

Choosing Among Employer-Sponsored Health Plans

What Drives Employee Choices?

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Objective: To probe employee basis for choosing health plans. **Methods:** In a Web study, 337 employees from large private and public employers were asked to choose among health plans varying on several common dimensions. **Results:** On per-dollar basis, respondents were more willing to spend \$3 to \$4 on out-of-pocket copayments than \$1 on premiums. Nevertheless, sensitivity to monthly premium is greatest among those who are younger and cover only themselves, whereas sensitivity to the annual deductible is greatest among nonwhite families. **Conclusion:** Employees are facing a complicated choice and might be well-served by more information about the value of options under different likelihood scenarios.

Employer-sponsored health insurance covers 157 million Americans.¹ Most large employers provide their employees with choice among several plans designed to meet individual needs based on factors such as age, health status, and level of desired insulation against catastrophic loss. Almost all the plans expect employees to share the cost through an array of fees, ranging from the monthly payroll deduction to out-of-pocket fees for doctors' office visits and medications. And although notions of copay, coinsurance, and deductible are inculcated in the training of an actuary or benefits manager, they are less familiar to most employees trying to make the appropriate trade-offs when choosing a health plan. Each employee has to weigh his or her particular personal and financial circumstance with the best approximation of the value a particular coverage might have for that employee or employee's family going forward. Moreover, classic studies in the behavioral sciences have shown that when individuals trade off multiple options that vary on numerous features, they often resort to simplistic strategies that fail to pay off in the long run²—in the case of health insurance, a strategy that would lead to choosing an overly expensive plan.

The current study was designed to probe the values different employees bring to the choice between employer-sponsored plans with different elements of health coverage. Such knowledge is important both from the perspective of the employer or insurance company offering the plans and from the perspective of the employees who must choose among those plans.

METHODS

Participants were recruited from two employee populations via e-mail to take part in a Web-based study designed to examine what factors influenced choice of health plans. One population con-

sisted of the faculty and staff at Duke University, a private institution in North Carolina with 8000 employees. The second population was recruited from the approximately 20,000 members of the State Employee Association of North Carolina. Participants were offered the chance to win a \$100 gift card to the retailer of their choice in exchange for completing a 10-minute Web survey. The demographics of the volunteers recruited from the two employee populations were similar (Table 1). Nevertheless, the study was not designed to provide insights that can be generalized widely with confidence. Rather, the design takes advantage of this convenient sample to probe the fashion in which different kinds of individuals confront health insurance options. All have experience with the need to confront such decisions. As is typical of large employers, both the State of North Carolina and Duke University hold an annual open enrollment³ when the menu of insurance options is presented to their workforce.

During the survey, participants were shown a series of 10 trade-off choices between health care plans. An example is given in Table 2 and the survey instrument for this conjoint analysis can be accessed on-line at http://duke.qualtrics.com/SE/?SID=SV_cPk41EOsuxJSnME&SVID=Prod. The health care plans varied on six dimensions common to the most relevant permutations of health plan choices. The ranges mirrored the plans and prices that were offered at the time by the employer.^{3,4} The dimensions were monthly premium (\$100, \$300, \$500), annual deductible (none, \$1000, \$2000), lifetime coverage (\$1 million, \$2 million, no limit), drug copay (none, \$20, \$40), number of doctors in the plan (100, 200, 400), and doctor co-pay (none, \$25, \$50).

The analysis estimates the importance scores for each dimension. Importance scores are predictors of the choices that each person made. These are estimated using a technique called conjoint analysis.⁵ For each individual, the importance scores are the utility difference (max-min) for each dimension and divided by the sum of the utility difference across dimensions. These can be used to discern such individual characteristics as who are most concerned about their annual cost, most value the degree to which they can readily access health care, or care most about lowering the likelihood of a financial disaster in the event of expensive illness. Conjoint analysis has been applied to other complex clinical decisions.⁶⁻⁹

RESULTS

As shown in Table 1, the Duke University sample is younger, more educated, and less likely to be married. Other differences between the Duke and the state employees are very small. Because the analysis gave similar results after adjusting for these differences, the two groups were merged.

