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Automatic enrollment: The power of the default

Vanguard Research

February 2018

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- The default decisions made by defined contribution (DC) plan sponsors under automatic enrollment have a powerful influence on participant saving and investment behavior. Among new hires, participation rates nearly double to 93% under automatic enrollment, compared with 47% under voluntary enrollment. Over time, 8 in 10 participants increase their contribution rates, either automatically or on their own, while three-quarters of participants remain exclusively invested in the default investment fund.

- Plan sponsors can use the inertia inherent in participant retirement savings decisions to improve retirement outcomes in DC plans. Strategies include increasing minimum default contribution rates, including an automatic increase feature with a cap of at least 10%, and periodically "sweeping" eligible nonparticipants into the default design.

Introduction

Automatic enrollment is now a well-known strategy. Eligible employees are automatically enrolled in a DC plan at a given contribution rate, with the right to opt out of the arrangement at any time. Automatic enrollment is a pivotal strategy to improve retirement outcomes in DC plans in the United States and around the world.

In this report, we provide updated statistics drawn from Vanguard recordkeeping data of the effects of automatic enrollment on participants' saving and investing behaviors. Our study is based on 590,444 newly hired eligible employees in 473 plans **(Figure 1)**. Our data sample consists of newly eligible employees who were hired between January 1, 2014, and December 31, 2016, and who were still employed by the plan sponsor as of June 30, 2017.[1] The maximum time period of our analysis therefore spans 42 months, or 3½ years.

We examine the effects of automatic enrollment on new hires because it is the most common way that the feature is first introduced into DC plans. Participants in the sample are younger, have shorter tenure (an average of about one year), and have median account balances of approximately $7,000. Our sample includes automatic enrollment plans with no annual increase feature and those with such a feature. Participants in plans with an annual increase feature have lower account balances than those in voluntary enrollment plans or in automatic enrollment plans with no increase feature. Participants in voluntary enrollment plans have lower wages than participants in automatic enrollment plans.

Among all plans with an automatic enrollment feature in our sample, three-quarters have implemented automatic enrollment with the automatic annual increases, and one-quarter have no automatic increases **(Figure 2)**. However, 8 in 10 of the plans with no automatic increases permit participants to voluntarily sign up for them. All of the plans in our sample selected a balanced investment strategy as the default investment, with 99% choosing target-date funds.

Figure 1. Study sample

As of June 30, 2017

		Automatic enrollment plans			
	Voluntary enrollment plans	With an annual increase	With no annual increase	All	Total
Number of plans	*196*	*211*	*66*	*277*	*473*
Number of eligible employees hired between January 1, 2014, and December 31, 2016	*274,962*	*253,116*	*62,366*	*315,482*	*590,444*
Number of eligible employees hired between January 1, 2014, and December 31, 2016, and active as of June 30, 2017	*160,888*	*148,060*	*38,404*	*186,464*	*347,352*
Participation rate	47%	93%	91%	93%	72%
Participant demographic characteristics					
Median participant account balance	$7,735	$6,655	$7,674	$6,875	$7,108
Median employee income	$33,050	$38,808	$48,784	$40,693	$37,262
Median employee age	32.0	34.0	34.0	34.0	33.0
Median employee tenure	0.9	0.8	0.8	0.8	0.8
Percentage male	64%	61%	56%	60%	62%

Source: Vanguard, 2018.

1 We are examining a subset of the 4.2 million participants on our platform in plans for which we have completed compliance testing in 2014, 2015, and 2016. In addition, we limit our sample to those plans where we also provide payroll deferral rate tracking. We also limit each plan's eligible population to 5% of our study sample in order to prevent these plans from skewing our results. Two plans were subjected to the 5% random sample limit, and approximately 944,000 eligible employees from these organizations have been excluded from our analysis.

Figure 2. Automatic enrollment plan features

As of December 31, 2016

	Automatic enrollment plans		
	With an annual increase	With no annual increase	All
Number of plans	*211*	*66*	*277*
Default percentage for automatic enrollment			
1 percent	0%	2%	<0.5%
2 percent	5%	4%	5%
3 percent	46%	29%	42%
4 percent	20%	11%	18%
5 percent	11%	15%	12%
6 percent	18%	38%	23%
7 percent	0%	1%	<0.5%
Total	100%	100%	100%
Default for automatic increases			
1 percent	97%		
2 percent	3%		
Voluntary election		83%	
Feature not available		17%	
Total	100%	100%	
Default fund			
Target-date fund	99%	98%	99%
Other balanced fund	1%	2%	1%
Total	100%	100%	100%
Automatic enrollment plan implementation			
New hires only	30%	41%	32%
Swept all nonparticipants	70%	59%	68%
Total	100%	100%	100%
Eligibility for elective employee contributions			
Immediate	81%	85%	82%
1 month	6%	5%	6%
2–3 months	9%	8%	8%
4–6 months	2%	1%	2%
1 year	2%	1%	2%
Total	100%	100%	100%
Eligibility for employer match			
Number of plans with employer match	*194*	*60*	*254*
Immediate	69%	70%	69%
1 month	5%	5%	5%
2–3 months	8%	3%	7%
4–6 months	3%	7%	4%
1 year	15%	15%	15%
Total	100%	100%	100%

Source: Vanguard, 2018.

Two-thirds of plans implementing automatic enrollment without annual increases default participants to a deferral rate of 4% or higher. Half of plans implementing automatic enrollment with annual increases default participants to a deferral rate of 3% or less—but these plans do increase the deferral rate annually, typically by 1 percentage point per year.

