American Academy of Actuaries

Issue Brief

Decumulation Strategies: Creating Lifetime Income from Defined Contribution Plans

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Introduction

Employer-sponsored defined contribution (DC) plans are a key element of the American retirement system. There are a variety of strategies that plan participants may use to decumulate (i.e., spending their assets during retirement). Before the passage of the Setting Every Community Up for Retirement Enhancement (SECURE 1.0) Act in late 2019, insurance-based strategies within DC plans were mostly unavailable. However, since the enactment of SECURE 1.0, more insurance-based offerings have come to market. This is because SECURE 1.0 provided a fiduciary safe harbor around the selection of an annuity provider for an employer-sponsored DC plan, mitigating potential liability.[1] Despite this, plan sponsor adoption of insurance-based strategies has been gradual, as plan sponsors familiarize themselves with annuities.

In this issue brief, we provide an overview of the insured and non-insured options currently available that can be offered through employer-sponsored retirement DC plans.

There are two broad categories of insured payment options—income annuities and annuities with guaranteed lifetime withdrawal benefits (GLWBs). Although both categories are available in the retail marketplace for individual purchases, there are important differences when offered within an employer-sponsored retirement plan. (We henceforth refer to such annuities

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1 ERISA plan sponsors have a fiduciary duty to act in the best interests of plan participants. Different regulatory standards apply outside of ERISA plans.

as plan-selected annuities[2]). As a result, plan-selected annuities can be significantly more cost-effective and efficient than similar products offered on the retail market:

- Plan-selected annuities are priced on a unisex basis. The pricing typically reflects group mortality expectations, which differ from the individual mortality expectations reflected in the pricing of retail annuities. Depending on the specific product and the mode by which it is offered (e.g., default versus optional offering), insurers may assume less selection bias[3] in setting mortality assumptions for these group products, which would lead to higher assumed mortality and more competitive pricing. Unisex pricing refers to a blending of male and female rates which are then used for all pricing purposes. This can be considered as gender neutral and will generally provide females with more income than a sex distinct rate, since females have longer expected lifespans.
- Plan-selected deferred income annuities (DIAs) may offer liquidity during the deferral period, which is not a normal feature in the retail market. Liquidity means that the participant may transfer the value of the annuity to another plan investment option and that they do not have to annuitize (i.e., irrevocably convert the money in the annuity into an income stream). This provides more flexibility but may also increase the cost of DIAs.
- Plan-selected annuities may incorporate competitive bid offerings with multiple insurance companies backing the guarantee.[4]
- Plan-selected annuities should not pay commissions and generally do not have an expense charge to withdraw money.

2 Note that as of the time this paper was written, there are some solutions in the market wherein plan participants must roll their retirement assets to an IRA before making the purchase. Annuities bought through an IRA are not annuities payable "from the plan," and thus, the points we make on plan-selected annuities do not apply.

3 Annuity purchases in the individual market are frequently made by higher income individuals who tend to have longer life expectancies. Annuity purchases within a plan that offers the annuity as the default option may represent a broader set of individuals with higher anticipated mortality.

4 Bidding may take place at a point in time or over time. For example, an in-plan DIA might be backed by three participating insurers who set rates quarterly, where contributions may be allocated across all three with the most weight towards the least expensive rates in a given quarter.

This issue brief was drafted by members of the Defined Contribution Subcommittee of Pension Committee:

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Several non-insured decumulation strategies are also presented. These strategies use a rule or algorithm to determine how much to withdraw from a retirement account each year. Our discussion includes the following strategies:

- Required minimum distributions (RMDs);
- Spread payments over N years (1/N);
- Withdraw a fixed percentage of the account (e.g., the 4% rule);
- Spread payments over N years, but with experience adjustments (X% over N years).

There is no single option that will meet all plan participant needs due to differing participant demographics, household needs, other income, other retirement plans, etc. Plan sponsors may find that a choice from among a combination of two or more options may better meet the needs of most plan participants.

These strategies and products can be confusing to plan sponsors, participants, and other stakeholders evaluating their benefits. In the remainder of the issue brief, we will compare and contrast these products and strategies across several key features and attributes that are important to consider when evaluating them. This may provide a frame through which stakeholders can evaluate these solutions. Results are summarized in the table on pages 16-17. These key features include:

- Income guaranteed for life;
- Liquidity (both pre- and post-income commencement);
- Post-retirement death benefit to heirs;
- Downside protection (both pre- and post-income commencement);
- Upside potential (both pre- and post-income commencement);
- Fees;
- Simplicity.

Income Annuities

Income annuities are insured options that provide DC plan participants with a guaranteed lifetime income benefit that mitigates against investment risk and longevity risk, which is the risk of participants outliving their retirement savings. The key feature of income annuities is the requirement to "annuitize" or irrevocably convert a single sum balance into an income stream to receive the benefit. Income annuity benefits are conceptually similar to the form of payment typically provided by a traditional defined benefit pension plan. Subcategories of income annuities include:

- Single premium immediate annuities (SPIAs);
- Deferred income annuities (DIAs);
- Qualified Longevity Annuity Contracts (QLACs).

