

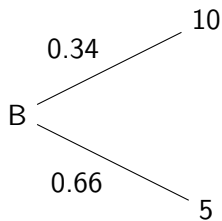
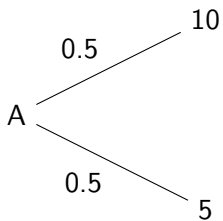
EVALUATING HEALTH INSURANCE DECISIONS: HEALTH PLAN CHOICES FROM A MENU WITH DOMINATED OPTIONS

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Presented by Narges Darvish

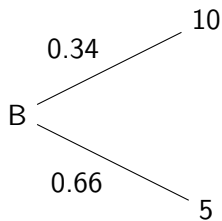
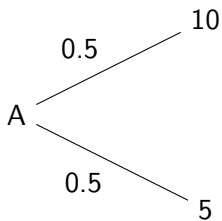
February 27, 2018

What is dominated options



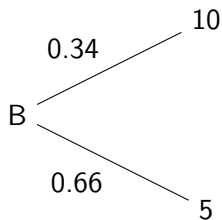
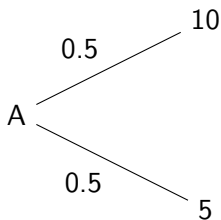
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What is dominated options



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- ▶ $P[A \geq x] \geq P[B \geq x]$

What is dominated options



- ▶ A is dominating B or B is dominated by A.
- ▶ $P[A \geq x] \geq P[B \geq x]$
- ▶ $F_A(x) \leq F_B(x)$

Health insurance

- ▶ **Deductible \$1000**
- ▶ **Premium (Price) \$930**
- ▶ Copayment \$15/\$40
- ▶ Coinsurance 90%
- ▶ Out-of-pocket maximum (MOOP) \$1500
- ▶ share of choices 4.5%

Dominated option

- ▶ **Deductible \$350**
- ▶ **Premium \$2134**
- ▶ Copayment \$15/\$40
- ▶ Coinsurance 90%
- ▶ Out-of-pocket maximum (MOOP) \$1500
- ▶ share of choices 5.3%
- ▶ Premium difference: \$1204, Deductible difference: \$650

Health insurance in the US

- ▶ Choosing a plan from a menu of diverse options which differ on both financial and non-financial dimensions
- ▶ Options include (deductibles, premium, network coverage and the reputation of the insurer)
- ▶ The standard model of insurance demand assumes that informed consumers select plans based on trade-offs between lower expected wealth (as a result of higher premiums) and a reduction in the variance of wealth
- ▶ Whether providing a range of plan options to consumers improves their welfare depends on whether they make economically sensible choices between the options they are offered
- ▶ How consumers negotiate such tradeoffs should be informed by beliefs concerning future healthcare spending and tolerance for financial risk.

Data

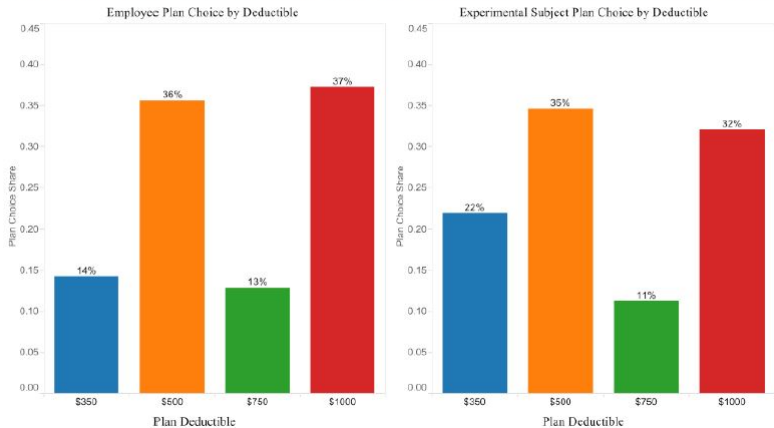
- ▶ From decisions in a unique setting in which a large US firm asked its employees to build their own insurance plan by indicating their preference for cost-sharing across four plan components: deductible (4), copayment(2), coinsurance (2), and out-of-pocket maximum (3).
- ▶ Besides these differences in cost-sharing, the 48 plans that employees could build were otherwise identical.
- ▶ The enrolment interface also standardized the visual presentation of plan details and prices.
- ▶ Because of how plans were priced, a large share of available options were financially dominated by other plans (35 of 36 low deductibles)
- ▶ Financial dominance emerged because many plans were less expensive regardless of how much care the employee required