Among plans with automatic enrollment and annual increases, 4 in 10 cap the annual increase at 10% **(Figure 3)**. One-quarter of plans have a cap between 12% and 25%. Four percent of plans have no cap—likely an error. We recommend plan sponsors set the cap at a level where participants are saving 12% to 15% or more, factoring in employer contributions.

One-third of the plans implementing automatic enrollment applied the feature to new hires only. Two-thirds of the plans in our sample did sweep existing nonparticipants, either at the time automatic enrollment was implemented or at a later date. Our analysis focuses exclusively on the new-hire effects.

Interpreting our results

Throughout this report, we present results in two ways. The "average over the entire period" results are average results for the 2014–2016 period reported as of June 30, 2017. Because new hires in our sample enter the data set each month throughout this period, this "average period" statistic is the equivalent of reporting results after approximately 21 months.

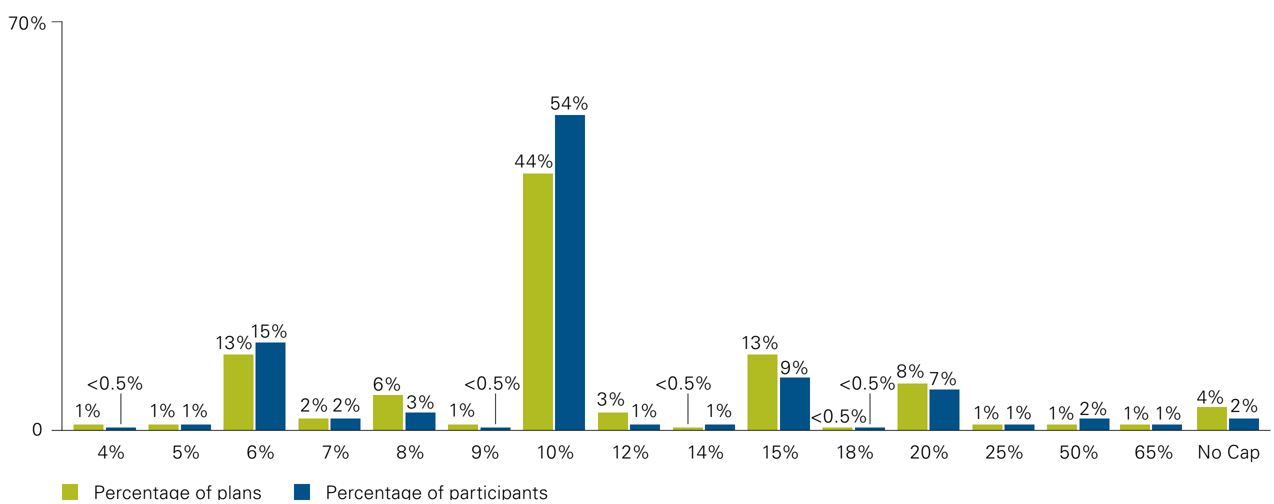
We also report on results after a given calendar time period has passed, such as one, two, or three years. Each of these time-period statistics represents an average of multiple overlapping periods. For example, the results for "after one year" are an average of many different one-year periods: employees hired in January 2014 and evaluated in January 2015, those hired in February 2014 and evaluated in February 2015, and so on through the June 2016 to June 2017 group of new hires. Two- and three-year periods are structured in a similar way. There are 30 distinct groups of new hires in the one-year period, 18 for the two-year periods, and 6 for the three-year periods.

Participation rates

Automatic enrollment nearly doubles participation rates among new hires. Over the entire period of our study, the participation rate for new hires was 93% under automatic enrollment versus 47% under voluntary enrollment **(Figure 4)**. After three years, 93% of participants hired under automatic enrollment were still participating versus 62% of participants under voluntary enrollment who had chosen to join the plan.

Figure 3. Automatic increase plan caps

Automatic enrollment plans with an automatic annual increase as of December 31, 2016



Source: Vanguard, 2018.

Automatic enrollment raises plan participation rates most dramatically among young and low-income workers, groups for whom participation rates are traditionally very low under voluntary enrollment designs **(Figure 5)**. Employees earning less than $30,000 had a participation rate of 88% under automatic enrollment versus 18% under voluntary enrollment. Similarly, 9 of every 10 employees younger than 25 were plan participants under automatic enrollment, versus 3 in 10 under voluntary enrollment.

Figure 4. Participation rates and automatic enrollment

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

		Point-in-time results after:		
	Average over entire period	1 year	2 years	3 years
Number of eligible employees	*347,352*	*273,931*	*139,197*	*35,290*
Plan participation rates				
Voluntary enrollment	47%	44%	51%	62%
Automatic enrollment all	93%	92%	92%	93%
Automatic enrollment with no annual increase	91%	89%	89%	91%
Automatic enrollment with an annual increase	93%	92%	93%	93%

Source: Vanguard, 2018.

Figure 5. Participation rates by employee demographics over period

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

	Voluntary enrollment	Automatic enrollment	Total
Number of eligible employees	*160,888*	*186,464*	*347,352*
Overall	47%	93%	72%
Income			
<$30,000	18%	88%	49%
$30,000–$49,999	47%	92%	73%
$50,000–$74,999	59%	94%	79%
$75,000–$99,999	71%	95%	85%
$100,000+	79%	96%	89%
Age			
<25	30%	91%	58%
25–34	48%	93%	73%
35–44	53%	93%	75%
45–54	55%	93%	77%
55–64	55%	94%	76%
65+	39%	86%	61%
Gender			
Male	45%	93%	69%
Female	47%	93%	74%

Source: Vanguard, 2018.

