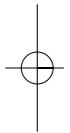
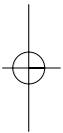


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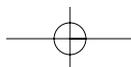
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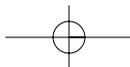
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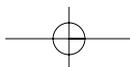
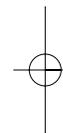
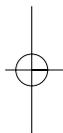
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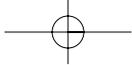
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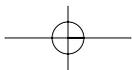
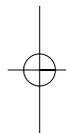
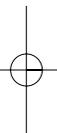
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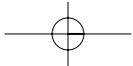
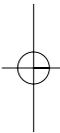
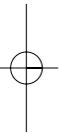
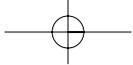




## **Part IV**

# **Implications for Retirement Payouts**





## Chapter 13

### **How do Retirees Go from Stock to Flow?**

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*John Ameriks*

In funded defined contribution (DC) pension systems, plan participants accumulate assets in designated accounts over time for use in retirement. Given the tax subsidies accorded to these saving mechanisms, it seems clear that a first-order public policy issue is whether DC pensions and other retirement savings will enable retirees to maintain an “adequate” flow of consumption in retirement. Indeed, in both the popular press and the academic literature, there has been a great deal of focus on this question (cf. Easterlin, Schaeffer, and Macunovich, 1993; Engen, Gale, and Uccello, 1999; Moore and Mitchell, 1999; Warshawsky and Ameriks, 1999; Holden and Vanderhei, 2002; Wolff, 2002).

In order to assess the adequacy of retirement saving for the support of consumption in retirement, it is clearly necessary to specify, or model, saving behavior prior to retirement. It is also important to model *spending* behavior after retirement. It seems fair to say that assumptions made about retirement spending behavior have remained relatively unnoticed in the policy debate regarding the “adequacy” of retirement savings. For example, many assessments or estimates of the “adequacy” of DC pension plans often presume that retirees will use their retirement plan balances to obtain a life annuity (e.g. Holden and Vanderhei, 2002). Many well-known commercially available retirement planning software programs designed to assess retirement savings adequacy utilize similar assumptions. Such an assumption is consistent with the simplest form of a life-cycle model of consumption, in which there is no bequest motive (Brown et al., 2001).

Yet such an approach is likely to be too simplistic, in view of the fact that many retiring workers seem to maintain at least part of their retirement assets for purposes other than the immediate purchase of a stream of life-contingent income payments at the time they retire. Because many people appear to strongly desire alternatives to life annuities as a distribution mechanism for their retirement assets, the question arises as to how people will choose to utilize the stock of assets that they have accumulated in their

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pension accounts to finance an “adequate” flow of consumption in retirement. In a recent paper, Munnell et al. (2002) argue that as people are given more control over how they dispose of their pension plan assets, psychological or behavioral biases may lead them to (i) elect to receive distributions from their retirement plans as “lump sums”, and (ii) subsequently choose to save too much of those assets (i.e. reduce their consumption below what is optimal). Indeed, this argument is similar to the argument that behavioral biases may cause undersaving before retirement. If behavioral biases lead some individuals to undersave before retirement, is it not also possible that other biases could lead them to underspend in retirement? Others believe that the form of benefits in retirement is not a significant issue, and that such choices are simply a reflection of differences in preferences.

Here, we do not intend to resolve this debate, since doing so would require extensive data on all sources of wealth, coupled with detailed information on consumption, that we currently lack. Instead, we focus on an examination of the range of distribution mechanisms used by TIAA-CREF participants. These data illustrate the extent to which retired and retiring individuals in a DC pension arrangement utilize a variety of different mechanisms to finance flows of income in retirement. These mechanisms include a range of annuity options, as well as many forms of distributions that do not involve a life-contingent form of income. The evidence indicates some striking trends over time. In particular, following the introduction of non-annuity income options in 1989, there has been a significant decline in the use of immediate life-contingent annuity payments among those beginning to take periodic income from their retirement accumulations. In addition, the data show significant variation both over time and by demographic characteristics in the types of income options chosen by participants.

### **Retirement Rates and the Changing Nature of Retirement**

When people move from the “accumulation” phase of a pension arrangement to the “distribution” phase, it generally involves a transition from work to retirement. Before examining patterns in the use of income options, we briefly review participant retirement patterns. There has been a large decline in the retirement rates of TIAA-CREF participants aged 69 and above since 1987, apparently related to the end of mandatory retirement in higher education in 1994 (Ameriks, 1999). Researchers also showed that over the same period, there was very little change in the retirement rates among participants younger than age 69. A larger study of faculty members also showed a similar pattern, with most of the decline in retirements at later ages concentrated at large research universities (Ashenfelter and Card, 2002). Figure 13-1 presents updated information on estimated rates at which participants retired in the year 2000. The base for each percentage

