HelloWallet

HEALTH SAVERS

The Consumer Finance of Health Savings Accounts

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The Consumer Finance of Health Savings Accounts

Health Savings Accounts are a rapidly growing savings vehicle that accompanies High-Deductible Health Plans and allows the account holder to pay for qualified medical expenses tax free. Today, little is understood about how HSA account holders use their accounts. For our study, we used data collected from more than 400,000 accounts by UMB Bank, one of the largest HSA recordkeepers in the country. We explored the associations between demographics, plan design, and HSA usage to better understand account holders' decisions, experiences, and behaviors. After analyzing this rich data, we find that:

More than 40 percent of HSA account holders save nearly all of their annual contributions within a 12-month period. About 30 percent of account holders spend nearly all of their contributions. The remaining account holders spend or save in relatively equal proportions.

These segments are remarkably similar in terms of age, education, and household income. However, systematic differences emerge when segmenting by account tenure: newer account holders are more likely to be classified as savers, whereas account holders who have had an HSA longer are more likely to be managers or spenders.

Only 4 percent of account holders eligible to invest their HSA balances actually chose to invest.

Investors, or account holders who had invested any portion of their HSAs in sweep or brokerage accounts, represent a small proportion of the account holders in the sample we studied. Account holders who have used their HSA for at least one year were classified as investors 300 percent more often than account holders who had their HSAs for shorter than a year. Similarly, account holders with a college degree invested 200 percent more often than those without a college degree. Investors were wealthier than non-investors, though there was virtually no difference in age between the two groups.

On average, older and higher-income employees contribute over 200 percent more than younger and lower-income employees.

We observe that the median account holder in the highest income quartile contributed about three times as much as the median account holder in the lowest income quartile. We also find that other demographic variables, such as education, marital status, and the presence of dependents, are all associated with differing levels of employee contributions and distributions.

The median account holder with an employer contribution defers over 200 percent more into an HSA than the median account holder without an employer contribution.

Similarly, the presence of an employer contribution reduces the chances that an account holder will be disengaged with an HSA. We conclude that employer contributions can increase employee contributions and use of these accounts.

About 5 percent of account holders contributed the maximum amount allowed by the IRS to their HSAs, which was $3,250 for single coverage and $6,500 for family coverage in 2013.

This suggests that many employees may be deferring insufficient amounts to their HSAs to cover medical expenses. Among those who made contributions in 2013, the mean deferral was less than $1,600 and the median deferral was just $700. This behavior is suboptimal from a tax-efficiency standpoint, reduces buying power for health care, and is potentially dangerous if the account holder faces large medical bills.

HDHPs are becoming increasingly popular among employers seeking to control rising health-care costs. It is imperative for employers to understand the intricacies of how employees use HSAs so they can analyze the impact of benefits packages. It is similarly important for employees to be educated on the benefits of HSAs, how to best use them, and the potential dangers that arise from undercontributing. In light of our findings, employers that offer health care plans with HSAs ought to carefully consider how they design and present these plans to employees. We hope this paper inspires further research into this intersection of public policy and behavioral economics.

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Introduction

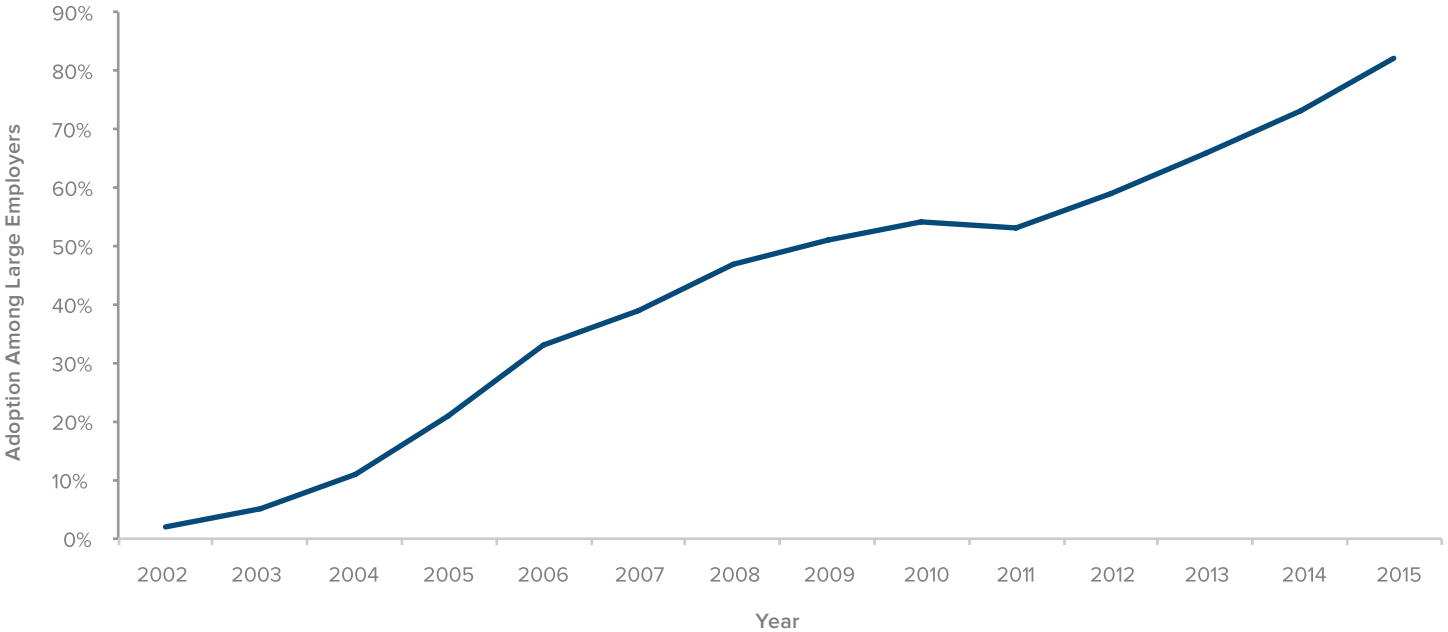
Over the past 30 years, real health-care costs faced by employees have risen by more than 50 percent in the United States, with the average employee spending over $1,000 more per year on out-of-pocket expenses today than three decades ago.[1] Employers, too, are feeling this pressure: the real cost of providing health care nearly tripled over that same time frame.[2] In response, many employers have adopted High-Deductible Health Plans, which generally have lower costs for both the employer and employee than traditional plans.[3] These health-care plans cost less money because the employee shares a higher percentage of health-care costs, should the need arise to use health-care services.[4] These plans are also supported by economic theory: if consumers of health care take on a greater share of the financial responsibility, they will become more engaged, seek out lower-cost options, and consume fewer discretionary, potentially unnecessary services.[5]

Given the potential for reducing costs, employer adoption of HDHPs has rapidly proliferated. A 2014 survey conducted by Towers Watson, for instance, found that 82 percent of large employers planned to offer some form of a HDHP in 2015, up from 73 percent in 2014 and only 21 percent a decade ago.[6] Additionally, 30 percent of employers were planning to offer HDHPs as the only health-care option for 2015, nearly double the proportion that did so in 2014. A survey conducted by the Kaiser Family Foundation estimated that 20 percent of all employees covered by workplace health insurance were enrolled in an HDHP, more than double the proportion of those covered just five years ago.[7]

Most HDHPs include Health Savings Accounts as a way for plan participants to save for higher deductibles. Similar to Flexible Spending Accounts, HSAs are a tax-advantaged vehicle that may be used to pay for qualified health-care costs. Employees with an HSA do not pay income taxes or, if enrolled in their HSA through a section 125 cafeteria plan, payroll taxes on contributions to HSAs they withhold from their paychecks, returns on their HSA investments, and on qualified medical expenditures upon withdrawal. Funds withdrawn for non-health-care expenses are subject to income tax and an additional tax penalty of 20 percent if they are withdrawn before age 65. Funds for medical expenditures can be withdrawn directly from the account using a debit card linked to the HSA.

