
# High-Deductible Health Plans and Health Savings Accounts: An Empirical Review

**-name redacted-**
Analyst in Health Care Financing

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# Summary

Health Savings Accounts (HSAs), as authorized by the Medicare Prescription Drug, Improvement, and Modernization Act (P.L. 108-173, MMA) of 2003, are tax-preferred savings accounts used to pay for unreimbursed qualified medical expenses such as health insurance deductibles, copayments, and services not covered by insurance. To contribute to an HSA, the insured must have a high-deductible health plan (HDHP), and generally no other health insurance coverage. One of a number of the stated goals of the 2003 legislation is to encourage workers to better save for their health care in retirement. Moreover, the HDHP/HSA combination is thought to provide incentives for the consumers to be more active in their care, and purchase the best possible medical services for the lowest possible price. This report analyzes existing data and reviews the current literature to discuss whether HDHPs and HSAs have begun to meet some of these objectives.

Enrollment in HDHPs has been increasing since HSAs were introduced in 2004. Nevertheless, the HDHP enrollment growth rate is slowing. Individuals who have an HDHP may or may not open an HSA; it is estimated that between 51% and 58% of HDHP holders go on to open an HSA. Whether opening an HDHP/HSA is financially advantageous is a complicated issue. In fact, those at many levels of the health spending distribution might save money by opening an HDHP/HSA instead of enrolling in a standard preferred provider organization (PPO) plan (the most common type of health insurance plan).

A review of the literature on HDHPs and HSAs suggests the following:

- HSAs are designed to change consumer behavior by providing incentives for consumers to be more concerned with the cost and quality of their health care. Although a few studies suggest this is happening, the literature in this area reports mixed and inconclusive results.
- HSAs could encourage individuals to save for their health expenses in retirement. However, because only about half of HDHP plan holders open an HSA, the remaining half are not saving for their health expenses in this tax-preferred account. Among those with HSAs, some may be using the account as a tax benefit and not saving for health care in retirement.
- The uninsurance rate could potentially decrease with the advent of HDHPs as previously uninsured individuals purchased these plans because of their relatively low premiums. There is little evidence, however, that the currently uninsured are transitioning into HDHPs.
- Some hoped that a change from standard PPO plans to HDHP/HSA plans would lower aggregate health expenditures. They maintain that expenditures would fall if most of those insured in a standard PPO plan actually moved to an HDHP/HSA.

The empirical evidence backing many of these results is weak or limited, and much remains unknown about the effects of HDHPs and HSAs on uninsurance, the utilization of health care, and aggregate health expenditures.

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# Introduction

## Background

Health Savings Accounts (HSAs), as authorized by the Medicare Prescription Drug, Improvement, and Modernization Act (P.L. 108-173, MMA) of 2003, are tax-preferred savings accounts used to pay for unreimbursed qualified medical expenses such as health insurance deductibles, copayments, and services not covered by insurance. To open or contribute to an HSA, the insured must have a high-deductible health plan (HDHP), and generally no other health insurance coverage.[1] One of a number of the stated goals of the HSA enabling legislation is to encourage workers to better save for their health care in retirement. Moreover, the HDHP/HSA combination is thought to provide incentives for consumers to be more active in their care, and purchase the best possible medical services for the lowest possible price. The savings accounts provide strong incentives for the consumers to be especially prudent with their own funds, because they can save whatever is not spent on health services.

HDHPs may have benefits even if plan holders do not go on to open an HSA. First, HDHPs have lower premiums than most other types of insurance plans, and therefore may be affordable to those who would otherwise not purchase insurance. Second, a plan with a high deductible removes some of the incentive for patients to purchase more care than they otherwise would under low deductible plans. On the other hand, the lower premium does not guarantee that all individuals will go on to open an account or use health services. Indeed, it has been argued that HSAs encourage individuals to under-use health care and forego necessary services.

These various objectives of HDHPs, with and without HSAs, are part of a larger concept known as Consumer-Directed Health Care (CDHC).[2] CDHC, which is also known as consumerism, provides incentives for the consumers of health services to become more active in their care by becoming well informed, and choosing practitioners and treatments that best suit their medical needs at the lowest possible prices. In fact, the use of "consumer" and not "patient" is indicative of the degree to which individuals are intended to take charge of their health care and expenditures.[3]

Despite their growing importance in the insurance market, little has been known about the effects of HDHPs and HSAs; data for any analysis have simply not been available. Now that data are starting to be collected and released, congressional agencies, policy organizations, and academics have begun to examine the impact of CDHC in general, and HDHPs and HSAs in particular. This report analyzes the available data, and presents findings from refereed academic publications, working papers, government documents, and reports from policy organizations.

[1] In 2010, a qualifying HDHP has a minimum annual deductible of $1,200 for self-only coverage and $2,400 for family coverage; see the next section for further details. For more information on HSA rules, see CRS Report RL33257, *Health Savings Accounts: Overview of Rules for 2010*, by (name redacted).

[2] Harlan M. Krumholz, "Informed Consent to Promote Patient-Centered Care," *Journal of the American Medical Association*, vol. 303, no. 12 (March 25, 2010), pp. 1190-1191.

[3] For an overview of consumerism, see John C. Goodman, "What is Consumer-Directed Health Care?," *Health Affairs*, vol. 25 (October 24, 2006).

## Plan of Report

The goal of this report is to state what is known (and not known) about HDHPs and HSAs at this time. The report is in two parts.

- First, the report describes the rules covering HDHPs and HSAs, the trends in HDHPs purchased and the trends in individual contributions to HSAs.
- Second, the report discusses policy questions, including the degree to which HDHPs and HSAs have increased the quality of health care, contributed to retirement savings, reduced uninsurance, and reduced aggregate health expenditures.

Existing research is too fragmented to answer this second group of questions very definitively. Frequently, only one or two studies test any given hypothesis, which makes it hard to generalize about the effects of HDHPs and HSAs, especially when the limited number of studies reach opposite results. This report therefore documents the state of the existing literature, including its strengths and its weaknesses. This report can be viewed as an analytic discussion of what is known about HDHPs and HSAs, and what remains to be learned.[4]

# HDHP and HSA Basics

## HDHP Basics

HDHPs have been available for many years.[5] Their popularity, however, increased with the advent of HSAs over the past seven years. In this report, the term HDHP is restricted to mean a plan where the insured is eligible to open an HSA. In other words, HDHP in this report is shorthand for HSA-eligible HDHP. Also in this report, a preferred provider organization (PPO) not associated with an HDHP is used as the baseline to which an HDHP is compared. The choice of PPOs as the baseline structure is because more people are covered by PPOs without HDHPs than any other type of insurance plan structure.[6] However, it should be noted that some HDHPs use PPO networks for the delivery of care.

The high deductible associated with an HDHP is one primary difference between HDHPs and other insurance plans. HDHPs also limit the maximum amount of out-of-pocket spending by the

[4] The Patient Protection and Affordable Care Act of 2010 (PPACA, P.L. 111-148) changes some HSA provisions beginning in 2011. In particular, HSAs can no longer be used to fund over-the-counter medications (except insulin) unless they are prescribed by a physician. The penalties for withdrawals for nonmedical purposes for those under 65 will increase to 20% from 10%. This report, therefore, should be interpreted as a discussion on HDHPs and HSAs before the PPACA health insurance mandate takes effect. For more information on the HSA provisions of PPACA, see CRS Report RS21573, *Tax-Advantaged Accounts for Health Care Expenses: Side-by-Side Comparison*, by (name redacted).

[5] For example, union strikers discussed their merits in 1987; see Neal St. Anthony, "Some Strikers Relieved, Others Remain Bitter," *Star-Tribune Newspaper of the Twin Cities*, March 15, 1986, Metro Section.

[6] In addition, virtually all the existing research uses PPOs as the comparison group; see the **Appendix** for details. For information on the types of health insurance plans and their distributions across various populations, see The Henry J. Kaiser Family Foundation and Health Research & Educational Trust, *Employer Health Benefits 2010 Annual Survey*, September 2010.

consumers. The distinction between in-network and out-of-network is present in many HDHPs. In addition, HDHPs are available in the individual, small group, and large group markets.

The basic rules for HSA-qualifying HDHPs in 2010 are as follows:

- The annual deductible for self-only coverage must be at least $1,200 and for family coverage at least $2,400,
- The annual limit on out-of-pocket spending is $5,950 for self-only plans and $11,900 for family plans, and
- Deductibles need not apply to preventive care.