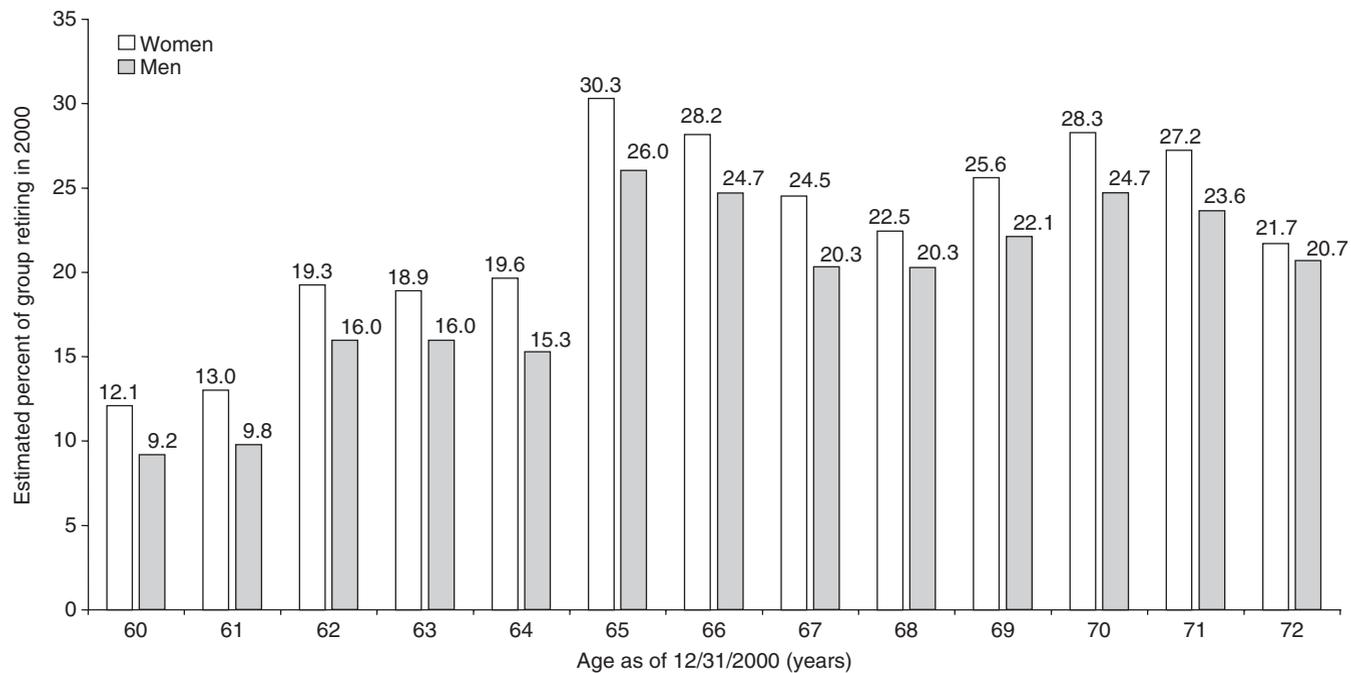


Figure 13-1. Estimated retirement rates for TIAA-CREF participants by sex, 2000.

*Notes:* Data show the fraction of each age/gender group who were making contributions to a TIAA-CREF pension annuity contract in 1999 but not in 2000. This is an estimate of retirements occurring in each year based on available data; contributions may of course stop for many reasons, but at the ages listed are likely to be largely a result of retirements.

*Source:* Author's calculations based on TIAA-CREF data.

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(the number of “workers”) in each group is the number of individuals who made any contribution to a retirement annuity contract in the year 2000, and the numerator (the number who “retire”) is the number of those same individuals who either (i) no longer had a deferred annuity contract at TIAA-CREF as of 2001, or, (ii) remitted no additional contributions on their retirement annuities for the entire calendar year 2001.<sup>1</sup>

The most interesting aspect of these data is that retirement rates for all ages are similar to those documented earlier (Ameriks, 1999).<sup>2</sup> Women are slightly more likely to “retire” than men at all ages, there are peaks at typical retirement ages (62, 65, and 70), and age-specific retirement rates are all within few percentage points of earlier estimates. Overall, these data suggest that the incidence of “retirement” has changed significantly (declined) only for those aged 69 and above.

One difference is that older individuals appear to be waiting to begin receiving *any* form of income from their retirement assets. For women aged 65, the fraction of retirees starting to receive distributions within a year of retirement fell from 89 percent in 1987–90, to 81 percent in 1994–96; for men aged 65, the decline was from 90 percent in 1987–90, to 82 percent in 1994–96 (Ameriks, 1999). More recent data for those retiring at age 65 in 2000 confirm the trend: Among men, 78 percent received some form of distribution by the end of 2001, while among women, only 72 percent elected to receive some form of distribution by the end of 2001.

### Retirement Income Options

We now turn to data regarding the patterns in the selection of income options by those who **have** elected to begin an income stream. The data we use for this case study are drawn from TIAA-CREF (Teachers Insurance and Annuity Association-College Retirement Equities Fund). This is a not-for-profit organization and it is the largest private pension provider in the United States, managing nearly \$300 billion in total assets for more than 2 million individuals. TIAA-CREF serves mostly employees at institutions of higher education and research, the majority at private institutions, where the sponsor offers a variety of investment options through employer-sponsored pension arrangements. Through such plans, participating employers and employees may make periodic contributions to accumulate assets for use in retirement. For many participants, these assets represent a major source of retirement income, in retirement as the assets are accumulated as a part of an employer-sponsored pension arrangement, rather than a supplemental arrangement (in contrast to many private-sector 401(k) plans).<sup>3</sup> Participants can choose from among several distribution options:

#### Life Annuity Options

Two types of annuities may be used by participants to generate life-contingent income: A *single-life annuity*, which will provide income as long as the

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annuitant is alive; and a *joint-life annuity*, which provides some income payments as long as *either* of two annuitants (typically an individual and a spouse) live. Three different survivorship options are available under the joint-life annuities; the option selected determines the level of payments made following the death of one of the annuitants: The “Two-thirds to Survivor” option provides for two-thirds of the annuity benefit to continue to the survivor. The “Half to Second Annuitant” option specifies that if the primary annuitant pre-deceases the second annuitant, one half of the annuity benefit will be paid to the survivor; however, if the second annuitant predeceases the first, there will be no change in the benefit.<sup>4</sup> Finally, the “Full to Survivor” option provides for no change in the benefit upon the death of either one of the annuitants.

Because annuity assets are pooled, some retirees worry that in the case of a very early death, they will “lose” the assets used to purchase an annuity. In other words, some view purchase of an annuity as a “risky” proposition, rather than a means to reduce risk. One way that insurers deal with this concern is by giving annuitants the option to elect a *guarantee period*, or perhaps more accurately a “minimum payment period” when beginning an annuity income stream (either single or joint-life). This period is simply a length of time during which income payments will be made to the annuitant(s) or a designated beneficiary, *regardless* of whether the annuitant(s) is alive. In other words, during the guarantee period, income payments from the annuity are *not* life-contingent. If the annuitant(s) dies before the end of this guarantee/“minimum payment” period, payments will continue to a designated heir or other beneficiary. After the expiration of the guarantee period, continued payments are, however, contingent on the life of the annuitant(s).<sup>5</sup>

Payments under each of these annuity options are supported in large part by the pooling of mortality/longevity risk across annuitants unique to the life annuity. Because life-contingent annuity income payments are only made to living annuitants, periodic payments to annuitants can be higher over their expected lifetimes than would be possible in the absence of such a pooling arrangement.<sup>6</sup> In the absence of strong bequest and precautionary motives, there should be significant demand for such arrangements among individuals who are risk averse from the point of view of economic theory (Yaari, 1965; Brown, Davidoff, and Diamond, 2003; see also Brown et al., 2001). Yet the size of the immediate annuity market is strikingly small. A number of empirical studies have analyzed aspects of the operation and pricing of annuities offered on the private market in an attempt to resolve this apparent puzzle (cf. Friedman and Warshawsky, 1990; Mitchell et al., 1999; Brown et al., 2001). This research has illustrated that the implicit cost of private annuities has varied significantly over time and across carriers, and it depends heavily on the individual’s private assessment of his own mortality prospects. These studies have concluded that while pricing issues may indeed make purchase of an annuity unattractive to some individuals,

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theory would still suggest much greater demand for immediate annuities than is currently observed.