Although the effects are strongest for these demographic groups, even the affluent benefit from automatic enrollment. Among those earning more than $100,000 a year, new-hire participation rates are also higher under automatic enrollment than voluntary enrollment.

Does plan design—specifically, the initial contribution rate—influence the likelihood an employee will quit an automatic enrollment plan? Intuitively we might expect that plans with initial contribution rates of 2% or 3% would see fewer employees quitting the plan, given that these lower contributions have little impact on take-home pay. Conversely, we might think that contribution rates of 5% or 6% would lead to a higher opt-out rate because of their larger impact.

Our results suggest that employee quit rates do not appear to vary in response to a plan sponsor's choice of the initial contribution rate **(Figure 6)**. The participation rate among employees earning less than $30,000 is around 85%—regardless of whether the initial contribution rate is 2% or 6%.

The effects of time vary depending on the type of plan design **(Figure 7)**. With voluntary enrollment, there is a slight tendency for plan participation rates to rise with time. After three years, the average participation rate under voluntary enrollment is 62%, up from 43% initially. Meanwhile, participation rates stay quite high among automatic enrollment plans, remaining steady at 93% after the first six months and 93% after three years.

Figure 6. Opt-out rates by plan design over period

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

	Hired under automatic enrollment		
	All	Income <$30,000	Age 25–34
Number of eligible employees	*187,016*	*39,700*	*67,418*
Aggregate	7%	12%	7%
Default percentage for automatic enrollment			
1 percent	*	*	*
2 percent	7%	16%	6%
3 percent	7%	10%	7%
4 percent	8%	12%	7%
5 percent	8%	16%	8%
6 percent	7%	18%	8%
7 percent	*	*	*
Value of employer match as a percentage of wages			
0 percent	14%	34%	11%
Greater than 0 but less than 3 percent	7%	10%	6%
3 to 3.9 percent	7%	11%	6%
4 to 4.9 percent	7%	13%	8%
5 percent or more	8%	14%	8%
Type of employer contributions			
Matching only	6%	10%	6%
Match plus other employer contribution	8%	14%	8%
Other employer contribution only	10%	16%	9%
No employer contribution	*	*	*

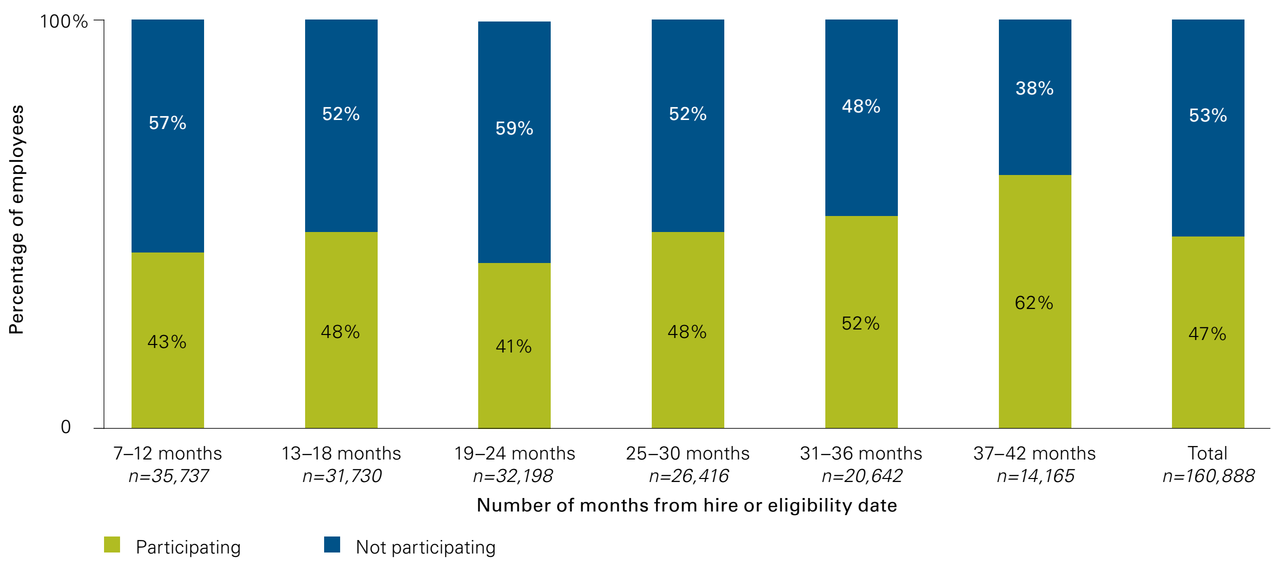
* Cells with fewer than five plans are omitted.

Source: Vanguard, 2018.