Figure 1 provides a window into the values the respondents attach to the various dimensions of a health insurance plan. The responses to changes in the dimensions are relatively linear and can be directly compared. It shows, for example, that moving from 100 to 400 available doctors is a choice that is as valued as a decrease in doctor copay from \$50 to \$0; choosing between these options is not predictable if all personal attributes are equal. To assess the influence of personal attributes on respondent choices, an importance score was generated for each dimension based on the average response of the respondents. The most important dimension is the monthly premium with a 42% importance score, whereas the

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The study was performed without external funding.

The authors have no conflicts of interest

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DOI: 10.1097/JOM.0b013e318279d74c

TABLE 1. Demographic Characteristics of the Study Samples

Characteristics		No. (%)	
		Private University Staff (n = 100)	State Employees (n = 277)
Sex	Male	18 (18)	73 (26)
	Female	82 (82)	202 (73)
	Missing*	0 (0)	2 (0.01)
Age, mean (SD), yr		39 (10.5)	51.1 (9.5)
Race	African-American	17 (17)	48 (17.5)
	Asian	4 (4)	1 (0.4)
	White	76 (76)	221 (80.4)
	Hispanic	2 (2)	1 (0.4)
	Native American		3 (1.1)
	Other		1 (0.4)
	Missing*	1 (1)	1 (0.4)
Education	Grade school		1 (0.4)
	High school	2 (2)	23 (8.3)
	Some college	9 (9)	79 (28.5)
	College degree	59 (59)	115 (41.5)
	Postgraduate degree	30 (30)	59 (21.3)
Household income, \$	<15 000		
	15 000 to <35 000	18 (18.4)	33 (12.1)
	35 000 to <50 000	21 (21.4)	70 (25.7)
	50 000 to <75 000	24 (24.5)	80 (29.4)
	75 000 to <100 000	18 (18.4)	54 (19.9)
	>100 000	12 (12.2)	22 (8.1)
	Prefer not to answer	5 (5.1)	13 (4.8)
Marital status	Missing*	2 (0.02)	5 (0.02)
	Married	53 (53)	157 (60.5)
	Separated	2 (2)	8 (2.9)
	Divorced	10 (10)	46 (16.7)
	Single	34 (34)	45 (16.3)
	Other	1 (1)	10 (3.6)
	Missing*		1 (0.001)

*Refers to individuals who returned surveys but did not provide an answer to this specific question.

least important with a 7% score is the cost per visit to a doctor (Table 3). The last three columns of Table 3 show the extent to which individual factors influenced the employees' relative importance scores for the plan elements. These were derived by stepwise regression analyses predicting importance scores as a function of demographics defined in Table 1. For each of the six plan dimensions, between one and three characteristics emerged. Each of these is discussed as follows.

The importance of monthly premiums depends on the respondent's age and whether dependents are insured. Individual insurance results in an eight-percentage point increase in the importance score for monthly premiums relative to family plans. Age also matters; the importance score of monthly premium is four points greater for those younger than 40 years. In other words, relatively young individuals have a lower reference price for monthly insurance premiums and view values above that reference point as significant losses.¹⁰ The

TABLE 2. An Example of a Health Plan Trade-off Panel

Plan	Doctor Visit Fee	Annual Deductible	Prescription Fee	Lifetime Coverage	Choice of Doctors	Monthly Payroll Deduction
A	\$50	\$2000	\$0	\$1 million	200	\$300
B	\$0	\$0	\$20	\$2 million	400	\$500
C	\$25	\$1000	\$40	Unlimited	100	\$100

Each volunteer executed 10 trade-off panels in the survey. This is an example of one. The volunteers were instructed as follows: The health plans shown above provide healthcare to you and your family (spouse/domestic partner and children). The plans differ in terms of cost and access to doctors. You may only choose one plan. Below is a description of each cost and benefit. Which of these health plans would you choose? You must select one. Answer_____.