### Variable Annuity Payments

An important feature of TIAA-CREF's pension annuities is that all involve at least some variable component. This means that the level of annuity income received by annuitants may change over time, based on overall performance of the annuity investment accounts (for CREF annuities) or dividend crediting rates (for TIAA annuities). Retirees choose whether such changes will regularly occur either on a monthly basis or an annual basis. For immediate annuities based on CREF accounts, initial income payments to annuitants are set using a current mortality table and an assumed interest rate of 4 percent. Annuity payments may then rise or fall to the extent that the overall performance (investment performance, mortality experience, and the expense experience) of the account since the last payment change exceeds or falls short of the assumed rates. If overall performance of the account exceeds the 4 percent assumption, the next income payment will be higher than the last. Similarly, if it falls short of the assumed 4 percent, the payment will be lower. This form of annuity can lead to volatility in payment levels over time, but it allows the annuitant to maintain exposure to the financial risks and return of various investments if so desired, while reducing exposure to longevity risk.<sup>7</sup>

In contrast to CREF annuities, TIAA annuities provide a minimum guaranteed amount of income as well as a variable component. The income change process for the variable component of TIAA annuities involves a significantly more complicated set of calculations than for CREF annuities, though the principles involved are similar. TIAA annuities have historically generated significantly lower levels of income volatility from period to period than CREF annuities (King, 1995; Hammond, 1996). Two types of payment distribution methods are used with TIAA annuities: a "standard" method, intended to generate a stable level of nominal payments, and a "graded" payment method, designed to generate a stream of increasing payments to at least in part offset adverse effects of inflation (cf. King, 1995).

Annuitants may choose to receive variable annuity payments from CREF investment accounts based on stock market investments, historically less volatile assets such as bonds, or use payments from TIAA to obtain a guaranteed income stream. They can also elect to receive income from a combination of these accounts and can mix several sources of income to create an overall "income portfolio." In addition, annuitants can change or periodically "reallocate" the combination of accounts that they use during the payout process, if desired. Over 95 percent of those receiving life annuity income receive at least some payouts from TIAA, and more than half receive at least some income from CREF. Detailed patterns in the portfolio-related

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details of annuity income decisions are an important area for future research, but they are beyond the scope of this chapter, which focuses on how annuity and non-annuity options are used, as opposed to investment allocation decisions across those categories.

#### Non-Annuity Options: IPRO, MDO, and SWAT

In addition to the variety of life-annuity options, non-annuity options became available in 1989, following the introduction of the Interest Payment Retirement Option (IPRO). This enables retirees at least age 55 but younger than  $69\frac{1}{2}$  to choose to receive the interest credited on their TIAA traditional annuity accumulations as income. Under this income option, the principal amount of the TIAA accumulation is preserved until a later date, when it must be either converted to a life annuity, a Minimum Distribution Option (MDO) contract, or otherwise withdrawn. The option was intended for use by those who would like to begin to receive some income from their retirement accumulations but might not yet desire to begin a life annuity.

The MDO contract was introduced in 1991. Federal regulations require that most retirement plan participants receive (and include in their taxable income) minimum distributions from their tax-deferred retirement assets by April 1 following the year they retire, or the year they reach age  $70\frac{1}{2}$ , whichever comes later.<sup>8</sup> Those who do not satisfy the requirements are subject to a nondeductible tax penalty equal to half of the amount that should have been distributed. The MDO mechanism provides income payments from accumulated retirement assets that are just large enough to avoid the federal tax penalties associated with failure to take distributions from tax-deferred retirement assets at the required rate. Unlike the IPRO, a participant beginning an MDO contract may have the option, but is not required, to change to another distribution option. The minimum distribution program can be subsequently converted to a life annuity in most cases; alternatively it can continue as long as assets remain to be distributed.

Systematic Withdrawals and Transfers (SWAT) were automated in 1996 and have been used increasingly ever since. Under this systematic withdrawal plan, a participant simply selects a schedule payment amount to receive (specifying either a fixed dollar amount, or a percentage of assets, as desired). These regular withdrawals or transfers will then be made from the accumulations according to that schedule, as long as assets remain. The level of these withdrawals must meet the minimum distribution requirement for those subject to it, or a tax penalty will apply. The participant can change the schedule of withdrawals as desired and retains the flexibility to convert to other options at a later date if desired.

This chapter focuses on the use of the life annuity, MDO, IPRO, and SWAT options, as each of these options generates a periodic stream of retirement income.<sup>9</sup> The issue of to what extent participants use various forms of ad hoc

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or lump-sum distributions is an important one, but it is beyond the scope of the current article. Without detailed additional survey data from individuals, there is no way to determine how, or even if, withdrawals or rollovers from TIAA-CREF are ultimately spent, converted to annuities, or otherwise utilized.

### The Level of Income Payments

When making a decision regarding an income stream, participants must decide how much periodic income the choice will generate. Several options are available.

#### Life Annuities

The level of initial income provided by a life annuity depends on several factors. For example, the level of income obtainable from a single-life annuity is based on the survival probabilities of one individual, while a joint-life annuity reflects the expected survival/mortality patterns of two individuals. In addition, the interest rate used to price the annuity is an important factor, and the election of guarantee periods and various survivorship options (for joint-life annuities) are also a factor in determining the size of the periodic income payments. Finally, *all* TIAA-CREF pension annuities involve at least some variable component, so income after the first year of payments may change to the extent that investment performance or dividend crediting rates change.