The amount of the minimum deductible is updated annually to reflect changes in the cost of living. The updates are rounded to multiples of $50.

## HSA Basics

The HSA is one type of savings account associated with consumerism in health care.[7] HSAs are used to pay for unreimbursed qualified medical expenses such as insurance deductibles, copayments, and services not covered by insurance.[8] The basic rules covering HSAs are as follows:[9]

- Individuals can establish and fund HSAs when they have qualifying HDHPs and no other coverage.
- HSA contributions may be made by account owners, their employers, or others up to an annual limit ($3,050 for self-only coverage and $6,150 for family coverage in 2010).
- Individuals who are at least 55 years old but not yet enrolled in Medicare may contribute an additional $1,000. This amount is not indexed for inflation.
- Contributions may be made at any point in the year, even after the health expenditures have been incurred.
- Unused balances may accrue without limit.
- HSA contributions and income are tax free.
- HSA withdrawals are tax free if used for qualified medical expenses, or if the account-holder is at least 65 years old.

Many insurance carriers provide their HDHP/HSA plan holders with an HSA card. The card is similar to a debit card, and can be used to pay for health goods and services at the point of care

[7] For a summary of HDHPs/HSAs, see Lisa Clemans-Cope, Fredric Blavin, and Genevieve M. Kenney, *High-Deductible Health Plans with Health Savings Accounts: Emerging Evidence and Outstanding Issues*, Missouri Foundation for Health, Cover Missouri Project; Report 10, March 2006.

[8] The remainder of this paragraph draws heavily from previous work by (name redacted) and (name redacted). For more information, see CRS Report RL33257, *Health Savings Accounts: Overview of Rules for 2010*, by (name redacted).

[9] Many of these rules have exceptions; see ibid.

(or purchase). Individuals are required to provide documentation for their reimbursed health expenditures to the Internal Revenue Service (IRS) upon request.

HSAs are a particularly generous form of health-related savings account.[10] The account contributions and income are not taxed, and consumers keep the account even if they change jobs. There is no "use it or lose it" provision; theoretically account balances can grow quite high. Although insurance policies must have a high deductible, the policies may (but are not required to) cover preventive care before the deductible is met. In addition, consumers can add money to the HSA even after the medical expenses have been incurred, so that individuals do not have to deposit money until it is actually needed.

# Premiums, Deductibles, and Enrollment in HDHPs and HSAs

This section of the report discusses insurance premiums and deductibles for those with HDHPs and perhaps HSAs. The individual's (or family's) decision whether or not to select an HDHP and whether or not to subsequently open an HSA are separate but related decisions. The decisions are separate because selecting an HDHP does not require subsequently opening an HSA. The decisions are related because some of the factors that influence selecting an HDHP might also influence opening an HSA. For example, wealthy individuals might choose an HDHP because they can easily afford the relatively high out-of-pocket payments for health care associated with a high deductible. These same individuals might go on to open an HSA because they will receive relatively high tax benefits because of their high marginal tax bracket. On the other hand, lower-income individuals might choose an HDHP for its lower premiums but would not necessarily have the same tax incentive to open an HSA.

In addition, all individuals may not face the same insurance plan options. Those who purchase insurance on the individual market can purchase HDHPs in all states. Individuals who receive employer-sponsored insurance (ESI), however, can only purchase HDHPs if their employer offers a plan with this structure. Some individuals who elect to receive ESI must purchase HDHPs because their employer offers only this plan structure.

In any case, the price of the plan to the individual influences the individual's decision whether to enroll in an HDHP and take out an HSA. In health insurance, the common recurring and consistent measure of price is the premium, or the monthly (or annual) amount the policyholder pays for coverage.[11]

## Premiums and Deductibles for HDHPs

Data on single-coverage insurance premiums and deductibles for HDHPs and standard PPOs are provided in **Table 1**; data on family coverage shows similar relationships between the cells.

[10] For a comparison of tax-advantaged health accounts, see CRS Report RS21573, *Tax-Advantaged Accounts for Health Care Expenses: Side-by-Side Comparison*, by (name redacted).

[11] All insurance plans have additional costs associated with them, including deductibles, copayments, and coinsurance. Nevertheless, these additional costs are dependent on actual use of health services.

Because the three insurance markets differ greatly, the data are presented separately for the individual market, small firms, and large firms.[12] The data for small and large firms come from a survey of employers, and the data source for the individual market is a survey of insurers. For this reason the individual and firm data are not strictly comparable.

**Table 1. Average Annual Health Insurance Premiums and Deductibles, 2009, Single Coverage, by Plan Type**

| Market | HDHP | PPO |
|---|---|---|
| **Total Premium** | | |
| Individual market | N/A | N/A |
| Small firms | $3,877 | $4,948 |
| Large firms | $4,094 | $4,913 |
| **Deductible** | | |
| Individual market | $3,263 | $2,456 |
| Small firms | $2,037 | $1,040 |
| Large firms | $1,642 | $478 |

**Source:** The data sources differ between individuals and firms, and are therefore not strictly comparable. For the individual market, the data are from AHIP Center for Policy and Research, *Individual Health Insurance 2009*, October 2009, p. 17. For small firms and large firms, the data are from *Employer Health Benefits 2009*, The Henry J. Kaiser Family Foundation and Health Research and Educational Trust, 2009, pp. 76 and 98. Data covering 2010 in the small and large group markets display patterns similar to the 2009 data.

**Notes:** The abbreviation N/A stands for not available. In the small and large firms, total premiums include both the employers' and employees' share. Small firms have between 3 and 199 employees and large firms have at least 200 employees. The PPO structure in the individual market also includes point of service plans.

HDHP deductibles are indeed high. For example, in 2009 the average deductible in the individual market was $3,263. Even though the legal minimum deductible in 2009 was $1,150, average deductibles were between 40% and 180% greater than this amount.[13] As the market size increases, the HDHP deductible becomes a greater multiple of the PPO deductible; for example, in large firms, the HDHP is about 3.4 times the PPO deductible. The reason for this relationship is unclear. Nevertheless, the fact that HDHP deductibles may not fall below a given minimum while PPOs need not have a deductible may play a role.

The HDHP high deductibles are offset by lower premiums.[14] Premium data are not available for the individual health insurance market.

[12] See CRS Report RL32237, *Health Insurance: A Primer*, by (name redacted).

[13] The individual market typically has the highest deductible across all plan types, and large firms have the lowest deductible. For more information, see ibid.

[14] Health insurance premiums primarily reflect the value of the claims that the insurer expects to pay out. Other components of claims include administrative costs, other costs of doing business, and profits.

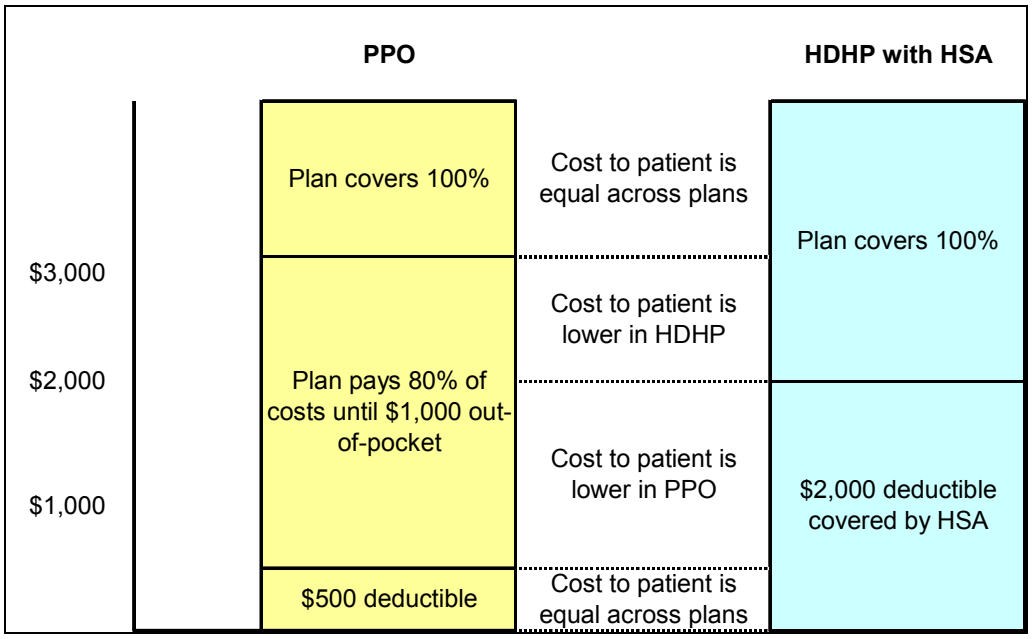
## Who Benefits from HSAs?

