Can Nudges Improve the Coverage Decisions of Vulnerable Populations in Health Insurance Marketplaces?

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Part I

Behavioral Economics, Choice, and Nudges

Behavioral Economics

A branch of economics that posits and considers the implications of the notion that people do not make decisions in the rational fashion that is assumed in the traditional economic theory of decision making. In doing so, it combines the economics of incentives with insights from psychology about how people actually behave under real-world circumstances.

Can There be Too Much Choice?

- Traditionally in Economics: "No"
  - More options are always better; a person can reject those that are dominated by others.
  - Without enough choice, a diverse set of consumers cannot be satisfied
  - Moreover, more choice leads to more price competition
- Similarly, in Psychology: "No"
  - Choice is motivating
  - Choice provides subjective feelings of well-being

Simon & Bounded Rationality

- There are cognitive limits to how much information we can process that are ignored by the economic model of rational utility maximization.

- How do people actually make decisions?
  - Use shortcuts and rules of thumbs rather than sifting through all information since both mental capacity and time are limited.
  - They often "satisfice" rather than "maximize"

If you look at economics textbooks, you will learn that homo economicus can think like Albert Einstein, store as much memory as IBM's Big Blue, and exercise the willpower of Mahatma Gandhi
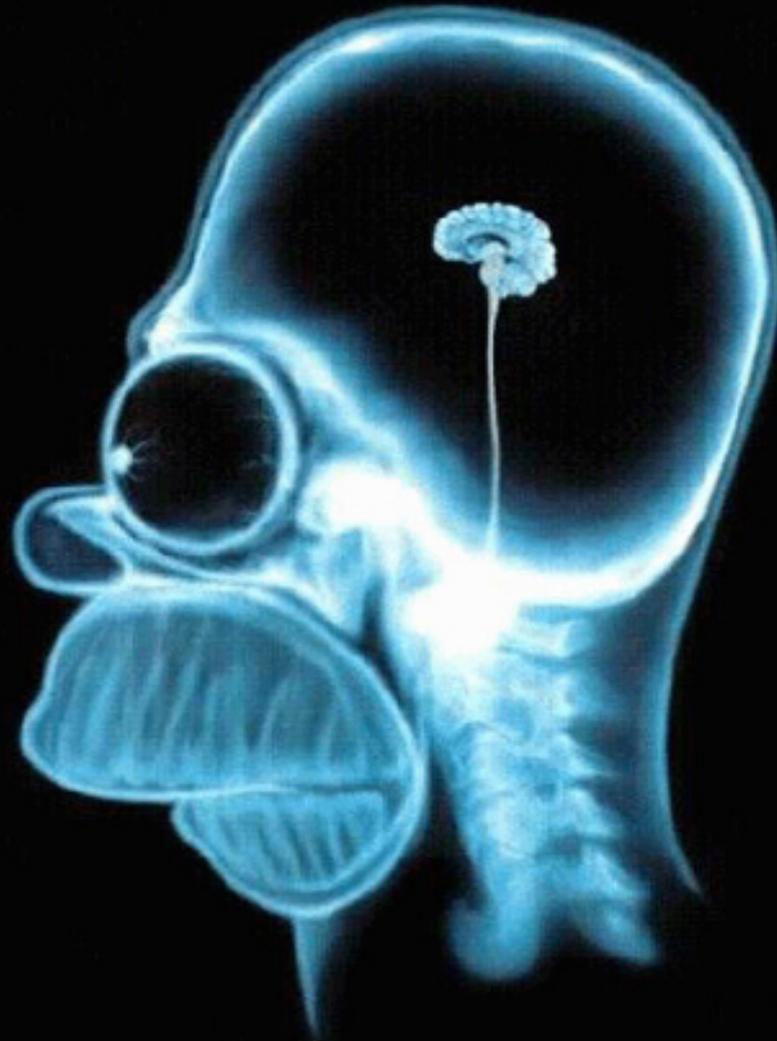
-- Thaler and Sunstein, *Nudge*

THINKING, FAST AND SLOW

DANIEL KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

Iyengar and Lepper Article: The "Jam Experiments"

- 6 or 24 jams put out for free tasting. More people frequenting the grocery store (60% vs. 40%) tasted when there were more flavors, but far fewer purchased (3% vs. 30%).

