PRIMER ON LIFE ANNUITIES

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INTRODUCTION

This short informal paper, presented at a 1999 World Bank Workshop, explains what a life annuity is, where it is made available in the United States, and its various forms and types. The paper then describes, in more detail, annuities from TIAA-CREF and the Thrift Savings Plan, including information about pay out levels and utilization rates. It concludes with some observations about public policy considerations.

ABOUT TIAA-CREF

TIAA-CREF is a non-profit financial services organization. It provides defined contribution pension plans exclusively to education and research workers in the United States.

It was founded in 1918 as TIAA (Teachers Insurance and Annuity Association). It is an insurance company, regulated in the state of New York. It was founded by the philanthropist Andrew Carnegie. His interest was to offer an instrument that would allow college professors in the United States to have reasonable retirements and pensions provided to them.

The sister organization CREF (College Retirement Equities Fund) is an investment company and an insurance company. As an investment company, it is regulated by the Securities and Exchange Commission. It was the first company to offer a variable annuity in 1952 based on an idea and research of the economist Dr. William Greenough.

Currently TIAA-CREF ensures over 2.1 million participants in almost 9,000 pension plans and has over $250 billion in assets under management. It is the largest pension system in the United States. It also provides insurance and investment products, many now available to the general public.

The TIAA-CREF Institute is the economic and financial research and education arm of TIAA-CREF.

WHAT IS A LIFE ANNUITY?

It is the financial vehicle that provides periodic benefits over an indeterminate lifetime. Therefore the key aspect of the life annuity is the characteristic that payments are made for the lifetime of the participants.

The benefits themselves are not necessarily guaranteed or uniform -- they can vary as in the case of a variable annuity, or even without being a variable annuity, when they reflect the underlying mortality or investment experience of the company.

The key aspect of the life annuity, the continual payment over the lifetime of the participant, is possible through accumulations pooled into an annuity fund, which can be accomplished either through an insurance company that sells the annuity or through a pension plan.

Its goal is to maximize income and eliminate the risk of outliving principal for the plan participant in comparison to what the participant could do on his/her own through a systematic withdrawal.

This relies on the “law of large numbers” and accurate mortality statistics, where the annuity issuer, the insurance company or the pension plan, can predict how many, out of a large number of annuitants, will survive to any age. It is important to get accurate results, because it assures the solvency of the issuer when a guarantee is made.

The income is maximized by redistributing within the fund the portion of principal associated with annuitants who die “early” to annuitants who survive to older age: in insurance terms, “benefit of survivorship”.

WHERE IS IT MADE AVAILABLE (IN THE U.S.)?

The social security system in the United States provides an annuity that is mandatory. When a person retires he/she does not have a choice when retiring to get the payment out of his/her account. The participant gets a life annuity and, if married, it is a joint-and-survivor.

In the United States, employer-sponsored defined benefit pension plans typically pay out benefits as life annuities. Government defined benefit pension plans pay out benefits to workers as a life annuity as a mandatory payment. In the private sector, mainly for large employers, it is also typical to provide a life annuity. Nevertheless, it has become less common for that to be a mandatory payment, although it is still common for most people to get payment as a life annuity.

In defined contribution pension plans, which in the United States are 401(k)s, 403(b)s, and the TSP (Thrift Savings Plan) for federal government workers, although annuities are not mandatory, they are options sometimes offered to plan participants.

Life annuities are also available as individual products, which are sold directly through private insurance companies (variable annuities, single premium immediate and deferred annuities).

FORMS AND TYPES

There are several typical forms that are available:

- Single life annuity. It is paid out for an individual life.
- Joint-and-survivor. The benefit is paid to the participant as well as to the spouse or a designated beneficiary. Within the joint-and-survivor annuity there are many sub-options: the amount paid to the survivor of the couple can be 50%, 2/3, 75%, or 100%.
- Guarantee periods. Typically also there is an option for there to be a guarantee period: 10, 15 or 20 years. In other words, if the person dies before the guarantee period concludes, payments continue to beneficiaries for up to 10, 15 or 20 years.
- Refund options. When the person dies before sufficient payments are made, payments continue until the premium or amount that was paid in originally is paid out.

Each one of these forms have to be priced, and therefore the payouts reflect the annuity form chosen. For example, the single life annuity, which is the simplest form, pays out the most money. Joint and survivors, guarantee period, refund options, all cost something and therefore reduce the initial income which is paid out.

There is also a choice on the frequency of payment, which can be monthly, quarterly or annual. Monthly is the most common among annuity providers.