Explaining documented choices

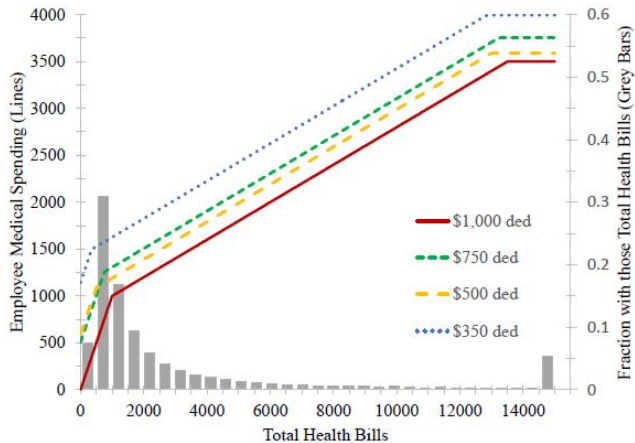
- ▶ The majority of employees chose dominated plans, which resulted in excess spending equivalent to 24% of chosen plan premiums
- ▶ The choice of dominated plans cannot be rationalized by standard risk preference or any expectations about health risk.
- ▶ Testing alternative explanations with a series of hypothetical-choice experiments, we find that the popularity of dominated plans was not primarily driven by the size and complexity of the plan menu, nor informed preferences for avoiding high deductibles, but by employees lack of understanding of health insurance.
- ▶ Our findings challenge the standard practice of inferring risk preferences from insurance choices, and raise doubts about the welfare benefits of health reforms that expand consumer choice.

Actual vs. Experimental choices

Panel A. Comparison of Plan Choice by Deductible across Experimental and Employee Samples



Spending



Primary finding

- ▶ the majority of the 23,894 employees in our sample selected financially dominated plans. More precisely, 61% of employees selected a nominally dominated plan, and an estimated 55% of employees chose a plan that was dominated after adjusting for the difference in tax treatment of premium and out-of-pocket spending.
- ▶ We estimate that the average employee opting into a dominated plan could have saved \$372
- ▶ We find comparable estimates when we calculate risk-adjusted measures of foregone savings using individual-level estimates of the ex ante distribution of potential medical spending under different assumptions about the level of underlying risk aversion.

Risk adjusted savings

$$EU_i(j) = \sum_{s=1}^{11} -\pi_{i,s} e^{r(p_j + \theta_{s,j})}$$

The formula for risk-adjusted net savings is

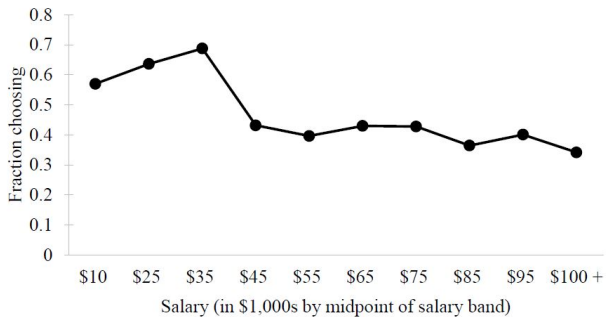
$$-\frac{1}{r} \ln \frac{EU(\text{alternative})}{EU(\text{chosen})}$$

Heterogeneity

- ▶ Those earning less than \$40,000 were substantially more likely to select dominated plans than their better-compensated counterparts.
- ▶ Groups with higher expected medical utilization, such as female workers, older employees, and employees with chronic health conditions, were also more likely to select dominated plans.
- ▶ While 23% of employees switched into different plans in the plan year that followed the period of our analysis, this switching led to only modest gains in overall choice efficiency and, like initial plan choice, differed by employee characteristics.
- ▶ Low-income employees were less likely to switch plans, and, in the event of a switch, were less likely to switch into the highest deductible plan. These results collectively point to widespread, costly, and regressive departures from the predictions of the standard model of insurance demand.

