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Saving and investing in 529 plans

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Thomas J. De Luca and Pat Manley

- 529 savings plans offer investors a tax-advantaged way to save for education. This paper examines saving and investing behavior in 1.8 million 529 plan accounts holding $53 billion in assets in 2018.

- One key theme in 529 investing is the use of automated plan features as a behavioral commitment device.[1] For savings decisions, six in ten contributing accounts use an automatic contribution method in whole or in part, with four in ten relying solely on automatic methods. For investment decisions, seven in ten accounts use age-based investment tracks in some form, and over half of accounts rely on them exclusively.

- Accounts using automatic contributions exhibit the most consistent saving behavior, but those contributing ad hoc make the largest total deposits. For investment decisions, accounts using age-based tracks have significantly less risk in their portfolios than self-directed accounts, particularly as their beneficiaries approach and reach college age.

- Ninety-six percent of 2018 withdrawals were for IRS-allowed purposes. Withdrawals to beneficiaries under age 17 increased from 1% of accounts in 2017 to just over 2% in 2018. This increase may reflect withdrawals taken to pay for K–12 tuition under new federal regulations, but it still represents a small percentage of accounts.

Acknowledgments: Ascensus, LLC., a nationally recognized recordkeeping firm, provides the administration of the plans discussed in this paper. The authors thank Chris Cyr and Shawn Sullivan of Ascensus for their valuable contributions to this research.

1 A behavioral commitment device is a mechanism to ensure future action and avoid procrastination.

College savings plans, also known as 529 accounts, are an increasingly popular way to save and invest for education. Plans are administered at the state level, with almost every state managing at least one plan. Each account has an owner who retains control of the assets, as well as a designated beneficiary for whose education the assets are intended. The account owner and beneficiary need not be related and can even be the same person. An owner has the option to change the beneficiary to another member of the same family. Thus, although the prototypical use of a 529 account is by parents saving for a child's education, 529 plans also can be used by grandparents saving for grandchildren or by adults saving for their own education or a spouse's.

At the end of 2017, the total amount held in 529 plans in the United States was nearly $320 billion across 13 million accounts.[2] This compares with $1.38 trillion in outstanding student debt in the fourth quarter of 2017.[3] About 30% of Americans' total college savings is held in 529 accounts.[4]

Saving in a 529 plan offers potentially significant tax advantages. At the federal level, investors receive no tax deduction on contributions, but their savings grow tax-deferred. And there is no federal tax on withdrawals, provided the funds are used to cover qualified educational expenses.[5] Many states also offer tax benefits for 529 savings, typically as a tax deduction or credit.[6] Recent legislation permits 529 accounts to be used for primary and secondary education, and a proposed rule would potentially allow expansion into homeschooling and apprenticeship expenses.

Account characteristics

For this study, we examine assets held in five 529 plans encompassing $53 billion in 529 assets across 1.8 million accounts.[7] Account owners may have additional assets they intend to use for education, but our analysis is isolated to those in the 529 plan sample accounts. All analysis is at the account level and valid as of December 31, 2018, unless otherwise noted.[8]

At the median, the typical account owner in our sample is 48 years old and the beneficiary is 12. The account has been open for seven years and has a balance just under $11,000 (**Figure 1**). Over 90% of beneficiaries are 21 or younger (**Figure 2**). Owners, on the other hand,

Figure 1. Overview of sample

All 529 plan sample accounts

Number of state plans	5
Number of accounts	1.8 million
Total assets	$53 billion
Median values:	
Account owner age	48
Beneficiary age	12
Length of account ownership (years)	7
Account balance	$10,800

Source: Vanguard, 2019.

2 See *Use of 529 Plans Rising—Along With Revenue Impact*, The Pew Charitable Trusts, 2018; available at www.pewtrusts.org/en/research-and-analysis/articles/2018/10/08/use-of-529-plans-rising-along-with-revenue-impact.

3 Source: Center for Microeconomic Data, Federal Reserve Bank of New York.

4 See *How America Saves for College*, Sallie Mae and Ipsos, 2018; available at www.salliemae.com/assets/about/who_we_are/HAS2018_Full_Report.pdf.