- 6 or 30 choices of Godiva Chocolate available to college student volunteers. Some given choice, others assigned a flavor. One finding: those given a choice of 6 flavors were far more likely to choose compensation in form of chocolate (48%), compared to those with 30 choices (12%) or those assigned a flavor (10%).

- 6 or 30 extra-credit essay topics given to college students. Those with 6 were more likely to write an essay (74% vs. 60%), and their essays were judged to be better.

401k Study

- In study of 800,000 employees (69 industries, 647 plans) in Vanguard Fund, with number of 401k choices varying from 2 to 69, negative relationship found between participation and number of choices, going from 75% to 60% participation rates. For every increase of ten fund choices, participation fell from 1.5 to 2.0 percentage points. (Control variables: individual and firm average: wage, age, gender, years with current employer.)

Sethi-Iyengar, S., G. Huberman, and J. Jiang. 2004. How Much Choice is Too Much? Contributions to 401(k) Retirement Plans? In: Mitchell, O.S. and S. Utkus (Eds.) *Pension Design and Structure: New Lessons from Behavioral Finance*. Oxford, United Kingdom: Oxford University Press: 83-95.

Thaler and Sunstein Article

- Libertarian Paternalism:
  - Allow people to have choice, but…
  - Guide them to make better choices
- Examples:
  - Cafeteria vignette
  - Opt out of 401k plan
  - Organ donations (12% in Germany with opt-in; 99% in Austria with opt-out)

Richard H. Thaler
Cass R. Sunstein

Nudge

Improving Decisions
About Health, Wealth,
and Happiness

Impact of *Nudge**

- David Cameron, Prime Minister of the U.K., formed a "Nudge unit"
  - Purpose: to get people to behave in social responsible way without more regulations.
  - Areas of focus: obesity, alcohol, organ donation.
- White House later established a similar group, Social and Behavioral Sciences Team.
  - Initial areas of focus: increasing college enrollment, Veterans' use of benefits, workplace savings, health insurance enrollment.

*Thaler, R.H., and C.R. Sunstein. *Nudge: Improving Decisions about Health, Wealth, and Happiness,* New Haven, CT: Yale University Press, 2008.