There are several key differentiators that make HSAs particularly attractive to employees enrolled in an

Figure 1: Towers Watson Time-Series Data Showing Adoption of HDHPs Over Time



Note: Towers Watson 19th Annual Employer Survey on Purchasing Value in Health Care

HDHP. Unlike FSAs, funds deposited in HSAs roll over year to year in full. An account holder may also pay for medical expenses out of pocket and withdraw from the account years later as a reimbursement, provided that individual still has proof of the purchase. Funds in HSAs can be invested in a sweep or brokerage account, accruing interest and capital gains tax free if these funds are used for health-care expenses. Account holders can withdraw funds from HSAs for any expense after age 65 without a tax penalty, although withdrawals for non-health-care expenditures are subject to regular income tax, much like an IRA. Funds deposited in HSAs can also be used to pay for Medicare premiums.

Despite the surge in the popularity of HDHPs, researchers know little about how employees use their HSAs. Most existing literature examines HDHPs and HSAs through the lens of public policy, tracing their roots and proposing theories about or analyzing their efficacy in stemming the rise in health-care costs.[8] Similarly, HSA administrators routinely publish reports and news releases about the number of accounts they administer or how much money is deposited within those accounts.[9] However, these reports do not tell us anything about the typical account holder's experience, nor do they shed much light on what factors influence how people use an HSA. If certain demographic variables are systematically associated with the underuse of HSAs, then corrective measures are possible.

Figure 2: Tax Treatment of HSAs

1. Tax-free contributions
2. Tax-free withdrawals on health-care expenses
3. Tax-free gains if funds are invested

These are important considerations for employees, employers, and society at large. If employees do not sufficiently contribute to their HSAs, they will miss valuable tax savings, or worse, may lack sufficient savings in liquid accounts to afford their deductible or out-of-pocket maximums related to major medical emergencies. They may instead choose to forgo or postpone necessary care, or they may choose to finance their health care with credit cards, payday loans, or by breaching their 401(k) accounts. These strategies may lead to compounding physical or financial problems in the future.

In this paper, we examine how account holders use their HSAs by reviewing data from more than 400,000 HSA accounts to explore whether employees are saving enough to cover their medical expenses. We then assess whether account holders use the investment opportunities that HSAs uniquely provide. Next, we study whether employer plan design has any effect on how employees use these accounts, as there is wide variation in how employers have adopted these programs. We also build empirical models to determine which factors are strongly associated with certain spending and saving behaviors, concentrating on the effect socioeconomic variables have on those outcomes.

We find that HSA deferrals generally increase with age and income. We also find that when employers provide an initial seed or matching schedule, employees contribute more than 200 percent more than those without the employer contribution. Very few account holders (less than 4 percent of the population) invest their HSA funds, missing a valuable opportunity to grow their balances for future expenditures. Fifteen percent of employees are either disengaged from their HSAs or are potentially keeping their accounts dormant. Finally, we find that only 5 percent of account holders contribute the statutory maximum. This means the remaining 95 percent of account holders may not be able to use their HSAs to increase their buying power, cover deductibles, or accrue large health savings balances. We conclude with recommendations for how to improve these trends, providing a foundation for further research.

Methodology

The data HelloWallet used in this analysis came from UMB Bank, one of the largest HSA administrators in the United States. Dating from 2013, it includes the anonymized records of more than 400,000 employees with employer-sponsored HSAs from a broad cross-section of U.S. employers. We assessed a number of variables in our analysis, including demographic and account usage data, which we describe in more detail in this paper.

HSA Account Features

UMB Bank charges a custodial fee on the accounts it administers with balances less than $3,000. Employers have the option to pay this cost on the employee's behalf, or to pass the cost along to the employee. The bank also allows account holders who have accumulated more than $1,000 to invest their balances in an interest-bearing sweep account or brokerage account. Employees who invest in certain families of mutual funds may pay additional transaction fees.

Figure 3A:
Income and Age Distribution of UMB HSA Participants

	Lower Quartile	Median	Mean	Upper Quartile
Income	< $60,000	$75,000	$88,750	$124,999+
Age	36	43	43.89	52

Figure 3B:
Demographic Characteristics of UMB HSA Participants

	Characteristic	Percentage
Gender	Known Male	55.76%
	Known Female	36.14%
Children	Has Kids	42.77%
	No Kids	57.23%
Education	HS Degree	44.75%
	Vocational/Technical School	0.52%
	College	37.33%
	Grad School	17.41%

Note: Author's analysis of UMB HSA data

Gender

The sample population consists of at least 56 percent men and at least 36 percent women. Gender was not reported for the remaining 8 percent of the population. This sample represents a similar proportion of men as other studies of HSA accounts. For example, the Employee Benefit Research Institute's HSA database contains a similar proportion of men.[10] Though unlikely, it is possible that the 8 percent unreported by UMB are all women, which would lead to a more even distribution. In the absence of this information, one can assume that the sample is more heavily weighted toward men. Because women tend to be healthier than men, this may systematically increase the spending behavior in the UMB population relative to the overall population.[11]

Income

The median household income in the sample is $75,000 and the mean household income is $88,750. Twenty-five percent of the population earns less than $60,000 per year, while the top 25 percent earns more than $125,000 per year. This is a higher relative income compared with the national distribution of income, but it is generally aligned with the distribution of households that have access to private health insurance plans.[12] We were able to find no other study that assesses the distribution of HSA account holder income. The closest is a 2009 study by the America's Health Insurance Plans Center for Policy and Research, which looked at the census tract of a health plan participant's home address. Using this method, the association found that the distribution of income for plan participants skewed higher than the overall population.[13]

Dependents

About 43 percent of the sample population has enrolled in a health care plan with dependents. This is lower than the average of the working household population in the U.S., which stands at 53 percent. There is no external data we could find that suggested whether this is more or less than the typical population of HSA account holders.[14] The fact that this population has fewer dependents than the overall population may indicate

that both the deposit and withdrawal data may be downwardly biased because fewer account holders are saving or spending to care for dependents.

Age

The median age in the sample is 43 and the mean is 44. Twenty-five percent of the population is younger than 36; the top 25 percent is older than 52. This is a slightly older population relative to other studies. For instance, AHIP's Center for Policy and Research found in a 2014 study that 51 percent of the participants in plans provided by the 90 health insurance companies and subsidiaries in their sample were under the age of 40.[15] EBRI's analysis of its own HSA database found that the top age quartile started at 54, rather than at 52 as in UMB's data.[16] Older employees tend to be less healthy than younger employees, so this distribution may indicate that the individuals in the UMB sample systematically spend slightly less than the overall population of HSA account holders.[17]

Educational Attainment

About 55 percent of the UMB sample holds at least a bachelor's degree, compared with 45 percent of the working population. The sample of HSA account holders has a similar proportion of employees who have not completed college: 45 percent, compared with 43 percent of the working population. No employees in the sample population lack a high school diploma, whereas 8 percent of the working population does. There is no external data we were able to find that could validate how this sample aligns with the overall HSA population of account holders in the U.S.

Account Usage

We examine employee contributions, employer contributions, and employee distributions as outcomes for the account holders in this paper. Nearly 70 percent of the account holders in our sample contributed to their HSA at some point during the year, with a median contribution of $700 and a mean contribution of $1,591. These amounts are much lower than those found in other studies. For instance, AHIP's Center for Policy and Research found in a 2010 study that the average deposit size was $2,050, or about 25 percent more than in the UMB sample.[18] Importantly, this 2010 study only consisted of a small sample of institutions, suggesting that the sample may not be representative of the entire HSA population.

