



# Auto-enrollment's Long-Term Effect on Retirement Saving

Defaults matter: Do auto-features in 401(k) plans lead to better financial outcomes?

November 2019

## KEY INSIGHTS

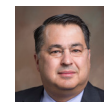
- 401(k) savings plans are increasingly offering auto-enrollment coupled with higher employee default deferral rates.
- Auto-enrollment almost doubles plan participation and successfully gets participants who might not have otherwise saved saving. However, it can also result in participants saving less than those who voluntarily opt in and set their own deferral rate.
- Auto-enrollment combined with auto-escalation creates better participation **and** savings outcomes.

Automatic enrollment in employer-sponsored 401(k) savings plans has transformed the way that millions of Americans save for retirement.

Contrary to common perception, automatic enrollment did not start with the passage of the Pension Protection Act (PPA) in 2006. Rather, it was made possible by Internal Revenue Service Revenue Ruling 98-30 in 1998. This ruling gave employers the ability to automatically enroll employees through a concept called “negative consent,” where, absent objection, employees were automatically enrolled in their company’s 401(k) plan and needed to voluntarily opt out of participating.

## PPA as a Catalyst

Still, the true catalyst for adoption of automatic enrollment was the combination of the existing auto-enrollment safe harbor and model example, the ERISA pre-emption for the election of a Qualified Default Investment Alternative (QDIA) and the safe harbor for Qualified Automatic Contribution Arrangements (QACA) codified in the PPA. The latter provided relief from average deferral percentage (ADP) nondiscrimination rules for plan sponsors who automatically enroll their eligible employees at a minimum of 3% of compensation and achieve a target of 6% within four years; but no greater than 10%. In the 10 years following the PPA, the number of T. Rowe Price clients who implemented auto-enrollment almost doubled from 37% to 73%.



**Joshua Dietch**

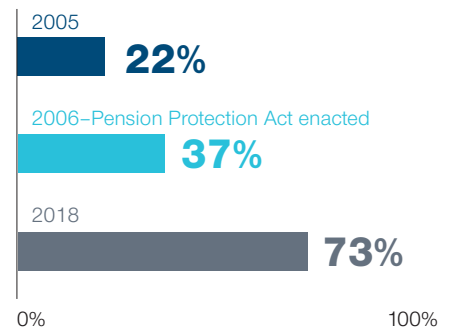
*T. Rowe Price, Vice President, Retirement Thought Leadership*



**Taha Choukhmane, Ph.D.**

*National Bureau of Economic Research (NBER) and MIT Sloan School of Management*

## ✓ Increase of Adoption of Auto-enrollment by 401(k) Plan Sponsors



Source: T. Rowe Price Retirement Plan Services.

Not surprisingly, when the PPA was enacted, the most common default rate was 3% and 61% of T. Rowe Price’s clients who implemented auto-enrollment chose that as their default; likely influenced by Revenue Rulings 98-30 and 2008-8 citing 3% in the rulings model example. Figure 1 shows that number had fallen to 31% by 2018. Moreover, the percentage of clients who are setting their default deferral policy rate at 6% has grown from 4% to 33%—a likely result of some plan sponsors availing themselves to the QACA safe harbor and others simply adopting the model example set forth in the QACA as a best practice.

Defaults play a large role in helping employees achieve financial security in retirement, but are they enough? T. Rowe Price has long professed that the key to achieving financial security in retirement is to save at least 15% of one’s gross income or salary annually, inclusive of both employee and employer contributions.