Detailed definitions: Dr. Visit Fee, the amount you pay the doctor each time you go to the doctor's office; Annual Deductible, the amount of healthcare you pay before any insurance coverage kicks in; Prescription Fee, the amount you pay at the pharmacy for each prescription medication; Lifetime Coverage, the maximum amount of money each person on your plan can spend in their lifetime on healthcare; Choice of Doctors, the number of doctors (including specialists) who participate in each plan; Monthly Payroll Deduction, the total amount of money (before you pay taxes) that comes out of your paycheck each month.

TABLE 3. Relative Importance Scores for the Six Insurance Dimensions and Significant Characteristics That Modify Those Importance Scores

Insurance Factor	Average Importance Score (SD)	Characteristics That Significantly Increase Importance	
		Percentage Point Difference	
Monthly premium \$100–\$500	42% (16)	Insurance covers only self 8%	Younger than 40 years 4%
Annual deductible \$0–\$1000–\$2000	17% (10)	Nonwhite 4%	Insurance covers others in family 3%
Lifetime \$1 million, \$2 million, unlimited	16% (11)	White 3%	Insurance covers others in family 4% Older than 39 yrs 2%
Rx copays \$0, \$20, \$40	10% (5)	Preexisting condition 2%	
Doctor choice 100, 300, 500 available	8% (6)	Older than 39 yrs 1%	Insurance covers others in family 1%
Cost/doctor visit \$0, \$25, \$50	7% (4)	Income <\$75K/yr 1%	

second most important dimension is the annual deductible. Those valuing low levels of the annual deductible tend to be older, non-white, and more likely to cover family members on their personal policy.

The third most important attribute of health insurance is lifetime coverage limits. Although the increase in the other attributes is relatively linear, that is not the case for coverage limits. Going from \$1 million to \$2 million has relatively little impact compared with going from \$2 million to unlimited coverage. The importance of unlimited coverage limits reflects one’s attitude toward long-term risk and the prospect of a financially catastrophic illness. As shown in Table 3, unlimited coverage is the choice of older, white employees who have family plans. Recent press reports may have increased the importance of catastrophic coverage. The *New York Times* reported that 20,000 Americans per year exceed their maximum health insurance coverage limit.¹¹ Our result indicates that people are willing to accept substantial dollar increases in premiums, annual deductibles, and copayments to avoid the specter of catastrophic loss.

Accounting overall for a 10% importance score, the importance of drug copayments depends on whether the respondent has a preexisting health condition. This result is consistent with those with a preexisting condition being more likely to require substantial drug support to manage their health. By contrast, doctor copay-

ments, with a 7% importance score, are significantly increased for those with lower annual income. Lower income people might be in the difficult position of having to make a choice between seeing a doctor and buying basic necessities such as food or rent, and thus it is understandable that they would be particularly sensitive to increases in that copayment.

Finally, the number of doctors available under the plan has a relatively low importance score of 8% despite what seems to be a strong public emotional response to lack of choice.¹² It may be that the choice we offered, the number of doctors in the plan, is less important than the risk of losing one’s current doctor. It also may be that the lack of importance reflects a ceiling effect; the range of choice we offered started at 100 doctors, so it is difficult to imagine how life would be substantially better with more. Nonetheless, Table 3 suggests the importance physician coverage increases with age and family coverage.