Sixty-five percent of account holders had the benefit of an employer contribution. Among those account holders, the median employer contribution on the employee's behalf was $700 and the mean contribution was $1,400. About 60 percent of account holders took a distribution, which we define as any withdrawal over $1, at some point throughout the year. Among these individuals, the median total withdrawal over the course of the year was $1,393 and the average withdrawal was $2,096. On an inflation-adjusted basis, this is relatively in line with other studies.

Other Methodological Considerations

In addition to reporting the systematic differences between account holders conditional on a single variable, we conducted paired t-tests to test whether these differences are statistically significant. We also distinguished between statistical significance and practical significance: A between-group difference of 0.5 years might be statistically significant, but not significant in a practical sense for a human resources department considering tailoring messaging around HSAs or to lawmakers crafting new policies. We built ordinary least squares and logit regression models to assess the unique impact and interactions between multiple variables. This allows us to consider, for example, whether account holders with similar income and marital status also have similar withdrawal behavior. These models are defined in the findings section of this paper.

There were some limitations associated with the data we used from UMB Bank. It is impossible to tell whether the withdrawals represent all of an employee's health spending or a fraction of it. For instance, we observe health spending outside of HSAs for the account holders represented in the HelloWallet sample of millions of credit card and checking account transactions. But

the data used in this study does not include comprehensive information on employees' spending habits, so we are unable to determine whether the funds withdrawn from HSAs represent all of an account holder's medical expenses or a fraction of them.

A selection bias may exist in the data we studied. Some employers offer HDHPs as one option along with traditional health insurance plans with lower deductibles, while other employers solely offer HDHPs. Thus, there may be a bias for at least some portion of the account holders who self-select HDHPs if given the choice, and may systematically differ from workforces that do not have that option. For instance, healthier employees may choose to enroll in HDHPs, whereas employees who are unhealthier than their peers may choose a traditional health care plan with lower deductibles.

Finally, we do not have any insights into what account holders purchased when spending their HSA funds. It is entirely possible that HSA funds were spent on non-health-care goods and services. Recordkeepers cannot determine which items and services have been purchased using funds from an HSA, only whether or not funds have been withdrawn—nor can they determine whether the expense was allowable under the tax code. It is the account holder's responsibility to prove to the IRS that funds withdrawn from HSAs were truly for qualified medical expenses.

Findings

We identified distinct personas based on how account holders use their HSAs. Much of the variation across these personas appears to result from how long the account holder has had the HSA. Looking at contribution behavior, we find that older and higher-income employees contribute significantly more than younger and lower-income employees, and the contributions that employers make on the employee's behalf are associated with higher levels of employee contributions. We also learned that very few account holders contribute the statutory maximum or choose to invest the funds in these accounts.

More than 40 percent of HSA account holders save nearly all of their annual contributions within a 12-month period. About 30 percent of account holders spend nearly all of their contributions. The remaining account holders spend or save in relatively equal proportions. These segments are remarkably similar in terms of age, education, and household income. However, systematic differences emerge when segmenting by account tenure: newer account holders are more likely to be classified as savers, whereas account holders who have had an HSA longer are more likely to be managers or spenders.

To explore these usage trends, we divided the sample into three personas: savers, spenders, and managers. Savers are defined as account holders who save more than 75 percent of their annual contributions within a 12-month period. Spenders are defined as account holders who spend more than 75 percent of their annual contributions within a similar period. Managers represent the remainder of the sample, and are account holders who spend between 25 percent and 75 percent of their balances. These three personas, including the underlying demographics of each segment, are reviewed in greater detail here.

Savers

Savers represent 42 percent of the account holders in our sample. More than 70 percent of savers went the entire year without making a single withdrawal. The remaining savers do take withdrawals, although those withdrawals are quite small relative to their contributions. In particular, the average annual withdrawal among the roughly 30 percent of savers that took a distribution from their HSA was just $99. Across the entire sample, the average distribution is more than $2,000, indicating that even when savers do withdraw money from their HSAs, they do so in smaller amounts than the other personas.

To evaluate these potential correlations, we divided the sample of account holders into age and income quartiles, and then we assessed the share of each quartile that was included in each persona segment. We also considered the share of each quartile that comprised the overall persona segment.

There is virtually no relationship between the saver persona and the account holder's age and income. In particular, 25 percent of savers are under the age of 36, 27 percent are over 52, and the balance is between 36 and 52. Similarly, about 40 percent of savers make less than $75,000 a year, and 23 percent earn more than $125,000. Both the age and income distributions mirror those of the sample as a whole. This indicates that the neither the age nor the income of employees who use HSAs are particularly useful predictors of determining saver status.

We also find only weak relationships in other characteristics of these employees. For instance, about 52 percent of account holders have at least a college degree, or relatively the same distribution as those who do not. That may indicate account holders with more education, regardless of their income or age, are relatively no better at understanding the benefits of using HSAs. In fact, we find that a modestly higher percentage of employees without a college degree are classified as savers. This different perspective controls for the fact there are more individuals in the sample overall with a college degree, which can skew the distribution. Even after controlling for that fact, account holders without a college degree are slightly more likely to save, and not spend, their balance and deferrals. This may indicate that employees without college degrees are less able to understand HSAs to begin with and are more likely to let their accounts go dormant after they enroll and make their deferral decisions.

Figure 4: Who Are HSA Savers?

		Distribution of Savers	Percentage of Group in Savers Segment
Overall		**42.17%**	
Participant Income	Below $59,999	20.56%	35.76%
	Between $60,000 - $74,999	21.34%	41.49%
	Between $75,000 - $124,999	34.95%	35.23%
	Above $125,000	23.16%	32.51%
Education	Without College Degree	47.92%	37.02%
	College Degree or Higher	52.08%	33.27%
Dependents	With Dependents	29.28%	32.95%
	Without Dependents	70.72%	37.13%
Age	Below 36	25.88%	38.16%
	Between 36-42	17.99%	33.53%
	Between 43-51	28.97%	36.83%
	Above 52	27.15%	34.29%
Account Age	Less than a Year	66.77%	64.77%
	Over a Year	33.23%	18.85%
Account Usage	Mean Annual Deferrals	$681.69	
	Median Annual Deferrals	$104.16	
	Mean Annual Withdrawals	$99.27	
	Median Annual Withdrawals	$-	
	Mean Balance	$1,915.57	
	Median Balance	$596.20	

Note: Author's analysis of UMB HSA data

Somewhat surprisingly, those with dependents covered by their health-care plans are just as likely to be savers as those without them. In particular, 37 percent of account holders with dependents are savers, compared with 33 percent of those without dependents. This is somewhat surprising. Account holders with dependents have a relatively higher probability of needing to spend their HSA balances because they are responsible for covering more people with potential health-care needs through their plans. That there are no differences may point to the fact that employees generally have difficulty understanding how to use these accounts, which may lead to letting their accounts go dormant after they are enrolled.

This potential for HSA literacy to influence behavior is reinforced by the fact that the strongest relationship among savers is found in the account holder's length of tenure. In particular, 67 percent of savers opened their account at some point in the preceding 12 months. Similarly, 65 percent of all employees who opened their account within the last year are classified as savers. This may indicate that HSA savers are systematically less familiar with how to use their HSAs compared with account holders with longer tenures. This would manifest in reduced spending and therefore bias their spending downward relative to accounts that have been open longer, though account holders with very small balances may feel as though it is not worthwhile to withdraw funds. Future research into this area ought to look directly at the relationship between HSA literacy and saving behavior.