So where do savers stand? In 2018, T. Rowe Price surveyed 1,000 participants it recordkeeps and asked them: How much **should** you be saving, and how much **are** you saving? Positively,

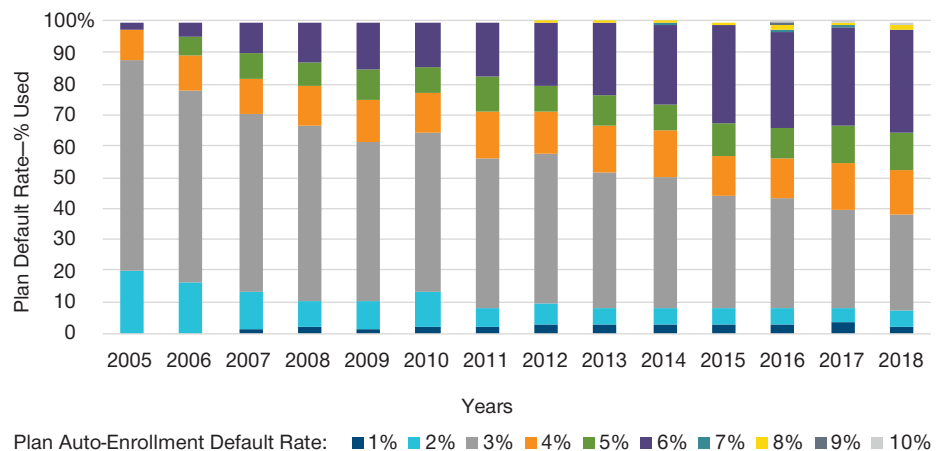
62% said they needed to save at least 15% of their income. However, on average, they are only saving 11% (including employee and employer contributions), which is below the target amount.

So, what can an employer do to help employees save more?

Employers are increasingly being asked to, and as a result, are proactively stepping forward to encourage employees to adopt healthy financial behaviors. However, success isn’t a function of luck. There needs to be intentionality and purpose to achieve a desired outcome. That said, not every employer’s desired outcome is the same. Let’s face it: Employers offer retirement plans for a variety of reasons. Some view it as a means of attracting and retaining talent. Others may view it as a means of creating a more engaged workforce. Or it may be a lever to drive greater corporate profitability. Whatever the combination of factors, there is an implicit acknowledgment that for 401(k) plans to be as effective as possible, the design needs to be reflective of a benefit vision or philosophy. After all, form follows function, or, put another way, the 401(k) plan design is a means to an end.

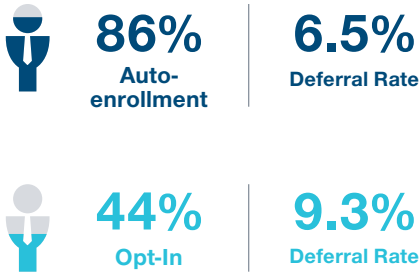
**(Fig. 1) Default Auto-enrollment Contribution Rate in 401(k) Plans**

More employers are raising the amount from 3%



Source: T. Rowe Price Retirement Plan Services.

## Average Employee Participation and Savings Rates



Source: T. Rowe Price Retirement Plan Services.

There is little doubt that plan sponsors have embraced the use of auto-enrollment as a means of creating employee engagement with retirement savings and promoting a healthy financial behavior—saving for retirement. Further, auto-enrollment is clearly an effective means of increasing plan participation. In fact, plan participation for T. Rowe Price-recordkept plans that have adopted auto-enrollment is 86% compared with just 44% for those who had not implemented it.

However, with the good comes an unintended consequence of lower savings rates. Those who were not auto-enrolled deferred almost 3% more of their salary on average (9.3%) compared with those who were auto-enrolled (6.5%). This discrepancy suggests that deferral rates set by the employer could result in an endorsement effect. The employee might infer that the default rate is “safe” and may not think of contributing more.

So, how can plan sponsors optimize both participation and savings?

### New Research Yields New Insights

Recently, Taha Choukhmane, Ph.D., a retirement researcher at the National Bureau of Economic Research (NBER) and MIT Sloan School of Management, used this lens to examine automatic enrollment. He was curious to see if automatic enrollment in a 401(k) plan increases lifetime wealth accumulation and benefits all participants equally. And if so, could that result in plan designs that better reflect the plan sponsor’s desired outcome?