Before turning to enrollment in HDHPs and HSAs, it is helpful to look at the population of individuals most likely to benefit from these plans. This section discusses the appeal of HDHPs with HSAs to people of different health statuses.

Individuals at different health statuses may benefit financially from an HDHP coupled with an HSA. Because insurance plans with HSAs have high deductibles and may cover preventive care, some have concluded that they only benefit healthy people.[15] This would be because the healthy are more likely to have only preventive health expenditures. The healthy would therefore spend very little on health care, and would be able to increase their tax-exempt savings.

Nevertheless, it is often impossible to tell in advance which income levels would be better off with an HDHP/HSA. **Figure 1** illustrates that, for one representative set of possible insurance plans, it is difficult to predict in advance whether a representative consumer would be better off with a high-deductible policy or a lower-deductible policy. In other words, at the start of health insurance open season, the consumer may not know whether the HDHP/HSA or the standard PPO would result in lower total out-of-pocket spending (incorporating premiums, deductibles, and copayments).

**Figure 1. Cost Sharing for an Individual Policy Holder in an Illustrative PPO and HDHP/HSA**




**Source:** Duplicated from Laurence Baker, Kate Blundorf, and Anne Royalty, *Consumer-Oriented Strategies for Improving Health Benefit Design: An Overview*, Agency for Healthcare Research and Quality, Technical Review Number 15, January 2007, p. 8.

**Notes:** The total costs of health services are on the vertical axis. The PPO policy does not have an HDHP.

[15] Dwight McNeill, "Do Consumer-Directed Health Benefits Favor the Young and Healthy?," *Health Affairs*, vol. 23, no. 1 (January/February 2004), pp. 186-193. This paper is a simulation of behavior under a generic consumerist plan.

In **Figure 1**, the PPO policy, on the left, has a $500 deductible, and a $1,000 maximum level of out of pocket expenditures. The plan pays 80% of the individual's costs between $500 and $3,000. At the $3,000 expenditure mark, the individual's expenditures reach the maximum out of pocket level ($500 + 0.2*$2,500 = $1,000). The HDHP with HSA policy, on the right, has a $2,000 deductible and also a $2,000 out of pocket maximum. At low expenditure levels (below $500), the individual will foot the entire health care bill under both insurance plans. At high levels of expenditures (above $3,000), the individual again does not prefer one policy over another, because either policy covers 100% of his or her health expenditures.

Between these two extremes, however, the individual sometimes would save money under a PPO, and sometimes under an HDHP. Although this example assumes that the individual has at least $2,000 in the HSA (and also ignores the tax benefits associated with the HSA), the general conclusion remains: it is hard to tell, especially during open enrollment when the next year's health expenditures are uncertain, whether some individuals would save money with a PPO or an HDHP/HSA.

This subsection has discussed whether those of a certain health status might find it in their interests to enroll in the HDHP/HSA combination from a theoretical perspective. The next two subsections look at total enrollment in HDHPs and HSAs.

## HDHP Enrollment

Enrollment in HDHPs has grown steadily since 2004.[16] **Figure 2** presents the enrollment trend. Over one million lives (plan holders and their families) were covered by HDHPs in January 2005, following the first full year in which HSAs were available. There were about 10 million covered lives by January 2010, the last available data point. The year-to-year percent increase in HDHP covered lives is particularly informative. Covered lives grew by 43% during 2006 (from about 3.2 million to about 4.5 million), by 35% during 2007, by 31% during 2008, and by 25% in 2009. The growth rate in individuals covered by HDHPs has slowed somewhat over the last few years.[17]

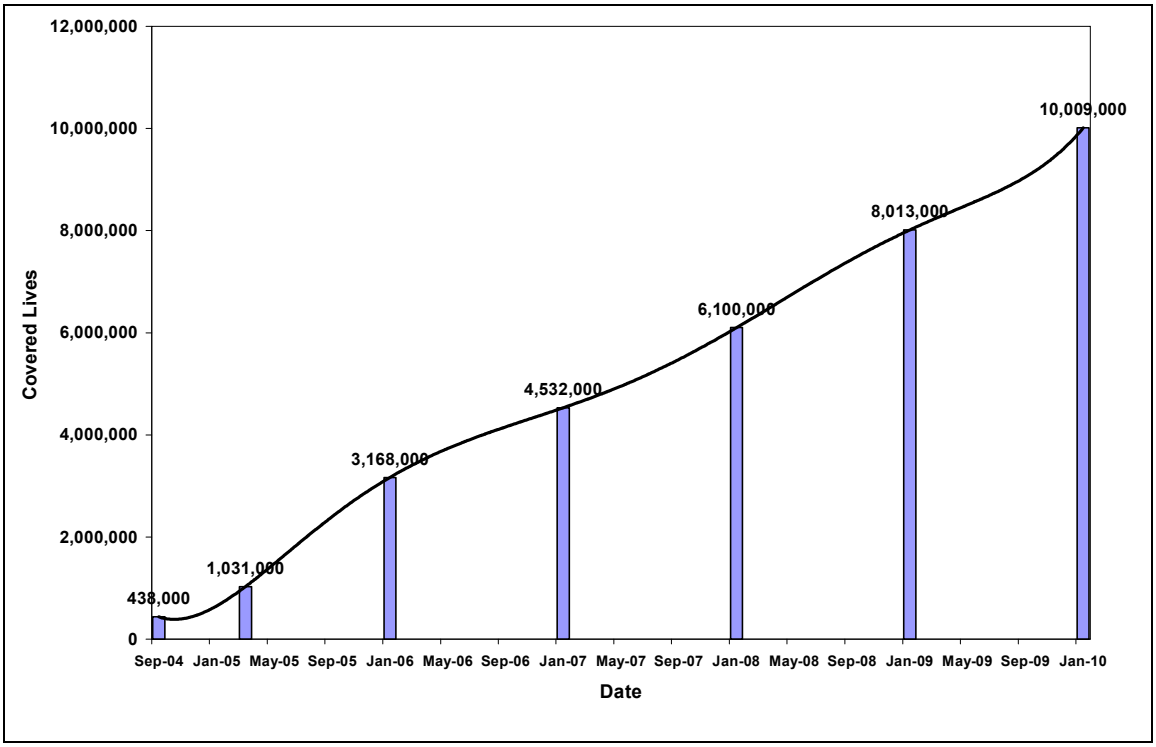
Over the past five years, employers increasingly offered HDHPs, and employees increasingly chose them. In March 2005, 64% of lives covered by an HDHP were purchased in the individual market. By January 2009, however, only 23% of covered lives were associated with the individual plans.

[16] Unless otherwise stated, all data used in this subsection are from AHIP; see America's Health Insurance Plans, *January 2010 Census Shows 10 Million People Covered By HSA/High-Deductible Health Plans*, Working Paper from the Center for Policy and Research, May 2010.

[17] The absolute number of covered lives has increased in each year.

**Figure 2. Trends in HDHP Covered Lives**

September 2004 to January 2010




**Source:** America's Health Insurance Plans, *January 2010 Census Shows 10 Million People Covered By HSA/High-Deductible Health Plans*, Working Paper from the Center for Policy and Research, May 2010.

## HSA Enrollment

Tax filers who contribute to an HSA are eligible to claim the amount contributed as a tax deduction. As illustrated in **Figure 3**, the number of personal income tax returns with an HSA deduction grew by 140% between 2004 and 2005, by 66% between 2005 and 2006, by 66% between 2006 and 2007 and by 39% between 2007 and 2008. In other words, the number of tax filers taking the HSA deduction is increasing, but at a decreasing rate. This is the same pattern discussed above for HDHPs.