Interestingly, savers tend to contribute less than other account holders. Even controlling for both income and the length of time an account has been open, savers contributed almost $200 less than those who fit other personas.[19] This may indicate that an absence of health problems causes employees to view funding their HSAs as a lower priority. If this is true, our findings suggest that the wealth-building effects of using an HSA for saving relative to other types of accounts may not be broadly understood by account holders.

Spenders

At 30 percent of the population, the next largest segment of account holders is spenders, or those who spend more than 75 percent of their yearly contributions. These account holders likely have a debit card linked to their HSAs and pay for medical expenses as they occur, or at least in the same year in which they are incurred. Similar to the savers, we are unable to determine whether the account holders in this segment incur more expenses because they are systematically less healthy, are unlucky (for example, breaking a leg from a slip), or are reimbursing themselves for expenses incurred in prior years.

Account holders who spend more of their HSA balances may be systematically unhealthier, or otherwise incur higher health-care costs, than individuals who save most of their balances. This may manifest as spenders being older than savers. Or, we may observe that spenders are disproportionately account holders with dependents. Or wealthier account holders may be more likely to be spenders, owing to the fact that wealthier people tend to spend more on health care, seeking out more elective services and goods than employees with lower incomes. To determine whether these causal structures affected the composition of the spenders segment, we performed an analysis similar to the one performed for savers.

As with savers, we found virtually no connection between age, income, and the propensity of being classified as a spender. The distribution of incomes among spenders is nearly identical to that of savers and the sample as a whole: 35 percent of spenders earn less than $75,000 and 27 percent earn more than $125,000, compared with 39 percent and 25 percent of the sample as a whole, respectively. Forty-one percent of spenders are younger than 43, and 31 percent are older than 52, which again, closely mirrors the distribution of the sample as a whole.

True to their name, spenders took the largest distributions of all of the personas. The average total withdrawal over the course of a year totaled $2,750, with a median withdrawal of more than $2,000. By definition,

100 percent of spenders took a distribution from their HSA. These differences are statistically significant from each of the other personas, which took much smaller distributions. This is not surprising given the definitions we used to segment these personas.

Spenders also tended to contribute more than their peers. The average contribution for a spender was $1,556 compared with $906 for non-spenders. While controlling for income and length of time the account has been open, spenders still contributed more than $200 more than the other personas.[20] These results suggest several explanations. Spenders may be systematically less healthy, and therefore, both contribute and withdraw more money than the other personas out of necessity. Because HSAs are triply tax-advantaged, paying for medical expenditures with HSAs affords the account holder much more buying power than if this individual were to pay out of pocket for everything. Similarly, spenders may be more engaged with their HSAs, as they better understand these advantages and benefit from the increased buying power their HSAs afford them.

This second hypothesis is reinforced when examining account tenure data. Spenders are much more likely to have had their account for more than a year. In fact, 94 percent of spenders had their accounts for more than a year, compared with 33 percent of savers, suggesting a crucial link between account tenure and usage.

Figure 5: Who Are HSA Spenders?

		Distribution of Spenders	Percentage of Group in Spenders Segment
Overall		**33.78%**	
Participant Income	Below $59,999	20.29%	28.28%
	Between $60,000 - $74,999	14.49%	22.58%
	Between $75,000 - $124,999	37.31%	30.14%
	Above $125,000	27.91%	31.40%
Education	Without College Degree	42.43%	28.22%
	College Degree or Higher	57.57%	31.67%
Dependents	With Dependents	35.65%	32.14%
	Without Dependents	64.35%	27.07%
Age	Below 36	21.26%	25.12%
	Between 36-42	20.44%	30.52%
	Between 43-51	27.04%	27.54%
	Above 52	31.25%	31.62%
Account Age	Less than a Year	6.09%	4.73%
	Over a Year	93.91%	42.69%
Account Usage	Mean Annual Deferrals	$1,566.49	
	Median Annual Deferrals	$780.00	
	Mean Annual Withdrawals	$2,773.10	
	Median Annual Withdrawals	$2,086.29	
	Mean Balance	$1,224.00	
	Median Balance	$399.32	

Note: Author's analysis of UMB HSA data

Managers

Managers are the last of our three personas, representing account holders who spend between 25 and 75 percent of their yearly contribution. Roughly 20 percent of this population falls somewhere in between our definitions for spenders and savers, spending 25 percent to 75 percent of their annual contributions. It is reasonable to assume these account holders likely have not faced significant medical expenditures, and also that they likely do not view their HSAs as long-term savings vehicles.

Based on contribution and spending activity, managers are philosophically more aligned with spenders than they are with savers. Like the spenders, managers took relatively large distributions over the course of the year. These account holders withdrew a median of $1,527 and an average of $1,980, indicating that a majority of these individuals might be more closely aligned with spenders than they are with savers. Indeed, managers may have received this designation simply because they have contributed more money to their accounts than other personas. Controlling for income and account tenure, managers contributed $965 more than other personas.[21] Perhaps these account holders are truly spenders in spirit, but given similar medical expenditures, have spent a smaller proportion of their accounts given that they have made larger contributions.

Figure 6: Who Are HSA Managers?

		Distribution of Managers	Percentage of Group in Managers Segment
Overall		**24.04%**	
Participant Income	Below $59,999	15.29%	15.15%
	Between $60,000 - $74,999	18.54%	20.55%
	Between $75,000 - 124,999	35.37%	20.33%
	Above $125,000	30.79%	24.64%
Education	Without College Degree	42.21%	19.11%
	College Degree or Higher	57.79%	21.65%
Dependents	With Dependents	33.74%	21.64%
	Without Dependents	66.26%	19.82%
Age	Below 36	20.66%	17.36%
	Between 36-42	21.95%	23.31%
	Between 43-51	30.62%	22.19%
	Above 52	26.77%	24.64%
Account Age	Less than a Year	15.58%	8.61%
	Over a Year	84.42%	27.30%
Account Usage	Mean Annual Deferrals	$1,944.64	
	Median Annual Deferrals	$1,200.00	
	Mean Annual Withdrawals	$2,008.78	
	Median Annual Withdrawals	$1,566.11	
	Mean Balance	$2,725.82	
	Median Balance	$1,842.15	

Note: Author's analysis of UMB HSA data

Demographically, these three personas are very similar. The distribution of ages across all three per-sonas is such that both the means and medians are between 43 and 45. Similarly, the median income for all personas was $75,000. Spenders and managers had similar educational backgrounds, with 57 percent and 58 percent having at least a bachelor's degree, respectively. Fifty-two percent of savers had at least a bachelor's degree.

The most significant difference between the three personas is in account tenure. Almost two-thirds of all account holders who had their account for less than a year were classified as savers. Other meaningful differences between personas relate to account usage. These differences are not captured by looking at age, income, or education. That is not to say that an individual's age, income, or educational attainment are not important drivers of contribution or withdrawal behavior. Rather, these factors are not particularly useful for predicting an account holder's persona.

Only 4 percent of account holders eligible to invest their HSA balances actually chose to invest. Investors, or account holders who had invested any portion of their HSAs in sweep or brokerage accounts, represent a small proportion of the account holders in the sample we studied. Account holders who have used their HSA for at least one year were classified as investors 300 percent more often than account holders who had their HSAs for shorter than a year. Similarly, account holders with a college degree invested 200 percent more often than those without a college degree. Investors were wealthier than non-investors, though there was virtually no difference in age between the two groups.

The account holders in the population we studied were eligible to invest their HSA funds if they had balances greater than $1,000. We found that more than a third of account holders were eligible to invest their HSA funds, but only 4 percent of them actually did. Account holders who do not wish to use their accounts as spending vehicles in the immediate future are missing an opportunity to grow their health savings through interest and investment returns. Inactivity allows their savings to be eaten away by inflation.