5 The earnings portion of nonqualified withdrawals may be subject to federal income tax and a 10% federal penalty tax, as well as state and local income taxes. The availability of tax or other benefits may be contingent on meeting other requirements. Investors should consult with a tax professional regarding their situation.

6 Investors should consider before investing whether their or the designated beneficiary's home state offers any tax or other benefits that are available only for investments in the state's qualified tuition program. Such other state benefits may include financial aid, scholarship funds, and protection from creditors.

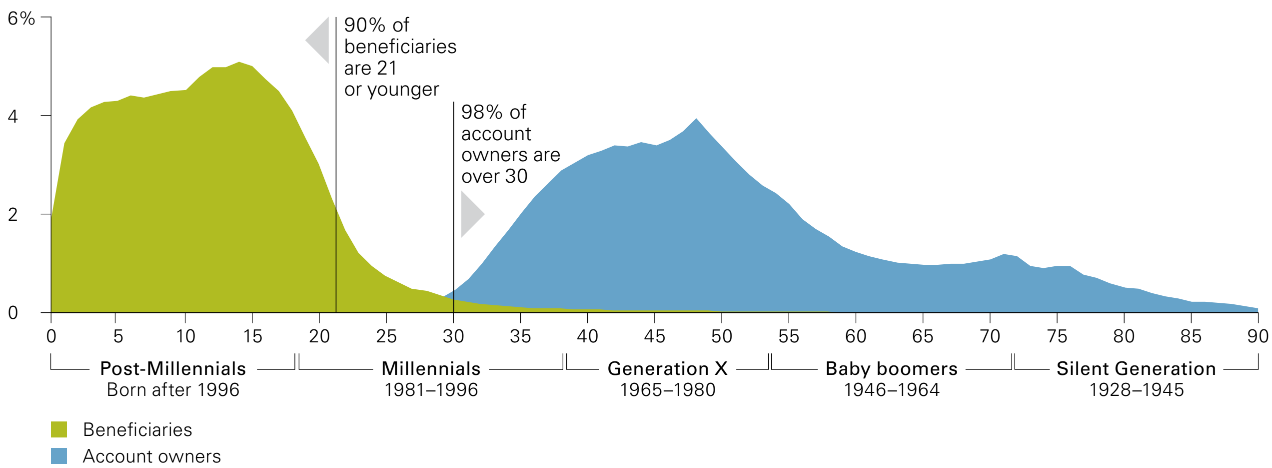
7 State plans analyzed include the Vanguard 529 College Savings Plan (administered by Nevada), New York's 529 College Savings Program Direct Plan, College Savings Iowa 529 Plan, CollegeInvest Direct Portfolio College Savings Plan (administered by Colorado), and MOST–Missouri's 529 Education Plan. For these plans, Ascensus is the service manager and Vanguard an investment manager.

8 Importantly, this means we cannot observe household behavior, such as parents saving for multiple children in the same household.

tend to be older; 98% are over 30. Most owners belong to Generation X (born between 1965 and 1980), but there is a notable cohort in their early to mid-70s. This is consistent with parents being the typical account owner, but with a sizable number of grandparents saving for their grandchildren as well.

Millennial account owners (born between 1981 and 1996) tend to have the youngest beneficiaries, with a median age of 4, and the smallest balances at $4,600, suggestive of young parents beginning to save for their children (**Figure 3**). But they have the highest rate of contributing: 81% percent of millennial account owners

Figure 2. Distribution of account owner and beneficiary ages



Source: Vanguard, 2019.

Figure 3: Account and contribution characteristics by account owner generation

All 529 plan sample accounts

	Millennials	Generation X	Baby boomers	Silent Generation
Proportion of accounts	14%	52%	25%	9%
Median values:				
Beneficiary age	4	12	15	14
Length of account ownership (years)	2	6	8	9
Account balance	$4,600	$13,900	$9,700	$14,900
Proportion contributing	81%	68%	54%	49%
Median annual contribution (contributing accounts only)	$1,700	$2,500	$1,800	$1,800

Source: Vanguard, 2019.

made a contribution in 2018, investing a median of $1,700 during the year. Generation X account owners, on the other hand, have a median beneficiary age of 12 and a median account balance of $13,900, triple that of millennials. Generation X owners tend to make the largest contributions, with a median of $2,500 in 2018, but with a smaller fraction contributing.