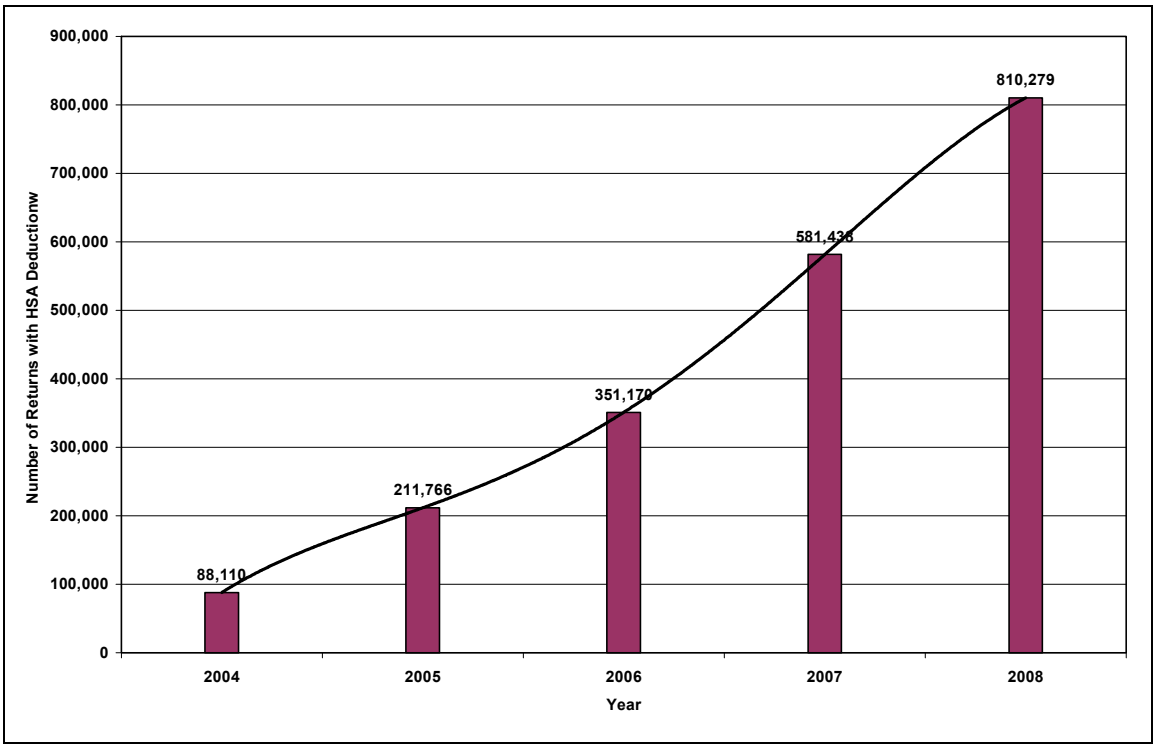
In order to calculate the percent of HDHP plan holders eligible for HSAs who had actually opened an HSA, the Government Accountability Office (GAO) analyzed IRS data. The GAO report concluded that, between 2005 to 2007, between 51% and 58% of HDHP plan holders opened an HSA. The remaining plan holders were roughly evenly split between those who planned to open an HSA and those who did not.[18]

[18] John E Dicken, U.S. Government Accountability Office, *Health Savings Accounts: Participation Grew, and Many HSA-Eligible Plan Enrollees Did Not Open HSAs while Individuals Who Did Had Higher Incomes, May* 14, 2008.

The trustees of HSAs, which are generally banks, are required to report the fair market value of the accounts to the IRS. The aggregate value was about $560 million in 2005, $1.7 billion in 2006, and $3.1 billion in 2007.[19]

**Figure 3. Trends in the Number of Tax Returns Claiming the HSA Deduction**

Tax Years 2004-2008




**Source:** The data are from the 2004, 2005, 2006, 2007, and 2008 Statistics of Income (SOI) compiled by the Internal Revenue Service. The data were downloaded from http://www.irs.gov/taxstats/indtaxstats/article/0,,id=96978,00.html#_grp2.

These data from tax filers provide no information on the year in which the savings account was opened. If individuals are using HSAs to save for health care in retirement, the average balance across all HSAs may increase over time. The data needed to look at the average balance over time across all HSAs, however, are not available. Nevertheless, America's Health Insurance Plans (AHIP), an industry source, has collected relatively comprehensive data on about 1.1 million HSAs from five large bank trustees.

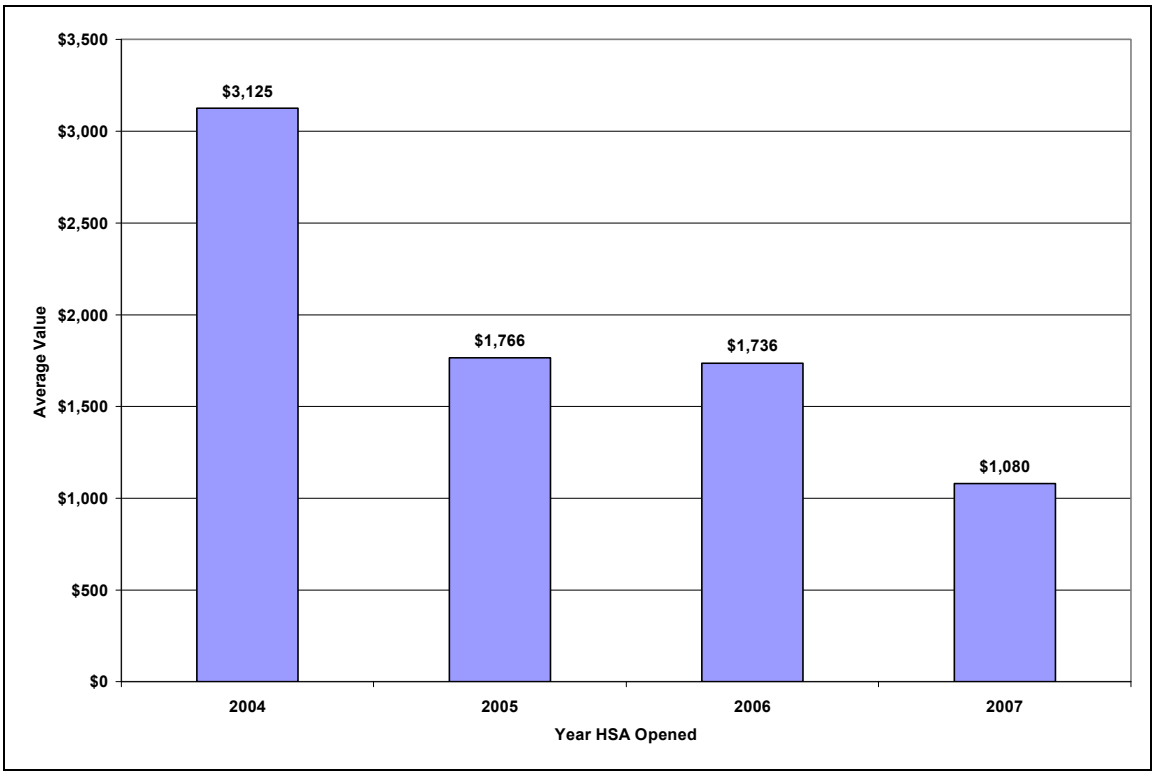
**Figure 4** presents the average balance in these HSAs by the year the account was opened, as of June 30, 2008. The accounts opened in 2004 include rollovers from Archer Medical Savings Accounts, and are therefore not comparable to the other data.[20] The average balances are roughly equal in the accounts opened in 2005 and 2006, while the 2007 value is smaller. Because of the lower average value in the newest accounts, these data provide some evidence that account

[19] E-mail from Floyd Williams, Internal Revenue Service, March 19, 2010.

[20] Archer Medical Savings Accounts were precursors to HSAs, but were limited to those who were either self employed or worked for an employer with 50 or fewer employees.

holders are saving money over time. On the other hand, the similarity between the 2005 and 2006 values suggest that it is impossible to draw any inferences from this data.

**Figure 4. Average Balance in HSA Accounts as of June 30, 2008, by Year HSA Opened**




**Source:** America's Health Insurance Plans, *A Preliminary Analysis of Health Savings Account Balances, Contributions and Withdrawals 2007 & January-June 2008*, Working paper from the Center for Policy and Research, February 2009.

**Notes:** These data are based on sample of about 1.1 million HSAs held by five large bank trustees. Data for 2004 include rollovers from Archer Medical Savings Accounts.

# Public Policy Goals of HDHPs and HSAs

This section covers the degree to which HDHPs, with or without HSAs, have met four possible goals of consumer-directed care by summarizing and evaluating the current literature. To preview the results of the literature review:

- HDHPs are designed to change consumer behavior by providing incentives for consumers to be more concerned with the cost and quality of their health care. Although some consumers do seem to respond to the new incentives for lower cost, the small number of available empirical studies reach differing conclusions.
- HSAs could encourage individuals to save for their health expenses in retirement by increasing the balance in their HSAs. Data are not available to describe which demographic groups, if any, are indeed saving for their retirement. Nevertheless, not all demographic groups are equally likely to open an HSA. In particular,

those who open an HSA generally have higher income than those who do not open an HSA.