Advertising Dollars Spent in 2000

Millions of dollars

200
150
100
50
0
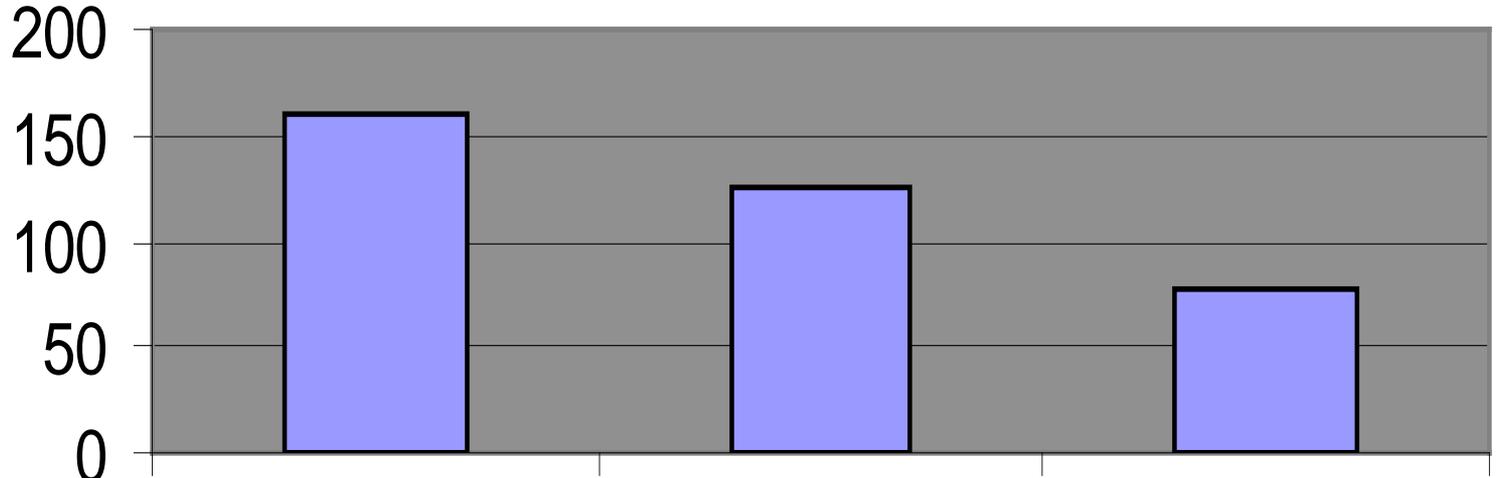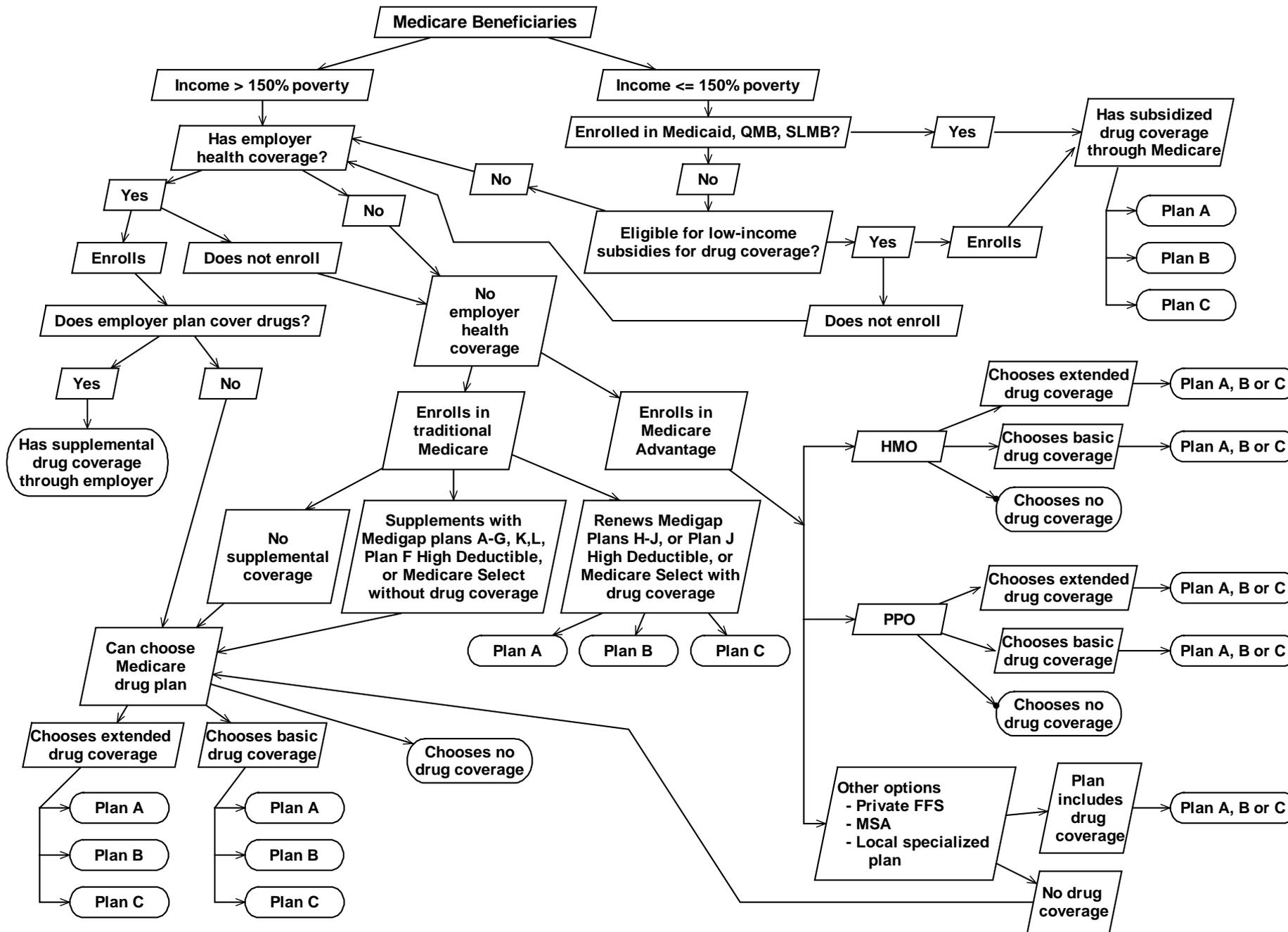
Vioxx   Pepsi   Nike