DISCUSSION

Our primary analysis shows that there is a clear pattern to health plan selection. Employees give the most weight to the monthly premium followed by the annual deductible and lifetime coverage limits. In addition, and as one would predict, these importance scores vary quite reasonably according to individual factors such as current

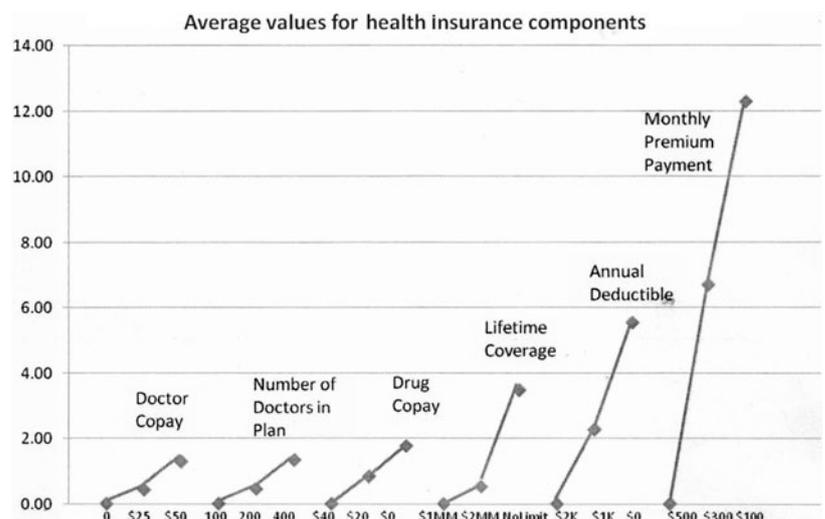


FIGURE 1. Individual logit models for the importance the respondents attach to the various dimensions of a health insurance plan. The coefficients are aggregated across respondents.

health status, age, and whether coverage is for only themselves versus an entire family. Finally, the results suggest that the respondents would be most willing to pay more for doctor and drug copayments and sacrifice a broad choice of doctors to preserve paycheck liquidity.

This story becomes more complex, however, if we consider dollar-for-dollar valuations across the fee categories. A different perspective emerges if we analyze the data in terms of utility, or value, per dollar spent annually on these plan dimensions. To undertake such an analysis with our data, we assume average behavior and average outcomes, although the results can be easily modified by adjusting for the demographics shown in Table 3. Even without such adjustments, the exercise is illuminating and thought provoking. For the average respondent, it is possible to compare the relative unwillingness to spend \$1000 in annual dollars in premiums versus \$1000 annual dollars on the annual fees spent for doctors' visit and prescription copayments. In particular, the \$4800 range of the annual premiums generates an importance score of 42% and results in an 8.75 (42/4.8) importance points for \$1000 in premium payments. The average importance score for doctor's copayments is 7%, far less than premiums. Nevertheless, because the dollar amounts spent on copays annually are relatively low,¹³ we can show that their importance is quite large relative to their annual cost. Thus, if we assume that doctor copayments cost the average couple \$200 per year, that translates into an importance score of $7\% * \$1000/\$200 = 35$ importance points for \$1000 in copayments. In other words, \$1000 spent out of pocket at the doctor's office is valued roughly four times more than that amount spent on the monthly premium.

Similarly, consider the value of a dollar in drug copayments. If we assume that the average couple spends annually \$650 on drug copayments,¹ that translates into an importance score of $10\% * \$1000/\$650 = 15.3$. Thus, \$1000 spent out of pocket at the pharmacy is valued almost twice as much as that amount spent on monthly premiums.

From a strict economic perspective, these findings are perplexing because valuing money differently in separate actuarial accounts violates the economic principle of fungibility. That is, for a given level of health care, the value of a dollar must be the same no matter whether it is applied to premiums, deductibles, or copayments. From a behavioral perspective, however, this result makes sense¹⁴ because of the difficult choice copayments may present to patients. In particular, copayments can be unpredictable expenses, as when a person becomes unexpectedly sick and must budget for additional copays. These copayment expenses can be particularly challenging to those whose limited resources put them at the margin when deciding whether to see the doctor, fill prescriptions, and/or submit to follow-up care. Moreover, the greater valuation of copayments per dollar suggests that respondents choosing between plans might be disproportionately drawn to plans with lower copayments while forgoing plans with higher monthly premiums or annual deductibles to avoid the pain of paying smaller out-of-pocket fees. In fact, this is the exact sort of heuristic reasoning that emerges from choice overload and can lead people to make relatively poor choices.² Simplifying strategies, such as choosing a plan with the lowest monthly premium or with the lowest prescription copayment, may provide some immediate relief from a complex choice. In the long run, however, such myopic decision-making may lead people to over- or underinsure relative to their best interests and actual needs.