Table 13-1 compares initial income streams obtainable from a hypothetical single life annuity at various starting ages, with various guarantee options. Table 13-1 shows the amount of initial income available from a single life annuity, based on three different interest rate assumptions and three different retirement ages. It also shows how payment levels are affected by the addition of a guarantee period. Finally, it should be noted that in general, as a result of federal law, the sex of the participant can be used in the determination of annuity benefit levels from retirement plan assets, as unisex mortality tables must be used to price the annuity income flow. This table illustrates three points:

1. Initial income payments per dollar annuitized grow as the interest rate rises used to price the annuity. For example, for a 65-year-old, a 4 percent interest rate generates payments of \$686 per year per \$10,000 annuitized. This rises to \$830 at 6 percent, and \$982 at 8 percent. Thus the initial rate at which the annuity is issued has a large impact on the level of starting income.
2. The size of initial income payments per dollar annuitized rises as the age of the annuitant rises.
3. Having a guarantee option lowers the amount of income payable by the annuity at any given age and interest rate. The cost of the guarantee

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TABLE 13-1 Initial Hypothetical Single-Life Annuity Income Levels by Interest Rate, Annuitant Age, and Guarantee Period

<i>Interest Rate and Age</i>	<i>Annualized Income Per \$10,000 (in \$)</i>	<i>Payment Level w/Guarantee Period</i>			
		<i>None (%)</i>	<i>10 years (%)</i>	<i>15 years (%)</i>	<i>20 years (%)</i>
<i>4 percent</i>					
Age 65	686	100.0	97.8	94.9	90.9
Age 70	780	100.0	95.9	91.0	84.8
Age 75	913	100.0	92.4	84.4	75.7
<i>6 percent</i>					
Age 65	830	100.0	97.6	94.9	91.4
Age 70	923	100.0	95.7	91.1	85.8
Age 75	1,056	100.0	92.3	84.9	77.5
<i>8 percent</i>					
Age 65	982	100.0	97.5	94.9	92.0
Age 70	1,072	100.0	95.6	91.4	86.9
Age 75	1,203	100.0	92.2	85.6	79.3

*Notes:* Annualized income above is monthly income times 12; not a once-a-year annual annuity payment. Payments are based on Annuity 2000 Mortality Table (Merged Gender Mod 1) with ages set back 2 years. Listed percentages are a percent of the annualized amount of income for each row.

*Source:* Author's calculations.

rises with participant age, in terms of the level of payments relative to an annuity with no guarantee period.

Table 13-2 presents a similar comparison for a joint life annuity. Here, the baseline level of income is for a "Two-thirds to Survivor" option without a guarantee period. Table 13-2 does not show how interest rates affect payments as it assumes a 6 percent rate; however, the relation is similar to the single life-annuity case. Table 13-2 does show similar patterns with regard to annuitant age and the election of a 20-year guarantee period. It also shows that the age of the two annuitants and the particular survivorship option elected can interact to raise or lower the level of income relative to the baseline case.

#### Income from Non-Annuity Options

The level of initial income available from non-annuity pay out options generally does not depend on as many factors as are involved in annuity calculations. In the case of IPRO, the amount of income is dependent on the participant's accumulation in TIAA and current interest rates credited

TABLE 13-2 Initial Hypothetical Joint-Life Annuity Income Levels by Annuitant Ages, Survivorship Option, and Guarantee Period  
(Assumes Interest Rate of 6%)

<i>Age of Primary and Secondary Annuitants</i>	<i>Annualized Income Per \$10,000 Annuitized (in \$)</i>	<i>Two-thirds to Survivor</i>		<i>Half to Second Annuitant</i>		<i>Full Benefit to Survivor</i>	
		<i>No Guarantee (%)</i>	<i>20-Year Guarantee (%)</i>	<i>No Guarantee (%)</i>	<i>20-Year Guarantee (%)</i>	<i>No Guarantee (%)</i>	<i>20-Year Guarantee (%)</i>
<i>Primary 65</i>							
Secondary 65	794	100.0	98.9	97.9	97.1	92.0	90.6
Secondary 70	830	100.0	98.3	95.2	94.0	90.9	88.7
Secondary 75	872	100.0	97.3	92.0	90.3	89.0	85.9
<i>Primary 70</i>							
Secondary 65	830	100.0	98.3	100.0	98.7	90.9	88.7
Secondary 70	874	100.0	97.2	97.4	95.4	90.4	87.0
Secondary 75	925	100.0	95.7	94.2	91.3	89.1	84.0
<i>Primary 75</i>							
Secondary 65	872	100.0	97.3	102.6	100.5	89.0	85.9
Secondary 70	925	100.0	95.7	100.1	96.8	89.1	84.0
Secondary 75	988	100.0	93.3	96.9	92.1	88.6	80.9

*Notes:* Annualized income above is monthly income times 12; not a once-a-year annual annuity payment. Payments are based on Annuity 2000 Mortality Table (Merged Gender Mod 1) with ages set back 2 years. Percentages in table are as a percent of the annualized income amount in each row.

*Source:* Author's calculations.

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on TIAA accumulations. Depending on the history and timing of the person's contributions to TIAA, the total level of payments available via IPRO will vary. As of July 2003, the highest interest rate being credited by TIAA was 7.25 percent (for contributions received in 2000 on a RA/GRA), while the lowest was 3 percent (for contributions made between 7/1/2003 and 9/30/2003 to an SRA/GSRA). Thus, as of this date, IPRO payments could generate initial income payments equal to between 3 and 7.25 percent of the total accumulation (\$300–725 per year per \$10,000 of TIAA accumulation) depending on when contributions to TIAA were made. Relative to annuity payments for those aged 61–69, IPRO generally provides income payments that are somewhat lower than initial annuity payments (on the order of 20–40 percent lower), depending on the age of the annuitant and the annuity option selected.