Product

Choice and Seniors

- More challenging because:
    - Often experience cognitive loss
    - Tend to review less information
    - Have to make more choices about medical care

Health Insurance Decisions Facing Medicare Beneficiaries

Medicare Part D Standard Benefit Parameters, 2006-2011

Total drug spending:

Catastrophic Limit — $5,100 (2006), $5,451 (2007), $5,726 (2008), $6,154 (2009), $6,440 (2010), $6,448 (2011)

Coverage Gap — $2,850 (2006), $3,051 (2007), $3,216 (2008), $3,454 (2009), $3,610 (2010), $3,608 (2011)

Initial Coverage Limit — $2,250 (2006), $2,400 (2007), $2,510 (2008), $2,700 (2009), $2,830 (2010), $2,840 (2011)

Deductible — $250 (2006), $265 (2007), $275 (2008), $295 (2009), $310 (2010), $310 (2011)

Years: 2006, 2007, 2008, 2009, 2010, 2011

Number of Medicare Prescription Drug Plans Available Nationwide in 2008

Not including numbers of Medicare Advantage Drug Plans (HMOs, PPOs, and Private Fee-For-Service plans)

Legend:
- 45-50 drug plans (4 states)
- 51-55 drug plans (38 states)
- 56-60 drug plans (7 states)
- 61-65 drug plans (2 states)
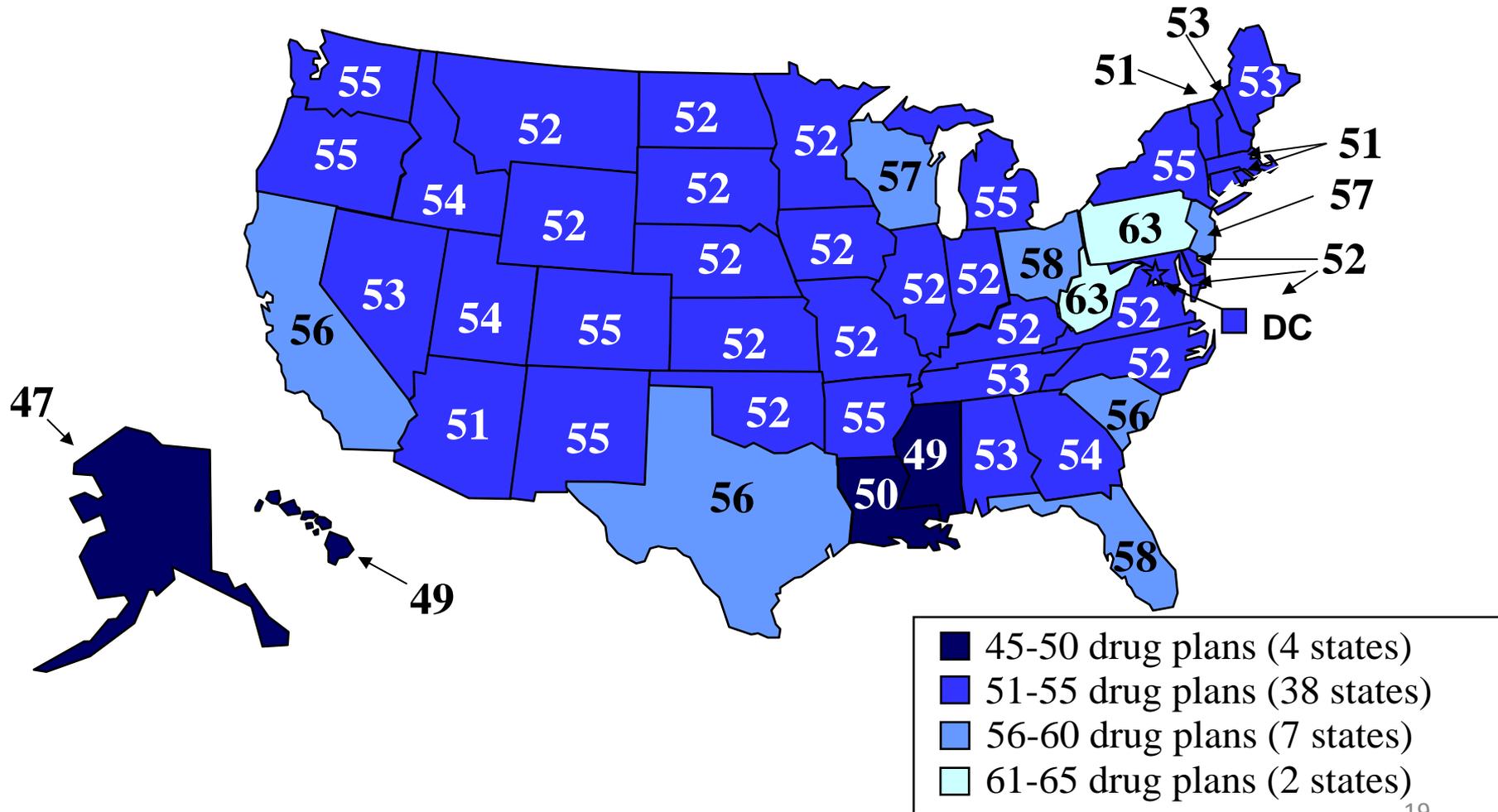
SOURCE: Kaiser Family Foundation analysis of CMS PDP landscape file for 2008.

Number of Medicare Part D Stand-Alone Prescription Drug Plans, by State, 2013

U.S. Total, 2013= 1,031

23 – 29 plans	30 – 31 plans	32 plans	33 – 38 plans
12 states, DC	18 states	13 states	7 states

A.C.A Exchanges pose a daunting challenge for consumers and public payers

- Because of the people who shop in them
  - Uninsured more likely to have lower income, education levels, have lower health literacy and health insurance comprehension

- Because the decision is so difficult
  - Must consider risk - current and future income and health state
  - Evaluate many unfamiliar product attributes and compare across many plans

Ubel et al. (2015)

- Metal tiers were included in legislation to make it easier for consumers to understand the quality of coverage: Bronze coves 60%, Silver 70%, Gold 80%, Platinum 90%
- Ubel shows that people are confused by these categories
  - Sample: "convenience sample of participants from public buses in Durham, NC.
  - Asked which category of plans they would look at first if shopping for health insurance; half got real representation of metal tiers, others got phony

*"Healthcare.gov 3.0 – Behavioral Economics and Insurance Exchanges." *New England Journal of Medicine* 372(18), February 19, 2015: 695-698.