To answer these questions, Dr. Choukhmane analyzed two sets of data. The primary set of data was from 600 firms recordkept by T. Rowe Price that covered 4 million employees over the years 2006–2017. These records yielded insights into savings behaviors resulting from auto-enrollment and opt-in enrollment. A secondary set of data was from the United Kingdom’s (UK) Office of National Statistics on contributions to the National Employment Savings Trust (NEST), the UK defined contribution savings plan. The data track individuals’ enrollment behaviors as they change jobs. Thus, one can observe the effect of auto-enrollment and opt-in enrollment on savings over longer periods of time and across multiple employers.

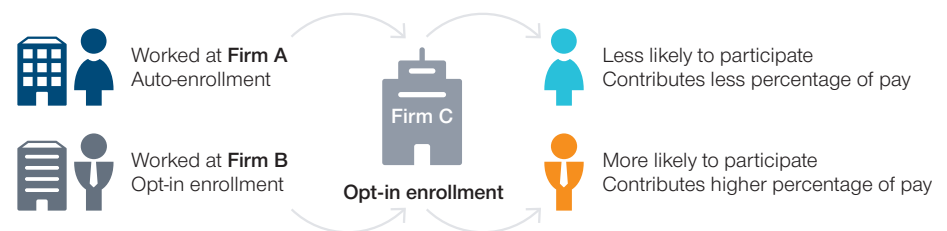
So, what did he learn, and why is it important to plan sponsors?

#### 1. Enrollment Is a Learned Behavior

As the UK implemented NEST, some employers were required to automatically enroll their employees into NEST, but some were not. The data showed that auto-enrollment and opt-in enrollment are learned behaviors. The illustration below explains how experience predictively affects future behavior. Take note: Consistency matters.

The evidence suggests that auto-enrollment alone does not create healthy, long-term financial behaviors. In fact, the opposite is true. Dr. Choukhmane’s research suggests that employees who have experienced auto-enrollment in the past are less likely to join a new plan where the employer does not offer auto-enrollment.

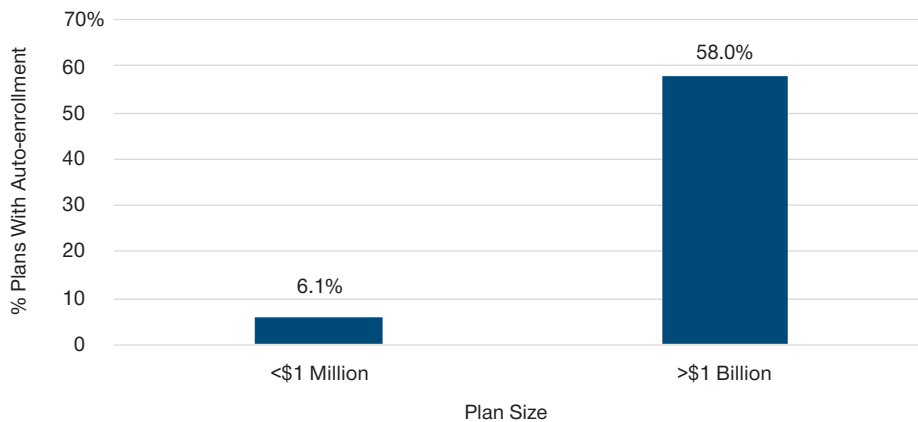
### Enrollment Is a Learned Behavior



Source: NEST data analysis by Taha Choukhmane, Ph.D. (NBER and MIT Sloan School of Management).

## (Fig. 2) Auto-enrollment and Plan Size

Large plans are more likely to offer auto-enrollment



Source: The Cerulli Report: U.S. Retirement Markets 2018.

The research also suggests that the employees who are auto-enrolled run the risk of becoming conditioned to it, and its absence at future employment can result in missed or delayed savings.

This last point not only underscores the need for consistency among employers offering auto-enrollment into their 401(k) plans, but it is a challenge because larger employers are more likely to offer auto-enrollment than smaller ones, as shown in Figure 2. Thus, those who shift employment between firms of different sizes are particularly at risk for adopting this adverse behavior.