Baby boomers (born 1946–1964) have the oldest beneficiaries and lower balances than Generation X owners. Just over half of all boomers contribute; this is possibly because many are in the withdrawal stage and have already accessed some assets. Silent Generation (born 1928–1945) account owners are the smallest group but have the highest balances and longest-tenured accounts. Like boomers, about half the Silent Generation accounts had a contribution in 2018, investing a median of $1,800.

For accounts with beneficiaries under 17, we see increasing balances, increasing length of account ownership, and decreasing contribution rates as beneficiaries age (**Figure 4**). The typical beneficiary up to age 4 has just under $5,000 in a fairly new account. Nearly nine in ten of these accounts had a contribution in 2018. By the time the beneficiary is 13 to 16 years old, the balance is nearly $20,000 and the account has been open for 11 years, but only 60% of these accounts have contributions; among that 60%, contribution amounts are fairly consistent across those ages. A 2018 Sallie Mae survey found that among parents of 13- to 17-year-olds who have set a college savings goal, the typical target is about $50,000.[9] In our analysis, the median balance for accounts with 17-year-old beneficiaries was $22,400, with 30% of these accounts having a balance of $50,000 or more.

It is striking that contribution rates decline with beneficiary age. Contributions, in effect, become less prevalent for 30% of account owners as beneficiaries age. It could be that, as the beneficiary ages, parents decide that they have saved enough for college or that the advantages of tax-deferred earnings are less attractive given the remaining time. It could also be that account owners face competing demands on their income and saving.

For beneficiaries over 17, the median balance is smaller, at $11,700, consistent with the account being in the withdrawal phase. Less than half these accounts are still contributing, but the median annual contribution of those is $3,000, higher than for the other beneficiary age groups. This contribution behavior is consistent with the use of the 529 plan as a pass-through to pay tuition when state tax benefits are available.

Figure 4. Account and contribution characteristics by beneficiary age

All 529 plan sample accounts

	Beneficiary age				
	0–4	5–8	9–12	13–16	17+
Proportion of accounts	18%	17%	19%	20%	26%
Median values:					
Account owner age	39	42	46	50	55
Length of account ownership (years)	1	4	7	11	12
Account balance	$4,800	$9,600	$14,300	$19,700	$11,700
Proportion contributing	87%	75%	68%	60%	43%
Median annual contribution (contributing accounts only)	$2,200	$1,900	$2,000	$2,100	$3,000

Source: Vanguard, 2019.

9 See *How America Saves for College*, Sallie Mae and Ipsos, 2018.

Savings behavior in 529 plans

The plans analyzed in our sample offer account owners several ways to contribute toward their goals. To understand savings styles, we define four categories of accounts. Automatic contributor accounts rely exclusively on one or both of the available automatic investment options: recurring contributions, in which regularly scheduled contributions are taken directly from an owner's bank account, or payroll deductions. Automatic contributors are using the recurring contribution or payroll deduction as a commitment device to encourage regular saving. Manual contributor accounts rely exclusively on ad hoc contributions and/or gift contributions.

Account owners may want to combine these two approaches and boost their savings with an ad hoc contribution in addition to their recurring one. In fact, in 2018, some investors were doing just that. Mixed contributor accounts have both automatic and manual contributions. Finally, there is a group of noncontributors.

Automatic contributor accounts make up 26% of our sample (40% of contributing accounts) (**Figure 5**). Their owners tend to be young and make monthly contributions. The typical automatic contributor account owner contributed $100 monthly for a total of $1,200 in 2018.