All income annuities have payout rates. Payout rates are calculated based on mortality assumptions, interest rates[5] at the time of the purchase, and the deferral period (i.e., the number of years until payments commence). The payout rate multiplied by the insurance premium determines the payment amount (in dollars) to the retiree.

Income annuities allow plan participants to customize the payments. Common payment options include the following:

- Life-only—payments are guaranteed for life.
- Life only with period certain—payments are guaranteed for the specified period (e.g., 5-year or 10-year), in addition to being guaranteed for life.
- Joint and survivor—payments are contingent on two lives, with the payments to the survivor being a percentage (e.g., 75%) of payments when both people are alive.
- Cash refund—beneficiaries receive a death benefit if the purchaser has not received annuity payments at least equal to the premium paid by the time of death.
- Cost of living increase—payments increase by a specified percentage[6] (e.g. 2% or 3%) each year.

Note that the payment option selected affects the level of the benefit, with the life only payment option providing the largest annual income benefit. The other payment options reduce the income benefit because of the various additional guarantees provided. Thus, it is prudent for retirees to consider the tradeoffs among the different payment options.

We refer readers to the American Academy of Actuaries' (Academy's) August 2022 issue brief, "What Are the Various Types of Insured Annuities?," on the various types of insured annuities for details and examples of the payment options (the discussion on payment options resides in the section on SPIAs).

Single Premium Immediate Annuities (SPIAs)

SPIAs provide the purchaser with an income benefit for the rest of their lifetime. As inferred by the name, the payments start immediately. Table 1 below contains illustrative payout rates.

Table 1: Illustrative SPIA Payouts

Payment Option	Payout Rate	Annual Income (assuming $100k premium)
Life only	7.323%	$7,323
Life with 10-year period certain	7.189%	$7,189
Life with cash refund	6.890%	$6,890

Note: payout rates as of June 25, 2024, are sourced from CANNEX, which is a company that provides annuity pricing data to financial institutions, for a buyer who is 65 years old. The payout rates are the average of male and female rates to proxy unisex rates. These are retail payout rates—plan-selected rates would be different (and likely higher) as noted on page 1.

5 The term interest rates refers to both interest rates and credit spreads in the context of annuity pricing.
6 A fixed percentage increase is simpler to administer than using the actual inflation-based adjustment and does not result in an increase that exceeds the 401(a)(9)(J)(i) maximum of 5%.

Within DC plans, SPIAs may be offered as a standalone solution or as part of an integrated solution. In a standalone solution, plan sponsors may offer plan participants a solution that allocates some portion of their retirement plan assets to purchase a SPIA through a group annuity contract. When SPIAs are embedded within an integrated solution, such as a target-date fund or a managed account, plan participants are given the option to use some of their assets to purchase the SPIA at retirement.

A common concern among retirees considering purchasing SPIAs is that the determination of the income payable is based on interest rates at a single point of time—the time of purchase. If a retiree happens to purchase a SPIA when rates are low, a larger lump sum premium would be required to produce the same monthly income as when rates are high. One way to mitigate this risk is to buy a series of deferred income annuities, which are discussed in the next section.

Deferred Income Annuities (DIAs)

The commencement of DIA payments to the purchaser are deferred to some future point in time, sometimes for many years. The probability that the purchaser will be alive to receive the payments is reflected in the payout rate. The longer the deferral period, the larger the amount of income received for the same premium. Benefit amounts and the type of benefit when income starts are often determined at the time of purchase. Benefit streams after income starts are often similar to the SPIA options listed previously. Table 2 offers illustrative payout rates for a deferred-to-65 annuity (with a 10-year period certain payment option) across different ages at purchase.

Table 2: Illustrative DIA Payouts

Age	Payout Rate (Commencing @ Age 65) Life with 10-year period certain
55	11.58%
56	11.06%
57	10.52%
58	10.04%
59	9.50%
60	9.02%
61	8.59%
62	8.17%
63	7.79%
64	7.41%

Note: Payout rates as of June 25, 2024, are sourced from CANNEX. The payout rates are the average of the male and the female rates to proxy unisex rates. These are retail payout rates—plan-selected rates would be different for reasons laid out on page 1. We used a life with a 10-year period certain payout because it is a common option selected by annuitants.

Like with SPIAs, DIAs, when offered within a DC plan, can be included as a standalone option or as part of an integrated solution, such as a target-date fund. Unlike SPIAs, DIAs in the DC market are not typically purchased with a lump-sum premium. Rather, DIA-based solutions are often designed to be funded by the participants over the years leading up to retirement, gradually building up the eventual retirement income benefit payable. Each contribution purchases an income amount that is scheduled to start in the future, around retirement age. The income amount associated with each contribution depends on the interest rates and mortality assumptions at the time the contribution is made, as well as the number of years until payments are scheduled to begin. Conceptually, when payments begin, the payment amount is the weighted average of the payout rate and the corresponding contributions, as illustrated in Table 3.