These secondary analyses suggest that people are much more willing to spend marginal dollars on out-of-pocket copayments than monthly insurance premiums despite the fact that the total cost of such plans will be greater for the same medical care. Fortunately, as shown in Table 3, overweighting monthly premiums over copays seems to be lessened among those expecting the greatest copays. Thus, the importance of monthly premium drops by eight points for those whose policies cover others and by four points for those

40 years and older. On the other side, drug copays increase in importance for those with a preexisting condition, and doctor copays increase in importance for those with lower incomes. Making these adjustments, the relative overvaluation of copays is appropriately less strong among those for whom copays will more greatly impact their welfare.

The results of this study provide important insight into how Americans choose among employer-sponsored health care plans. Many employers offer a variety of plans (eg, health maintenance organizations, preferred provider organizations, and HDHPs) under the assumption that more choices and more evaluable dimensions are better. Offering so many choices and different fee levels is intuitively appealing because it allows employees to make their own actuarial decisions. Employees have the flexibility to choose on the basis of how much coverage they need to protect their assets and to account for family size or preexisting health conditions. The employees in both samples are highly sensitive to monthly insurance premiums and annual deductibles. This makes sense in that these fees occur with some certainty (more so for monthly premiums). In addition, the importance of these factors depends on individual circumstances, which reveals that employees do take their personal needs into consideration when choosing among health plans. The most surprising result, however, is the extent to which people are willing to pay for premiums to save a dollar on smaller out-of-pocket copays for doctors' office visits or prescription drugs. Dollar for dollar, people seem to place more importance on these expenses than any other expense.

Research from the behavioral sciences can shed some light on why this may happen. Unlike automatic payroll deductions, doctors' visits and prescription fees are likely to occur when someone gets sick or has to buy medication, and these events are easy to imagine or recall.¹⁵ And, although prescription drug and office visit copayments may seem relatively small in magnitude, they can exacerbate what is called the "pain of paying." The pain of paying is an added negative feeling that is particularly salient at the time of consumption. It explains why we feel slightly worse when we pay for an expensive meal in cash compared with a credit card and why paying for each visit to the gym can be financially, but not psychologically, beneficial.¹⁶

CONCLUSIONS

Taken together, these analyses are useful. It is important to consider the primary purpose of health insurance and how best to advise firms to deliver insurance that accurately meets what their employees value. First, people must have coverage for very large expenses. For the most part, this is not a problem. The results show that, if anything, people value catastrophic insurance. Next, people want health care plans that facilitate the early detection and prevention of health problems that can become expensive to treat and debilitating. At the same time, employers want to balance the freedom to seek medical attention with the threat of overconsuming health care. To achieve that, most employers impose some type of out-of-pocket copayment that is levied at the time of service and serves as a barrier to health care consumption. The results here show that people are particularly sensitive to these copayments. Their choices indicate that the value of the money they spend on these expenditures is three or four times as much as the premium payments coming regularly out of their paychecks. As such, there is something telling about this finding when the pain of paying these relatively small fees drives the overall decision about which plan to choose. That is, employees may be indicating something very important in that they do not want to be faced with additional expenses, and the resultant trade-offs, when they or their family members feel sick or hurt and want to see a doctor and buy medicine. For this, they are willing to pay premiums that may make them happier but will be less cost-effective in the long run.

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