Figure 5. Account characteristics by contribution style

All 529 plan sample accounts

	Automatic contributors	Mixed contributors	Manual contributors	Noncontributors
Proportion of accounts	26%	11%	27%	36%
Proportion of contributing accounts	40%	18%	42%	—
Total contributions	$1.2 billion	$1.2 billion	$3.3 billion	—
Median values:				
Account owner age	46	43	49	52
Beneficiary age	11	8	9	15
Length of account ownership (years)	6	3	3	9
Account balance	$10,700	$10,500	$11,800	$10,400
Number of contributions	12	13	1	0
Annual contribution	$1,200	$3,100	$3,000	—
Source of contributions, by assets				
Recurring contribution	89%	51%	—	
Payroll contribution	11%	4%	—	
Ad hoc contribution	—	40%	93%	
Gift	—	5%	7%	

Source: Vanguard, 2019.

Manual contributor accounts, the largest group at 27% of the sample (42% of contributing accounts), have slightly older owners and slightly higher account balances. They tend to make a single, large contribution, typically $3,000. Noncontributor accounts tend to have the oldest owners and beneficiaries, consistent with many of these accounts being in the spending phase.

Mixed contributors constitute 11% of the sample accounts (18% of contributing accounts). These have the youngest owners and beneficiaries and tend to be among the newest accounts. The typical balance of mixed accounts, $10,500, is nearly the same as that of automatic accounts, but the median contribution in 2018 was $3,100, the largest of any group.

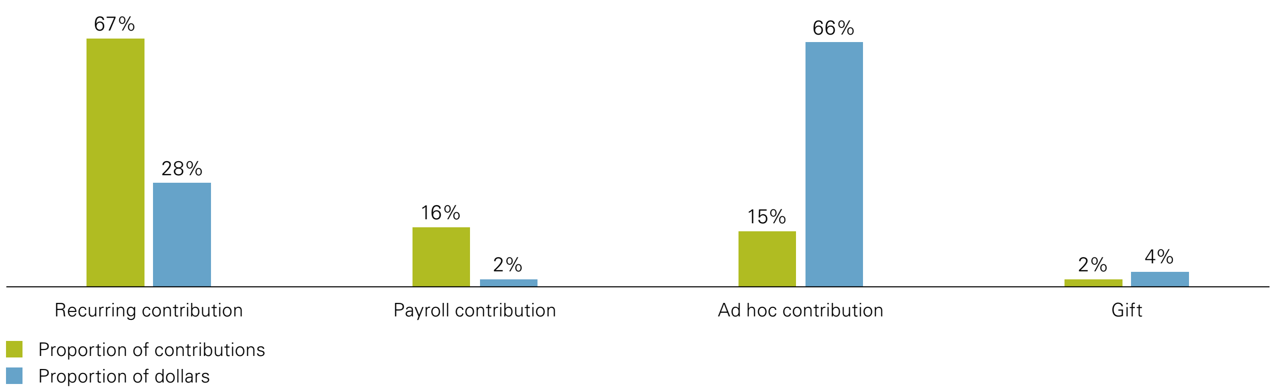
Manual contributions account for 45% of all contributions to those mixed contributor accounts. These supplemental investments are about twice as likely to be made in December and 60% likelier to be made in January than in other months, probably because of holiday gifting and/or tax planning.

For accounts with beneficiaries under 17, the median balance of those using the combined approach tends to be about 40% higher than accounts that rely solely on automatic contributions, given the same beneficiary age.

Overall, recurring contributions and payroll deductions make up the bulk of contributions, constituting 83% of transactions (**Figure 6**). These individual transactions tend to be smaller, however, accounting for only 30% of total contributed dollars. Two-thirds of contributed dollars come from ad hoc contributions.

Figure 6. Contribution methods used

529 plan sample accounts with a contribution in 2018



Source: Vanguard, 2019.

Portfolio choice in 529 plans

Account owners choose from a menu of core investment options that include stock, bond, balanced, and short-term reserves or stable value funds. Owners also may elect to use an age-based track. Such tracks invest in the same core funds, but the allocation to each fund automatically adjusts as the beneficiary ages, with the goal of reducing risk over time. Age-based tracks are a form of investment commitment device, with reallocations over time as predetermined by the strategy's portfolio manager.