There are also various types of annuities in terms of the adjustment of benefits. The most common is a fixed guaranteed amount, such that the initial payment remains the same payment for the remaining of the lifetime of the participant.

However there are variations on this theme:

- Guaranteed vs. Non-guaranteed. There can be non-guaranteed elements that reflect the experience of the insurance company or the annuity provider. This aspect is true of TIAA annuities and we will discuss it later.

- Increasing vs. Level Payment. There is also sometimes an option of a payment stream guaranteed to increase over a period of time, not necessarily to reflect inflation, but to provide higher payments over time. This feature may be helpful in an inflationary environment and it also may reflect the desire of the pension participants to have an increasing amount of money over time. This increasing payment will also mean that the initial payment has to be lower.

- A variable annuity payout is where the annuity payment reflects the underlying experience in an exact way of both the mortality and the investment experience. For example, a person may choose a particular account such as an equity index account, in which the periodic annuity payment will go up and down reflecting the experience of that equity investment, which in turn will reflect the experience of the equity market. This is a riskier approach but it also enables the person to participate in the experience of the stock market; over a period of time he can expect an increase in payment.

- Inflation-adjusted. This reflects exactly the inflation of the underlying economy. This annuity is provided by Social Security. It is not available in the private market in the United States, but it is available in the United Kingdom.

TIAA-CREF ANNUITY RATES, IN GENERAL

In TIAA-CREF a person has the liberty to choose to take his/her annuity either under TIAA or CREF, or both, by splitting it.

In the case of TIAA, the participant has essentially a level annuity, but the company can adjust the payout if investment performance improves; infrequently, the payout might decline. This flexibility is an important aspect because it helps TIAA-CREF to maintain an AAA rating. On the CREF side there is a variable annuity which has no guarantees and the performance of the annuities varies with the performance of the pool of assets.

TIAA has standard and graded payment methods. The standard method gives the highest initial payments and although the payment may vary, as mentioned above, typically they increase in small portions over time. The graded payment method is designed precisely to increase more significantly over time.

Both the graded payment method and the CREF variable annuity assume initially a 4% AIR (Assumed Interest Rate). The payments for CREF vary with the experience of the investment account. In the graded payment method, if the assumed rate is 4% and the current interest rate is 7%, the difference between 7 and 4% is 3%, and that is what the payment is expected to increase every year.

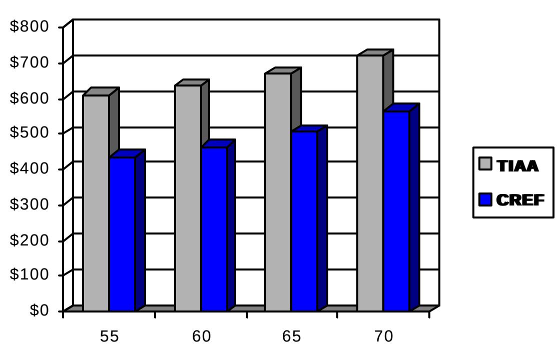
TIAA actual payouts have a guaranteed portion of the interest and mortality, as well as a dividend portion which reflects, mainly, investment experience. Currently the payment is based on a return of 7% and it will vary in accordance with the variation of interest rates.

CREF actual payouts are determined by experience: there is no guarantee whatsoever both on mortality and on investments. Mortality does not change too much over time, but the investment experience often changes quite a bit. At the discretion of the participant, CREF annuity payouts can be adjusted either annually or monthly.

Transfers among the various CREF investment accounts in the annuity phase are now allowed at any time, once per quarter, and that might be from one type of equity account to another type of equity account, or to a money market account, or to TIAA.

The following figure shows annuity payout levels in 1998. It shows a joint and full survivor annuity, with a $100,000 premium, that is, initial accumulation. For a couple of age 55, they get a little more than $600 per month. Levels increase as the age of insured increases because the payout base is shorter; at age 70, a couple would get $700 a month continuing for the lifetime of the participant and of his/her spouse or the designated beneficiary. These rates are for the TIAA standard payment method. CREF assumes a 4% interest rate, and so it pays out less initially; at age 55 the payment is lower, at about $400 per month, but it is expected that it will increase over time as the investment return is higher than 4%.

Figure 1: TIAA and CREF Annuity Rates in June 1998



- Monthly Initial Payments for Joint and Full Survivor Annuity for Various Issue Ages
- $100,000 Premium

THRIFT SAVINGS PLAN

Another pension system is the Thrift Savings Plan, a supplementary defined contribution plan provided to federal government workers. Annuities are paid directly from the TSP, at the option of the participant, through a contract with an insurance company. It is negotiated in an RFP (Request for Proposal). The RFP specifies annuity payments based on a table reflecting specific mortality and interest rates, namely the 1983 IAM (Individual Mortality Table), unisex 50/50 male/female, and 7% interest.