Table 3: Illustrative DIA Annual Payment Amount Upon Annuitization

Age	Payout Rate	Contribution
55	11.58%	$10,000
56	11.06%	$10,000
57	10.52%	$10,000
58	10.04%	$10,000
59	9.50%	$10,000
60	9.02%	$10,000
61	8.59%	$10,000
62	8.17%	$10,000
63	7.79%	$10,000
64	7.41%	$10,000
Final Payment Amount at Age 65 For Rest of Life		**$9,369 per year**

Note: Using the results in Table 1, annual contributions of $7,673 from age 55 to age 64 would produce an annual benefit at age 65 of $7,189 per year. Hence a lower total cost ($76,730 over 10 years versus $100,000 at age 65) for the same annual benefit from a SPIA if contributions are made over time. But note there is an opportunity cost of paying premiums over 10 years as those premiums could have alternatively been invested. The DIA is providing an implied rate of return over the deferral period to make up for that. Of course, as interest rates, mortality and other assumptions change over time, the results will differ.

Purchasing annuities over a period of time provides dollar cost averaging for the purchase, lessening exposure to movement in interest rates and mortality assumptions at a single point in time, as well as the fluctuations in the market value of the account balance at a single point in time.

Plan-selected DIAs differ from DIAs within the retail annuity market in that plan-selected DIAs often (always, if DIA is included in the plan's Qualified Default Investment Alternative [QDIA]) offer retirement plan participants the ability to sell out of the annuity (i.e., surrender) if they have not commenced income. This is an important feature, since plan sponsors and participants are often concerned about irrevocable products, like most

retail DIAs. However, it should be noted that the costs associated with this feature are reflected in pricing, leading to lower benefits, all else equal. Further, plan-selected DIAs often allow the plan participant to adjust the starting age for income, which is not a standard feature with retail DIAs. Plan-selected DIAs also provide a death benefit during deferral, which may be an optional feature for a retail DIA and is not reflected in Table 3's payout rates.

Qualifying Longevity Annuity Contracts (QLACs)

QLACs are a special type of DIA that can be purchased with funds from a tax-qualified retirement account. The QLAC designation indicates that the annuity is exempt from required minimum distributions (RMDs) until income payments start. QLACs are used to directly address longevity risk, with benefits often starting around age 80 or 85. Since payments are deferred well past retirement, QLACs have to be paired with other investments to generate income before income commencement.

The purchase of a QLAC is generally made at or near retirement. IRS limits, indexed to cost-of-living increases, apply to QLACs. For 2024, the following applied:

- The IRS purchase limit was $200,000 for each individual. This limit applied to any purchase or purchases from employer plans and IRAs. The limit is a lifetime limit, although future purchases could be made for the cost-of-living increases to the IRS limit.
- 85 is the maximum delayed commencement age.
- No stated minimum commencement age exists, although usage is designed for older commencement ages with the ability to defer past RMD age.
- A 25%-of-account-balance limit existed prior to the passage of Secure 2.0. This limit was repealed. Other limits could exist, due to DC plan design by the plan sponsor or insurance company minimum purchase requirements.

Table 4 contains illustrative payout rates for QLACs, assuming a purchase age of 65. They are substantially higher than the SPIA and DIA payouts, because payments are deferred for many years during a period when higher mortality rates are expected. These payout rates are also higher due to the shorter expected payout period.

Table 4: Illustrative QLAC Payouts

Income Starts At…	Payout Rate
78	22.450%
79	25.053%
80	28.175%
81	31.760%
82	36.007%
83	41.079%
84	47.191%
85	54.924%

Note: Payout rates as of June 25, 2024, are sourced from CANNEX. The payout rates are the average of the male and the female rates to proxy unisex rates. These are retail payout rates—plan-selected rates would be different (and likely higher) as noted on p.1. To produce a lifetime income of $7,323 as shown in Table 1, premiums for commencement at age 85 would be $13,333 rather than $100,000 for commencement at age 65.

Like the other income annuities, plan-selected QLACs can be offered as a standalone option (e.g., through a group annuity contract) or as part of an integrated solution. Note, at the time this paper was written, there was at least one target date fund solution in the market using a QLAC as the annuity component.

QLACs are generally regarded very favorably by academics and other researchers. However, the longer deferral period may discourage some plan participants from buying a QLAC. Further, insurers may assume more selection bias when pricing QLACs, compared to other annuities, as those most likely to purchase a QLAC are likely to be healthy participants with higher wealth, two factors which suggest longer life expectancy.

Refer to the Academy's August 2022 issue brief on QLACs, "A Review of Qualifying Longevity Annuity Contacts," for more discussion on the use of QLACs in retirement plans.

Guaranteed Lifetime Withdrawal Benefits

Guaranteed lifetime withdrawal benefits (GLWBs) are insured options that provide payments beginning at a selected retirement age. In contrast to income annuities, the plan participant does not have to give up their account value to start payments. Instead, payments are made directly from the participant's account balance each month, unless the account balance has been depleted, in which case the payments come from the insurer. Conversely, for income annuities, when payments begin, there is no longer an account balance to manage and payments come directly from the insurer. While GLWBs provide more flexibility, they can be perceived as being more complicated and difficult for plan participants to understand. The additional features and flexibility can also make them more costly as compared to a simple SPIA.