Age-based tracks typically come in three varieties: aggressive, moderate, and conservative.[10] All three reduce risk with age, but an aggressive track will hold more equities than a conservative track does for beneficiaries of the same age. Even when the investor selects an aggressive track in one of the direct-sold 529 plans included in this analysis, the equity portion is automatically decreased to 10% to 20% of assets as the beneficiary nears college age. This could help avoid significant losses due to market volatility as funds are getting ready for use.

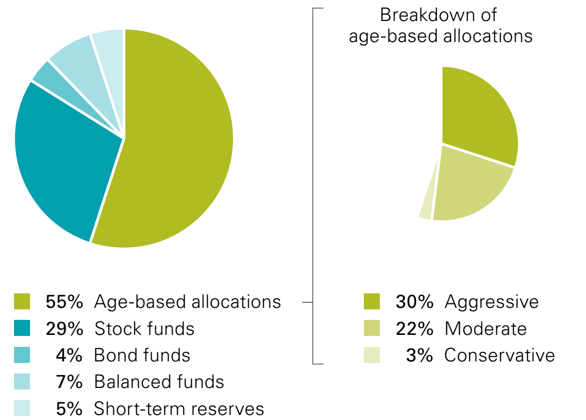
Among total 529 assets, 55% are in age-based allocations (**Figure 7**); 30% are invested in an aggressive track and 22% in a moderate track, with only 3% taking a conservative track. Outside of age-based tracks, the most popular option is a direct investment in stock funds, representing 29% of assets.

To better understand the decision-making process, we define three categories of portfolio choice in 529 plans: pure age-based investors, with 100% of assets invested in a single age-based track; self-directed investors, who choose their asset allocation; and mixed investors, who use a mix of age-based tracks with other investment options and/or more than one age-based track.

Five out of ten accounts belong to pure age-based investors, while 31% are self-directed (**Figure 8**). Mixed investors are seen in only 17% of accounts. Pure age-based investors tend to have the youngest beneficiaries and smallest balances. The popularity of age-based options indicates that many account owners find value in a portfolio option that automatically shifts to lower equity allocations as their beneficiary approaches college age.

Figure 7. Investment type preference

Proportion of total 529 plan sample assets in each investment type



Notes: Assets in stock, bond, balanced, and cash/stable value funds include only those assets directly invested in these funds. Assets in these funds obtained through age-based tracks are considered as age-based assets.

Source: Vanguard, 2019.

Figure 8. Characteristics by investment style

All 529 plan sample accounts

	Pure age-based	Self-directed	Mixed
Proportion of accounts	52%	31%	17%
Median values:			
Account owner age	47	50	48
Beneficiary age	10	13	13
Length of account ownership (years)	4	6	9
Account balance	$8,200	$14,900	$15,200
Equity allocation	63%	94%	54%

Source: Vanguard, 2019.

10 The College Savings Iowa 529 Plan offers four age-based tracks. For this analysis, the moderate growth track and growth track are both considered moderate tracks.

Mixed investors hold the least risky portfolios overall, with a median equity allocation of 54%. Self-directed investors, on the other hand, have higher balances than pure age-based investors and have the riskiest portfolios, with a typical equity allocation of 94%. Pure age-based investors hold 63% equities.

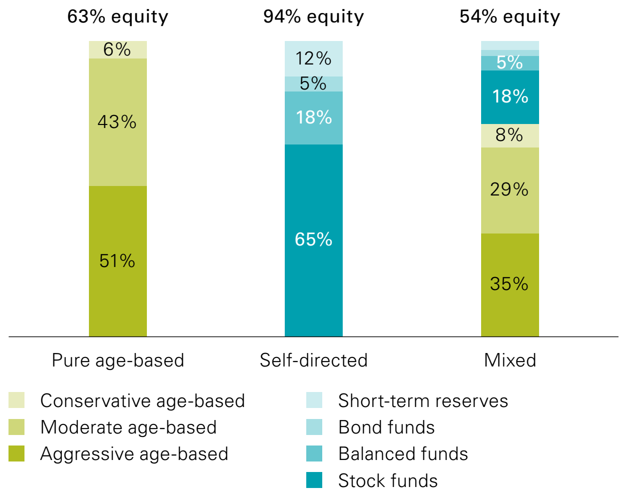
In terms of generational preference, millennials are the most likely to adopt a pure age-based approach and least likely to be self-directed or mixed. Silent Generation account owners are the most likely to be self-directed investors.