The initial amount of income under the MDO can also vary depending on the age of the participant when distributions begin, and, if applicable, on the age of the designated beneficiary (and his relation to the participant). For someone who will be 71 at the end of the year in which distributions are first required, the minimum required distribution is approximately \$382 per year per \$10,000 of accumulation (assuming the beneficiary is not a spouse more than 10 years younger). This initial income level is substantially below the level of initial income payments available from life annuities to participants at this age (on the order of 50–60 percent lower). Systematic Withdrawals can, of course, provide an arbitrary amount of income, as long as the accumulation supports the payments (and as with all distribution mechanisms, rules regarding early withdrawals and the minimum required distributions must be respected with regard to accumulations). The point is that the choice of income option can dramatically affect the amount of initial income provided to a participant from his retirement assets. Individuals electing to take non-annuity options (other than SWAT) are choosing to receive significantly lower initial payments. All participants receive materials each year showing what their initial income payments would be, assuming the use of specific life annuity options. At retirement, they are also furnished with retirement illustrations showing how their choice of income option will affect their income levels. It is extremely unlikely that participants are unaware that higher initial income payments could be derived through the use of life-annuity options.<sup>10</sup> The choices that individuals are making, therefore, do appear to be made both willingly and voluntarily, reflecting consideration of the available options.

### **Longitudinal Patterns in the Selection of Retirement Income Options**

Next we turn to evidence on the changes in the use of various types of income streams over time at TIAA-CREF spanning the period 1975–2001.

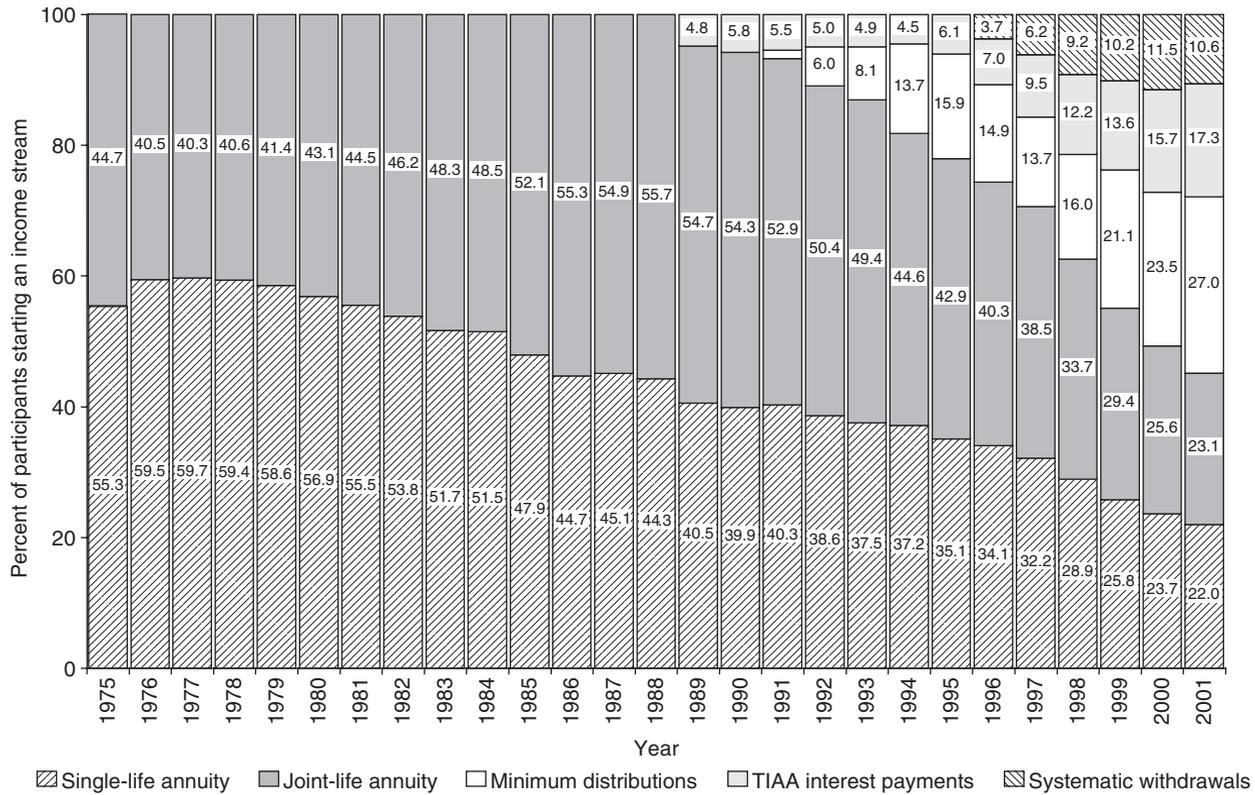


Figure 13-2. Initial income selections by TIAA-CREF participants, 1975–2001.

Notes: Participants combining different types of income streams are counted once for each type. Includes only those starting their first income stream.

Source: Author's calculations based on data from TIAA-CREF Retirement Services Actuarial.

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These data show some remarkable changes over time. In 1975, the only distribution option available to TIAA-CREF participants was the life annuity (either single- or joint-life). Figure 13-2 shows that from the late 1970s through 1984, the single-life annuity was used by a (slight) majority of those starting an income stream from their retirement assets. From 1985 to 1988, the joint-life annuity became more popular, covering larger fraction of participants than the single-life annuity. Part of this shift in choice may be due to the passage of the Federal Retirement Equity Act of 1984, which provided that married employees (or employees who were married when they earned retirement benefits) under a plan governed by ERISA could select an option other than a two-life annuity under which the spouse is designated as the second annuitant *only* if the spouse agreed in writing to forego the two-life benefit. Figure 13-1 also shows that after the introduction of non-annuity options in 1989, there has been a dramatic decline in the proportion of participants selecting a life annuity. As of 2001, only 45 percent of those starting an income stream for the first time chose to use the life annuity, split roughly evenly between the joint-life and single-life options. We also see that after its introduction in 1989, few people selected the IPRO option (5 percent of those beginning any income stream); and its use subsequently showed a slight relation to 1994. Thereafter, the popularity of this distribution mechanism climbed, tripling in terms of its share among those starting income payments (rising to 17 percent in 2001). Since 1991, the greatest growth has been in the use of the MDO. In 1991, only 1 percent of those starting an income stream used the MDO, but of 2001, MDO is by 27 percent of those who start any income stream at all.

