of earnings on the funds being accumulating to provide for retirement income for each year of early retirement. The earnings loss is offset to some extend by a lower retirement benefit objective since the person's final salary will be lower at the earlier retirement date. For our model 35-year-old person earning about $40,000 per year, a retirement saving rate of about 20% per year would be required to achieve a retirement benefit equal to 70% of final salary at age 62. This could be contrasted to the 16% per year savings rate computed in Table I for a person projected to retire at age 65.

Modifications To The Above Tables For A Couple Instead Of A Single Retiree

The prior tables showed desirable savings rates for a single person. If the retirement projection is for a couple instead of for one person, the savings rate shown in the above tables should not change dramatically if only one person of the couple works and their lifestyle and standard of living are based on that salary only. While the cost of providing retirement income is more expensive for a couple than for a single person, this would be offset to a large degree for persons of moderate to high moderate salary levels ($80,000 or less) because Social Security

benefits would be higher for a couple than for a single person (50% higher). Of course, special tables can be created specifically for a couple.

In many cases, both members of a couple will be working and saving for retirement. In this case, each might look at the required savings rate for a single person for guidance on their desirable savings rate for retirement. This is reasonable since their standard of living prior to retirement will reflect their combined earnings and it is reasonable to assume that this standard of living will be the starting point for their desired standard of living during retirement.

For Persons Earning Very High Salaries

This presentation did not include projections for persons at very high salary levels (the very wealthy). Persons at salary levels and salary increase levels above the ones illustrated here should have enough income to provide adequately for retirement savings. In addition, they will have more discretionary spending and this can be cut back if necessary. They are also more likely to have a financial advisor and additional sources to accumulate funds. In any case, this presentation was not meant to apply to very high salaried people. They should have enough resources to provide for more than an adequate retirement income. Their concerns will probably center around estate tax planning instead of accumulating savings for retirement.

If Less Post Retirement Inflation Protection Acceptable

The figures shown above assume a retirement pay out with very generous inflation protection during retirement (all post retirement earnings above 4% are used for inflation protection). Some persons might be satisfied with lower levels of inflation protection and could, therefore, use an investment earnings rate that is greater than 4% to compute the cost of $1 of retirement income for life. For example, if 6% were used to compute the cost of $1 of retirement income instead of 4%, the savings rates computed above could be reduced by about 18%. This would be computed by multiplying the savings rates shown in column (4) of the tables by (1-.18) or .82. Of course, the trade off under this scenario is that the post retirement income for these people would rise at a smaller rate (i.e. only earnings above 6% would be used for inflation protection). Even with this adjustment, the required retirement savings rates to achieve a 70% of final salary objective remains significant. For example, using Table I figures, the recommended savings rate for retirement for an age 35 person earning $40,000 per year would be reduced from 16% to 13% (to be confirmed). The figures in column 5 of table I would also change. They would be increased by about 20%. (To be confirmed)

Recommended Saving For Retirement

The above tables clearly indicate that persons should start to save for retirement early and should save a significant percentage of salary each year for retirement. For persons at lower salary levels, Social Security will form a significant percentage of retirement income. However, persons at lower salary levels may need retirement income that is greater than 70% of final salary to be comfortable in retirement because they will have smaller levels of discretionary spending. In general, if a person starts to save for retirement at age 35 or so, plans to retire at age 65, and is earning about $40,000 a year, he should save about 15% of his salary before taxes[8] for retirement. If a person is earning a larger salary or starts to save for retirement at a later age or wants to retire early, the percentage of salary to be saved each year for retirement should be increased.

Participants In Defined Benefit Plans

This presentation was intended for use by persons accumulating retirement savings under defined contribution pension programs or through personal savings, as opposed to accumulating pension credits under defined benefit plans. Appendix C contains information on how participants in defined benefit plans might use these tables to help plan for retirement.