The data also point to the paradox of auto-enrollment. Though auto-enrollment is framed as a means to increase savings, the reality is that it is a better means to increase participation. Auto-enrollment suppresses savings compared with opt-in regimes. Dr. Choukhmane explains this by observing that employees intuitively know that they can save more later, a fact borne out in T. Rowe Price's analysis of employee deferral rates. There is a correlation between age and savings rates. What is often omitted is the means to increase savings—auto-escalation.

Both Dr. Choukhmane's and T. Rowe Price's analyses suggest that auto-



## 401(k) Employee Contributions Increase With Age

Age Range	Average Deferral Rate (Rounded)
20-29	6%
60-64	10%

Source: T. Rowe Price Retirement Plan Services.

enrollment is a beginning, not an ending, for creating healthy, long-term financial behaviors among employees. For employees to fully benefit from auto-enrollment, it needs to be combined with auto-escalation. That way, employees can enjoy the benefits of compounding rates of return by saving early in their careers and may be able to avoid the need to save more later in order to compensate for missed opportunity.

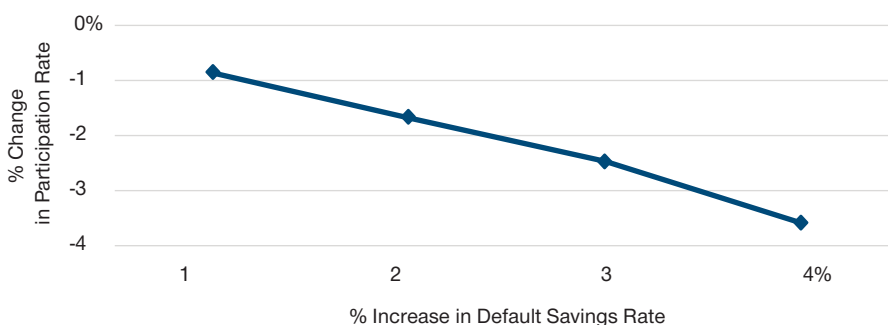
### 2. Higher Defaults Won't Discourage Savings

Employers often ask if participants will opt out if the auto-enrollment default rate is raised. The evidence suggests that is not the case. The analysis of T. Rowe Price's recordkeeping data looked at the effect of employers raising their defaults above 3%. As one can see in Figure 3, there is minimal impact. If the default rate rises by 1%, one could expect the participation rate to fall roughly 1%. Additional increases result in effects of similar magnitude.

While some may be concerned about a slight decrease in participation, the broader context shows that a clear majority of participants benefit from greater savings compared with the relative few that opt out. Further, it's plausible that many of those who opt out do ultimately choose to save within the plan, albeit less than the default rate.

## (Fig. 3) Significance of Raising Default Savings Rates in 401(k) Plans

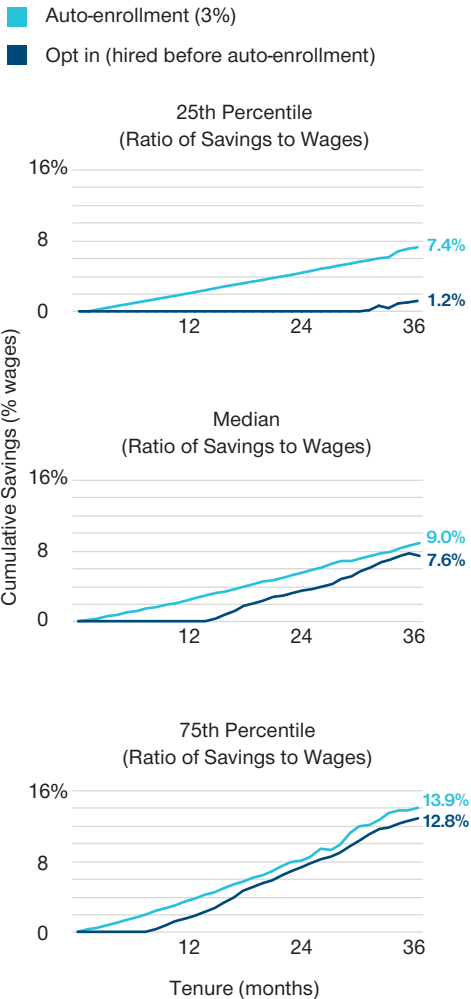
Increasing default savings rate does not dramatically deter participation



Source: Analysis by Taha Choukhmane, Ph.D. (NBER and MIT Sloan School of Management), of T. Rowe Price recordkeeping data representing 600 firms that covered 4 million employees over the years 2006-2017.