### Patterns in the Selection of Annuity Options

#### Patterns by Sex

Table 13-3 presents data on various life-annuity options selected by individuals beginning an annuity income stream over the period 1995–2001. Table 13-3 is divided into three sections, with the top panel (Panel 1) simply breaking the relevant annuitant population into two groups, which are then analyzed separately. Panel 2 focuses on those electing a single-life annuity, and Panel 3 on those electing a joint-life annuity.

Confirming earlier studies (King, 1996), recent data show that female participants are significantly more likely to choose the single-life annuity option than their male counterparts. In 2001, 68 percent of the females beginning life-annuity income chose a single-life option, while only 30 percent of men did so. This pattern is only slightly changed from 1995, when 68 percent of females chose the single-life and 26 percent of males did so. An obvious reason for this could be differences in marital status among the female and male participants beginning an income stream. Unfortunately, historical data on marital status of participants are not available.

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TABLE 13-3 Initial Annuity Income Option Sections, by Sex (1995 and 2001)

<i>Annuity Options</i>	<i>Men</i>		<i>Women</i>	
	<i>1995 (%)</i>	<i>2001 (%)</i>	<i>1995 (%)</i>	<i>2001 (%)</i>
<b>Panel 1: Single versus joint</b>				
Single-life annuities	25.9	29.5	67.6	68.0
Joint-life annuities	74.1	70.5	32.4	32.0
<i>Total</i>	100.0	100.0	100.0	100.0
<b>Panel 2: Single-life annuities</b>				
No guarantee	35.0	32.3	33.7	28.4
10-year guarantee	24.1	30.5	30.5	33.9
15-year guarantee	16.2	14.3	14.0	15.7
20-year guarantee	23.9	22.9	21.2	21.9
Installment refund	0.9	0.0	0.6	0.0
<i>Total</i>	100.0	100.0	100.0	100.0
<b>Panel 3: Joint-life annuities</b>				
<i>Full to survivor</i>				
No guarantee	8.8	10.0	7.1	9.2
Any guarantee	63.9	60.8	58.6	57.9
All	72.7	70.8	65.7	67.1
<i>Two-thirds to survivor</i>				
No guarantee	3.1	4.3	2.2	1.9
Any guarantee	17.7	17.7	13.9	14.1
All	20.8	21.9	16.1	16.0
<i>Half to 2nd annuitant</i>				
No guarantee	1.4	1.6	2.3	2.8
Any guarantee	5.0	5.6	15.9	14.1
All	6.4	7.3	18.3	16.9
<i>Total</i>	100.0	100.0	100.0	100.0

*Notes:* "Guarantee" refers to the election of a length of time during which annuity payments are not life contingent. "Installment refund" is a guarantee option available on a negligible number of older contracts.

*Source:* Author's calculations.

There are only a few other notable changes over this time period. Among women, there has been a slight increase in the election of a guaranteed period on the single-life annuity: of the women choosing a single-life annuity in 1995, one-third did so without opting for a guarantee period, while as of 2001, only 28 percent did not elect a guarantee. (As the data show, the largest increase was in the election of a 10-year guarantee.) In addition, there was a very slight increase in the fraction of female annuitants choosing the "Full to Survivor" survivorship option from 1995 to 2001. There was

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a corresponding decline in the fraction of women choosing the “Half to Second Annuitant Option,” while the use of the “Two-thirds to Survivor Option” has remained fairly flat. Among men choosing the single-life annuity option, there was a similar slight increase in the use of the 10-year guarantee period from 1995 to 2001. In 1995, 35 percent of males using the single-life annuity did so without electing a guarantee period; while in 2001, 32 percent did so. At the same time, the use of the 10-year guarantee rose from 24 to 31 percent in 2001. The evidence for men indicates only a very slight change in the use of the various survivorship and guarantee options under the two-life annuity.

For both men and women choosing a joint-life annuity, the data show a strong preference for the use of the “Full-to-Survivor” option. In addition, among both men and women there is a strong preference for guarantee periods. Among those electing single-life annuities, roughly two-thirds chose a guarantee period, while among those electing a joint-life annuity, over 85 percent opted for a guarantee period.

#### Patterns by Age

Figure 13-3 depicts time-series patterns in the age distribution of individuals beginning annuity income over the period 1980–2001.<sup>11</sup> It shows that the fraction of annuitants beginning income streams before the age of 65 rose gradually from 36 to 44 percent from 1980 to 1987, and it has remained roughly constant ever since. At the same time, the fraction beginning annuity income at age 65 has fallen by roughly half (from 38 to 17 percent) since the early 1980s. There has been a fairly steady increase in the proportion beginning annuity income at ages 66–69, and a significant increase, followed by a decline after 1991, in the fraction beginning annuity income at ages 70 or 71. The fraction starting annuity payments after the age of 71 increased slightly in the 1980s, then fell through the early 1990s, and it appears to be growing again in the early part of the twenty-first century.

There appears to be little change in the average age at which non-annuity distribution options are used. Since its introduction, the average age of participants using the minimum distribution option has been between 71 and 72—this is, of course, consistent with the fact that regulations require most retirees to begin taking minimum distributions by April 1 of the year following the year in which they turn  $70\frac{1}{2}$ . At the same time, the average age among those using only IPRO or SWAT is much younger: These averages have varied between 63 and 64 years. In the case of annuity income streams, the average age of participants has increased by a year over the period 1988–2001, rising from 63 to 64. Overall, the data show a striking increase in the overall age at which participants are beginning to start any income stream at all: The average age at which participants begin to receive *any* income stream rose from 63 in 1988 to 66 in 2001.