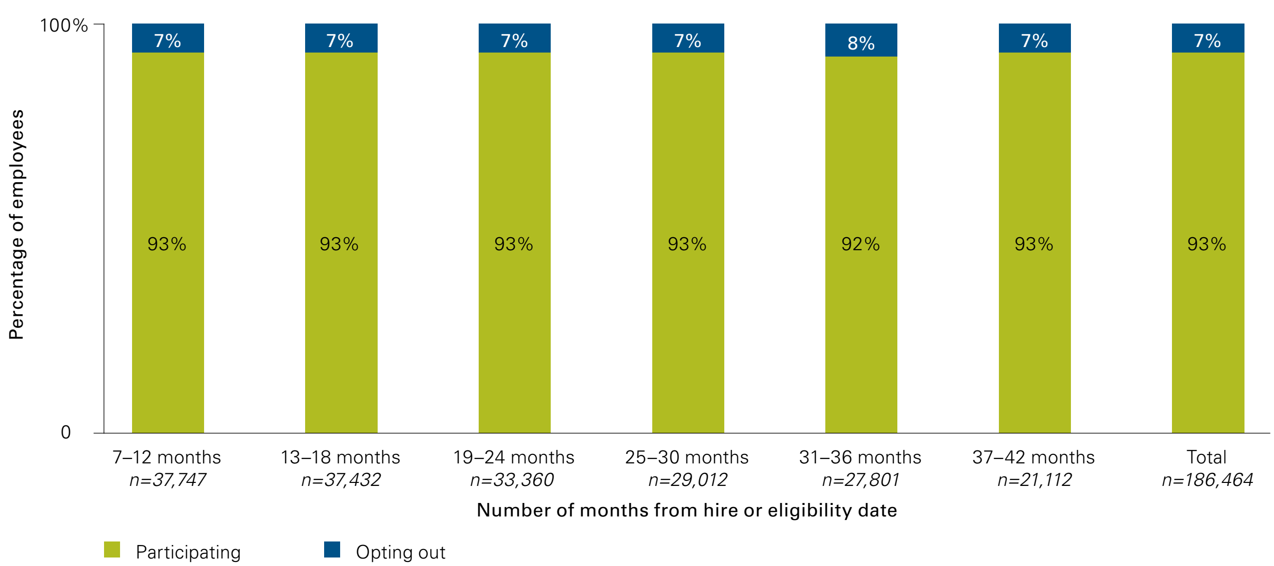
Figure 7. Participation rates over time

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

A. Voluntary enrollment



B. Automatic enrollment all



Source: Vanguard, 2018.

In these participation rates for new hires, it is important to remember that we are reporting only on those eligible employees who remain with the employer. Among new hires, employee turnover rates are quite high (**Figure 8**). Over our sample period, approximately 40% of eligible employees have left the sample because of job change.[2]

Contribution rates

We next consider the effects of automatic enrollment on plan contribution rates over time.

In automatic enrollment plans with no increase feature, the fraction of participants who remain at the default contribution rate set by the employer declines over time—from 56% after 12 months to 37% after three years (**Figure 9, Panel B**). Four in 10 participants have chosen to override the employer's default and raise contribution rates after three years, and another 16% have chosen to override the employer's default, raise their contribution rate, and sign up for a contribution rate increase. In total, around 9 in 10 eligible participants after three years remain at the default deferral rate or higher.

A more complex dynamic is at work in automatic enrollment plans with an increase feature. Participants may choose to raise or lower their contribution rate while ending or continuing the automatic increase feature. Within three years, half of participants remain in the original automatic plan design, including the automatic increase feature (**Figure 9, Panel A**). Another 14% have increased their contribution rate while retaining the increase feature, for a total of two-thirds retaining the automatic increase feature. Another quarter have boosted contributions while dropping the feature. So while half remain in the original deferral rate design, 9 in 10 participants have taken some action that leaves deferral rates above the initial default design.

Figure 8. Employee turnover rates

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

		Point-in-time results after:		
	Average over entire period	1 year	2 years	3 years
Voluntary enrollment	41%	31%	45%	54%
Automatic enrollment all	41%	28%	42%	51%
Automatic enrollment with no annual increase	38%	25%	43%	55%
Automatic enrollment with an annual increase	42%	28%	42%	50%

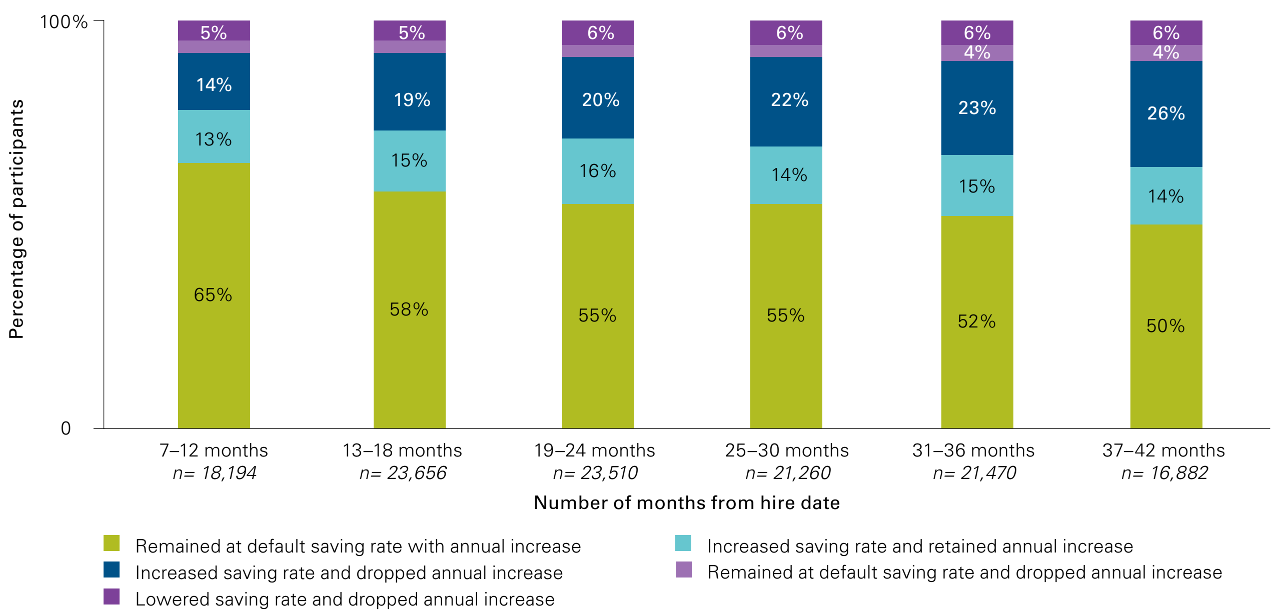
Source: Vanguard, 2018.