### (Fig. 4) Savings Rates: Auto-enrollment vs. Opt in

Auto-enrollment primarily benefits those who would not have otherwise saved



Source: Analysis by Taha Choukhmane, Ph.D. (NBER and MIT Sloan School of Management), of T. Rowe Price recordkeeping data representing 600 firms that covered 4 million employees over the years 2006–2017.

### 3. Auto-enrollment Is a Progressive Benefit

The primary logic behind auto-enrollment is that it encourages saving through what Cass Sunstein and Nobel prize-winning economist Richard Thaler dub “libertarian paternalism”, in their book “Nudge.” In other words, auto-enrollment provides a “nudge” toward saving, but the participant is free to save more, less, or the same if they so choose.

Further, the analysis does not suggest that auto-enrollment lacks utility in either the short or long run. Rather, it points to the notion that its use must be well considered and purposeful in its intent.

Do initial nudges go far enough, or is there more to be done? The answer lies in who ultimately benefits from auto-enrollment and why. Dr. Choukhmane sought to answer this question by segmenting the results by the amount of their savings in relationship to their wages—below the 25th percentile, above the median, and above the 75th percentile (Figure 4).

Dr. Choukhmane’s analysis looked at employers who implemented auto-enrollment at 3%. He looked at the behaviors of employees who had been hired during the 12 months prior to the implementation of auto-enrollment and the behavior of new hires post-implementation of auto-enrollment. The analysis only considers workers who are still employed at the interval measured and their cumulative savings.

What he found was that if not for auto-enrollment, low-wage earners might not otherwise save, and younger employees could potentially enjoy greater benefit

from compounding returns over longer periods of time. The 25th percentile (with largely low-paid and younger employees) consists of the primary beneficiaries of auto-enrollment. Without their employer nudging them to save, they don’t.

Some might argue that by not participating, employees are forgoing saving and tax benefits. However, looking specifically at workers above the median, the effects of auto-enrollment are not significant. As their behavior illustrates, these employees can catch up on their “missed savings,” and they do. As a result, those who voluntarily opt in save at equivalent levels within 36 months of those who were defaulted into their plans.

### The Effects of Auto-enrollment Over a Working Lifetime

We’ve established what happens with saving in the short run. What would be the impact over a lifetime? Unfortunately, we don’t have 40 years of data to analyze to come up with an answer. To solve for this, Dr. Choukhmane created a fully dynamic model that considers:

1. The U.S. retirement environment
  - Characteristics of the U.S. labor market (e.g., job changes, unemployment, etc.)
  - Social Security
  - Taxes
2. Personal preferences and biases
  - Time (e.g., preferring buying something today versus saving to buy something tomorrow)
  - Willingness to take risk
  - Adjustment costs (e.g., changing one’s retirement contribution rate)

### 3. Demography

- Cost of household living
- Longevity

### 4. Decisions

- Nonretirement wealth (e.g., how much to save versus spend)
- Retirement wealth (e.g., how much to save, taking a loan, etc.)

With these parameters identified, the next step was to compare predicted behaviors with the actual behaviors observed in the T. Rowe Price data. Having established that the model is a good fit with actual behavior, the model could then estimate the lifetime impact at varying automatic default contribution rates.