Bronze

* Lower monthly cost
* Higher costs when you receive medical services

Who chooses Bronze plans?

A good option if you want a lower monthly premium and don't expect to receive a lot of medical services.

Silver

* Monthly cost can run higher than Bronze
* Lower costs when you receive medical services compared to Bronze

Who chooses Silver plans?

A good option if you want to balance your monthly premium and out-of-pocket costs.

Gold

* Highest monthly cost
* Lowest costs when you receive medical services

Who chooses Gold plans?

A good option if you expect to receive a lot of medical expenses.

Bronze

* Highest monthly cost
* Lowest costs when you receive medical services

Who chooses Bronze plans?

A good option if you expect to receive a lot of medical services.

Silver

* Monthly cost can run higher than Gold
* Lower costs when you receive medical services compared to Gold

Who chooses Silver plans?

A good option if you want to balance your monthly premium and out-of-pocket costs.

Gold

* Lower monthly cost
* Higher costs when you receive medical services

Who chooses Gold plans?

A good option if you want a lower monthly premium and don't expect to receive a lot of medical services.

Ubel (cont.)

- Results:
  - Among those in below the median in mathematical ability, most preferred the "Gold" plan regardless of the benefit configuration
  - Presenting premiums as monthly rather than weekly resulted in fewer people choosing higher premium plans

Designing the Exchanges

- Federal exchanges have passive approach:
  - All insurers can participate
  - No price negotiations between feds and insurers
  - Benefits are not standardized
- California is activistic:
  - Exchange (called Covered California) negotiates premiums with insurers; no assurance that all will be allowed to participate. (2016 premium increases much lower than in Federal exchange)
  - Benefits are standardized (except for provider networks) within each metal tier