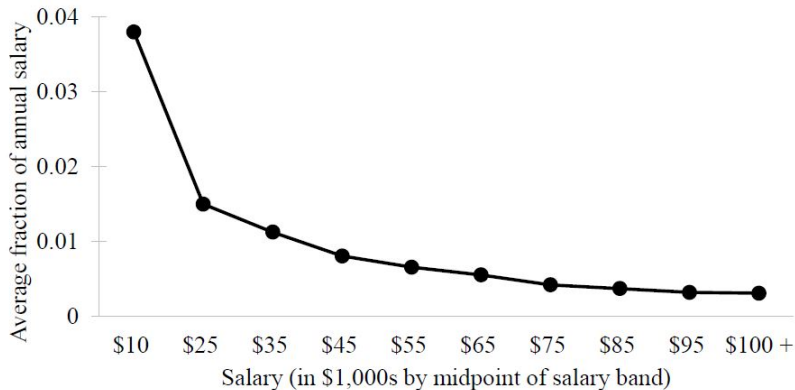
Salary

Panel A. Dominated Plan Choice by Employee Salary



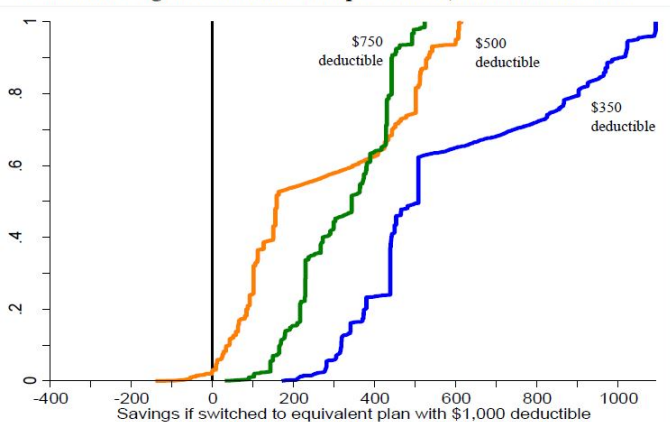
Saving

Panel B. Counterfactual Savings Associated with Dominated Plan Choice by Employee Salary



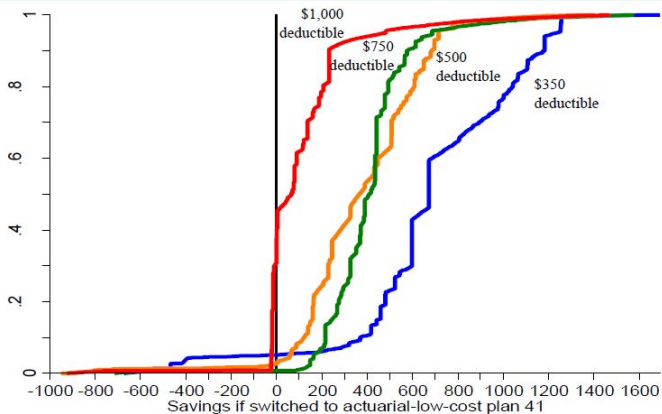
Saving

Panel A. Savings from a Switch to Equivalent \$1,000-Deductible Plan



Saving

Panel B. Savings from a Switch to Overall Actuarially Low-Cost Plan



Implication

- ▶ Our findings contribute to a growing body of research which finds that people make financially inefficient plan choices
- ▶ Interpreting evidence on decisions from Medicare is difficult, because such decisions often reflect unobserved differences in medical needs and preferences for non-financial plan attributes and are made by consumers who often lack access to standardized plan information.
- ▶ The implications of our findings for health policy and economic theory depend on why consumers chose financially dominated plans