Investors represent a small proportion of the account holders in the sample we studied. This could be a result of several factors. First, account holders must deposit at least $1,000 before they are eligible to invest their funds. This additional bit of friction all but ensures that some individuals who may not be quite as engaged with their personal finances will not make the extra effort to open a brokerage account within their HSA and change their investment elections. Second, this aspect of the HSA may not be well-known among employees, even though it is one of the biggest differentiators from FSAs. Or perhaps employees are declaring a preference for risk aversion related to the money they have earmarked for future health-care expenditures.

Investors were systematically different from non-investors in several ways. Investors were slightly older than those who did not invest. Due to the large sample sizes involved, this difference is statistically significant but not practically significant. Investors were also more likely to be more highly compensated. Nearly 6 in 10 investors earned over $100,000, compared with 4 in 10 for the non-investing population. And, similarly, investors were more likely to have achieved a higher level of education. Sixty-eight percent of investors hold at least a bachelor's degree compared with 55 percent of the general population, suggesting a small but statistically significant link between education level and engagement.

Investors were also more likely to be male than non-investors. Nearly three quarters of investors were men, compared with 56 percent of the non-investor population. This may signal an underlying difference in risk appetites between male and female account holders. Or, women may be less willing to invest the asset in their accounts, given that women generally consume more health-care goods and services than men do.[22] Investors were less likely to have dependents than non-investors. Though the magnitude of the difference is small, it is statistically significant: Investors have dependents about 5 percent less frequently than non-investors. This result may be a reflection of current or expected health-care needs. Families face higher health-care costs than single employees, and employees may be more hesitant to invest funds

within their HSA while expecting to face health-care expenses in the near future.

The vast majority of investors were account holders who had an account tenure of longer than a year. Almost 90 percent of investors were account holders who had their accounts for more than a year, a difference that was statistically significant from the remainder of the population, which stood at 63%. This is not entirely surprising, as building up a sufficient balance to meet the $1,000 threshold takes time. But, it also lends credence to the hypothesis that investors may be more familiar with the features included in their HSAs, and that this familiarity may develop over time.

Further reinforcing this hypothesis is the fact that investors actually had slightly lower balances than non-investors who were eligible to invest. The average ending balance among investors was just shy of $3,500, whereas the average balance of account holders who had accrued more than $1,000 but had not invested was $3,917. This difference of $420 is statistically significant at a 95 percent confidence level. Therefore, we can rule out the possibility that investors are account holders who have accrued significantly larger balances than non-investors and invest simply because they have built up a sufficiently large balance in their HSAs to take on that risk. We cannot, however, rule out that systematic differences in underlying attitudes toward risk and investing are driving the difference in behavior between investors and non-investors.

Curiously, investors tend to spend more of their HSAs than non-investors, an indication that they may not view these accounts as retirement vehicles. Investors spent an average of $1,887 from their HSA compared with a non-investor average of $1,260, a statistically significant difference. On the surface this seems to be a counterintuitive result, as one might expect investors to keep HSA funds invested and allow the principal to grow and compound over time. It is possible that the higher spending we observe from investors is merely a result of higher levels of engagement. It is feasible that an account holder who has invested HSA funds could also be more engaged with his or her finances. And an individual who is more engaged with his or her finances may also be more engaged with remaining healthy and may spend more money from an HSA to achieve this goal.

Employees who do not plan to immediately use their HSA funds for medical expenses are missing an opportunity to grow their savings. Less than 4 percent of account holders who are eligible to invest HSA funds in a money market account or a brokerage account actually do so. If they do not plan to use their balances for medical expenses as they arise, the account holders who fall in the saver persona and who withdraw little money from their HSAs may be much better served by investing the funds in their HSAs in a brokerage or sweep account. One of the most significant advantages of HSAs is the ability to reimburse one's health-care purchases at a later date, after the balance has grown via compounding market returns. Also, starting at age 65, withdrawals for non-health-care purposes are allowed and are subject to regular income tax, much like a traditional 401(k). Funds from HSAs may be used to pay Medicare Part B premiums as well, which currently range from $1,258 to $4,028 per year, depending on income.

If employees were able to maintain a sufficiently large emergency fund for health-care expenses and pay all expenditures out of pocket, they could be much better off. Employees with HSAs are allowed to reimburse themselves by withdrawing funds from their

Figure 7: Systematic Differences Between Investors and Non-investors

	Investors	Non-investors
Has dependents	40.90%	43.60%
Age	43.8	45.1
Male	73.80%	55.40%
Earns over $100k	56.80%	40.10%
Amount Withdrawn	$1,887	$1,227
Have at least a BA	68.20%	54.70%
Had account for over 1 year	89%	63%

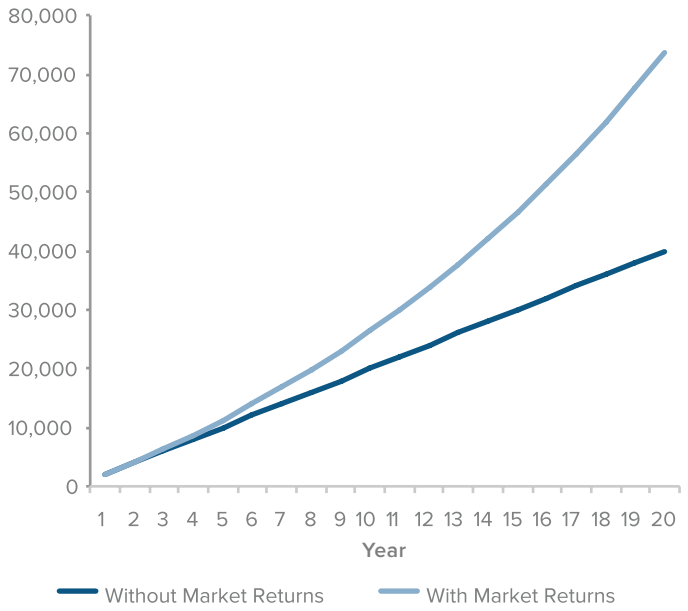
Note: Author's analysis of UMB HSA data.
All differences statistically significant at a 5% level

HSAs many years after the fact. Given a sufficiently large source of liquid funds, an optimal strategy could be to pay all medical expenses out of pocket, invest the HSA balance in an index fund, allow the principal and investment gains to grow for several decades, and then withdraw funds to reimburse earlier medical expenditures. Figure 8 illustrates the effect of compounding investment returns, given $2,000 annual contributions and a 6 percent return.

Most importantly, the data we studied reveals that the investment feature of HSAs has not gained much traction, and that those who do invest are systematically different from those who do not invest. Investors tend to be wealthier, have higher educational attainment, and skew to include more men than non-investors. Account holders who invest skew decidedly toward the wealthier individuals, indicating an underlying difference in risk preferences, the ability to withstand large medical expenditures, or higher levels of financial engagement.

On average, older and higher-income employees contribute over 200 percent more than younger and lower-income employees. We observed that the median account holder in the highest income quartile contributed about three times as much to their HSA as the median account holder in the lowest income quartile. We also found that other demographic variables, such as education, marital status, and the presence of dependents are all associated with differing levels of employee contributions, as well as distributions.

Figure 8: HSA Balances, With and Without Market Returns



We find that contributions are disproportionately driven by older and wealthier account holders. Account holders in the highest income quartile defer on average 150 percent more than account holders in the lowest income quartile, with average contributions of $1,677 and $672, respectively. Similarly, the average account holder in the oldest age quartile contributed more than twice as much as the average account holder in the youngest income quartile. In addition to facing higher health-care costs in general, older employees tend to be more highly compensated.[23] We will disentangle and quantify the effect these two competing characteristics have in a regression model.