Risk implications of portfolio choice

Pure age-based investors tend to hold aggressive and moderate tracks, while self-directed investors allocate a majority of their portfolio to stock funds (**Figure 9**). Mixed investors, on average, hold 72% of their portfolio in age-based tracks. Like pure investors, mixed investors tend to prefer aggressive and moderate allocations in the age-based component and stock funds in the self-directed component.

Figure 9. Investment allocations

Average allocation to fund type by investment style; median equity allocation shown



Source: Vanguard, 2019.

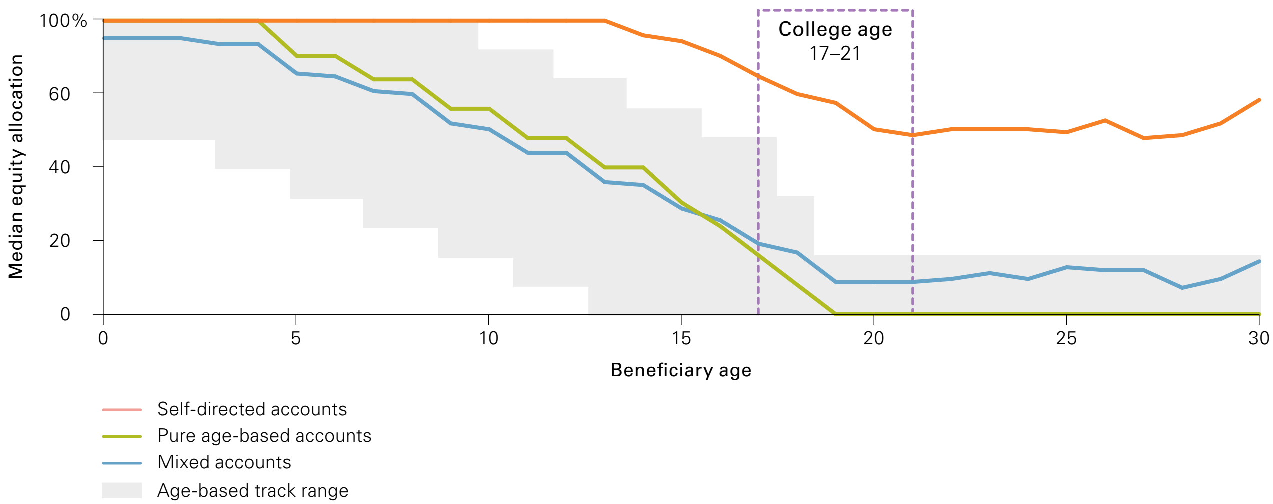
Self-directed investors' preference for stock funds over other core funds leads them to take more portfolio risk than those relying on age-based allocations. This general finding holds true across beneficiary ages, with the difference most notable as beneficiaries approach and turn college age (**Figure 10**).

The typical self-directed investor holds a 100% equity portfolio until the beneficiary turns 14, whereas pure age-based investors, who also start at 100% equity, begin reducing risk when the beneficiary turns 5. By the time beneficiaries reach college age, pure age-based investors hold very conservative portfolios, while self-directed investors continue to hold equity allocations over 60%. These accounts may be too heavily concentrated in equities and could be affected by market volatility just as they are getting ready to use the funds and may not have time to recover.

Interestingly, mixed investors tend to hold the lowest risk for young beneficiaries, but they reduce risk more gradually. The result is an equity allocation between that of the two other groups for college-aged beneficiaries, but still within the range of age-based tracks.

Figure 10. Portfolio risk by investment style

All 529 plan sample accounts



Source: Vanguard, 2019.

Trading behavior

IRS regulations allow account owners to change their investment allocation only twice a year. Automatic age-based exchanges do not count against this limit, nor do trades that occur when there is a change in beneficiary. Most investors take a long-term perspective and do not trade.