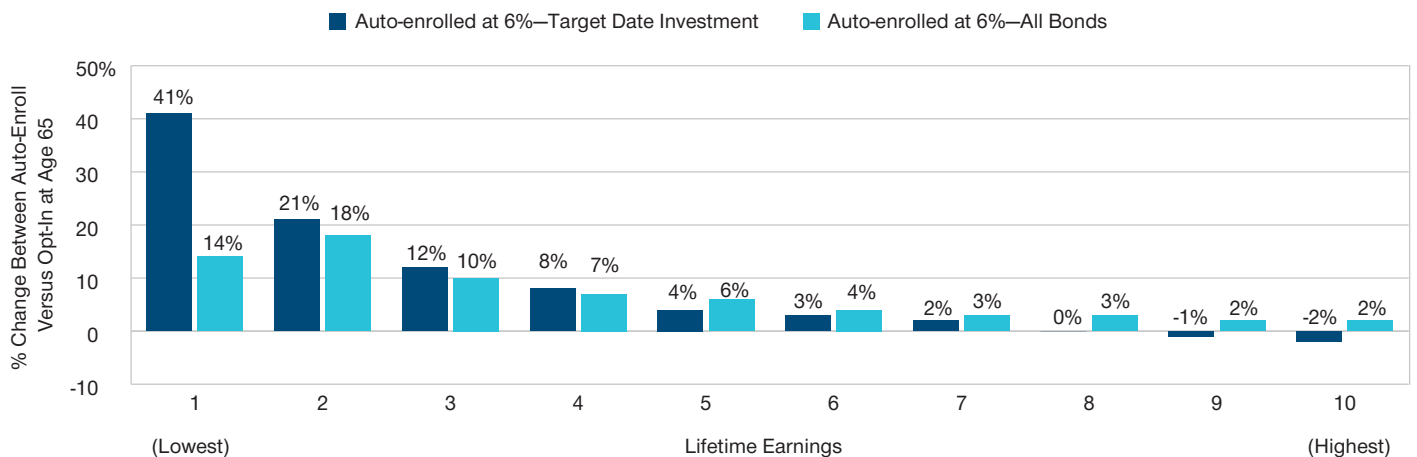
Using the safe harbor 6% default as the baseline, the research estimates the lifetime wealth accumulation compared with those who had to proactively choose their contribution amount (Figure 5). The estimate includes two

scenarios, one where the default is invested in target date investments that replicates the asset allocation target date investments using T. Rowe Price's proprietary glidepath and the other which assumes the nominal yield on government bonds (3%) from 2006–2017.

The analysis shows that both younger and lower-paid workers can benefit from defaults in general, and target date investing, in particular. More specifically, the workers invested in a target date investment could accumulate as much as 41% more in lifetime wealth compared with those who had to proactively opt in to participate in their employer's plan. For higher wage earners, the benefit of auto-enrollment is less significant because those who can afford to save more in the future do. Further, behavioral finance research has shown that high-wage earners may undersave as a negative, yet unintended, consequence of the framing or endorsement resulting from the default rate.

**(Fig. 5) Effect of Auto-enrollment Default Rate and Investment Choice**

Lower wage earners benefit more from auto-enrollment












Each bar corresponds to the model-predicted percentage difference between the sum of retirement and liquid wealth at age 65 under an auto-enrollment policy with an annual rate of 6% of compensation adopted by all employers compared to an opt-in regime with varying savings rates.

Assumptions: The target date investment is represented by a hypothetical index portfolio. The hypothetical portfolio is composed of stocks (as represented by the S&P 500 Index) and U.S. Treasury bonds (assumed riskless rate of return at 3%) which follows the asset allocation of T. Rowe Price's proprietary glide path over the period 2006-2017 (See "Important Information" for glide path allocation). Bond investment in the target date investment and the all-bond 6% auto-enroll is represented by the 3% riskless rate of return over the period 2006-2017.

Source: Analysis and modeling by Taha Choukhmane, Ph.D. (NBER and MIT Sloan School of Management), of T. Rowe Price recordkeeping data representing 600 firms that covered 4 million employees over the years 2006–2017 and T. Rowe Price (glide path).