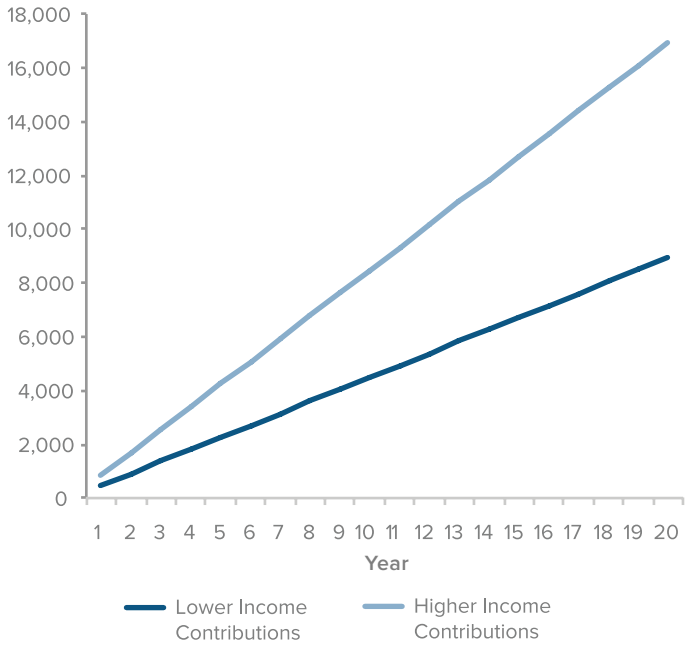
The distribution of employee contributions is skewed positively. Among account holders who made a contribution to their HSA, the median contribution was almost $700, while the mean contribution was more than twice as large at $1,550. The skewed mean is largely driven by contributions from wealthier and older account holders. The mean contribution from an account holder in the top income quartile was three times the mean contribution from an account holder in the lowest income quartile. Similarly, the mean contribution by an account holder in the oldest age quartile was more than 1.5 times higher than the mean contribution by an account holder in the youngest age quartile.

This is a disconcerting trend, as it indicates that the tax advantages offered by HSAs are disproportionately used by older and wealthier employees. There are a number of explanations for this. We do not have insights into the personal financial situation of each individual in the data we analyzed, but we can posit generalizations. Older and wealthier employees may be contributing more money because they have more disposable income left over after paying for necessities such as bills and housing expenses, as well as other savings vehicles they prioritize, such as 401(k)s, 529 college-savings plans, or savings accounts. Or this may be a reflection of their attitudes toward health

care; as previously mentioned, wealthier employees consume more health-care goods and services than less-wealthy employees, and older employees tend to have more health-care needs than younger employees. It follows that employees with disposable income would use the tax advantages offered by HSAs to maximize their buying power to pay for these services.

No matter the cause, one thing is clear; lower deferrals to HSAs leaves less-well-off employees with lower HSA balances, and therefore less prepared to deal with future medical expenses. Though younger employees tend to be healthier, face fewer health-care expenses, and tend to earn more as their careers progress, the same does not necessarily hold true for low-income employees. Lower-income employees will accumulate significantly less in their HSA accounts should their contribution trends hold, and younger employees will be at risk if their contribution patterns do not change as they age. Figure 9 illustrates the difference in account balances, should lower-income and higher-income employees continue contributing to their HSAs at their current rates. After 20 years at their current contribution levels, young employees in the lowest income quartile will have $8,000 less accrued in their HSAs than young employees in the highest income quartile.

Figure 9: HSA Balances Based on Contribution Patterns of Lower- and Higher-income Participants



Holistic data on employees' personal finances would allow us to discover more meaningful insights into the relationship HSAs have with other financial instruments. Given an additional dollar of discretionary income, how should that money be allocated considering the presence of debt, employer-sponsored retirement accounts, and HSAs? With that information, we could determine optimal allocations based on an individual's age, health, and appetite for risk. Without knowing each employee's unique situation, though, it is difficult to determine the optimal use for that additional discretionary dollar.

Several interesting trends emerge after segmenting the sample by income and comparing classifications. Generally, as income increases, account holders are more frequently classified as spenders and less frequently as savers. This could be driven by higher-income account holders seeking more medical procedures than lower-income account holders. Or perhaps it is driven by a knowledge gap: Higher-income account holders may have a better understanding of how to plan for medical expenditures using their HSAs. The former possible cause is an intuitive result, while the latter possible cause could be solved through improved education and messaging about how to use HSAs.

Not surprisingly, age and income are strongly associated with contributions in a regression model. Controlling for education, gender, and coverage type, we find a statistically significant relationship between age, income, and contributions. A one-year increase in age is associated with a $15 increase in employee contributions to an HSA. Similarly, for each income category above $39,000, richer income bins are associated with progressively larger statistically significant increases in HSA contributions. The associated contribution change increases with each successive income bin. These results are reported in Figure 10.

No matter the underlying reasons for the differences in contribution behavior, tax benefits arising from HSA use are flowing disproportionately to higher-income households. We do not have sufficient data on filing status to determine the overall tax benefits received

by HSA account holders, but we can calculate FICA tax benefits, a significant differentiator of the HSA and one of the trifecta of tax advantages it offers. The average account holder in the wealthiest income quartile accrued nearly 250% more in tax benefits from the FICA tax alone than households in the lowest income quartile. This is driven primarily by higher contribution levels, despite the fact that account holders earning more than $113,700 face a lower effective FICA tax rate. As with many other tax deductions, the benefits from HSA contributions appear to flow disproportionately to higher-income households.

Younger employees may contribute more to their HSAs as they grow older and increase their earnings. However, low-income employees are at risk of having insufficient funds to cover large medical expenses. In this case, low-income employees may be forced to pay for medical expenditures out of pocket, thereby forfeiting the tax advantages associated with HSAs. Or worse, they may pay for medical expenditures with revolving credit or money withdrawn from their 401(k)s. Though we cannot discern how account holders pay for health care once their HSAs are depleted, there is a small bit of evidence that lower-income employees may be more at risk of paying for health care out of pocket or other suboptimal means. Despite comprising 13 percent of the population as a whole, employees earning less than $40,000 comprise 20 percent of the individuals who contributed to their HSA, but took large enough distributions that they ended the year with a near-zero balance.

The median account holder with an employer contribution defers over 200 percent more into their HSAs than the median account holder without an employer contribution. Similarly, the presence of an employer contribution reduces the chances that account holders will disengage with their HSA. We conclude that contributions an employer makes

Figure 10: Regression Model for HSA Contributions

Variable	Coefficient	Heteroskedastic Robust Standard Error	T-Statistic	P-Value	95% Confidence Interval	
Age	15.09527*	0.2611024	57.81	< 0.01	14.58352	15.60703
Income Less Than $19,000	32.8412	24.71901	1.33	0.184	-15.60734	81.28973
Income Between $19,000 - $28,999	-9.363441	20.20228	-0.46	0.643	-48.95932	30.23244
Income Between $29,000 - $38,999	13.08192	19.1775	0.68	0.495	-24.50541	50.66926
Income Between $39,000 - $48,999	77.09246*	18.76552	4.11	< 0.01	40.31259	113.8723
Income Between $49,000 - $58,999	182.1647*	18.25747	9.98	< 0.01	146.3806	217.9488
Income Between $59,000 - $74,999	237.9166*	17.56893	13.54	< 0.01	203.482	272.3512
Income Between $75,000 - $98,999	501.9733*	18.52744	27.09	< 0.01	465.6601	538.2866
Income Between $99,000 - $124,999	618.7182*	19.95389	31.01	< 0.01	579.6092	657.8273
Income Over $125,000	893.8288*	19.19109	46.58	< 0.01	856.2148	931.4428
Male	261.8881*	6.125637	42.75	< 0.01	249.882	273.8942
Has Kids	141.3045*	6.717472	21.04	< 0.01	128.1384	154.4705
Vocational/Techincal Degree	-67.75658	35.65356	-1.9	0.057	-137.6365	2.123361
College Degree	202.6708*	6.782372	29.88	< 0.01	189.3775	215.964
Graduate Degree	488.119*	10.37413	47.05	< 0.01	467.786	508.452
Constant	-281.6959*	19.45877	-14.48	< 0.01	-319.8345	-243.5572

Note: Author's analysis of UMB HSA data.