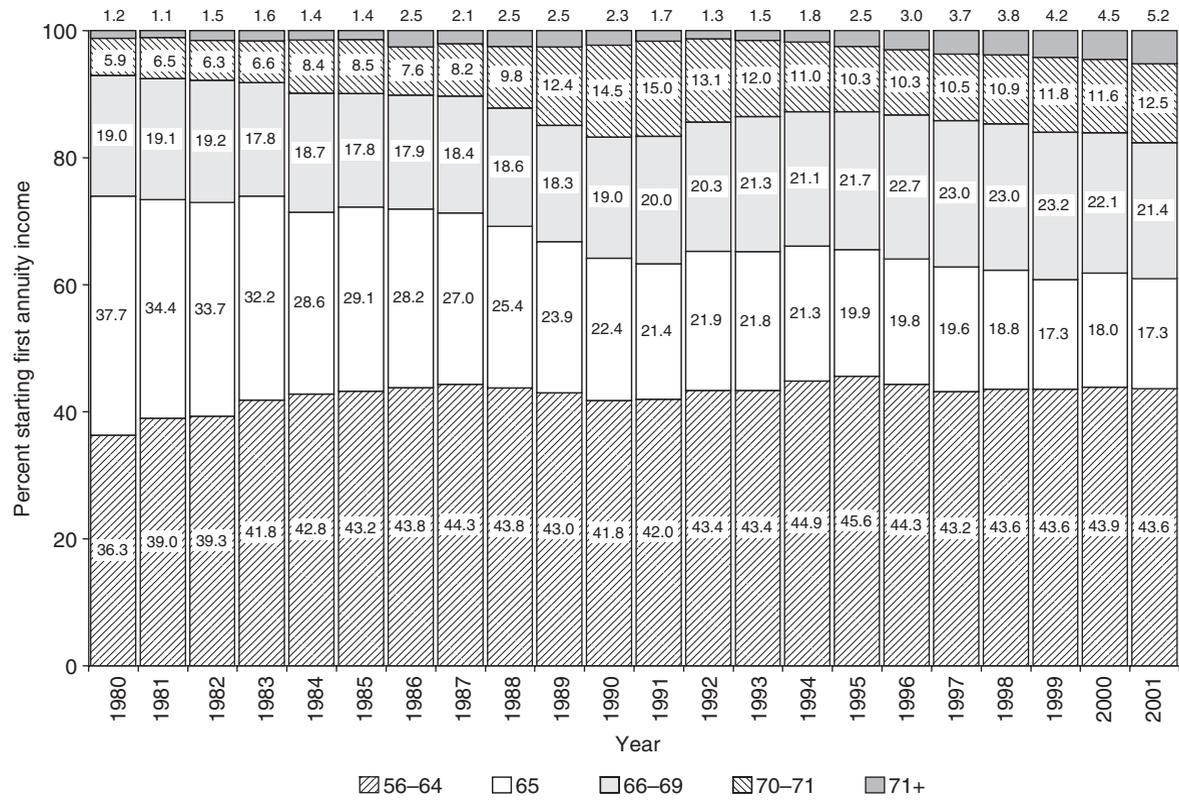


Figure 13-3. First life annuity issue by age, 1980–2001.

Source: Author's calculations based on data from TIAA-CREF Retirement Services Actuarial.

## Settlement Sequences

Until 1989, the only type of income stream available to participants was the life annuity, yet the participant was not required to convert all accumulated assets to an annuity. As more income options have become available over time, with features tailored to individuals at different points in the transition to retirement, many participants have used more than one income option. (As of 2001, less than 10 percent of those beginning an income stream used more than one form of distribution initially.)

Table 13-4 illustrates the use of alternative income options by those starting an income stream for the second time conditional on having chosen a single type of distribution for the first stream. For example, of those whose first income choice was a life annuity only, the table shows that 56 percent added and/or switched to another life annuity on starting a second stream, while 41 percent added an MDO contract. A small minority added IPRO or SWAT streams. For those whose first stream was an MDO contract, half started a life annuity contract as their second choice. While some of this may be the conversion of MDO contracts to life annuities, the pattern does not necessarily mean participants are converting their MDOs to annuities: Many participants still working after age 70½ may have to take minimum distributions from accumulations earned under a prior employer's plan—thus, their first income stream is minimum distributions, although they are still working. When they do retire, they must begin to take income from their current employer's plan as well, which they may decide to take as an annuity. Almost all others with MDOs only who make a second choice elect to start another MDO stream. For those whose first choice is IPRO only, nearly 60 percent begin an annuity as their second choice, while 21 percent

TABLE 13-4 Patterns in Second Income Stream Selection, 1989–2001

<i>Initial Income Selection</i>	<i>Added and/or Switched to</i>					
	<i>Life Annuity (%)</i>	<i>MDO (%)</i>	<i>IPRO (%)</i>	<i>SWAT (%)</i>	<i>More Than One (%)</i>	<i>Total (%)</i>
Life annuity only	55.5	41.1	1.3	2.0	0.1	100.0
MDO only	50.1	46.4	0.0	3.2	0.3	100.0
IPRO only	58.0	20.6	9.1	8.7	3.5	100.0
SWAT only	10.5	19.4	13.2	55.9	1.0	100.0

*Notes:* Includes all participants who initially chose a single income option and who make a second income option decision at least one calendar year after their first election. “MDO” indicates minimum distribution, “IPRO” is TIAA interest payments, and “SWAT” is a systematic withdrawal plan.

*Source:* Author's calculations.

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choose MDO. Finally, of those who begin an income stream with SWAT only, the second choice of about 11 percent is a life annuity, 19 percent choose an MDO, and 13 percent choose IPRO (the remaining individuals begin another SWAT stream).

### Discussion and Conclusions

Our evidence on the payout choices of TIAA-CREF participants evaluated changes over the period 1995–2001. We show that as non-annuity distribution options became available to retirees, more of them elected not to use a life-contingent annuity as a form of payout, at least at or near the time of retirement. More retiring individuals are electing to allow assets in their employer-sponsored retirement plans to continue to accumulate without taking distributions; use “temporary” or “transitional” mechanisms for distribution of assets that do not involve life-contingencies; and receive only the minimum amount of distributions needed to avoid federal tax penalties.

We also find that the frequency of retirement at ages younger than 69 remained roughly constant throughout the 1990s. It is, however, likely that at least some of the changes in the usage of income options, and in the observed postponement of the usage of retirement assets to generate income, may be related to the changing nature, rather than the incidence, of retirement at many US colleges and universities. As retirement has become less of a discrete transition from working full-time to not working at all, participants may not need to receive distributions from their retirement assets. The abolition of mandatory retirement rules in 1994, and changes in the tax treatment of Social Security payments, have also altered the set of financial constraints facing retirees over time. Increased part-time work after “retirement” and lower tax penalties on Social Security payments may also have increased the tax advantage of maintaining assets in tax-deferred vehicles.