Pension Plan Savings

As indicated earlier, the first source of savings for retirement income is Social Security. It will form the first tier or leg of retirement income for most people. The second tier of saving for retirement should be through participation in an employer-sponsored pension plan. For most people, this would be the most tax efficient method to accumulate retirement savings. A person should consider maximizing contributions to tax-favored employer-sponsored pension programs. In many cases, total employer plus employee before tax contributions to tax-favored pension plans exceed 10%. In these cases, employer plus employee pension plan contributions, along with Social Security, could provide for most of the funds needed to produce a satisfactory standard of living during retirement.

[8] This is rounded down from the calculated 16% number since we are providing guidance in this paper, and not precision. The savings rates shown are before tax savings rates. If one has after tax savings, such as a Roth IRA, these after tax savings rates can be converted to before tax savings rates. This is done by dividing such after tax savings by 1 minus the marginal income tax rate.

Personal Saving

If Social Security and pension plan savings are not enough to provide for an adequate retirement income, individuals should supplement these sources of income through personal savings. This would be the third tier or leg of income for retirement. Fortunately, there are tax effective methods to save for retirement on a personal basis for persons earning moderate incomes. This writer believes that a very effective way for persons with moderate incomes to save for retirement on a personal basis is through Roth IRAs. The attached exhibits A and B show how effective Roth IRAs can be for accumulating funds for retirement through personal savings. Since contributions to a Roth IRA are after-tax contributions, a person should convert this contribution to a before-tax contribution as noted in footnote 8.

For persons currently in low marginal income tax brackets (10% or 15%), the use of a Roth IRA during 2004 and 2005 for additional savings could be more advantageous than the use of elective deferrals under pension plans, assuming a participant will not forgo matching employer contributions. Starting in 2006, the Roth IRA approach will be available for elective deferrals under pension plan programs.

Final Conclusion

In summary, we would suggest that a person start to save for retirement at an early age, but not later than age 35. A person who starts to save for retirement at about age 35, wants to retire at age 65, and is earning about $40,000 per year should save about 15% of his salary before-taxes each year for retirement and he should not interrupt this year-to-year saving unless absolutely necessary.

A person should take advantage of any tax-favored retirement savings available at his place of employment. This would be through maximum participation in available pension programs. Persons should also recalculate their required rate of retirement savings every five years or so as their situation (e.g. salary level and attendant lifestyle) may have changed during that period. Lastly, we would recommend that persons consider tax-favored mechanisms, such as IRAs for personal savings. This author favors the use of Roth IRAs for most people, and especially for persons currently in modest tax brackets. Also, do not hesitate to communicate with your financial advisor, pension plan provider, or company maintaining your personal savings about your progress toward achieving retirement goals. Consider changing providers if you are not being served and educated properly.

We would also recommend that when you near retirement (e.g. age 55), you engage your financial advisor for a more personalized projection of your retirement needs and your progress

in attaining that objective. You might want to review these personalized calculations every two or three years between age 55 and retirement. In the meantime, if you have been saving systematically over the years for retirement, your conversations with an advisor when you are approaching retirement should be more pleasant.

Exhibit A

Tax Relief Act of 2001 Changes to Roth and Traditional IRAs[9]

Under the Tax Relief Act of 2001, the maximum annual contributions to both the traditional and Roth IRA is increased from $2000 in 2001 as follows:

Year	Contribution Limit
2002-2004	$3,000
2005-2007	4,000
2008	5,000
After 2008	**5,000 indexed for inflation**

When a person attains age 50, an additional contribution of $500 per year is permitted through year 2005 and an additional $1,000 contribution per year is permitted starting in year 2006.

Pension Plan Participation and Income Limits to Make IRA Contributions

If an individual and spouse are not active participants in employer sponsored pension plans, they can both contribute to an IRA (Roth or Traditional) as long as their combined income for the year is equal to or greater than their total IRA contribution. In addition, even if an individual and spouse are active participants in a pension plan, they can contribute to a traditional or Roth IRA if their modified adjusted gross income (MAGI) falls below certain limits.[10] For the Roth IRA, these MAGI limits are $95,000 for single individuals and $150,00 for joint filers. Allowable Roth IRA contributions will be phased out for MAGI levels above these amounts. For the traditional IRA, these limits (2002 year) are currently $33,000 and $53,000, and such limits will increase over the next six years to $50,000 and $80,000 respectively for 2007 and thereafter. Traditional IRA contribution limits will be phased out for MAGI levels above these amounts.