2 Most job changes are a result of individual employees changing employers. However, a small fraction includes the sale of a division by an employer.

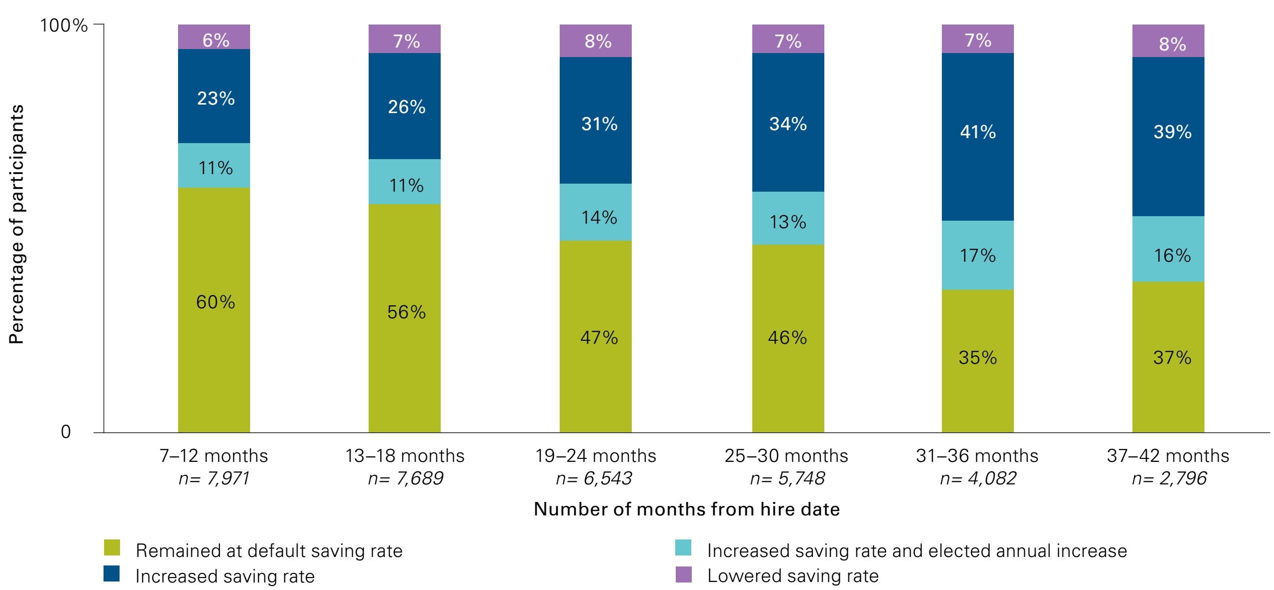
Figure 9. Participant contribution rates under automatic enrollment over time

Participants hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

A. Automatic enrollment with an annual increase
n=138,425



B. Automatic enrollment with no annual increase
n=34,829



Source: Vanguard, 2018.

However, participants who override the default behave similarly, whether in plans with or without automatic increases. Participants who increase their deferral rate and do not use automatic increase achieve a deferral rate of about 9% **(Figure 10)**. Those who increase their deferral rate and retain the automatic increase achieve a rate of about 12% after three years.

Employee versus participant contributions

Default contribution rates do tend to be somewhat sticky, though less enduring than the overall effect of defaults on participation rates. One criticism of automatic enrollment is that because employers set contribution rates at too low a level, participants who would have voluntarily enrolled at a higher level instead remain at a reduced contribution rate.

Figure 10. Participant average contribution rates under automatic enrollment over time

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

A. Automatic enrollment with an annual increase
n=138,425

	7–12 months	13–18 months	19–24 months	25–30 months	31–36 months	37–42 months	Total
Lowered saving rate and dropped annual increase	2.2%	2.4%	2.6%	2.6%	2.5%	2.5%	2.4%
Remained at default saving rate and dropped annual increase	4.3%	4.4%	4.3%	4.6%	4.5%	4.5%	4.4%
Increased saving rate and dropped annual increase	9.1%	9.0%	9.1%	9.1%	9.2%	9.4%	9.1%
Increased saving rate and retained annual increase	8.8%	9.5%	9.6%	10.4%	10.7%	11.8%	10.0%
Remained at default saving rate with annual increase	4.2%	4.6%	5.0%	5.4%	5.7%	6.1%	5.0%

B. Automatic enrollment with no annual increase
n=34,829

	7–12 months	13–18 months	19–24 months	25–30 months	31–36 months	37–42 months	Total
Lowered saving rate	2.7%	2.8%	3.0%	2.8%	2.9%	2.8%	2.8%
Increased saving rate	8.6%	8.7%	8.7%	8.9%	8.5%	8.6%	8.7%
Increased saving rate and elected annual increase	8.1%	8.4%	8.4%	9.1%	9.1%	9.0%	8.5%
Remained at default saving rate	4.2%	4.4%	4.4%	4.7%	4.9%	4.9%	4.5%

Source: Vanguard, 2018.