In order to reflect current interest rates, there is an adjustment based on the moving average of 10-year Treasuries, that uses linear interpolation. This enables the insurance company to have rates that are competitive with current rates as they move in a higher or lower direction.

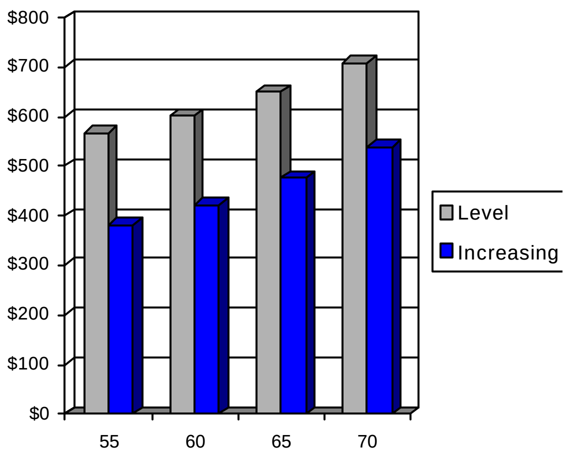
The participant is given the choice of level or increasing payment option. An increasing payment is partially inflation adjusted, because it reflects the CPI (Consumer Price Index) up to 3%.

MORE ON TSP ANNUITY RATES

TSP annuity rates reflect a "Contract Factor", which basically determines what the insurance company underwriting the annuity is willing to pay out to win this contract. The competitively bid contract runs for 3 years, with a 2-year unilateral renewal option and it can be cancelled by TSP if the financial/business prospects of insurance company worsen.

TSP rates are shown on the following chart, and they are for the joint-and-survivor, both level and increasing. The rates are usually a little bit lower than for TIAA-CREF. At age 55 for the level payment method, $550 per month is paid for the lifetime of the participant and his/her survivor. If it is an increasing payment, the payment is about $375, guaranteed to increase at CPI up to 3%. Of course, if the participant waits to annuitize, then the initial payment can be higher.

Figure 2: TSP Annuity Rates in June 1998



- Monthly Initial Payments for Joint and Full Survivor Annuity for Various Issue Ages
- $100,000 Premium

In these two systems, TIAA-CREF and TSP, the consumer has to make a choice: he can take a high initial payment which is not going to change very much or he can take a lower initial payment and have the expectation that over time it will be presumed to exceed the other. People make these choices based on their needs, beliefs and their view of experience. In the case of TIAA-CREF, there are no penalties or commissions for choosing either the standard, graded, or variable annuity.

LIFE ANNUITY VS. SYSTEMATIC WITHDRAWALS

Assume a 6% interest, current TIAA mortality and a SLA (Single life annuity) age of 65 for $100,000 accumulation. Under this scenario the person is paid $8,438 annually for the rest of his life through a single life annuity.

At that rate, looking at a bank account that pays out that amount for the rest of the participant's life, money will run out in 21 years. Therefore somebody starting at age 65, when he will be 86 years old, the money will be gone. For TIAA-CREF participants, almost half will survive at the age of 86. This strongly illustrates the benefit of the life annuity as opposed to the alternative of systematic withdrawals from the account.

Lets illustrate this case with CREF, assuming 8% earnings, current CREF mortality and 4% assumed interest rate. Initially the 65-year-old person is being paid $7,159 annually, expected to increase to $14,663 after 20 years, and it will continue to increase for the remainder of the participant's life. At that rate a mutual fund with 8% earning will run out in 21 years. Therefore the benefit of a lifetime annuity is the guarantee of a lifetime payment, because a person who manages on his own is very likely to run out of money.

The investments underlying the annuity depends on what form we are talking about. For the fixed form (TIAA form) it is a bond portfolio: corporate bonds, mortgages and real estate investments mainly. For the variable form (CREF form), largely underlying it is an equity base, and then in turn reflects its variable nature, so that the payout reflects the ups and downs of the stock market. The participant in CREF has also the choice of money market and bond investments. So the participant can choose, mixing both fixed and variable, reflecting their risk preferences and their views of which is going to perform better over a period of time.

UTILIZATION OF LIFE ANNUITIES, TIAA-CREF EXPERIENCE

In most TIAA-CREF contribution plans, participants are given a choice as to whether to choose a life annuity or some other form of payment. With TIAA-CREF, most participants, but not all - the number has declined over time - still choose to get a life annuity.