GLWB-based solutions use either a variable annuity (VA) or a fixed index annuity (FIA) as an underlying chassis.[7] As such, the GLWB is insurance wrapped around assets within a VA or FIA. With a variable annuity, the participant has an account balance that fluctuates with the performance of the underlying funds, potentially subject to certain minimums and maximums. With a fixed indexed annuity, the rate of return is tied to a market index. The return is typically constrained within certain parameters but is guaranteed to never be negative.

The Academy's issue brief on the types of insured annuities offers more information. There are also other online resources that discuss types of annuities, which may be helpful. A GLWB is typically a "rider" on the underlying VA or FIA. Regardless of the underlying annuity type, the key features of the GLWB are the same.

The payment amount is based on a percentage of the "benefit base" specified by the product. Under some designs, the benefit base is simply equal to the account balance. Other designs offer a "step up," feature also referred to as a "reset" or "ratchet," in which the benefit base stays at the account balance's "high-water mark." In other words, if the account balance decreases due to poor investment returns, the benefit base does not decrease. However, if the account balance increases above its high-water mark, the benefit base is stepped up to the account balance. The step-up typically occurs once a year.

The withdrawal rate, expressed as a percentage of the benefit base, varies by product. For example, the withdrawal rate may be 5% of the benefit base at age 65, if the single life option is selected. This means that the participant can withdraw 5% of the benefit base from their account balance every year for the rest of their lives. If the account balance runs out, the insurer will continue to pay the promised benefits, mitigating longevity risk. Note that the percentage withdrawn is based on the age when withdrawals start and whether the benefits are contingent on one or two lives. If a joint life option is selected and/or payments begin earlier, the payment will be based on a smaller percentage of the benefit base (for example, 4.5% of the benefit base instead of 5%). The withdrawal rates offered can also be sensitive to the interest rate environment.

Payments will continue for the life of the participant, even if the account balance is depleted. If the participant dies before the funds are exhausted, the remaining account balance is paid to the beneficiary or monthly payments may be continued, if a joint life option was selected.

7 Insurance actuaries typically classify VAs and FIAs under a category called "deferred annuities." The commonality among these annuities is that they have an "accumulation" period, and then a "payout" period. Retirement actuaries should note that this language has a very different meaning in a defined benefit pension context, where a "deferred participant" is typically an active or terminated vested participant who has an accrued benefit. Deferred pension benefits are more similar to DIAs, which fall under the "income annuity" category in the insurance world.

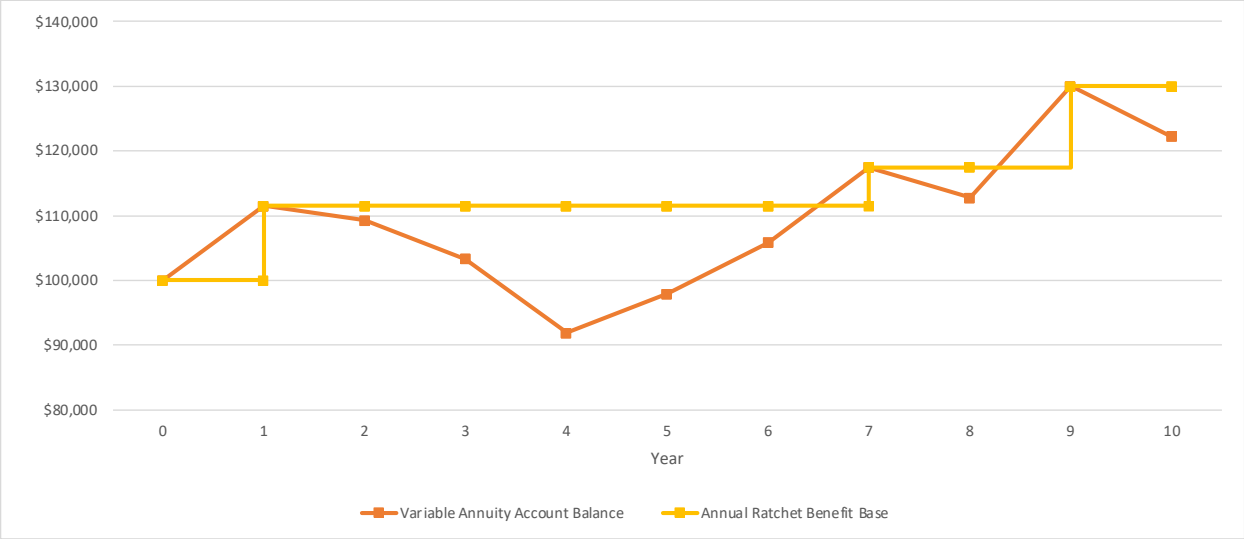
Depending upon the type of GLWB product offered, withdrawals may increase if the account balance at the beginning of the year is greater than the initial benefit base. This could happen if the step-up feature discussed above applies after income commencement.