Although this may be true for individual participants, in the aggregate, automatic enrollment still raises total contribution levels. In our sample, it is true that the average participant contribution rate for new hires in voluntary plans is slightly higher, at 6.3%, than the 6.0% rate for those in automatic enrollment plans **(Figure 11)**. However, as plan sponsors adopt stronger defaults, these rates have begun to converge. We also calculate contribution rates for the entire employee population—which includes both the contributing participants and the nonparticipants contributing at 0%. When these zero-contributing employees are included, voluntary enrollment yields much lower contribution rates than automatic enrollment—3.0% versus 5.6% over the three-year period.

Figure 11. Contribution rates and automatic enrollment

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

		Point-in-time results after:		
	Average over entire period	1 year	2 years	3 years
Annual increase feature				
n =	*124,972*	*109,978*	*59,278*	*16,812*
Remained in annual increase feature with no changes	52%	53%	50%	46%
Remained in annual increase feature with an increase in deferral rate	16%	13%	15%	18%
Remained in annual increase feature with a decrease in deferral rate	3%	4%	3%	2%
Opted out with an increase in contribution rate	22%	22%	24%	26%
Opted out with no contribution rate changes	3%	5%	4%	4%
Opted out with a decrease in contribution rate	3%	3%	4%	4%
Average participant contribution rates				
n =	*243,875*	*240,089*	*115,251*	*28,868*
Voluntary enrollment	6.3%	5.8%	6.2%	6.7%
Automatic enrollment all	6.0%	5.2%	6.0%	6.7%
Automatic enrollment with no increase	5.7%	5.3%	5.7%	5.8%
Automatic enrollment with an increase	6.1%	5.2%	6.1%	6.9%
Average employee contribution rates				
n =	*347,352*	*346,366*	*155,980*	*36,423*
Voluntary enrollment	3.0%	2.5%	3.2%	4.0%
Automatic enrollment all	5.6%	4.7%	5.5%	6.2%
Automatic enrollment with no increase	5.1%	4.6%	5.0%	5.3%
Automatic enrollment with an increase	5.7%	4.7%	5.6%	6.3%

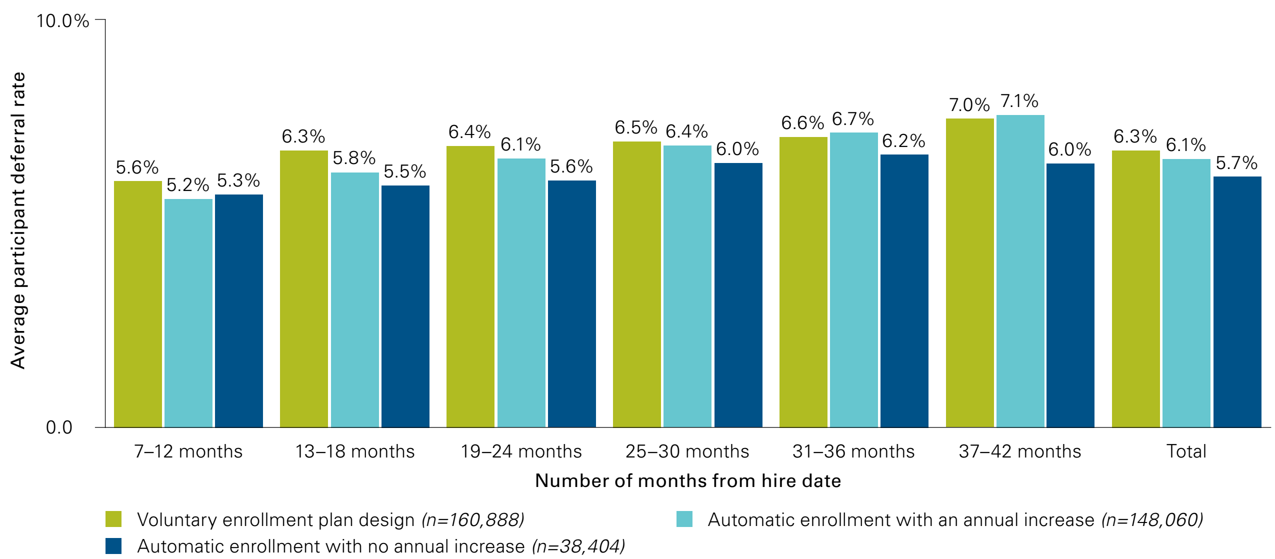
Source: Vanguard, 2018.

Over time, contribution rates rise among voluntary enrollment participants and participants automatically enrolled with an automatic increase (**Figure 12**). The same is true of the entire employee population, including zero-contributors. Most notable is the fact that among all eligible employees, automatic enrollment plus an automatic increase feature lead to higher employee contributions over time.