Identification of two explanations

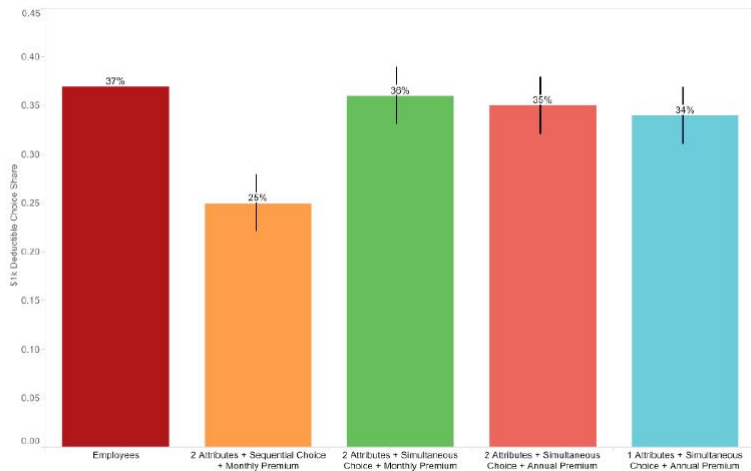
- ▶ Complexity of the plan menu (information and choice overload)
- ▶ Informed preferences of consumers willing to spend more, with certainty, to reduce their out-of-pocket spending (non-standard preferences)
- ▶ Non-standard preferences could emerge from the presence of liquidity constraints, or from more psychologically-informed considerations such as the hedonic costs of out-of-pocket spending or the use of low deductibles as a commitment device to seek care
- ▶ Inability to accurately evaluate and compare plan value (insurance competence).

First Experiment (menu complexity)

- ▶ 2379 subjects were asked to make hypothetical decisions from simplified representations of plan menu.
- ▶ Subjects were randomized across stylized menus in which the number of available plans (from 4 to 12), one or two cost-sharing attributes (deductible and MOOP), and the logistical ease of plan comparisons varied (monthly or annually premiums- table or sequential).
- ▶ The results of the experiment point to the limited importance of menu complexity in the demand for dominated plans. Presented with a simple table displaying four plans differing only in their deductible and premium, a majority of subjects persist in choosing dominated plans (66%).

Complexity

Panel B. Menu Complexity and Dominated Plan Choice



Second Experiment (Joint test)

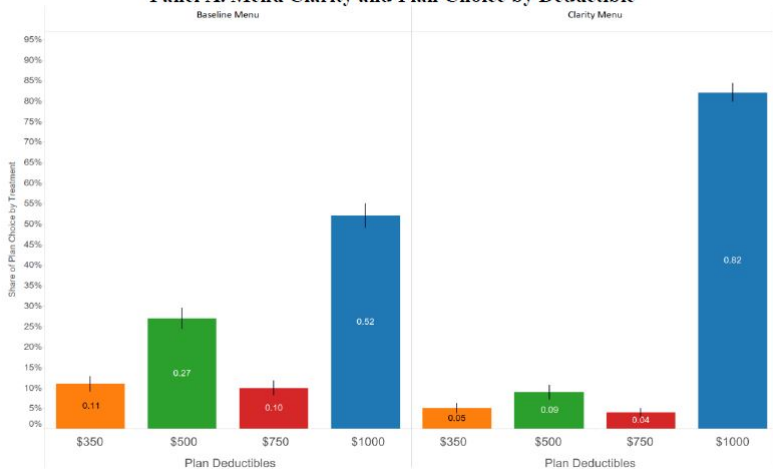
- ▶ To test whether the demand for dominated plans reflects an informed willingness to pay for low deductibles, or involves instead at least some misunderstanding of how to evaluate plan value.
- ▶ We randomized subjects to choose from either a simple baseline menu or one which additionally clarified the consequences of plan choice. The design was motivated by the presumption that additional clarification should not sway subjects with an already informed preference, but could influence those lacking in insurance understanding.
- ▶ The presence of plan clarifications reduced the share of subjects choosing a dominated plan from 48 to 18 percent.