* Denotes statistical significance at the 5% level

on an employee's behalf can increase employee contributions and participation.

HSA plan designs vary widely between employers. There are some notable differences in employer contribution patterns and the associations they have with employee contribution behavior. Across UMB's population, nearly 67 percent of employers actively contributed money to an employee's HSA on their behalf, whether by an initial seed contribution or on a monthly, quarterly, or other schedule. Among these companies, we observe a median employer contribution of nearly $700 and a mean contribution of about $1,400. Companies contribute a median time of twice per year, and the mean company contribution is roughly on a quarterly basis. Among these companies, we notice that the median employee contributes more than his or her counterpart at a company that does not make contributions, $192 and $60, respectively.

Almost 50 percent of all employers contribute more to employees' HSAs than the employees themselves. This is a reflection of the fact that a majority of employees defer relatively small amounts to their HSAs rather than of generosity on the part of employers. In fact, more than 16 percent of employees who did not contribute anything to their HSA had an employer contribution, and 26 percent of employees who contributed less than $200 had an employer out-contribute them.

Controlling for income, gender, and education, we find that an increase in the frequency of employer contributions to HSAs is associated with greater employee contributions. Specifically, each employer contribution is associated with an additional $80 of employee contributions. However, the presence of employer contributions decreases employee contributions by nearly $500. This suggests that employees may have a target for their HSA balances in mind and may

Figure 11: Regression Model for Relationship Between Employer and Employee Contributions

Variable	Coefficient	Heteroskedastic Robust Standard Error	T-Statistic	P-Value	95% Confidence interval	
Times Employer Contributed	80.96127*	0.7674874	105.49	< 0.01	79.45701	82.46552
Employer Contributed	-488.398*	6.647745	-73.47	< 0.01	-501.4274	-475.3686
Age	13.84973*	0.2195784	63.07	< 0.01	13.41936	14.28009
Income Less Than $19,000	50.74623*	21.86987	2.32	0.02	7.881949	93.61051
Income Between $19,000 - $28,999	8.612868	17.38071	0.5	0.62	-25.45278	42.67852
Income Between $29,000 - $38,999	41.52238*	16.47222	2.52	0.012	9.237332	73.80743
Income Between $39,000 - $48,999	116.7587*	16.10245	7.25	< 0.01	85.19836	148.319
Income Between $49,000 - $58,999	230.9696*	14.86726	15.54	< 0.01	201.8302	260.109
Income Between $59,000 - $74,999	286.8157*	15.02226	19.09	< 0.01	257.3725	316.2589
Income Between $75,000 - $98,999	550.9039*	15.95462	34.53	< 0.01	519.6334	582.1745
Income Between $99,000 - $124,999	677.5813*	17.32114	39.12	< 0.01	643.6324	711.5302
Income Over $125,000	968.4671*	16.62051	58.27	< 0.01	935.8914	1001.043
Vocational/Technical Degree	-87.2835*	35.11186	-2.49	0.013	-156.1017	-18.46534
College Degree	179.9304*	6.258091	28.75	< 0.01	167.6648	192.1961
Graduate Degree	459.4896*	9.925029	46.3	< 0.01	440.0368	478.9423
Has Kids	190.8987*	6.392721	29.86	< 0.01	178.3691	203.4282
Constant	16.87636	16.82976	1	0.316	-16.10946	49.86218

Note: Author's analysis of UMB HSA data.

* Denotes statistical significance at the 5% level

modify their contribution behavior based on their employer's contribution amount.

On average, employees who work at companies that offer contributions deferred about 14 percent less than employees without an employer contribution. Yet each group's ending balances were similar. At the end of the year, balances among account holders with an employer contribution were 8 percent larger than those without an employer contribution, differences that were statistically significant at a 5 percent level.

As with the regression modelling of the factors associated with disengagement, both the presence of employer contributions and number of employer contributions are associated with contribution behavior. Controlling for income, gender, education, employer contributions, and the presence of employer contributions, we found that each additional instance of an employer contribution is associated with an additional $35 of employee contributions. Each additional dollar of employer contributions is associated with an additional 14 cents of employee deferrals.

Though there may be systematic differences in the workforces of companies that offer contributions on the behalf of employees, the above models suggest that human resources departments ought to consider the design of their health insurance plans. Providing a contribution on the employee's behalf is associated with a lower likelihood that an account holder will be disengaged or dormant, which is important for human resources departments looking to maximize the impact of their benefits spending. These results are reported in Figure 12.

Similarly, each employer contribution is associated with a higher total employee contribution, which leaves individuals better prepared for large health-care expenses. Seemingly minor changes in HSA plan design can have significant impacts on how employees interact with and use this benefit.

About 5 percent of account holders contributed the maximum amount allowed by the IRS to their HSAs, which was $3,250 for single coverage and $6,500 for family coverage in 2013. Many employees may be deferring insufficient amounts to their HSAs to cover medical expenses. Among those who made contributions in 2013, the mean deferral was nearly $1,600 and the median deferral was just $700. This behavior is suboptimal from a tax-efficiency standpoint, reduces buying power for health care, and is potentially dangerous if the account holder faces large medical bills.

Though HSAs help employees afford health-care expenses incurred while participating in HDHPs, it is imperative for employees to manage their accounts wisely. This requires them to contribute a sufficient amount of money to cover large medical expenses.

Figure 12: Regression Model For Associations Between Employer Contributions and Employee Engagement

Variable	Coefficient	Heteroskedastic Robust Standard Error	Z-Score	P-Value	95% Confidence Interval	
Employer Contributes	-0.8533*	0.0197	-43.3000	< 0.01	-0.8920	-0.8147
Age	-0.0138*	0.0008	-16.9100	< 0.01	-0.0153	-0.0122
Vocational/Technical Degree	-0.0055	0.1381	-0.0400	0.9680	-0.2761	0.2651
College Degree	-0.1589*	0.0224	-7.1000	< 0.01	-0.2028	-0.1151
Graduate Degree	-0.5453*	0.0335	-16.2700	< 0.01	-0.6110	-0.4797
Male	-0.7296*	0.0195	-37.4500	< 0.01	-0.7678	-0.6914
Has Kids	-0.0703*	0.0198	-3.5500	< 0.01	-0.1091	-0.0315
Constant	1.554493*	0.040363	38.51	< 0.01	1.475383	1.633603

Note: Author's analysis of UMB HSA data. Coefficients presented are marginal effects.

* Denotes statistical significance at the 5% level

High-Deductible Health Plans, by definition, demand a higher deductible than traditional health-care plans and are most often accompanied by a higher out-of-pocket maximum. Employees then assume greater financial risk when faced with medium- and large-sized medical expenditures. The highest allowable out-of-pocket maximums for HDHPs are $6,450 for single coverage and $12,900 for family plans, though some plans offer lower out-of-pocket maximums. Some HDHPs allow for first-dollar coverage for certain types of preventive care, but this is not a requirement. Employees, particularly those enrolled in plans with dependent coverage, ought to carefully consider self-insuring against the risk that they could incur more than $10,000 in health-care bills in a single year. It is beneficial for them to do so using their HSA, given its tax advantages. If employees do not contribute enough money to their HSAs, they could be forced to use suboptimal ways to finance their medical bills, such as revolving credit or payday loans.