We analyze only those accounts making discretionary trades and exclude age-based exchanges or those related to a fund closure over which the account owner has no control (**Figure 11**). We find that only 7% of accounts made such a transaction in 2018. Trading accounts tend to have demographics similar to nontrading ones but have more than twice as large a median account balance. Traders typically make only one exchange, but those trades tend to be substantial. The median amount traded is about $13,500, more than half the median balance of the trading accounts.

Figure 11. Fund exchange activity

All 529 plan sample accounts; age-based glide-path transactions and fund closures are excluded

	Trading accounts	Nontrading accounts
Proportion of accounts	7%	93%
Median values:		
Account owner age	50	48
Beneficiary age	14	12
Length of account ownership (years)	7	6
Account balance	$23,600	$10,300
Number of trades	1	0
Amount traded	$13,500	—

Source: Vanguard, 2019.

Accessing assets

In 2018, 12% of accounts had a withdrawal, with a total of $2.9 billion withdrawn, or about 5% of all 529 plan sample assets (**Figure 12**). Accounts with withdrawals tend to have older account owners and beneficiaries, and the accounts have been open for more than twice as long as nonwithdrawing accounts. The median beneficiary age was 20 for an account with a withdrawal; all this is consistent with expectations that the savings would be used for college. Only 4% of withdrawals were considered nonqualified, meaning the vast majority of account owners are using the 529 accounts for their intended purpose.

As for withdrawal destinations, nearly two-thirds of withdrawals and more than half of assets go to the account owner, whereas 27% of withdrawals and 39% of assets go directly to the school (**Figure 13**). The remainder of withdrawals are given to the beneficiary.

In late 2017, federal tax legislation expanded the use of 529 accounts to include primary and secondary education (K–12) tuition.[11] Since that change, it appears that few accounts have made withdrawals for beneficiaries under 17 (an indicator that such withdrawals may be for K–12 expenses) (**Figure 14**). In 2017, 1% of accounts with beneficiaries under 17 made a withdrawal; that rose to 2% in 2018 after the new law took effect. Although 2% is still a tiny portion of total withdrawals, it does represent a doubling, and as a result there are more withdrawals from younger-beneficiary accounts than in the past. 529 sponsors and administrators will want to continue to monitor this trend. Withdrawal rates also increased for college-age and older beneficiaries but at a more modest relative rate. So the effect of the tax-law change is unclear.

Figure 12. Investor characteristics by withdrawal choice

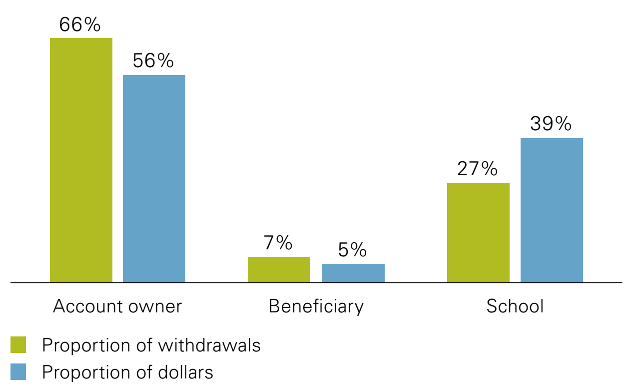
All 529 plan sample accounts

	Withdrawing accounts	Nonwithdrawing accounts
Proportion of accounts	12%	88%
Total withdrawals	$2.9 billion	—
Median values:		
Account owner age	54	47
Beneficiary age	20	11
Length of account ownership (years)	12	5
Account balance	$12,500	$10,600
Number of withdrawals	2	0
Annual withdrawal	$9,400	—
Qualified withdrawals	96%	
Nonqualified withdrawals	4%	

Source: Vanguard, 2019.