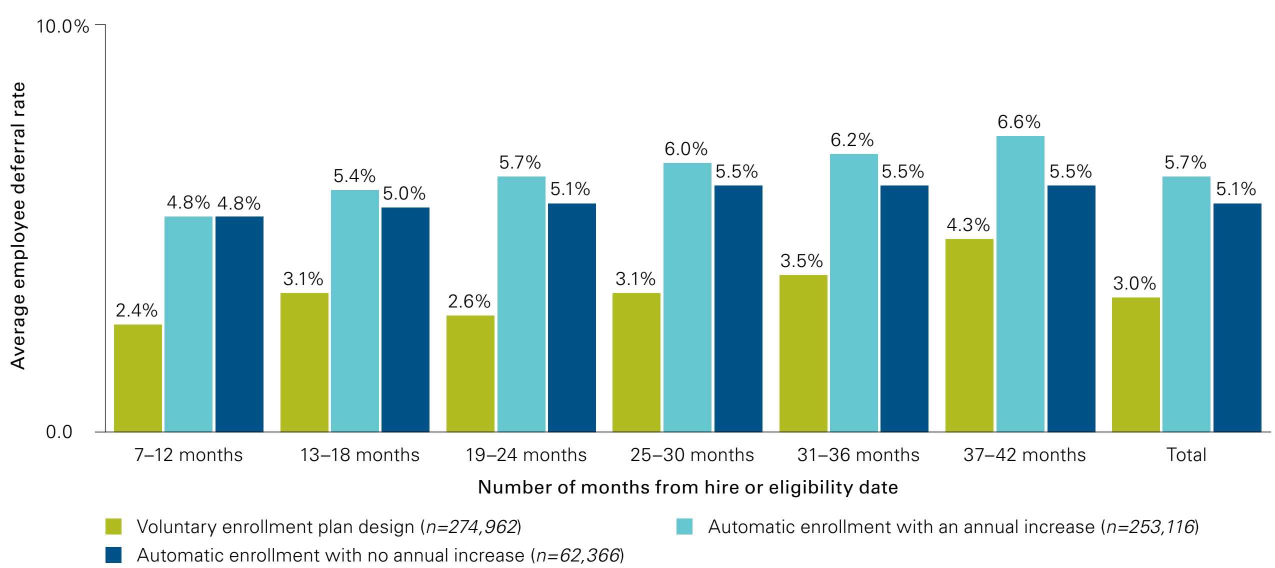
Figure 12. Employee average contribution rates over time

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

A. Plan participants



B. Eligible employees



Source: Vanguard, 2018.

Default investment fund

Finally, we turn to the impact of automatic enrollment on investment behavior. Averaged over our entire study period, participants in automatic enrollment plans are up to three times more likely to remain in the default investment option designated by the employer—84% of participants under automatic enrollment remain 100% invested in the default option, versus 63% of participants under voluntary enrollment who happen to have chosen to invest their entire account in the designated default **(Figure 13)**.

Figure 13. Default fund option and automatic enrollment

Employees hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

Employee elective sources only

	Average over entire period	Point-in-time results after: 1 year	2 years	3 years
n =	*249,328*	*241,487*	*116,267*	*29,158*
Voluntary enrollment				
100% in default option	63%	66%	62%	55%
Automatic enrollment				
100% in default option	84%	86%	82%	77%
Partial investment in default option	12%	10%	13%	17%
100% opt-out of default option	4%	4%	5%	6%

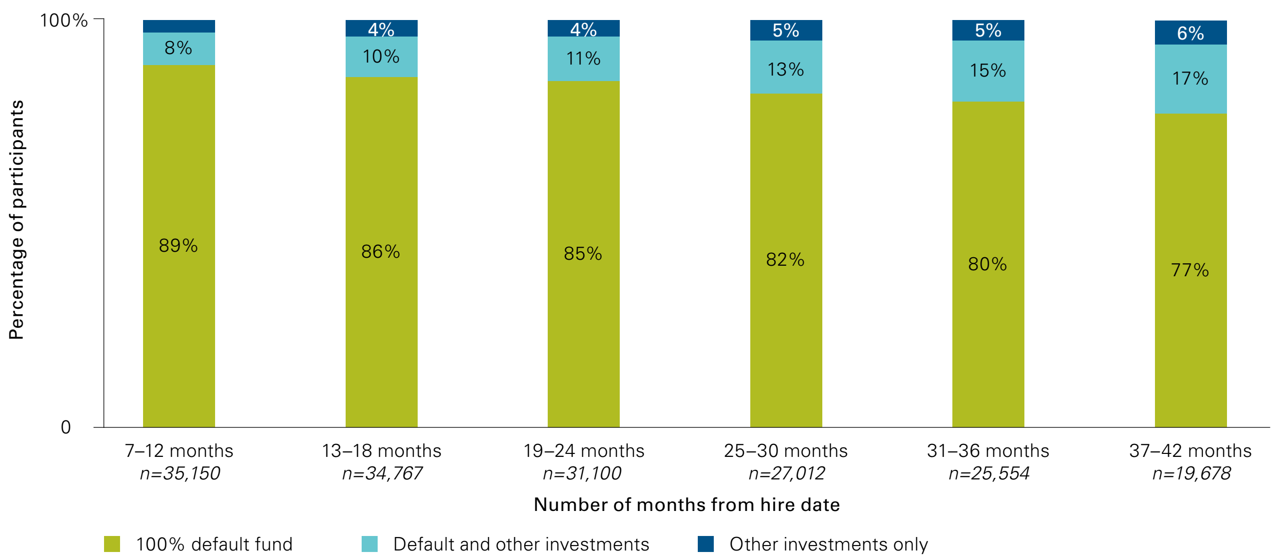
Source: Vanguard, 2018.

The effects are sticky over time. After three years, 77% of participants are still directing 100% of their contributions to the default investment option, and another 17% are using the default investment in combination with other plan investment options **(Figure 14)**.