[9] All of the changes enacted under the 2001 Tax Relief Act are scheduled to disappear at the end of 2010 and the 2001 rules are set to become law again. Many retirement experts expect these IRA changes to remain or be modified only slightly.

[10] Under both Traditional and Roth IRAs, if the individual is not an active participant in an employer sponsored pension plan, but his spouse is, the contribution limit to an IRA, is phased out for taxpayers with MAGI in between $150,000 and $160,000. For married couples filing separately, the limits are phased out between 0 and $10,000.

Qualified Roth IRA Distributions

Amounts withdrawn from a Roth IRA as a qualified distribution are not includable in income nor subject to the 10% penalty tax for early distributions. A qualified distribution is one that (1) is made after five years from the start of the Roth IRA and (2) is made after attainment of age 59 ½, on account of death or disability, or is made for first-time homebuyer expenses of up to $10,000. Non-qualified distributions are subject to income taxes to the extent they are attributable to earnings, but favorable ordering rules provide that distributions are first made from contributions and then from earnings.

Penalty Tax of 10%

Amounts withdrawn from Roth or Traditional IRAs prior to age 59 ½ are subject to an additional 10% penalty tax unless the withdrawal is due to death or disability, is made in the form of periodic payments, is used to pay medical expenses in excess of 7.5% of AGI, is used to purchase health insurance for an unemployed person, is used for educational expenses, or is used for first-time home buyer expenses of up to $10,000. The 10% penalty tax will not apply to the portion of the Roth IRA that consists of a person's contributions to the Roth IRA, but will apply to any earnings that are withdrawn.

Minimum Distribution Requirement

The Traditional IRA is subject to the minimum distribution rules while the Roth IRA is not during the lifetime of the owner. In addition, contributions can continue to a Roth IRA after age 70 ½ whereas no contributions can be made to a Traditional IRA after age 70 ½ . This makes the Roth IRA a better estate tax planning vehicle than a Traditional IRA and a better asset to pass on to heirs.

Exhibit B

Wealth Accumulated Under a Systematic Roth IRA Savings Program

We would recommend that persons participate to the fullest extent in any available pension program at their place of employment. In addition, eligible persons should also consider taking advantage of a Roth IRA as a way to save a small amount each year that will add up to significant wealth when he or she is ready to retire.[11] We will try to illustrate how advantageous systematic savings under a Roth IRA can be. We will show how advantageous it is to start a Roth IRA at any age, but how dramatic the wealth creation can be when savings begins early.

Roth IRA

Starting in 2008, an eligible person can remit $5,000, indexed for inflation each year to a Roth IRA. Let us now look at the wealth, in both nominal terms and adjusted for inflation, that can be created for persons starting to save systematically through a Roth IRA. We will show the results for various starting ages, with retirement assumed to occur at age 65. The figures shown below in Table 1 assume the maximum contribution to the Roth IRA is being taken each year, starting at the 2007 level of $5,000. Each year thereafter the $5,000 contribution will be increased by an assumed inflation rate of 3% (we did not include the $500 or $1,000 per year additional amount permitted for persons over age 50).

[11] Retirement experts believe that there are three stools or legs that create the wealth needed for a satisfactory retirement for most people. A company pension plan is one, social security is another and personal savings is the third. For eligible persons, a Roth IRA is an excellent mechanism to use for personal savings.