- Because HDHPs have lower premiums than other policies, previously uninsured individuals might purchase these plans. There is little evidence, however, that the widespread adoption of HDHPs would lower the aggregate uninsurance rate or affect the operations of insurance markets.
- Aggregate health expenditures could fall if most policy holders moved from standard PPO plans to HDHP/HSA plans.

## To Increase Both Quality of Health Care and Patient Health

A key policy goal is to increase both the quality of health care and patient health as consumers take a more active role in their health care. The consumers' quality of care and ultimate health status depend on their own behaviors, the behavior of doctors and other health care providers, and how these behaviors translate into changes in health. HDHPs and HSAs alter the incentives of both patients and doctors, and therefore potentially the health of consumers.

### Changes in the Incentives to Seek Care

#### *Background*

HDHPs and HSAs can change the consumers' incentives to purchase health care by changing the out-of-pocket cost of care. The demand for health services increases as the price paid for the services falls, and vice versa. This basic relationship has been verified numerous times since first evaluated in the early 1980s in the large-scale Health Insurance Experiment (HIE) conducted by the RAND Corporation.[21]

When compared with a standard PPO plan, as in **Figure 1**, HDHPs/HSAs create ranges of health expenditures over which the out-of-pocket cost of care is both higher and lower than it might otherwise be. Relative to traditional health insurance plans, an individual with an HDHP spends his or her own money until reaching a much higher deductible. This difference in the relative cost of care should reduce health spending by the individual. For example, consider an individual who has already incurred about $1,500 in medical bills. When this individual develops what appears to be a minor cold, but could actually be a more serious flu, he or she must decide whether to visit the doctor. If the individual belongs to a standard PPO, he or she might only incur 20% of the total doctor visit's costs. If the individual belongs to an HDHP/HSA, however, he or she would need to pay 100% of the costs (either from a funded HSA or out-of-pocket). The higher cost sharing might decrease the probability that the HDHP/HSA individual goes ahead and sees the

[21] The relationship between the price of health care and consumer's utilization was extensively measured in the RAND Health Insurance Experiment (HIE). The HIE was conducted during the 1970s and 1980s, and randomized families into various health insurance plans with different levels of cost sharing. The cost sharing ranged from none (i.e., free health care) to policies that approximate the HDHPs of today. A higher level of cost sharing was associated with less care, and this result held across all income groups. Although the high costs of large-scale social science experiments make them currently infeasible, the basic relationship between higher cost sharing and lower utilization has been verified many times over the past 25 years of non-experimental research. For more information, see Joseph P. Newhouse, "Consumer-Directed Health Plans and the RAND Health Insurance Experiment," *Health Affairs*, vol. 23, no. 6 (November/December 2004).

doctor. In this scenario, the individual's health expenditures might be lower with an HDHP than with a PPO because the individual chose not to visit the physician.[22] On the other hand, the tax savings associated with an HSA may make the individual feel wealthier overall, and therefore increase his or her willingness to spend on all goods and services, including health care.

The above discussion treats all health care as the same. However, certain medical procedures are clearly more important than others. In most cases, skipping a doctor's visit for a minor cold does not permanently damage a patient's health. Skipping a doctor's visit for the treatment of diabetes or for blood pressure monitoring, however, can have lasting consequences. The important question, therefore, is whether the incentives created by an HDHP/HSA lower expenditures on what has been termed "unnecessary" care, while not lowering expenditures on "necessary" care.[23]

### *Evidence*

For the financial incentives of HDHPs (with or without HSAs) to change behavior, consumers must understand the details of their health insurance plans. In fact, some consumers do not understand the incentives associated with their plan. For example, in 2005, 1,515 adults in their second year of membership in Kaiser Permanente California were asked whether they knew the size of their deductible and what types of care were excluded from it.[24] The responses were then checked against the actual policies. Of those individuals who actually had deductibles, 52% knew that they had one, 35% knew the amount of the deductible, and 5% knew all of the services to which it applied.

Although this survey found that many consumers did not seem to understand the terms of their insurance plans, two studies found that consumers behaved in accordance with the incentives provided by the plans. Both studies looked at patients in an HDHP where cancer screening was done at no cost to the patient.

- Using a before and after framework, a study of Harvard Pilgrim Health Care members compared those who switched to an HDHP with those who remained in an HMO.[25] Cancer screening tests were free to the consumer in both insurance policies, and therefore the consumers had no incentive to reduce their screening behavior. Those who switched to the HDHP did not change their use of breast, cervical, or colorectal cancer screening. However, these plan switchers may have changed their specific test for colorectal screening away from a test no longer

[22] Note that this is a limited, carefully constructed scenario that may or may not have broad applicability. For example, if the individual knew (or was reasonably certain) that he or she would incur two thousand dollars in additional expenses during the year, he or she would not face differing incentives than the PPO individual. This occurs because the individual knows (or is reasonably certain) that he or she will ultimately have no copayment, and the individual does not care whether this doctor's visit or some other medical service brings him or her over the deductible.

[23] Joseph P. Newhouse, op. cit.

[24] Mary Reed, Vicki Fung, and Mary Price, et al., "High-Deductible Health Insurance Plans Efforts to Sharpen a Blunt Instrument," *Health Affairs*, vol. 28, no. 4 (July/August 2009), pp. 1145-1153. The choice to be in the Kaiser Plans was the employers, and not the workers. These results are simple frequencies, and do not examine otherwise comparable workers.

[25] J. Frank Wharam, Allison A. Galbraith, and Ken P. Kleinman, et al., "Cancer Screening Before and After Switching To a High-Deductible Health Plan," *Annals of Internal Medicine*, vol. 148, no. 9 (May 6, 2008), pp. 647-655. The HDHP group members were enrolled in this plan because of a mandated employer changeover.

fully covered (such as a colonoscopy) to an equally-appropriate test that was fully covered (such as a fecal occult blood test).[26]

- Researchers examined participants over time in an Aetna health fund where some were enrolled in a standard PPO while others were enrolled in an HDHP.[27] The cost of preventive services, cancer screening, and diabetic monitoring was free for those in the HDHP, and included a very low co-payment for those in the PPO who used in-network providers. The study tested whether the use of preventive services, cancer screening, and diabetic monitoring services differed between the two groups. During the three-year evaluation period, both the PPO and the HDHP groups had the same service utilization.

The above two studies suggest that those in an HDHP do not make behavioral changes when the HDHP has no incentives for behavioral change. One study found a desired behavioral change after the passage of time.

- A study of Emergency Department (ED) patients suggests that behavioral changes may take more than one year to occur.[28] The study design was a before-and-after comparison of workers whose employers mandated a switch to an HDHP, as compared with a before-and-after comparison of those remaining in a standard HMO. Those in an HDHP reduced their visits to the ED for low severity conditions, a desired outcome. Nevertheless, this reduction only happened after their initial visit to the ED, suggesting that patients need information gained at the initial visit to understand the workings of their HDHP.

Should the limited results of these three studies generalize, HDHPs would not worsen consumer health. On the other hand, two studies found changes that may ultimately lower health outcomes for consumerist patients.

- A single-employer study compared individuals who switched into an HDHP with those who remained in a standard PPO.[29] The study found that those with HDHPs (controlling for other variables) were more likely than those with PPOs to not see the doctor when they thought they should. In addition, those with HDHPs reported taking a lower than recommended dose of a pharmaceutical. The study concluded that, as with the RAND health insurance experiment, those in an HDHP cut back on both necessary and unnecessary care.

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[26] Whether fecal occult blood tests are an acceptable replacement for colonoscopies is somewhat controversial; see the discussion in Robert H. Fletcher, James E. Sabin, and Joseph Dorsey, "Is Patient Cost-Sharing the Best Way to Protect the Medical Commons?," *Annals of Internal Medicine*, vol. 149, no. 6 (September 16, 2008), p. 435.

[27] John W. Rowe, Tina Brown-Stevenson, and Roberta L. Downey, et al., "The Effect of Consumer Directed Health Plans on the Use of Preventive and Chronic Illness Services," *Health Affairs*, vol. 27, no. 1 (January/February 2008), pp. 113-120. The HDHP group had an HRA and not an HSA. HRAs, which are another form of a consumerist savings account, are discussed in the **Appendix**.