## Preference, Strategy, and Design Framework

Social Preference	 <b>Utilitarian</b>	 <b>Inequality-Averse</b>	 <b>Paternalistic</b>
Strategy	 <b>Choice</b>	 <b>Incentive</b>	 <b>Social Welfare</b>
Plan Design	 <b>Opt In</b>	 <b>Auto-enroll Below Match Threshold</b>	 <b>Auto-enroll at Match Threshold</b>

### What's a Plan Sponsor to Do?

The challenge employers face is that the 401(k) plan should reflect what's most effective for its participants throughout a working time horizon. The new reality is that unlike our parents' working careers, which were likely with one employer for a long tenure, the median tenure for today's workers is five years.<sup>1</sup> In other words, employment tenures are as unique as individuals' financial situations. Moreover, employers must consider their social preferences (e.g., benefits philosophy), the strategy they want to use to reflect those social preferences, and the plan design alternatives available to achieve their intentions.

Providing a 401(k) plan is not a one-size-fits-all solution. For example, an employer may want to spend their match dollars on longer-tenured and older employees. Because we know that younger workers are less likely to participate and save less than older workers, the matching contributions naturally skew and benefit older, often longer-tenured, or higher-paid employees. Though younger, lower-paid employees are seemingly forgoing these benefits, we also know that savings forgone today can be made up later. Thus, one could conclude that an opt-in policy is preferable.

In contrast, an employer could feel very strongly about the long-term social welfare of its employees and set an

aggressive auto-enrollment policy default rate with a maximum matching formula at the default rate. This plan design is a paternalistic intervention intended to benefit employees who otherwise would not save, and it provides a strong incentive for them to continue to save once automatically enrolled.

Naturally, there is a middle ground where employers can still set aggressive defaults while encouraging employees to save above the default rate so that they can receive the maximum employer match.

### Solutions Using Plan Design

Dr. Choukhmane's research sheds new light not only on employee behavior, but also on the options plan sponsors have at their disposal to maximize the efficacy of their retirement plan designs. There is an optimal balance that can be met by carefully considering the outcomes desired, budget parameters, and what is known about employee behavior.

One must consider the purpose and intention when evaluating plan design features. There are a great number of ways that automatic features can be implemented—be it auto-enrollment or other variations such as:

- **Auto-reenrollment:** Reenroll for participants who opted not to participate in their plan. This is run on demand and could occur about once a year.

<sup>1</sup> Copeland, Craig. "Trends in Employee Tenure, 1983-2018," EBRI Brief No. 474. Employee Benefit Research Institute, February 28, 2019.

- **Auto-increase:** Increases a participant's deferral rate each year coinciding with an annual event, such as an employment anniversary or salary increase. It can be implemented on an opt-in or, preferably, on an opt-out basis.
- **Auto-boost:** Increases participant savings rates for those employees saving below the default savings rate or up to the maximum matching contribution level.

The field of behavioral economics has produced many new insights that are proving helpful in getting people to save more for retirement. What this research

ultimately demonstrates is that there is no single solution to increase both participation and savings. Rather, it is the combination of design approaches, such as auto-enrollment, auto-escalation, reenrollment, etc., that can lead to optimal results.

For many, retirement is a long way off on the horizon. For others, it is just around the corner. Plan design is a means to an end and should reflect the unique needs of the constituencies it serves at a point in time, as well as over time.

#### ABOUT THE AUTHORS

**Joshua Dietch** is a vice president of T. Rowe Price Associates, Inc., and the group manager of Retirement Thought Leadership. He joined T. Rowe Price in 2017 and is responsible for leading a team of researchers and writers who create retirement thought leadership.

**Taha Choukhmane, Ph.D.**, is a postdoctoral fellow at the National Bureau of Economic Research in 2019–2020 and will join the MIT Sloan School of Management as an assistant professor of finance in fall 2020. His research focuses on household finance, behavioral economics, and public economics.



## INVEST WITH CONFIDENCE®

T. Rowe Price focuses on delivering investment management excellence that investors can rely on—now and over the long term. To learn more, please visit [troweprice.com](http://troweprice.com).