While participants typically lose liquidity in income annuities after commencement, participants retain access to their funds and can withdraw up to the full account balance with no surrender charges in GLWB offerings. Any partial withdrawal, in excess of the annual income withdrawal, from the account balance will generate a reduction in the benefit base, which in turn would reduce future income payments.

GLWBs may have explicit costs, implicit costs, or both. For products with explicit costs, the GLWB charge is withdrawn from the portion of the participant's account balance that includes the GLWB insurance once the insurance guarantee is in place.[8] Products with implicit costs include the costs in the terms that are offered. In other words, plan participants pay for the product in the form of lower investment returns. Note that investment management fees on the underlying funds may also apply.

Exhibit 1 shows the hypothetical evolution of the benefit base for a GLWB on a variable annuity with an annual reset/step-up/ratchet.

Exhibit 1



Note: Authors chose hypothetical returns to demonstrate how the annual ratchet benefit base feature works. The example assumes that the income guarantee is in place in year 0.

8 Some products allow the participant to wait until retirement to activate the guarantee, but in most cases, the guarantee is activated right away.

Assuming the plan participant commences income payments in year 10 and the payout rate is 5%, the guaranteed withdrawal benefit would be $6,500 per year ($130,000 x 5%).

Like the income annuities, plan-selected GLWBs can be offered as a standalone option or as part of an integrated solution. However, plan-selected GLWB solutions are more commonly integrated with a target-date offering.

Note that plan-selected GLWBs are typically purchased in units over a period of time before retirement. As with DIAs, dollar cost averaging for the purchase lessens exposure to interest rates and other factors at a single point-in-time. That said, GLWB income rates may change less frequently due to the interest rate environment, as other plan features such as fees and resets may be changed instead.

Non-Insured Decumulation Strategies

Non-insured decumulation strategies provide the most flexibility and upside investment potential during both the accumulation and payout phases. However, they do not provide protection from downside investment or longevity risk. Since non-insured decumulation strategies lack risk pooling, a participant can only mitigate longevity risk by choosing a strategy with a conservative payout or by assuming an extended payout period, which may result in a substantial portion of retirement assets being unused at death and therefore left in the individual's estate. The inefficiency of these strategies stems largely from the uncertainty of two key variables: future investment returns and age at death.

That said, non-insured strategies can play a role within an individual's financial plan, especially when a significant portion of the income needed to meet basic spending needs is guaranteed through Social Security, a former employer's defined benefit retirement plan, and/or an insured annuity. Likewise, if an individual is sufficiently wealthy to be able to support their lifestyle without a regular income, a totally noninsured strategy may be appropriate. Moreover, using a noninsured approach might make sense for an individual with a strong bequest motive.

There are many possible non-insured drawdown strategies, but for the scope of this analysis we focus on a few of the more common or straightforward approaches. It is also worth noting that most DC plans do not offer drawdown strategies other than required minimum distributions, payouts for a certain period, or full or partial lump sums. To take advantage of the strategies described below may require the rollover of the plan account balance to an Individual Retirement Account or even the tax disadvantaged step of moving money to a non-retirement investment account.

In this section of the analysis, we will discuss the following in more detail:

- Required Minimum Distributions (RMDs);
- Spread payments over N years (1/N);
- Withdrawal of a fixed percentage of account (e.g. 4%, age divided by 20);
- Spread payments over N years, but with experience adjustments (X % over N years).

For simplicity, we assume that dollars received and taxed under the various approaches discussed here are consumed or spent as received. If the amount received and taxed does not align with an individual's financial needs from year to year, any shortfall would need to be drawn from other accounts or the excess amount would typically be invested in a taxable account or other non-qualified assets. Details on these and other tax strategies, including legacy planning/bequests, are beyond the scope of this paper.

Required Minimum Distribution (RMD) Approach

Under this approach, the participant only withdraws minimum required distributions from their tax-qualified DC account, as required under Federal Tax Law. These RMDs are relatively small when a participant is in their early 70s, but they gradually increase as the individual gets older. Lifetime income is assured since the RMD distribution percentage never requires payment of 100% of the balance in any year. However, the distribution pattern for this approach results in significant backloading which does not align with typical spending patterns in retirement. For those not living to an advanced age, significant funds may remain unused.

Table 5: Illustrative RMD Payouts

Age at RMD Payout	Payout Rate
72	3.650%
73	3.774%
75	4.065%
80	4.950%
85	6.250%
90	8.197%

Notes: Payout rates are based on the Uniform Lifetime Table III from IRS Pub. 590-B (2023). These payout rates apply to unmarried owners, married owners whose spouses aren't more than 10 years younger, and married owners whose spouses aren't the sole beneficiary (other rates may apply in other situations).