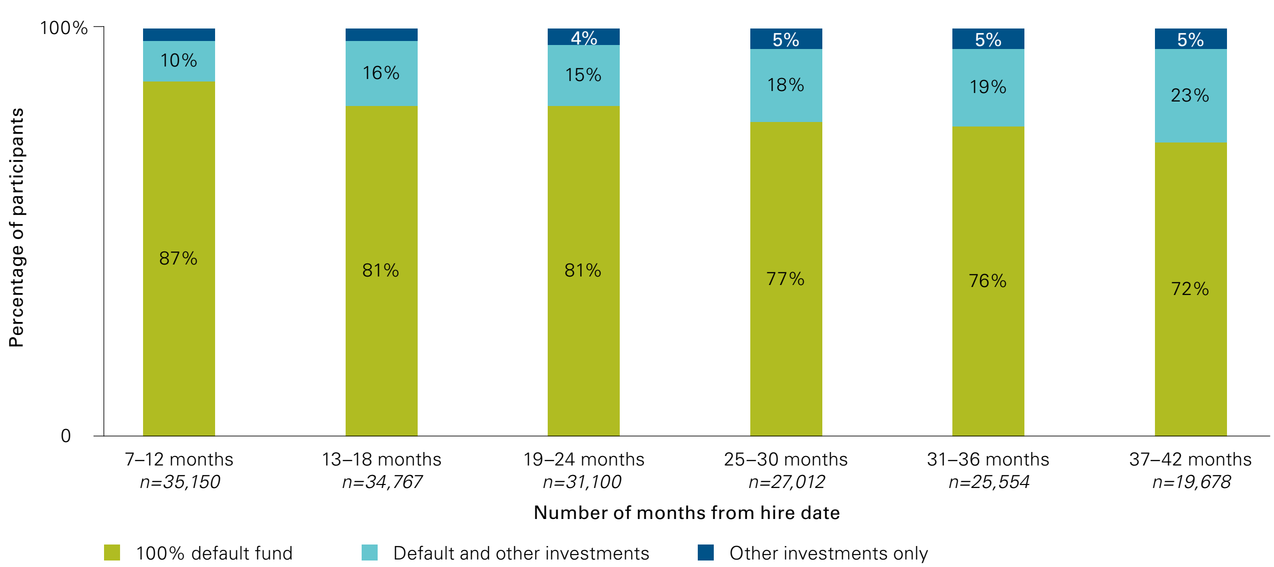
Figure 14. Default fund utilization over time

Participants hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

A. Employee sources only
n=173,261



B. Employer and employee sources
n=173,261



Source: Vanguard, 2018.

Loans

Finally, we analyze the incidence of loans. A longstanding question: Is automatic enrollment retirement savings offset by higher debt levels for participants automatically enrolled in the plan? Although we do not have household balance sheets for these plan participants, we can examine the incidence of plan loans.[3] Over the time period we observe, auto-enrolled participants are more likely to have a loan outstanding than voluntarily enrolled participants **(Figure 15)**. For example, after three years, 21% of auto-enrolled participants have loans versus 18% of voluntarily enrolled participants (a 17% relative difference). Meanwhile, the amounts borrowed by auto-enrolled participants are lower, given the fact that account balances for these participants are lower as well. Overall, roughly 8 in 10 or more participants do not borrow from their accounts during this period, regardless of plan design. Although the fraction of automatic enrollment participants with a loan is higher, it is important to keep in mind that automatic enrollment nearly doubles the participation rate compared with eligible employees in plans with voluntary enrollment designs. So while there are more participants with loans, there are still more eligible employees participating without a loan under automatic enrollment than in plans with voluntary enrollment designs.

Implications

Automatic enrollment has emerged as a pivotal strategy to improve plan participation and employee saving rates in 401(k) and other DC retirement plans. Our analysis suggests that the default effect on participation rates is the strongest, with 9 in 10 automatically enrolled new hires remaining in their employer plan after three years. The default effect on portfolio choice is not quite as strong, with three-quarters of participants contributing exclusively to the default option after three years and another 17% contributing to the default and other plan investment options. The default effect for an automatic increase feature (in plans offering the feature) is somewhat weaker as well. After three years, about two-thirds of eligible participants remain in the automatic escalation default, although a sizable minority has raised contribution rates while ending the auto-increase feature.

Figure 15. Loans

Participants hired between January 1, 2014, and December 31, 2016, as of June 30, 2017

		Point-in-time results after:		
	Average over entire period	1 year	2 years	3 years
Percentage of participants taking loans				
Voluntary enrollment	9%	12%	16%	18%
Automatic enrollment	11%	13%	18%	21%
Voluntary enrollment				
Average loan issuance amount	$5,807	$5,497	$5,765	$7,076
Median loan issuance amount	$2,500	$2,384	$2,603	$3,555
Automatic enrollment				
Average loan issuance amount	$4,683	$4,403	$4,604	$5,537
Median loan issuance amount	$2,025	$2,000	$2,200	$2,694

Source: Vanguard, 2018.

3 For an analysis of how automatic enrollment retirement savings is offset by higher debt levels for these participants, see John Beshears, James J. Choi, David Laibson, Brigitte C. Madrian, and William L. Skimmyhorn, *Borrowing to Save? The Impact of Automatic Enrollment on Debt*, December 2017, https://www.aeaweb.org/conference/2018/preliminary/1609. The authors find no significant change in debt excluding auto loans and mortgages, which are secured debt used to acquire assets.

Automatic enrollment raises the minimum, or "floor," contribution rate in a DC plan by replacing zero-contributors with participants saving generally at 3% or higher. Sponsors can seek to improve retirement outcomes through automatic enrollment combined with higher initial contribution rates, an automatic increase feature, and a total contribution cap of at least 10%. Another important way to improve outcomes is to extend the automatic enrollment design from new hires only to all eligible nonparticipants. About two-thirds of the plans in our sample have now "swept" eligible non-participants.

This analysis underscores the importance of plan design defaults, the role of inertia in retirement savings decisions, and the impact of employer plan design decisions on retirement adequacy among DC plan participants. All things being equal, stronger default designs will contribute to improved retirement outcomes because of the effect of inertia. Sponsors should seek to take advantage of this behavioral bias when designing their DC retirement programs.

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