Figure 13. Withdrawal destinations

529 plan sample accounts with a withdrawal in 2018

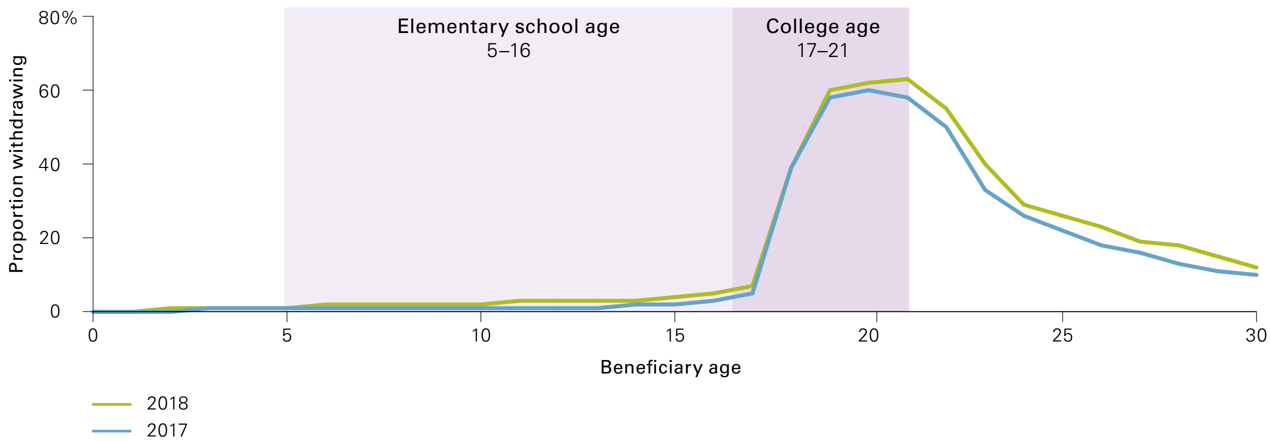


Source: Vanguard, 2019.

11 The December 2017 Tax Cuts and Jobs Act expanded the use of 529 plans to allow annual withdrawals up to $10,000 for K–12 education.

Figure 14. Effect of tax-law change on K–12 age withdrawals

All 529 plan sample accounts



Source: Vanguard, 2019.

Implications

529 plans are a tax-advantaged way to save for education, and investors across multiple generations are taking advantage of the plans' incentives in saving for the future. One key theme in 529 investing is the use of automated plan features, such as automatic investment methods and age-based portfolio allocations, as a behavioral commitment device.

Nearly two-thirds of 529 accounts made contributions in 2018. These owners used both automatic and manual contribution methods to build their balances. Interestingly, owners making ad hoc contributions, including those also using automatic investment methods, contributed significantly more than those relying on automatic methods alone. Knowing this, plan administrators may want to consider advocating a "set it but don't forget it" approach to automated saving.

With regard to portfolio choice, nearly seven in ten investors are using age-based investment tracks in some form. These accounts hold substantially less risk than those taking a purely self-directed approach. The difference is most striking as beneficiaries get older, perhaps suggesting that self-directed investors are overly confident about future market returns, or that they feel more risk is needed to account for the quickly rising costs of college. These investors may experience losses from market volatility with little time to recover.

Overall, account owners seem to be using 529s for their intended purposes, with 96% of withdrawals in 2018 being made for qualified reasons. The vast majority of withdrawals are for college-age beneficiaries. Despite the change in federal law allowing withdrawals for K–12 educational expenses, only a small number of account owners seem to use their savings for this purpose, although the relative growth rate was large and thus worth monitoring in the future.

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For more information about any 529 savings plan, contact the plan provider to obtain a Program Description, which includes investment objectives, risks, charges, expenses, and other information; read and consider it carefully before investing. If you are not a taxpayer of the state offering the plan, consider before investing whether your or the designated beneficiary's home state offers any state tax or other benefits that are only available for investments in such state's qualified tuition program. Other state benefits may include financial aid, scholarship funds, and protection from creditors. Vanguard Marketing Corporation serves as distributor for some 529 plans.

All investing is subject to risk, including the possible loss of the money you invest. Diversification does not ensure a profit or protect against a loss. We recommend that you consult a tax or financial advisor about your individual situation.

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P.O. Box 2600
Valley Forge, PA 19482-2600

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