This option is a common approach, likely due to its simplicity and because it is the minimum requirement that everyone must meet. Determining how to spend down a retirement nest egg presents a complex mathematical and risk-filled set of decisions. The RMD approach becomes the default for participants who delay and/or avoid making a

decision, as well as those who are fortunate enough to wait**.** Retirement plan sponsors need to consider whether a different option might be better suited as the default and change the plan accordingly or communicate with plan participants highlighting the need to manage payouts from their DC plan assets. Most plan participants have likely spent more time learning to save and invest to build their retirement nest egg than they have thinking about how to draw down their assets efficiently and effectively.

SECURE Act 2.0 allows the amount of the RMD payment to be reduced or offset by the amount of any in-plan annuity payments during the year. This offset to RMDs can provide more flexibility for retirees for tax planning and budgeting purposes.[9]

1/N Approach

This approach requires an initial selection of the time period over which the account will be distributed. For example, an individual might pick 25 years, so a 65-year-old retiree would essentially be assuming they would like this portion of their total savings to be paid out by age 90. In year one of this example, 1/25th of the account will be withdrawn and the remainder will stay invested. In the following year, 1/24th of the new account balance at that time will be withdrawn, and so on. Choosing N to align with one's anticipated average life expectancy might lead to results that are initially similar to the RMD approach, but will eventually lead to much larger distributions towards the end of period N than under the RMD approach. However, unlike the RMD approach, there is a possibility of the individual outliving the income provided by this methodology.

An individual could choose to adjust the time period "N" as they age, to adjust for changes to their retirement accounts, financial needs, and personal health.

This approach is easy to understand and easy to administer. Lifetime income is almost assured if the selected time period (N) is large enough, though choosing a period this long may have some of the same undesirable outcomes associated with the RMD approach, namely the significant probability that funds will be unavailable to the retiree and go unused until they become part of the individual's estate. Under this approach, annual withdrawal amounts will go up if there are positive returns and will go down if there are negative returns. This provides a form of "inflation protection" which many retirees would appreciate. If N is large, this approach is likely to provide a bequest upon the death of the participant (and spouse) for those with legacy planning goals. However, the expected payout pattern of this approach can cause concern for some retirees.

9 Pending IRS regulations, Secure 2.0 provided an improved tax benefit for using annuities in retirement not only due to the reduction to the RMD for annuity payments during the year, but also by reducing the account balance by the premium for any purchases during the year.

Assuming the funds continue to grow with investment returns during retirement, the payout amounts will generally increase over time. For many retirees, the pattern of receiving a relatively small benefit payout early in retirement, followed by increasingly larger distributions later in retirement, may not align with their spending preferences. While this approach is expected to provide some inflation protection, it is not guaranteed due to the uncertainty of investment earnings. In addition, annual withdrawal amounts could decrease for several consecutive years in a depressed economic environment.

Despite its simplicity, one of the biggest disadvantages of this approach is having to choose an appropriate payout period. If N is too small, then the participant has an increased chance of living longer than the duration of the payments. Likewise, if N is too large then the payments will be smaller, and the bequest to heirs may end up being larger than intended. In addition, payments in the early years of retirement, when many participants are healthiest and most able to travel and enjoy other pastimes, may be unduly low. Most participants, including actuaries, may find it difficult to choose an appropriate payout period associated with this approach.

The 4% Rule & Age Divided by Twenty

Under this distribution approach, the initial distribution is set equal to 4% of the account balance at the time payments commence. In each subsequent year, the prior year's distribution is adjusted by a factor equal to the actual increase in the cost of living and that higher amount is then withdrawn. This pattern continues until the funds are exhausted. Note that, depending on investment returns and commencement age, the RMD requirements may ultimately require a larger distribution in some years.

The 4% rule was developed by a financial advisor named William Bengen and published in 1994.[10] Bengen performed a simulation based on historical returns and concluded that even in the worst case scenario and assuming a 30-year time horizon, a 4% withdrawal rate (adjusted for inflation) should be sufficient to ensure that a retiree would not run out of money. In 2021, Morningstar published a paper arguing that the 4% rule should be changed to the 3.3% rule.[11] That Morningstar withdrawal rate was adjusted upward to 3.8% in 2022 and then back up to 4.0% in 2023 as interest rates rose. Morningstar's analysis illustrates that low interest rates may result in retirees running out of money prematurely, if they strictly apply the 4% rule. Conversely, for the average person, the 4% rule may prove to be too conservative, potentially leaving significant funds to their estate. Planning for a long lifetime is prudent, but many retirees may not live as long as they have planned. Thus, the simplicity of the 4% rule may be overshadowed by some of the disadvantages.

10 "Determining Withdrawal Rates Using Historical Data", *Journal of Financial Planning*, October 1994.
11 The paper, "Six Withdrawal Strategies That Stretch Savings," may be downloaded here.

Another disadvantage of the 4% rule is that it does not reflect the age of the retiree at the commencement of distributions. Implied in the 4% rule is the high probability that funds should not run out for at least 30 years if it is followed. That probable payment period may last for the retiree's full lifetime if the first distribution is taken at a later age, such as 75, but an early retiree who takes the first distribution, for example at age 55, will have a higher chance of running out of money later in life.