Only 5 percent of account holders in this sample contributed the maximum amount allowed by the IRS. During the year in which these records were collected, the contribution limit was $3,250 for single coverage and $6,450 for family coverage, with an additional $1,000 of catch-up contributions allowed for account holders who were older than 55. This is a small proportion, considering that participation in HDHPs requires employees to pay higher out-of-pocket costs until they meet their deductibles.

The sample that contributes the maximum skews wealthier and older than the portion of the sample that does not. Almost 67 percent of the households that contribute the maximum earn more than $100,000, and the average maximum contributor is four years older than an account holder who does not maximize. Maximizers more often hold at least a bachelor's degree compared with non-maximizers, and more often have children. These between-group differences are all statistically significant and are reported in Figure 13 in more detail. Without more data on each individual account holder's personal finances, we cannot draw concrete conclusions as to why this happens, but we can consider a few causal structures.

As reported earlier in the paper, older and wealthier account holders contribute more on average. As one might expect given that finding, the account holders who contribute the statutory maximum to their HSAs also skews older and wealthier. These account holders likely contribute more because they have more disposable income left over after paying off debts and funding their retirement accounts.

Finally, the vast majority of maximizers have had their accounts for more than a year. It would require the account holder to perform some complicated budgeting calculations and commit a sufficiently large amount of disposable income to max out their HSA contributions within a year. We observed that 97 percent of account holders who maximize have had their accounts for longer than a year. This result also suggests a link between account tenure and increased engagement.

The small proportion of account holders who contribute the IRS maximum could be a reflection of several factors, both mathematical and behavioral. Any addition of an account for an employee to contribute to and maintain adds a level of complexity to that individual's personal finances. HSAs compete for employees' limited pretax dollars with defined-contribution retirement plans and, to a lesser extent, FSAs and transit benefits. Many employees simply do not have the extra money or will not commensurately cut back on discretionary spending to fully fund their HSA.

Figure 13: Systematic Differences Between Maximizers and Non-maximizers

	Maximizers	Non-Maximizers
Has dependents	57.89%	42.20%
Age	47.33	43.58
Male	69.03%	55.22%
Earns over $100k	64.59%	38.96%
Amount Withdrawn	$3,848	$1,117
Have at least a BA	68.18%	53.95%
Had account for over 1 year	89%	63%

Note: Author's analysis of UMB HSA data.
All differences statistically significant at a 5% level

On the behavioral side, saving for health care lacks saliency. It is difficult enough to project health-care expenditures, and especially so if one has not previously incurred a large medical bill. HSAs are still a relatively new instrument, and the task of projecting one's out-of-pocket health-care expenditures is an unfamiliar one for many employees. Without guidance for how much money an employee ought to set aside, it can be difficult to effect change and encourage individuals to save more. Perhaps, as employees become more familiar with their HSAs and estimating the amount of expenditures they will incur over the year, the number of account holders contributing the maximum allowed by the IRS will increase.

Conclusion

High-Deductible Health Plans and Health Savings Accounts are undeniably gaining traction in the benefits market. Human resource departments at companies large and small are increasingly adopting these plans with the goal of better managing their health-care costs. More data is needed to determine whether HDHPs are truly reining in health-care cost increases, but the theoretical underpinnings of HDHPs are strong. When employees take a greater financial stake in their health, they will become more savvy consumers, deciding which procedures are truly necessary and comparison shopping for better prices, which will lower the costs faced both by the employee and the employer.

Faced with medical expenditures rising faster than both inflation and wages, employees can find that HSAs are useful tools. Contributions to these plans are triply tax advantaged, as account holders do not pay income tax or payroll tax on eligible contributions, gains in the value of the accounts, or withdrawals used for qualified medical purposes. HSAs can also be used as retirement vehicles, with no tax penalty incurred for nonqualified expenditures after age 65.

By analyzing data provided by UMB Bank, we have gained some unique insights into how some of their account holders are using their HSAs. As we have seen with the link between employee and employer contributions, plan design can have a powerful effect on employee behavior. We found some intuitive links, namely that older and richer workers tend to contribute more.

We do see a worryingly large number of account holders in our sample using their HSAs in suboptimal ways. We have observed that nearly 5 percent of account holders are completely disengaged from their accounts, making minimal contributions and taking no distributions. Another 10 percent of accounts are possibly dormant. Though we cannot discern intent, savers appear to be leaving funds earmarked for the long-term to sit in a checking account and be eaten away by inflation, rather than earning interest in a sweep account or accruing investment returns in a brokerage account. Many employees seem to be under-saving in their HSAs, potentially leaving themselves vulnerable in the case of a medium or large medical emergency. Even fewer account holders are contributing the maximum amount allowable by the IRS, reducing their tax benefits and limiting their ability to accrue a large balance over the course of their careers.

Additional research should explore the interactions between HSAs and employees' personal finances. Gaining a deeper understanding of the decisions employees make about their savings would require a more holistic data set that includes a comprehensive overview of an individual's personal finances. Given an additional dollar of discretionary income, does the employee choose to defer it to an HSA or retirement account? What factors might influence that decision? We hope this paper fosters further research on this intersection between human resource policy and behavioral science.

End Notes

[1] Towers Watson, 19th Annual Towers Watson/National Business Group on Health, Employer Survey on Purchasing Value in Health Care.

[2] Bureau of Economic Analysis.

[3] The average employer paid $4,394 in premiums for single employees enrolled in an HDHP, compared with $5,041 for HMO coverage, $5,082 for PPO coverage, and $5,182 for POS coverage. 2014 Employer Health Benefits Survey. Menlo Park (CA): The Kaiser Family Foundation and Health Research and Educational Trust. 2014.

[4] These plans are relatively new and are thought to cost less money because the participants tend to be younger and healthier compared with those in traditional health-care plans.

[5] There are many academic articles on this topic. A recent article is Russell Korobkin. 2012. "Comparative Effectiveness Research as Choice Architecture: The Behavioral Law and Economics Solution to the Health Care Cost Crises." Ann Arbor, MI: *Michigan Law Review.* United States Government Accountability Office. 2006. "Consumer Directed Health Plans: Early Enrollee Experiences with Health Savings Accounts And Eligible Health Plans." Report to the Ranking Minority Member, Committee on Finance, U.S. Senate, GAO-06-798.

[6] Towers Watson, 19th Annual Towers Watson/National Business Group on Health, Employer Survey on Purchasing Value in Health Care.

[7] 2014 Employer Health Benefits Survey. Menlo Park (CA): The Kaiser Family Foundation and Health Research and Educational Trust. 2014.

[8] See a number of papers by the America's Health Insurance Plans, Center for Policy and Research, for instance. One recent study is: America's Health Insurance Plans Center for Policy and Research. 2013. "January 2013 Census Shows 15.5 Million People Covered by Health Savings Account/High-Deductible Health Plans (HSA/HDHPs)."

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[10] Employee Benefits Research Institute, June 2014. "HSA Balances, Contributions, Distributions, and Other Vital Statistics—A First Look at Data from the EBRI HSA Database on the 10th Anniversary of the HSA."

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[19] To examine this impact, we built an ordinary least squares regression model and included household income, age of account, and saver status as independent variables and employee contributions as the dependent variable.

[20] Similar to the model we built to examine the impact of saver status, we built an OLS regression model and included household income, age of account, and spender status as independent variables and employee contributions as the dependent variable.

[21] We built the same OLS model as the previous two personas, only including manager status instead of spender or saver status as an independent variable.

[22] KD Bertakis, R Azari, EJ Callahan and JA Robbins. 2000. "Gender Differences in the Utilization of Health Care Services." *Journal of Family Practice.*

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[24] IRS Publication 969: http://www.irs.gov/publications/p969/ar02.html

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