[28] J. Frank Wharam, Bruce E Landon, and Alison A. Galbraith, et al., "Emergency Department Use and Subsequent Hospitalizations Among Members of a High-Deductible Health Plan," *Journal of the American Medical Association*, vol. 297, no. 10 (March 14, 2007), pp. 1093-1102.

[29] Anna Dixon, Jessica Greene, and Judith Hibbard, "Do Consumer-Directed Health Plans Drive Change in Enrollees' Health Care Behavior?," *Health Affairs*, vol. 27, no. 4 (July/August 2008), pp. 1120-1131. The results described in this list are from simple data counts, and do not control for other characteristics of the consumers.

- A group of individuals joined an HDHP from one insurance company in the small group market because this insurance plan became the only one offered by their employer. These individuals cut back on outpatient services and pharmaceuticals but not inpatient services or out-of-pocket spending.[30]

The varying results of these studies suggest that we cannot yet be sure how consumers respond to the incentives provided by HDHPs. Nevertheless, the ultimate health of the consumers and the costs of care depend on their response, if any.

## Changes in the Incentives to Provide Care

In addition to patients, the overall concept of consumer-directed health care, of which HDHPs and HSAs are a part, also have implications for physicians and other suppliers of care. First, the health care providers will be called upon to answer all questions that the consumer asks, and it is assumed that consumers will be more actively engaged in directing their health care. Second, the providers and insurers are expected to provide the needed information for the consumers to make informed decisions. Even more fundamentally, accurate information must exist. Third, a move toward consumerism may affect legal doctrines for health care, and therefore change provider incentives.

First, some providers might prefer a traditional doctor-patient relationship over a consumerist relationship. In fact, it has been argued that consumerism lowers the level of average care.[31] Suppose that providers work a fixed number of hours each week. If consumerist patients get more care (time with the providers) because they ask more questions, traditional patients may get less care. In addition, some doctors believe that the additional time that the consumerists receive may not be worthwhile. For example, the consumerist patients could be asking about conditions the doctors know they do not have, or treatments that the doctors know would be counterproductive.

Second, there exists little consensus on how best to measure quality of care and then how to provide proper incentives for health insurance companies to inform patients of the quality of their network providers. Objective measures of provider performance include rates of medical errors, misuse of health care services, and improper use of evidence-based guidelines. Subjective measures of quality, including various measures of patient satisfaction, are limited.[32] Despite these suggested objective and subjective measures, quality remains hard to measure.[33]

[30] Anthony T. Lo Sasso, Lorens A. Helmchen, and Robert Kaestner, *The Effects of Consumer-Directed Health Plans on Health Care Spending*, National Bureau of Economic Research, Working Paper 15106, June 2009. This study looked at the effect of employer contributions to the consumer's HRA, but the authors argue that the results are also relevant to HSAs.

[31] Hai Fang, Nolan H. Miller, and John A. Rizzo, *Demanding Consumers: Consumerist Patients and the Quality of Care*, NBER Working Paper 14350, September 2008.

[32] For more information on health care quality, see CRS Report R40749, *Measuring Health Care Quality: Measure Development, Endorsement, and Implementation*, by (name redacted).

[33] For example, a heart surgeon with a relatively high mortality rate may initially appear to be of lower quality than a surgeon whose patients are more likely to survive. However, the surgeon with the higher mortality rate may treat patients who are, on average, sicker. If a proper correction for initial patient severity were available, the surgeon with the higher mortality rate may indeed prove to be the higher quality provider.

Finally, consumer-directed health care may alter legal doctrines for health care, and therefore alter provider behavior.[34] When consumers purchase HDHPs and HSAs, they are expected to take larger roles in determining which treatments to seek and how much of the treatments to receive. It is unclear, however, whether consumers are also expected to take a larger share of the responsibility if things go wrong. Currently, the bulk of responsibility for treatments falls on medical professionals and insurers. Under consumerism, some of this responsibility may, in a legal sense, shift to patients.[35] If this shifting does occur, providers may have less of an incentive to practice defensively. Because there is so little evidence on the effects of HDHPs/HSAs on physician behavior, these hypotheses must remain untested at this time.

### Changes in Patient Health

If HDHPs/HSAs do encourage more prudent consumption of health care, the consumers' health status should, at worst, remain constant, and at best, improve. The danger, however, is that the consumer's additional focus on price might be accompanied by a reduction in necessary care or reduced focus on quality. It has been observed that "... consumers cannot always tell where desirable economy ends and unacceptable skimping begins."[36] Health effects in the RAND health insurance experiment conducted in the 1980s were mixed. Researchers found minimal to no effects for the majority of those enrolled in the experiment. However, individuals who were both poor and sick reduced the use of health services, and, on average, suffered some health consequences. For example, some lost control over their hypertension. The annual likelihood of death for these poor and sick people rose about 10%.[37] Nevertheless, it is impossible to know whether this result would still stand today.

The studies reported above focus on the implications of HDHPs on various tasks the patient can perform to increase his or her present and future health, such as trips to the doctor and cancer screening. Given that the patient's health may take years to respond to changes in the patient's use of services, it is too early to evaluate the effects of HDHPs and HSAs on actual health.

## To Help Individuals Save for Health Expenditures in Retirement

### Demographic Characteristics of Consumers

The second policy goal, and a primary reason given for supporting HSA legislation, is to help individuals save money for post-retirement medical expenses.[38] For an analysis of retirement savings, it is necessary to use data on HSAs; an HDHP by itself does not provide a mechanism for retirement savings. It is also important to know the amount of money in each individual's HSA in order to differentiate those account holders who are using their HSAs for savings purposes from those who are drawing down their HSA balance each year.

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[34] Peter D. Jacobson and Michail R. Tunick, "Consumer-Directed Health Care and the Courts: Let the Buyer (and Seller) Beware," *Health Affairs*, vol. 26, no. 3 (May/June 2007), pp. 704-714.

[35] This partial shifting of responsibility from doctors to patients could occur over time as the case law evolves.

[36] Arnold J. Rosoff, "Consumer-Driven Health Care," *Journal of Legal Medicine*, vol. 28, no. 1 (2007), p. 27.

[37] Newhouse, Joseph P., op. cit.

[38] See U.S. Congress, House Committee on Ways and Means, *Report Together with Dissenting Views*, report to accompany H.R. 2351, 108th Cong., 1st sess., June 25, 2003, H.Rept. 108-177 (Washington: GPO, 2003), pp. 9-10.

Longitudinal data on HSA balances are not readily available. Instead, we distinguished between individuals who might be using an HSA to save for retirement from those who cannot be using an HSA to save for retirement. In other words, we compare those with an HSA (who might be building a retirement account) with those without an HSA (who cannot be building a retirement account). In particular, this section examines whether those with HSAs have different demographic characteristics than those without HSAs.

As mentioned above, GAO estimates that less than 60% of individuals with HDHPs open HSAs. There are at least two possible reasons for this. First, individuals in low tax brackets may choose HDHPs because of their low premiums, and not in response to any anticipated tax savings. These individuals may not have sufficient discretionary funds to open an HSA and/or use health services. Second, given the relative complexity of HDHPs and HSAs, some may not understand their best option, and choose not to purchase an HDHP or open an HSA even though they could save money by doing so.[39]

HSAs seem to appeal to those with higher incomes who have the liquidity to afford a high deductible. Two studies look at the relationship between income and HDHP and HSA holders directly:

- Of workers who chose to enroll in a Kaiser-Permanente HDHP in 2004, 77.7% had annual incomes of at least $35,000 while of workers who chose to enroll in non-HDHP PPOs, 62.5% had annual incomes of at least $35,000.[40]
- For tax filers between ages 19 and 64, the average adjusted gross income in 2005 was $139,000 for those with HSA activity and $57,000 for all other filers.[41] This income difference remained when the samples of individuals were evaluated separately by age group and by tax filing status.

One study looks at the relationship between income and HSA holders using an approximation for the holders' income:

- Research by AHIP concluded that those with HSAs in 2008 were almost as likely to live in "lower income" or "lower-middle income" Census tracts as in higher income tracts. This study used geographic averages for income instead of the actual income of individuals.[42]

All else being equal, using an exact measure of income is preferable to using a geographic average because the average will be incorrect for many individuals. Therefore the two studies that conclude that those who enroll in HDHPs and HSAs are more likely to have higher income than others are methodologically stronger than the third study cited above.