A variation of the 4% rule is a similar concept known as "Age Divided by Twenty." In this approach, the age at the time of initial distribution is divided by 20 to determine the percentage of the initial account balance that may be "safely" withdrawn initially. For example, if the retiree is age 60 when money is first withdrawn, a "safe" percentage according to this approach would be 3% ((60/20)/100). The initial percentage would not be as high as 4%, unless the initial distribution is taken at age 80. Distributions in subsequent years would reflect inflation or cost-of-living increases to that initial payment in the same manner as the 4% rule.

We note that this formula produces anomalous results at ages outside typical retirement ages (e.g. 55-75). It can also lead to anomalous results for couples with larger differences between their ages. We also note that it is conservative that a 4% initial distribution is not reached until the commencement age is age 80. For retirees looking for less conservatism, "Age Divided by Fifteen" may be a more appropriate formulaic strategy. Under this modification, a 4% withdrawal rate results for a commencement age of 60, while a 5% withdrawal rate applies at commencement age 75.

X% over N years

Under this method, the amount of the distribution is adjusted annually to reflect the higher or lower actual investment return on the outstanding balance relative to an expected return, also known as a "hurdle rate." The initial withdrawal is X% of the initial balance. Subsequent withdrawals are adjusted based on investment earnings in the past year, relative to the hurdle rate. That hurdle rate might be something like 4% or 5% and would typically be set at a level slightly below what the retiree expects to earn during retirement. The specific adjustment mechanics are:

Benefit at time T = (Benefit at time T-1) x (1+ actual return)/(1+ hurdle rate)

If a retiree withdrew $10,000 in the prior year and the account earned 6% with a 4% hurdle rate, the withdrawal for the next year would be:

$$\$10,192 = \$10,000 \times 1.06/1.04$$

The combination of an initial withdrawal rate and a specific hurdle rate will cause the account to be depleted after a specific number of years, regardless of the specific pattern of asset returns. This method allows the retiree to target a specific number of years for payments, but likely with a higher initial withdrawal rate than the simple 1/N approach and provides prudent adjustments (up or down), providing more flexibility than the 4% rule.

Table 6 shows a few sample combinations of initial withdrawal rates and hurdle rates for commencement at age 65, showing the age at which the asset is projected to be depleted.

Table 6: Age at which account balance will be depleted

Initial Withdrawal Rate at age 65			
Hurdle Rate	**6%**	**7%**	**8%**
3%	87	83	80
4%	91	85	81
5%	97	88	83

While this option has attractive features, it is not common. Retirement plan sponsors would need to work with their record keepers if they want to implement this option for participants. While participants could implement this approach on their own, many may find it difficult (both initially and later in life due to potential cognitive decline) to manage this withdrawal strategy for their entire lifetime.

Participants and their advisors will need to carefully weigh the combination of withdrawal rates and hurdle rates. They also need to understand their risk tolerance and investment approach. A reasonable starting point for determining a hurdle rate is generally the annualized rate of return that an individual might expect from income commencement until death. Some individuals may choose a lower hurdle rate, perhaps to account for a more conservative investment position. Alternatively, an individual may select a lower hurdle rate perhaps to anticipate a larger annual increase in the payouts under this strategy.

In most cases, the expected return on investments should equal or exceed the hurdle rate chosen. Otherwise, the individual may experience a decreasing pattern of payments during retirement, or their retirement assets may be depleted more quickly than originally intended. As noted earlier, it is difficult for most people, including actuaries, to accurately predict their life expectancy.

Summary Comparison of Payout Options

The following table presents a high-level comparison of the insured and non-insured options we discussed that are generally offered through employer-sponsored retirement plans.

Features	Product Type			
	Insured Approaches			Non-insured Approaches
	SPIAs	DIAs and QLACs	GLWBs	Systematic Withdrawals
Income guaranteed for life	Yes	Yes	Yes, insurers provide benefits after account balance is depleted	No
Liquidity				
Pre-income commencement	Yes, premium not paid until payout commencement	Usually (for plan-selected DIAs only, not QLACs)	Yes, account balance	
Post-income commencement	No	No	Yes, account balance	
Post-retirement death benefit to heirs	Premium less benefits paid if "cash refund" feature is selected or any remaining "period certain" payments if that feature is selected (both have a "cost" of lower payouts)		Remaining account balance	
Downside protection				
Pre-income commencement	No, in particular, participants are subject to point-in-time interest rate risk, which can be partially mitigated if premium is accumulated over time in a fixed income account that mimics annuity purchase rates	Yes	Yes, as soon as the "benefit base" is established	No, but participants can mitigate downside risk by investing conservatively
Post-income commencement	Yes	Yes	Yes	No
Upside potential				
Pre-income commencement	Yes, premium not paid until payout commencement	No, guaranteed income locked in at time of purchase	Yes, fund returns if the base product is a VA, market index if FIA; insurer may limit upside	Yes
Post-income commencement	No	No	Account value can grow with fund returns (VA) or market index (FIA), and guaranteed lifetime withdrawals under some designs	Yes
Fees	No explicit fee; instead the payout rate reflects the cost to provide the lifetime income guarantee		There is an explicit or implicit product fee/cost (or both) that lowers returns	Investment and administration fees to maintain the account—usually percentage of balance—but generally no fee if participant does their own systematic withdrawal
Simplicity	Easy to understand	Relatively simple	Can be complex	Range from easy to understand to complex