Table I

Tax Free Wealth Created at Age 65 From a $5,000 Inflation Adjusted

Contribution At the Beginning of Each Year to A Roth IRA

Assumed Annual Earnings Rate

	6%		8%		10%	
Starting Age	Nominal Wealth	Inflation Adjust.Wealth	Nominal Wealth	Inflation Adjust. Wealth	Nominal Wealth	Inflation Adjust. Wealth
25	1,241,000	381,000	1,994,000	611,000	3,300,000	1,012,000
35	586,000	241,000	825,000	340,000	1,180,000	486,000
45	248,000	137,000	308,000	171,000	387,000	214,000
55	79,000	59,000	88,000	66,000	98,000	73,000

Significant Tax Free Wealth Accumulated By Age 65

The above table shows how significant the wealth accumulated under a Roth IRA can be. It is equally significant to note that this wealth is tax free under the Roth IRA and any income received from this accumulation will be received tax-free. For every $500,000 of accumulated wealth, a person could receive $25,000 per year tax free if he takes a 5% distribution each year. He could receive $40,000 per year tax fee if he takes an 8% distribution each year.[12] These are very significant additional sums when they are tax-free and could be supplemental to income received under a pension program and social security.

Wealth Varies Significantly By Starting Age

As Table 1 shows the wealth created varies significantly according to the age when saving is first begun. It behooves a person to use the Roth IRA for his personal savings program and to start this savings program as early as possible. For example, if a person starts the savings

[12] These distribution percentages are for illustrative purposes only. A person would have to determine the appropriate distribution percentage based on factors such as the potential investment earnings and risk underlying his portfolio, his need for future inflation protection and the need to provide an income that won't be outlived.

program at age 25 instead of age 45, and earns 8%, he will have about $2,000,000 nominal terms instead of about $310,000, a very significant difference. When we adjust these figures for inflation changes over the years (shown under the Inflation Adjusted Wealth column), the differences are not as great, but they are still significant. The Inflation Adjusted Wealth column assumes that the purchasing power of wealth decreases by 3% per year.

However, even if a person did not begin saving through a Roth IRA early, he should start this program at any age. It is a very effective way to save for retirement. We can also note that the inflation-adjusted wealth does not change as dramatically as the nominal wealth when a person starts to save later in life under the Roth IRA.

Married Couple Could Double the Wealth

Any eligible married couple, filing a joint return, could double the wealth accumulation shown in Table 1 as they would both be permitted to accumulate separate IRAs. This would clearly be a preferable way for them to accumulate wealth from personal savings.

Estate Tax Advantages of a Roth IRA

While a Roth IRA is an excellent way to save for retirement, it also has estate tax planning advantages for many people. It would also be an ideal asset to pass on to heirs if not needed for retirement income. First, it is not subject to the minimum distribution requirements of the IRS while the owner is alive so the tax-favored accumulation period can be extended dramatically. Second, contributions to the Roth IRA can continue to be made after the individual reaches age 70 ½. In addition, the actual estate taxes to be paid on it may be lower than if it was before tax accumulation.[13]

Favorable Non-Qualified Distribution Under a Roth IRA

Premature or non-qualified distributions from an IRA are subject to an additional 10% penalty tax. However, this does not apply to a non-qualified distribution from a Roth IRA to the extent such distributions are attributable to contributions. And because of favorable ordering rules, distributions from Roth IRAs are first considered to be distributions attributable to contributions.

[13] This savings would not occur for a person with a large enough estate so that it is subject to the highest marginal estate tax rates.

Exhibit C

Participants In Defined Benefit Plans

The presentation in the paper was intended for use by persons who are accumulating savings for retirement under defined contribution programs or through personal savings, as opposed to accumulating pension credits under defined benefit plans. Some persons still participate in defined benefit programs, which will usually defined a person's pension as a percentage of his final (or final three years average) salary. A participant in this type of program can still use the figures in these tables to calculate a supplemental savings rate to complement the income received from his defined benefit pension program plus social security. The process would be as follows:

Step I: Start with an amount equal to 70% of final salary. Subtract the Social Security benefit percentage shown in Column 3 from this amount. Then subtract 70% of the percentage of final salary benefit under the defined benefit plan.[14]

Step II: Start with an amount equal to 70% of final salary. Subtract the Social Security benefit percentage shown in Column 3 from this amount.