[39] The savings could come from lower deductibles, lower prices for the same quality of care found in non-HDHP PPO (or other) plan structures, less care, and greater tax savings.

[40] Anna Dixon, Jessica Greene, and Judith Hibbard, "Do Consumer-Directed Health Plans Drive Change in Enrollees' Health Care Behavior?," *Health Affairs*, vol. 27, no. 4 (July/August 2008), pp. 1120-1131. The results described in this list are from simple data counts, and do not control for other characteristics of the consumers.

[41] John E. Dicken, op. cit. This study compared the income of those with HSAs to those with private insurance, Medicare, and Medicaid.

[42] A Census tract is small subdivision of a county, and the Census tract corresponding to each HSA holder is estimated; see AHIP Center for Policy and Research, *Estimated Income Characteristics of HSA Accountholder in 2008*, May 2009. The differences between the AHIP study and the others might be explained by different methodologies, differences in the sample compositions, different comparison groups, and/or by the passage of time.

Turning to other demographic characteristics, there are no differences by gender in the percent of persons covered by an HDHP, and of those, the percent with an HSA.[43] On the other hand, black individuals are less likely to be covered by HDHPs than individuals of other races, and those with higher levels of education are more likely to have HDHPs than those with lower levels of education. In short, individuals with different income levels, different races, and different education levels appear to be saving (or not saving) for retirement health care differently.

### Tax Issues Associated with Retirement

The tax code provisions associated with health and retirement savings accounts make tax arbitrage possible.[44] In this context, tax arbitrage refers to the process of taking advantage of the different tax treatments of HSAs and 401(k) retirement savings plans in order to earn a profit. Under some scenarios, prudent taxpayers might use their funds as retirement savings accounts instead of health savings accounts. Consider a firm that does not make contributions to its employees' 401(k)s. Workers will come out ahead financially if they put money into their HSAs instead of their 401(k)s. Contributions to, investment income from, and withdrawals from HSAs are tax-exempt if used for qualified medical expenses. All withdrawals made at age 65 and above are tax free, whatever their usage. On the other hand, withdrawals from 401(k)s are taxable income. In short, HSAs can be viewed as a tax shelter.

Given that so little data on HSAs themselves are available, it is not surprising that there is almost no research on their impact on retirement savings. One recent paper looks at the health plan choices and retirement savings of about 16,000 workers in one firm. This research, which may or may not generalize, cannot reject the hypothesis that, for otherwise comparable individuals, there is no relationship between HSA contributions and retirement savings.[45] There is therefore no support for the theoretical hypothesis of tax arbitrage.

## To Reduce Uninsurance Rates Without Disrupting Insurance Markets

### Reduce Aggregate Uninsurance Rates

A third policy goal of HDHPs/HSAs is to reduce uninsurance rates as the lower HDHP premiums induce the previously-uninsured to purchase insurance. HDHP data are sufficient to look at

[43]The information in this paragraph is from Robin A. Cohen and Michael E. Martinez, Consumer-Directed Health Care for Persons Under 65 Years of Age with Private Health Insurance: United States, 2007, National Center for Health Statistics, Data Brief Number 15, March 2009. The report analyzes data from the National Health Interview Survey (NHIS), which is conducted under the auspices of the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC).

[44] This paragraph is a summary of the argument in Henry J. Aaron, Patrick Healy, and Surachai Khitatrakun, "What's In a Name? Are Health Savings Accounts Really Health Savings Accounts," in *Using Taxes to Reform Health Insurance*, ed. Henry J. Aaron and Leonard Burman (Brookings Institution Press, 2008), pp. 92-118.

[45] Stephen T. Parente and Roger Feldman, "Do HSA Choices Interact with Retirement Savings Decisions?," in *Tax Policy and the Economy*, ed. James M. Poterba, 22 ed. (University of Chicago Press, 2008), pp. 81-108. "Otherwise comparable individuals" means that statistical techniques are used to hold constant many characteristics of the individuals while investigating the effect of HSAs on retirement.

changes in uninsurance rates induced by consumerist plans and policies because individuals with an HDHP are insured whether or not they open an HSA.

The effect of HDHPs on the aggregate number of individuals without health insurance cannot be known in advance. Because HDHPs have lower premiums than standard plans, some uninsured individuals may find the plans attractive, purchase them in the nongroup market, and thereby decrease the number of individuals without insurance. On the other hand, healthy individuals with standard policies might be attracted to HDHPs because of their low premiums. However, a large increase in enrollment, coming mainly from those with standard policies switching to HDHPs, would not reduce uninsurance.

In addition, an argument based on "adverse selection" concludes that HDHPs could actually lead to an increase in the uninsurance rate.[46] Suppose enrollment in HDHPs increases dramatically, and attracts healthier than average members. The pool of individuals remaining in the standard PPOs would correspondingly become increasingly less healthy and more costly to insure. The PPOs would then increase their premiums and other forms of cost-sharing in response to their cost increase.

Two studies measure transitions from uninsurance into HDHP insurance. Both studies are complicated simulation models, attempt to control for (incorporate) demographic characteristics of consumers, and incorporate hypothetical policy scenarios. Both studies use approximations of HDHPs. The data sources also differ. Given the complexity of each model, and the differences in data and model specification, it is perhaps not surprising that the two papers reach opposing conclusions. One simulation predicts no change in the uninsurance rates. In this simulation, few uninsured individuals would move into HDHPs because their incomes are too low to receive tax advantages from the associated HSAs.[47] The second simulation predicts a decrease in uninsurance. In this simulation, individuals without access to either public insurance or a group market would purchase HDHPs in the nongroup market because they are attracted to the HDHP's low premiums.[48] In conclusion, there is very little available research measuring insurance transitions into HDHPs (or HSAs). Therefore, no reliable conclusions about the effects of these products on the aggregate uninsurance rate can be drawn.

## Effects on Insurance Markets

As discussed above, if new HDHP enrollees are particularly healthy, the insurance market might experience disruptions as premiums increase for other health insurance products. The research in this area focuses on single employers (presumably because the researchers have access to only one employer's data). The studies do find some evidence of favorable selection among those who enroll in an HDHP.

[46] If those who enroll in an HDHP are healthier than average, favorable selection is said to have taken place. Conversely, if those who enroll are less healthy than average, adverse selection is said to have taken place.

[47] Sherry Glied and Dalia K. Remler, *The Effect of Health Savings Accounts on Health Insurance Coverage, The Commonwealth Fund, Issue Brief*, April 2005, pp. 1-7.

[48] Roger Feldman, Stephen T. Parente, and Jean Abraham, et al., "Health Savings Accounts: Early Estimates of National Take-Up," *Health Affairs*, vol. 24, no. 6 (Nov/Dec 2005), pp. 1582-1591.

- Prior to HDHP enrollment, otherwise comparable individuals in one large firm had lower pharmacy costs and took medications in fewer drug classes than individuals who did not enroll in an HDHP.[49]
- Those who enrolled in an HDHP were more likely than comparable individuals in the same firm without an HDHP to be in excellent or very good health and not to have any chronic health conditions.[50]
- Otherwise comparable employees of a single firm (Alcoa) were more likely to choose an HDHP if they did not have a chronic health condition and had health spending in the bottom quartile of the sample.[51]

These separate studies yield similar results, although their reliance on single-employer studies makes the conclusion weaker than it would otherwise be. In addition, these studies compared health status at the time the individual chose the HDHP, and differences in health status may surface after consumers have been in the HDHP for more than a year. There is, therefore, evidence that those who enroll in HDHPs are somewhat healthier than average, but this evidence may or may not generalize. In short, it is too soon to say if a move toward HDHPs would induce problems of adverse selection and cause disruptions in the insurance market.

## To Decrease Health Care Expenditures

The fourth policy goal of HDHPs and HSAs is to reduce aggregate health expenditures. Some observers argue that there will be minimal effects on aggregate expenditures because so few individuals account for so much of aggregate expenditures. For example, one study concludes that 1% of individuals accounted for about 24% of health expenditures in 2003.[52] This distribution of spending levels across the population suggests to some that aggregate expenditures cannot be reduced by adopting HDHPs, because most of the adopters will not be high users of care.