Plan Sponsor Considerations

DC plan design has evolved in recent years to improve participant outcomes based on the premise that employees often look to their employer for guidance on how much to save and how to invest those savings. This has led to the widespread adoption of auto-enrollment, auto-escalation, and QDIA target-date funds. These plan features address the accumulation of retirement assets while a participant is working. There is significantly more progress to be made when it comes to the decumulation phase of retirement.

RMDs often end up as the default decumulation approach for participants who avoid making an alternative decision. As discussed in the RMD section, the resulting payout stream is extremely backloaded, which does not align with typical retirement spending patterns. Plan sponsors could consider providing alternative automatic non-insured payout streams, like the ones discussed above, or insured options.

There are many factors to consider when a plan sponsor is designing options for the decumulation phase, for example:

- Plan sponsor and plan-specific characteristics;
- Plan administration:
    - Whether the plan's recordkeeper can handle the payout option;
    - Portability of payout option for participants that exit the plan;
    - Flexibility to change recordkeepers in the future if necessary;
- For insured options:
    - Fiduciary requirements when selecting an annuity provider, if an insured option is offered, note that SECURE 1.0 did provide a safe harbor for the selection of annuities;
    - Incorporate or coordinate with target date fund investment allocations;
    - Integration of plan-selected annuity with a managed account or target-date fund, and if so, what portion of the DC balance should be allocated towards an annuity;
    - Whether to incorporate the annuity into the plan's QDIA.

Adding a payout option to a DC plan does not guarantee any participants will utilize it. Plan sponsors will likely need to go further to see participation in these options. Just like auto-enrollment and auto-escalation during the accumulation phase, defaulting participants into a payout strategy is one way to boost utilization during the decumulation phase.

But even if it is made the default, providing participants with the education and tools to help them understand the payout options and plan their decumulation phase is necessary to actually improve retirement outcomes. The more complicated the payout strategy the more education that will likely be required.

Public Policy Considerations/Societal Considerations

The United States is experiencing a large number of retirements due to cohorts nearing and reaching age 65. Over 4.1 million Americans will turn age 65 each year through 2027. Access to income options, whether annuities or other payout options, through an employer-sponsored plan is beneficial to plan participants in managing their longevity risk and may provide lower cost options than would be available if purchased on their own. Retirees would benefit from increased longevity literacy[12] and spending guidance as they try to manage having their accumulated balances last for their lifetimes. While Social Security provides lifetime income that is increased for inflation, retirees would benefit from having the option of additional sources of lifetime income to help prevent poverty at older ages when their assets have been depleted.

Public policymakers have recognized the need to address the participant risks in the decumulation phase, as seen by recent legislation such as SECURE 1.0 and SECURE 2.0 which included provisions to encourage plan sponsors to offer insured lifetime income options. Policymakers are continuing to evaluate other ways to encourage/mandate lifetime income solutions in retirement plans such as allowing annuities to be part of a QDIA and including lifetime income options in proposals to mandate retirement plan access.

Other options for uninsured lifetime income options could also be considered by policymakers. One example is a Collective Defined Contribution (CDC) plan. CDC plans are being offered in other countries but are not currently available in the US under ERISA. Additional information about this approach may be found in the Academy's September 2024 issue brief, "Collective Defined Contribution Plans."

The Academy supports policy and educational initiatives that increase the availability of lifetime income options within employer-sponsored DC plans.[13]

12 One such tool is the Actuaries Longevity Illustrator, jointly developed by the American Academy of Actuaries and the Society of Actuaries Research Institute.
13 "Retirement Income Options: in Employer-Sponsored Defined Contribution Plans," (Position Statement), American Academy of Actuaries, October 2017.

Conclusion

In this issue brief we provided an overview of the insured and non-insured options that can be offered through employer-sponsored retirement DC plans. Insured options include income annuity and GLWB solutions, and there are pros and cons to each. We also covered some common non-insured options, including spending RMDs, withdrawing a fixed percentage of the account (e.g., the 4% rule), and two approaches to spread payments over N years.

Insured options can provide valuable guarantees against investment and longevity risk, but they come with costs and limitations. Plan-selected insured options are often more cost-effective and efficient than similar products that plan participants could buy on the retail market. Non-insured options offer more flexibility and upside potential, but retirees may outlive their assets, as these approaches do not provide a guaranteed level of income. The best decumulation strategy for a participant depends on their unique needs and preferences. Plan sponsors can help participants make informed decisions by offering multiple options and providing educational resources.

The Academy encourages policymakers to continue evaluating ways to improve participant access to lifetime income solutions within DC retirement plans.