Step III: Take the ratio of the numbers computed in Step I and Step II above and multiply the resultant factor by the percentage contained in column (4) of the tables illustrated in the paper for the appropriate age and salary level. The resulting figure would be the supplemental savings rate needed to strive for an overall 70% of final salary benefit objective that is indexed for inflation.

If a person terminates participation in a defined benefit plan prior to normal retirement age (e.g. age 65), his retirement benefit will reduce for two reasons. First his benefit accruals will reduce. For example, a defined benefit plan might provide for a benefit equal to 1% of final salary at age 65 for each year of employment up to age 65. If a person starts his employment at age 35 and terminates employment at age 50, instead of at age 65, he will receive a benefit equal to 15% of final salary instead of 30% of final salary. Second, the benefit will be based on the person's final salary in the year of termination and not on his salary when he is age 65. This can

[14] A 70% factor was applied to the defined benefit to compensate for the fact that it does not usually provide for inflation protection after retirement. If the defined benefit does provide for cost of living or other comparable increases after retirement, the full-defined benefit would be subtracted from the overall 70% of final salary benefit objective.

also produce a dramatic reduction in benefits. For example, if a person's salary were to increase by 5% per year, this would cause about a 40% decrease in the projected defined benefit if an employee left the company at age 55 instead of at age 65. This reduction would be in addition to the reduction described previously. An advisor or insurance company could calculate this projected defined benefit reduction for a person when he changes employment.

The implication for a participant in a defined benefit pension plan is that he must recompute his retirement savings rate if he leaves employment prior to the normal retirement age or if he changes employment while covered by a defined benefit pension plan.

Exhibit D

Quinquennial Measure Of Progress Toward Meeting Retirement Objective

Table IA shown below is intended to help a person periodically measure progress toward meeting his retirement income objectives. The table is based on the assumptions in Table I of the paper and applicable to persons who have established retirement savings objectives based on Table I. Of course, similar tables could easily be set up for other tables and savings rates illustrated in the paper.

Table IA shows the retirement assets as a percentage of current salary that a person should have on hand at quinquennial ages if retirement assets are growing steadily and in accordance with the Table I assumptions. A person would divide the retirement assets he has amassed by his current salary. If the resultant ration varies dramatically from the numbers shown in Table IA, it would be appropriate for him to review and perhaps recalculate his rate of saving for retirement. Of course, a person should not make major changes to his rate of savings for retirement because of negative or positive spikes in rates of investment return for a few years. Such Volatility can be expected, and will likely be reversed, over the longer term. However, if there is an underlying change in his expected investment return or salary increases, a recalculation of the rate of savings for retirement may be appropriate.

Table IA

Projected Retirement Assets As A Percentage of Salary At Quinquennial Ages If Table I (From Paper) Assumptions Realized

Quinquennial Ages To 65

Starting Age/Salary	40	45	50	55	60	65
35/$20,000	.7	1.5	2.3	3.3	4.3	5.4
35/$40,000	.9	1.8	2.9	4.0	5.3	6.6
35/$80,000	1.0	2.2	3.4	4.8	6.3	7.9
45/$20,000	-	-	1.1	2.4	3.8	5.3
45/$40,000	-	-	1.3	2.7	5.0	6.0
45/$80,000	-	-	1.6	3.4	5.4	7.5
45/$120,000	-	-	1.8	3.7	5.9	8.3
55/$20,000	-	-	-	-	2.1	4.3
55/$40,000	-	-	-	-	2.7	5.6
55/$80,000	-	-	-	-	3.3	6.9
55/$120,000	-	-	-	-	3.7	7.8

Assumptions:

1. Premiums are received monthly, earnings rate prior to retirement is 8%.
2. Salary increase at end of each year is 6%, final salary is beginning of year salary.
3. Retirement age is 65.