Health Insurance Choices and Retirement Saving: The Relationship Between Health Savings Accounts, 401(k)s, and Insurance Plans

Russell Ackoff Doctoral Student Fellowship, 2015 Application

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Project Summary

401(k)s and IRAs are the two most important tax-preferred savings vehicles to encourage employees to save for retirement, with combined assets exceeding $10 trillion in 2013 (Munnell 2014). A recent addition is the Health Savings Account (HSA) that allows medical care and certain insurance premiums to be financed tax-free both while working and in retirement. HSAs, which are portable, otherwise closely resemble 401(k)s: contributions are deducted from taxable income, investments grow tax-deferred over time, and withdrawals for non-medical consumption are subject to income tax (and a penalty if withdrawn early). Although HSA funding is currently modest relative to 401(k) saving, little is known about how individuals make HSA funding decisions and how HSAs interact with other retirement accounts.

My dissertation research studies the relationship between health insurance choices and retirement saving in HSAs and 401(k)s. My primary research question is whether people use HSAs as long-term saving vehicles, like 401(k)s, or as accounts to finance that year's health insurance deductible. To answer this, I will study how the choices of HSA and 401(k) saving relate to the choice of insurance deductible. Understanding these linkages is important because health status is correlated with retirement wealth (Poterba, Venti, and Wise 2010) and medical care constitutes a large portion of consumption in retirement (Skinner 2007). Quantifying these connections could help predict insurance choices, HSA take-up, and funding of both saving vehicles. The large size of government subsidies further motivates studying these links. Each year, tax expenditures total $100 billion for IRAs/401(k)s and $250 billion for employer-sponsored health insurance (CBO 2013). Tax expenditures for HSAs will likely swell as accounts grow because contributions, investment earnings, and withdrawals for health expenses are not taxed. No other financial product enjoys such tax advantages.

Existing research has studied saving and insurance choices in isolation typically due to data limitations. HSA saving may crowd out 401(k) funds if such funds are viewed as substitutable. A related yet unexplored question is whether HSA funding is made in conjunction with the choice of health insurance plan. If workers choose saving and health insurance together, changing the menu of insurance plans would be a tool to influence saving. My research empirically analyzes these linkages using a novel administrative dataset from Humana, a large health insurer that implemented an HSA program and modified its insurance and saving benefits between 2005 and 2010. The panel-level employee data includes employer and employee contributions to the HSA and 401(k), deductible choices, insurance premiums, salary, medical claims, health expenditure risk, demographics, and job characteristics during this period.

Prior to 2008, Humana employees could choose from traditional insurance plans with smaller out-of-pocket payments or high-deductible health plans, which provided full coverage once the deductible has been met. Beginning in 2008, only high-deductible health plans were available. These plans had identical provider networks and differed only in their premium and size of the deductible. The number of plans, deductibles, and premiums changed over time, with annual deductibles ranging from $1,250 to $3,200 for self-coverage (double for family coverage). Another source of variation comes from Humana’s matching rules for employee
401(k) and HSA contributions. The matching schedule for both savings vehicles have varied over time and across income groups.

To formally analyze the interaction of saving instruments with health insurance, I develop a structural model that builds savings decisions into a discrete choice model of insurance plan choice (Cardon and Hendel 2001, Handel 2013). The modeling framework follows that of Dubin and McFadden (1984) to study the combination of discrete and continuous choices. I operationalize the approach empirically using data on choices of insurance plans and saving by Humana employees. In the first stage, the employee chooses their health insurance deductible to maximize their expected utility of consumption with preferences satisfying constant absolute risk aversion. In the second stage, the employee chooses how much to save in the HSA. I formulate the demand for HSA saving as a weighted sum of two terms. The first term represents the level of HSA saving implied by maximizing the short-term objective of financing that year's health care consumption. This optimal short-term saving is calculated as the expected out-of-pocket risk from the chosen insurance deductible less existing HSA balances. The second term represents the level of HSA saving based on maximizing the long-term objective of financing health care consumption in retirement. I use the employee’s 401(k) saving to calculate HSA saving consistent with long-term retirement saving, exploiting the similarities between account rules. Humana’s particular matching rules and the tax treatment of HSA funds imply clear decision rules to maximize retirement saving in my setting: an employee with 401(k) saving above the employer’s full 401(k) match (6% salary) should contribute the maximum to their HSA, while an employee whose 401(k) saving is positive but does not exhaust the employer's match should only save enough in their HSA to obtain the full employer HSA match. The weight between these two terms thus captures the extent to which employees view HSAs as a long-term savings vehicle versus a way to finance current health care consumption. The two preference parameters to estimate are this weight and risk aversion.

I will flexibly estimate the joint distribution of the preference parameters using the mixture model of Fox, Kim, Ryan, and Bajari (2011). Identifying variation comes from Humana’s changes to its menu of insurance plans, the introduction of its HSA program in 2008, and matching rates for 401(k) and HSA saving. The structural model of saving and insurance choices will allow me to study the implications of various policies on saving, including changing the menu of insurance plans, matching rates for 401(k) and HSAs, and the tax treatment of HSA funds. Such counterfactuals will be helpful to coordinate HSA and 401(k) saving programs with health insurance offerings to achieve policy objectives of retirement preparedness.

My preliminary reduced-form regressions with employee fixed effects demonstrate strong associations between deductible and saving choices. Higher deductibles are correlated with higher HSA contributions, as is higher 401(k) saving, conditional on a rich set of socioeconomic and demographic variables. Higher HSA balances at the start of the year are correlated with lower HSA saving that year, which is consistent with treating HSAs as a short-term savings vehicle.

References:
Poterba, James, Steven Venti, and David Wise, “The Asset Cost of Poor Health,” NBER Working Paper 16389, 2010
Budget

I am requesting financial support for travel-related expenses to access data. The Humana data I am using is stored on a “cold room” computer at the National Bureau of Economic Research (NBER) in Cambridge, MA. The Data Use Agreement for my research stipulates the data remain only on that computer and I may only take output (descriptive tables, regression results, etc.) off of that machine. As a result, I must physically travel to the NBER to perform all empirical analysis. I have so far made three trips with support from leftover funds from my 2014 Ackoff fellowship ($700) and from the Health Care Management Department ($1,343). I have $657 in remaining support from the Health Care Management Department for travel. I have calculated that through advance ticket purchases and the use of Priceline.com for hotels, I can finance a 4 day/3night trip for $500 as outlined below. I am seeking funding for 7 trips.

Airfare per trip: $120 round trip
Transportation (to airports and within Cambridge) per trip: $80
Hotel per trip: $300 ($100 per night x 3 nights)
Number of trips: 7
Total funding requested: $3,500