Another important issue is that annuitization is generally an irreversible investment decision, so people may perceive some benefit to maintaining their option to start an annuity income stream at a later date. Those who began income streams without annuitizing over the last decade have used MDOs and IPROs.<sup>12</sup> An IPRO is by its very nature an interim income choice: At some point it must be annuitized or converted to minimum distribution. The growing use of this option is therefore perhaps quite consistent with retirees taking a “wait and see” attitude with regard to annuitization.

The decline in annuitization may be a cause for worry among some, but it is unclear whether “corrective” policy responses are needed. To the extent that people value bequests, or that precautionary motives for saving are a factor, lack of annuitization may simply reflect differences in preferences. Hence some of the patterns documented here could indicate that

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people do not view maximization of life-contingent retirement income at the point of retirement as the sole purpose of their retirement savings. Our evidence, as well as prior studies (e.g. Laitner and Juster, 1996) indicate substantial demand for “refund” features on immediate life annuity contracts, both single-life and joint-life. The widespread election of such options is strong evidence suggestive of a significant bequest motive.

If one admits the possibility that individuals are not well informed or rational, other explanations can be allowed. For example, Munnell et al. (2002), argue that as a consequence of psychological biases, older people may overvalue a “stock” of unannuitized assets relative to a “flow” of annuity income. If there is a psychological reluctance to give up a stock of assets, the result may be both underconsumption and unintended bequests. Unfortunately, it is not clear how one could determine whether the economic benefits of greater annuitization would offset the psychological costs. Along the same lines, it is also possible that people may not be understanding how annuities work at retirement. Indeed, basic concepts regarding how and why annuities are an effective and efficient means for financing consumption are not generally understood even among some financial professionals. This may play a role in their declining usage as participants are offered more choices in the distribution phase.

A related issue concerns the increasing use of MDO. Just as Madrian and Shea (2001) found, for 401(k) plan members it is possible that the decisions of at least some retiring participants may reflect inertia in decision-making, coupled with the existence of the MDO “default” (i.e. a choice that results when no alternative, well-considered selection is made) for income in retirement. Prior to 1989, the life annuity was the “default” (and only) option for receiving an income stream from a TIAA-CREF pension. After 1991, the MDO effectively became the “default” option, so in the absence of considering an alternative choice, in order to avoid tax penalties, participants may use the MDO. It is even possible that individuals perceive the minimum distribution required by tax law as a “government sanctioned” distribution mechanism for their retirement assets. Certainly for pre-retirees, there is significant inertia with regard to asset allocation decisions: Many workers never make asset allocation changes even after long periods of time and large fluctuations in financial markets (Ameriks and Zeldes, 2001). Likewise, we suspect that at least some participants might adopt the MDO at age  $70\frac{1}{2}$ , become more or less comfortable with the amount of income it provides, and then never reconsider the decision. Whether this is happening, and what the implications of such behavior might be, are important areas for future research.

The current menu of non-annuity distribution options has been available to retirees for less than a decade. Hence, people who were presented with non-annuity options are still relatively young, and it will take several

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years before it will be clear how successfully they combined income options to finance the full span of their retirements. It will also take time to learn whether they will make use of the annuity options available to them later in life.

### Notes

<sup>1</sup> We lack information that would allow us to determine how many members of this “retiree” group may have changed pension carriers or simply changed jobs rather than retiring. It seems reasonable that career changes at these ages are relatively infrequent; this calculation is perhaps the best estimate we can currently produce of whether individuals have retired. Note also that these estimates do *not* remove those for whom payments have stopped as a result of death.

<sup>2</sup> These data are not strictly comparable to the earlier study, because the 1999 study tracks one cohort of participants over time, whereas our data here look at retirement in the overall participant population at a single point in time. For example, the retirement rates estimated here are slightly (1–5%) higher at younger ages, in part reflecting higher turnover rates among those who entered the system recently than among those of the same age who have participated for several years.

<sup>3</sup> More information describing the organization, how it operates, and its history can be found in Greenough, 1990.

<sup>4</sup> This form of benefit and the “Full benefit to survivor” option are used in many of the annuity arrangements made through defined benefit (DB) plans. The “Two-thirds to Survivor” option is not typical of most DB plans; this option is the only one that results in lower benefits to the primary annuitant upon the death of the secondary annuitant.

<sup>5</sup> Essentially, the guaranteed period combines a period-certain annuity (i.e. a reverse amortization) *without* a life contingency, with the purchase of a *deferred* contingent life annuity that begins after the amortization is complete.

<sup>6</sup> For further description and details regarding the use of annuities to provide income in retirement, see Mitchell and McCarthy (2002).

<sup>7</sup> The mathematics of variable annuities as well as further details related to the structure of CREF annuities are described in greater detail in Brown, Mitchell, and Poterba (2002).

<sup>8</sup> The rules governing minimum distributions have had an interesting and convoluted history. The IRS issued final regulations governing the required minimum distributions in April 2002 that clarified and simplified some provisions related to minimum distributions. For a detailed discussion and analysis of the regulations, see Warshawsky (1998, 2001).

<sup>9</sup> Another form of non-annuity benefit available to most TIAA-CREF participants is cash withdrawals in the form of a Transfer Payout Annuity (or TPA) and/or a Retirement Transition Benefit (RTB). The RTB is a lump-sum withdrawal that can be used at the point of retirement in conjunction with the beginning of life annuity income, while the TPA is a form of period-certain annuity that must be used to liquidate TIAA balances under the terms of retirement plans that do not allow lump-sum withdrawals from TIAA.

<sup>10</sup> For all payment mechanisms (other than an extremely low and therefore indefinitely supportable level of fixed systematic withdrawals) the amount of income that the participant will receive will change over time, reflecting investment performance

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and other factors. All TIAA-CREF pension annuities have a least some variable component.

<sup>11</sup> These data differ slightly from those presented by King (1996), as a result of difference in the way that ages and start dates are prepared here. The overall patterns are very similar.

<sup>12</sup> Of course, the SWAT mechanism has been available for a significantly shorter period of time.

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