# T.RowePrice®

### Important Information

This material is provided for general and educational purposes only and is not intended to provide legal, tax, or investment advice. This material does not provide fiduciary recommendations concerning investments; it is not individualized to the needs of any specific benefit plan or retirement investor, nor is it intended to serve as the primary basis for investment decision-making.

Informations and opinions presented have been obtained or derived from sources believed to be reliable and current; however, we cannot guarantee the sources' accuracy or completeness.

The views contained herein are those of the authors as of October 2019 and are subject to change without notice; these views may differ from those of other T. Rowe Price associates.

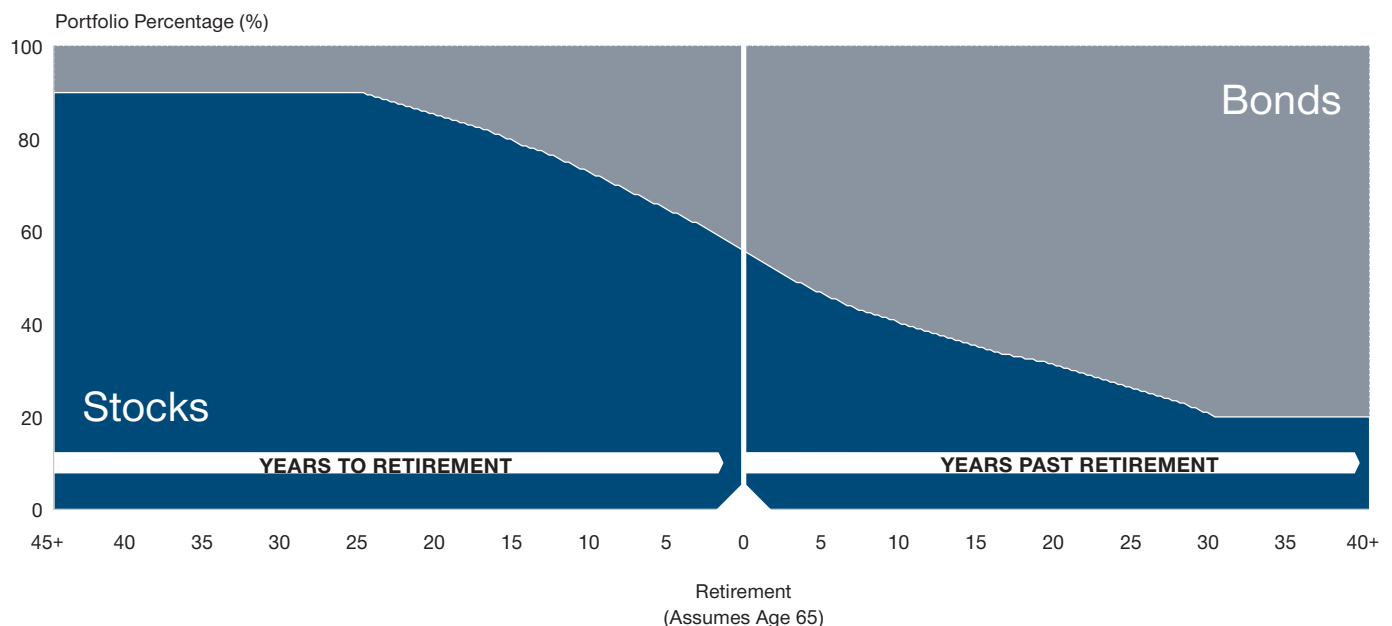
All investments involve risk. All charts and tables are shown for illustrative purposes only.

T. Rowe Price Investment Services, Inc., Distributor.

© 2019 T. Rowe Price. All rights reserved. T. Rowe Price, INVEST WITH CONFIDENCE, and the Bighorn Sheep design are, collectively and/or apart, trademarks of T. Rowe Price Group, Inc.

## Glidepath for T. Rowe Price Retirement Funds

Change in Equity and Fixed Income Exposure Over Time



Source: T. Rowe Price proprietary retirement glide path.