Clarity

Here are the four plans that are available for next year:

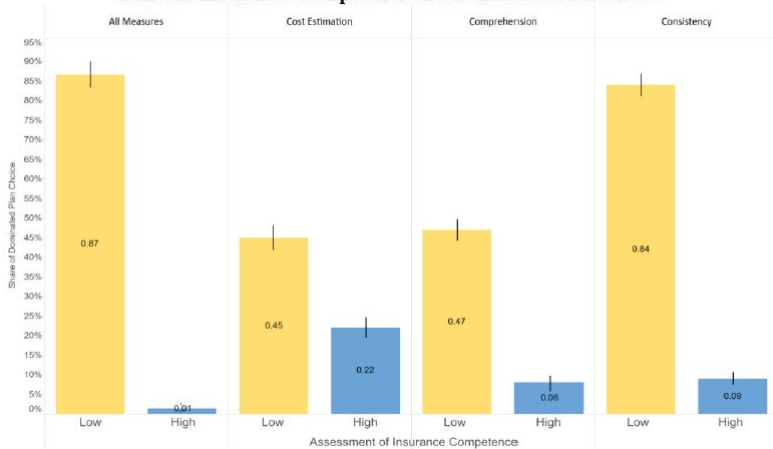
PLAN	PREMIUM	DEDUCTIBLE	SPENDING IF HEALTHY	SPENDING IF UNHEALTHY
A	\$1,950	You pay first \$350, plan covers remaining expenses	\$1,950	\$2,300
B	\$1,400	You pay first \$500, plan covers remaining expenses	\$1,400	\$1,900
C	\$1,300	You pay first \$750, plan covers remaining expenses	\$1,300	\$2,050
D	\$800	You pay first \$1,000, plan covers remaining expenses	\$800	\$1,800

Panel A. Menu Clarity and Plan Choice by Deductible



Insurance literacy

Panel B. Insurance Competence and Dominated Plan Choice



The first column reflects the 20% of subjects tagged as low across all measures and 23% tagged as high across all measures.

Results

- ▶ Results from the experiments suggest that the demand for dominated plans does not predominantly reflect the informed preferences of consumers or the consequences of menu complexity, but instead involves a failure of consumers to accurately evaluate and compare plans
- ▶ **While none of these findings rule out the possibility that consumers who chose dominated plans might have had a strong aversion to high-deductibles and that such aversion may be welfare relevant, the evidence suggests that most dominated plan choices are unlikely to be entirely attributable to a fully informed preference for low-deductibles.**
- ▶ Ultimately we conclude that a lack of basic insurance competence played a significant role in the demand for dominated plans.

Implication for Health policy

- ▶ More options is not always better
- ▶ Beyond the direct financial consequences of choice, the presence of a large share of unsophisticated consumers may reduce the likelihood that firms will compete over price and quality (a possibility raised by recent research in behavioural industrial organization)
- ▶ One can interpret these findings as strengthening the rationale for efforts to aid consumers through decision-aids or to encourage the creation of structurally simple and more standardized insurance plans
- ▶ Implications for studies that use data on insurance decisions and medical claims to estimate risk aversion, study adverse-selection, and analyse insurance markets

Estimating the probabilities

- ▶ The empirical distribution of employee health spending was used to estimate the predicted distributions of out-of-pocket spending for every employee under each available plan.
- ▶ The actual distribution of employee medical spending was set into 11 categories and each category was characterized by the average spending observed within the range
- ▶ Model the spending of employees by estimating a multinomial logit regression of each employees observed spending category on employee-specific indicators for salary level, age band, tenure, gender, the presence of a chronic health condition, deductible choice in the present plan year, and plan enrolment in the prior year
- ▶ Used the predicted values from this regression to estimate the categorical probability of medical spending for every employee conditioned on the employees observed characteristics
- ▶ Used these predictions of medical spending to generate the predicted distribution of out-of-pocket costs associated with any plan option for every employee.