TIAA graded payment method - which increases over time - is chosen now by a quarter of TIAA annuitants and the CREF variable annuity has also become more popular. This pattern of choices indicates that people are willing to pay a little bit up front in the form of a lower payment initially in order to get an increasing amount over their lifetime.

Most men choose joint-and-full-to-survivor, so that they and their spouse are covered. Most women choose a single life annuity. The reason may be that their husbands are covered by a pension plan from their employer and therefore women choose a life annuity on their own life only. Most choose a guaranteed period such as 10 or 15 years.

UTILIZATION OF LIFE ANNUITIES, TSP EXPERIENCE

The experience of the TSP is much more modest in terms of people who chooses life annuities -- it is just in the thousands. But the TSP is still young, formed just in 1986, therefore, the jury is still out in terms of what people will choose now.

The average premium or initial accumulation in 1998 was approximately $42,000, quite modest, reflecting the fact that the TSP is a new system.

Most annuities are joint-and-survivor, and again women are more likely to choose single life annuities.

The vast majority of people in the TSP system choose level payment (88%) with no refund or certain period.

Another market is for SPIAs, which is an individual market; in the United States, there are about $3 billion sold every year, which is modest.

PUBLIC POLICY CONSIDERATIONS

There are many considerations to have in mind when designing annuities in pension systems. Probably the most important is the moral hazard problem. In other words if the government does not mandate an annuity and people are allowed to choose the form of payout - particularly if the pension is a basic pension social security or even a second pillar plan - and if they do not choose a life annuity and they spend all the money or even if they get systematic withdrawals and they outlive the accumulation, what will happen when they run out of money? Do they fall back to the government to compensate them? Therefore there is a very significant moral hazard problem, which is probably the most important consideration for mandating an annuity.

Another consideration in favor of mandating annuities is what is called adverse selection. Those who are in good health can expect a long lifetime, therefore they will choose the life annuity. Those who have perhaps family histories of poor health, will not choose the life annuity. Given the fact that those who choose the life annuity, if they are the only ones choosing the life annuity, then the insurance company or the pension plan will have to raise rates. Therefore, another consideration in favor of mandating the annuity is to get as complete a pool as possible, to minimize the adverse selection problem.

Another consideration is whether to charge men and woman the same amount, because in most societies women live longer than men. Left to their own devices, insurance companies would have the annuity rate paid to women be less than to men. However in the United States the law does not allow this differentiation for pension plans due to social and equity considerations. Therefore, in pension plans and in social security, both women and men get the same payout. However for individual products, for example, when the SPIAs are not provided through a pension plan, the insurance companies are allowed to payout different rates to men and women, so women get paid less because their life expectancy is greater.

Other considerations in terms of the design of annuities are administrative and marketing costs, and this is particularly important in terms of whether the annuity is sold directly from an insurance company or is provided directly from the pension plan or the government itself. Clearly there are tradeoffs when we have individual products that are more costly in marketing activities and for administration, where by contrast, there may be more innovation in the individual market in terms of insurance companies designing products addressing individual needs and preferences.

The administrative and marketing costs depends on the system: for the government's mandatory plan there are no marketing costs and the administrative costs are very low, they are basically less than 1%, for the accumulation. In pension plans, referring to TIAA-CREF, costs are also very low, because the marketing costs are quite minimal and there are no agents commission to be paid: total costs range from 30 to 35 basis points of the investment return. However for individual products the marketing costs can be quite high; for SPIAs sold in the United States they are in the order of 7 to 8% of the initial premium, which reflects the commission to the agent selling the product, as well as marketing costs and other administrative costs. So depending on whether it is a mandatory universal system or it is an individual product sold one on one, there is a wide variation in administrative and marketing costs.

If there are funding problems, the solution depends on the system itself. In the social security system if there are funding problems then that is a political issue and therefore the benefits have to be adjusted or taxes have to be adjusted to reflect the experience. In the pension fund system, that relates to the obligation of the employer or the insurance company that underwrites the benefits. That in turn depends on the reserves and the surplus that the insurance company has to support its products and depends actually on the nature of the guarantee. TIAA-CREF's unique approach to minimize guarantees has less likelihood of getting into trouble, but if an insurance company here in the United States does get into trouble, then it falls back to the state regulator who has a guarantee fund.

Then finally there is the critical consideration of personal autonomy. This tend to go the opposite of what was just expressed, in terms of giving people the choice as to whether to purchase a life annuity or not, that is, it argues against mandating an annuity.