Nevertheless, a substantial amount of cost-sharing is possible under HDHPs. In particular, according to one analysis, expenditures above the standard PPO deductible and below the HDHP deductible account for about 35% of total expenditures.[53] Individuals in this range would experience more cost sharing, and therefore, on average, lower health expenditures after moving from a standard PPO to an HDHP/HSA. However, this analysis concludes that a notable decrease in aggregate expenditures would require that most or all individuals moved from a representative PPO to a representative HDHP.[54]

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[49] Jessica Greene, Judith Hibbard, and James F. Murray, et al., "The Impact of Consumer-Directed Health Plans on Prescription Drug Use," *Health Affairs*, vol. 27, no. 4 (July/August 2008), pp. 1111-1119. All individuals had an health retirement account (HRA).

[50] Anna Dixon, *op cit*..

[51] Colleen L, Barry, Mark R. Cullen, and Deron Galusha, et al., "Who Chooses a Consumer-Directed Health Plan," *Health Affairs*, vol. 27, no. 6 (November/December 2008), pp. 1671-1679.

[52] Samuel H. Zuvekas and Joel W. Cohen, "Prescription Drugs and the Changing Concentration of Health Care Expenditutes," *Health Affairs*, vol. 26, no. 1 (January/February 2007), pp. 249-257.

[53] Katherine Baicker, William H. Dow, and Jonathan Wolfson, "Health Savings Accounts: Implications for Health Spending," *National Tax Journal*, vol. LIX, no. 3 (September 2006), pp. 463-475.

[54] Consumer spending may also decrease as patients seek out the least expensive providers for high-cost procedures such as hospitalization and surgery.

Aggregate changes in health expenditures also depend on the composition of HDHP enrollees. If those in consumerist plans are healthier than those in standard PPOs, as the early evidence suggests, those remaining in the PPOs are by definition less healthy. Even if expenditures decrease for the consumerist patients, the decrease may be offset by an increase in expenditures from those remaining in PPOs.[55]

# Conclusion

Enrollment in HDHPs, as measured by covered lives, has been increasing since HSAs were authorized in 2003, although the growth rate of this increase is slowing (see **Figure 2**). It is estimated that between 51% and 58% of HDHP holders go on to open an HSA. Although some say that HDHPs only benefit the young and healthy, it can be demonstrated that some individuals at many levels of the health spending distribution would face equal or lower costs with an HDHP/HSA than with a standard PPO (see **Figure 1**).

It is generally too soon to evaluate whether HDHPs and HSAs have met some of their original objectives. The evidence on whether consumers respond to the new incentives provided by the HDHPs and HSAs is mixed. Health providers may also change their behavior, but it is impossible to say whether the change would raise or lower the quality of care they provide.

According to recent research, not all individuals seem to be saving for their health expenses in retirement because only about half of those who are eligible to open an HSA do so. In addition, some of these may value the tax benefits more than accumulating a fund for health care later in life. There is some evidence that those individuals who do open HSAs have higher income than those who do not. There is almost no evidence that the widespread adoption of HDHPs would lower the overall uninsurance rate or modify the operations of insurance markets.

A widespread change from standard PPO policies to HDHPs/HSA policies could lower aggregate health expenditures. Nevertheless, the empirical evidence backing many of these results is weak, and much remains unknown about the effects of HDHPs and HSAs on uninsurance, utilization of health care, and aggregate health expenditures.

[55] A report by the American Academy of Actuaries evaluating studies done by individual insurance companies finds that all types of consumerist health plans reduced the costs of medical care, even after controlling for the initial health of the patients. This report, however, did not provide information on the methodology used and is therefore not included in the main body of the report. For additional details, see American Academy of Actuaries, *Emerging Data on Consumer-Driven Health Plans*, A Public Policy Monograph, May 2009. In addition, several insurance companies report that their consumers with HSAs have reduced health expenditures.

# Appendix. Methodology and Data Sources

This report contains both a literature review and original data analysis. This section first discusses the criteria used to select literature for the analysis. The section then reviews the available data.

## Literature Search

To locate the relevant articles, CRS first searched the academic search indexes MEDLINE, JSTOR, ECONLIT, and the websites of congressional and policy organizations.[56] Additional references were located from the citations within these articles. Finally, the table of contents of *Health Affairs* for each issue since 2004 was scanned for relevant articles.

The report describes many of the located articles. Research was generally excluded if it met one or more of the following criteria:

- was a theoretical exercise designed to build mathematical models of insurance market,
- was primarily about health retirement accounts (HRAs),[57]
- covered post-health insurance reform in Massachusetts, or
- did not describe the methodology used.

## Data Sources

It has been difficult to calculate enrollment in HDHPs and HSAs because no comprehensive data source has information on HDHP enrollment, HSA enrollment, and the socioeconomic characteristics of the plan holder. In fact, many of the available data sources are uniquely organized. For example, each source can look at the characteristics, attitudes and/or behaviors of a different analytical "entity."[58] The individual data sources therefore cannot be combined to provide a comprehensive data source.

Much of the available HDHP data come from an industry source, the Association for Health Insurance Plans (AHIP). Enrollment measures total lives covered by an HDHP plan, and is reported by insurance firms. The data cover the individual, small group, and large group markets.[59] Although all individuals in these HDHPs are eligible to open an HSA, AHIP has only recently begun to provide limited information on HSAs.[60] The latest data cover January 2010.

[56] The search terms include "high deductible health plan," "consumer-directed health care," and "health savings account."

[57] HRAs are owned by employers. Because the employees generally forfeit the account balance when they leave their employer, HRAs provide different behavioral incentives for employees. They are, however, one part of consumer-directed health care. Selected studies of HRAs are presented in the report.

[58] For example, in survey research, the best known entity is the individual; the 2010 Census of Population collects information on individuals. The Census, however, also organizes data by households, which are a separate analytic entity

[59] The size of the firm is self-reported by the employer.

[60] AHIP Center for Policy and Research, *A Preliminary Analysis of Health Savings Account Balances, Contributions* (continued...)

Two types of data on HSAs are available from the IRS. First, the number of tax returns that took an HSA deduction and the average value of the deduction are publicly available.[61] The HSA deduction is available to all filers with an HSA; whether or not the filer itemizes deductions is irrelevant. Second, the number of HSAs and their aggregate market value are filed by banks (and other account trustees). Both the individual and trustee data are available with a considerable time lag, and only data through tax year 2008 have been released.

Another source of information on HSAs is provided by a survey of employers conducted by the Kaiser Family Foundation and the Health Research and Educational Trust (KFF-HRET).[62] This is an annual survey of employer-sponsored health insurance (ESI) benefits. While this data source contains detailed information on those with ESI, it has no information on those who purchase insurance in the non-group market, or those who are uninsured. The sample size in 2009 was 2,054 employers, and the sample is weighted to represent a population of about 3.4 million employers.

Turning to less general sources, data from the Employee Benefit Research Institute (EBRI) can be used to answer a limited number of questions.[63] In addition, a number of surveys of individual firms provide information on HDHPs and HSAs belonging to employees at those firms. These and other surveys are described as needed throughout the report.[64]

A final data issue concerns the characterization of insurance plan structures. First, in this report, comparisons by insurance plan structures give priority to HDHPs. In other words, if a consumer has an HDHP that uses a PPO network, he or she is considered in the HDHP group and not in the PPO group. Most of the academic and policy literature follows this convention, and the articles almost never provide enough information to calculate what the conclusions would be if HDHPs were not given priority. Second, HDHPs are compared to PPOs (instead of indemnity plans or other plan structures) because more employers offering health insurance offer PPOs than any other plan structure; about 44% of employers offered a PPO in 2009.[65]

(...continued)

*and Withdrawals 2007 & January-June 2008*, February 2009.

[61] Annual contributions to and disbursements from HSAs are not publicly available.

[62] Gary Claxton, Bianca DiJulio, and Benjamin Finder, et al., *Employer Health Benefits 2009 Annual Survey*, The Kaiser Family Foundation and Health Research & Educational Trust.

[63] See, for example, Paul Fronstin, *Findings from the 2009 EBRI/MGA Consumer Engagement in Health Care Survey*, Employee Benefit Research Institute, No. 337, December 2009.

[64] For more information on HSA data sources, see CRS Report RS22877, *Health Savings Accounts and High-Deductible Health Plans: A Data Primer*, by (name redacted).

[65] The Kaiser Family Foundation and Health Research and Educational Trust, op. cit.

## Author Contact Information

(name redacted)
Analyst in Health Care Financing
*redacted*@crs.loc.gov, 7-....

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