Part II

Current Study

How do we choose health insurance

Risk preference
Time preference

Literacy

Perceived health status

Coverage quality

Insurance comprehension
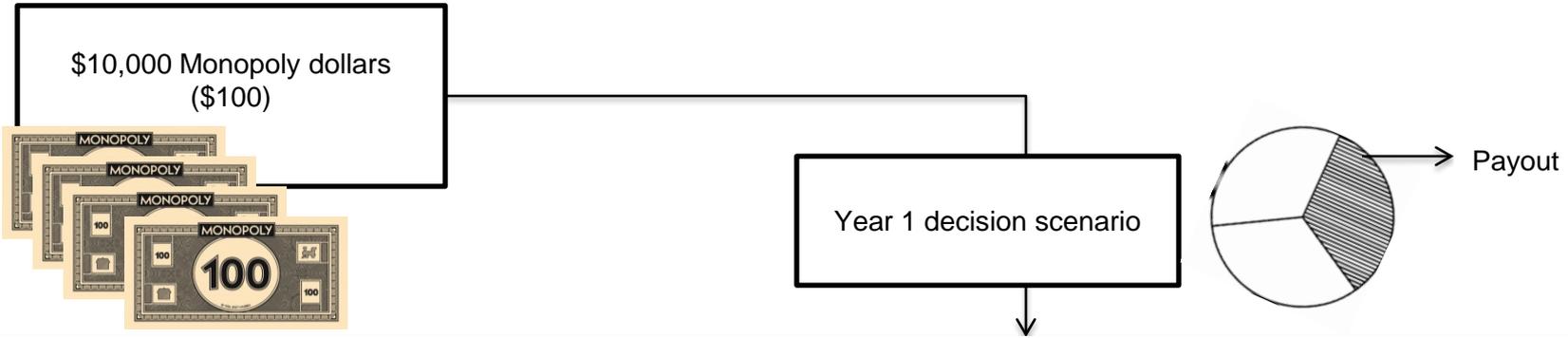
Marketplace
Choice
Architecture
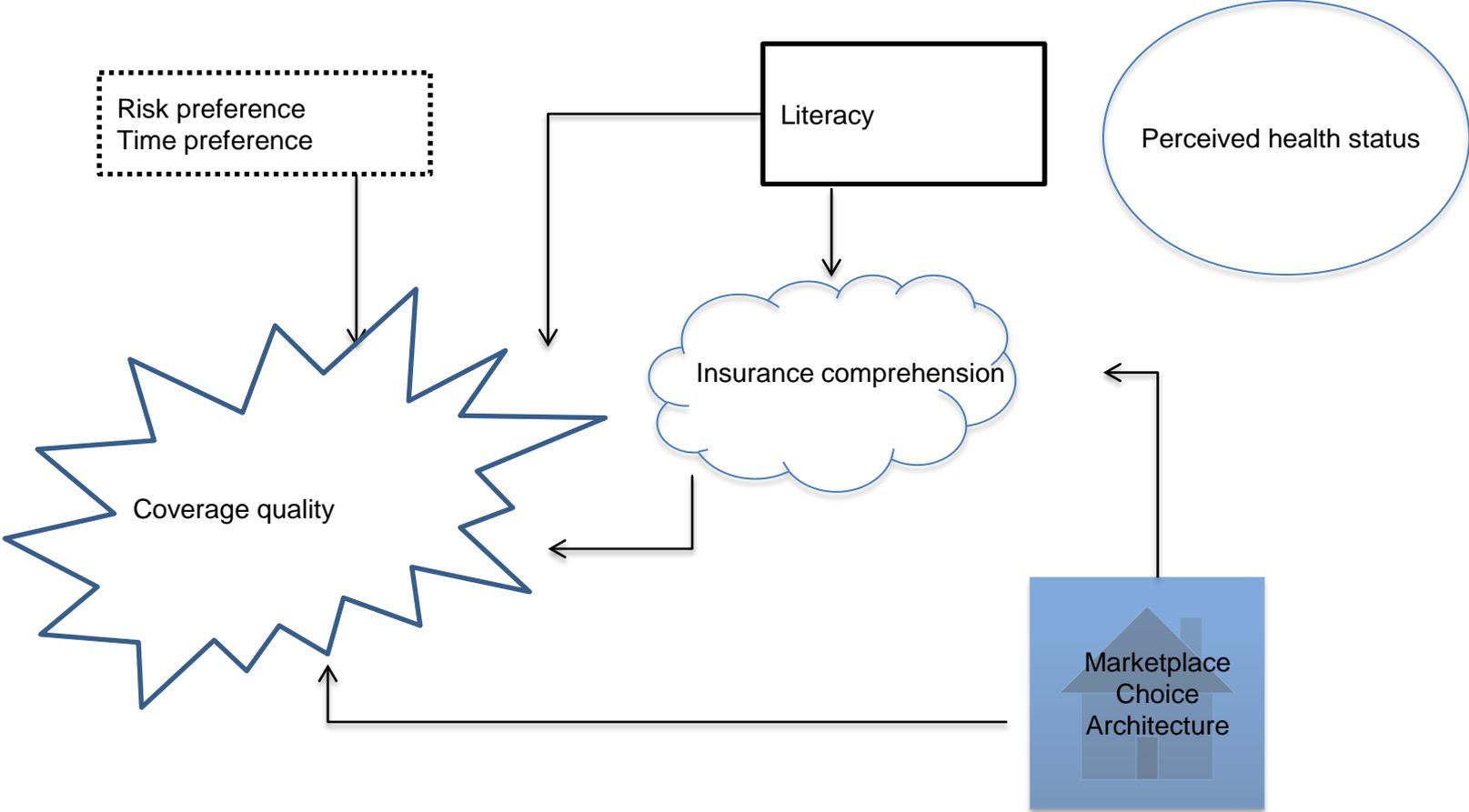
Sample

A community sample of 18-64 yr olds residing in the rural southern and southwestern counties of Virginia. In total, 690 participants were recruited during the summer of 2014.

Experiment

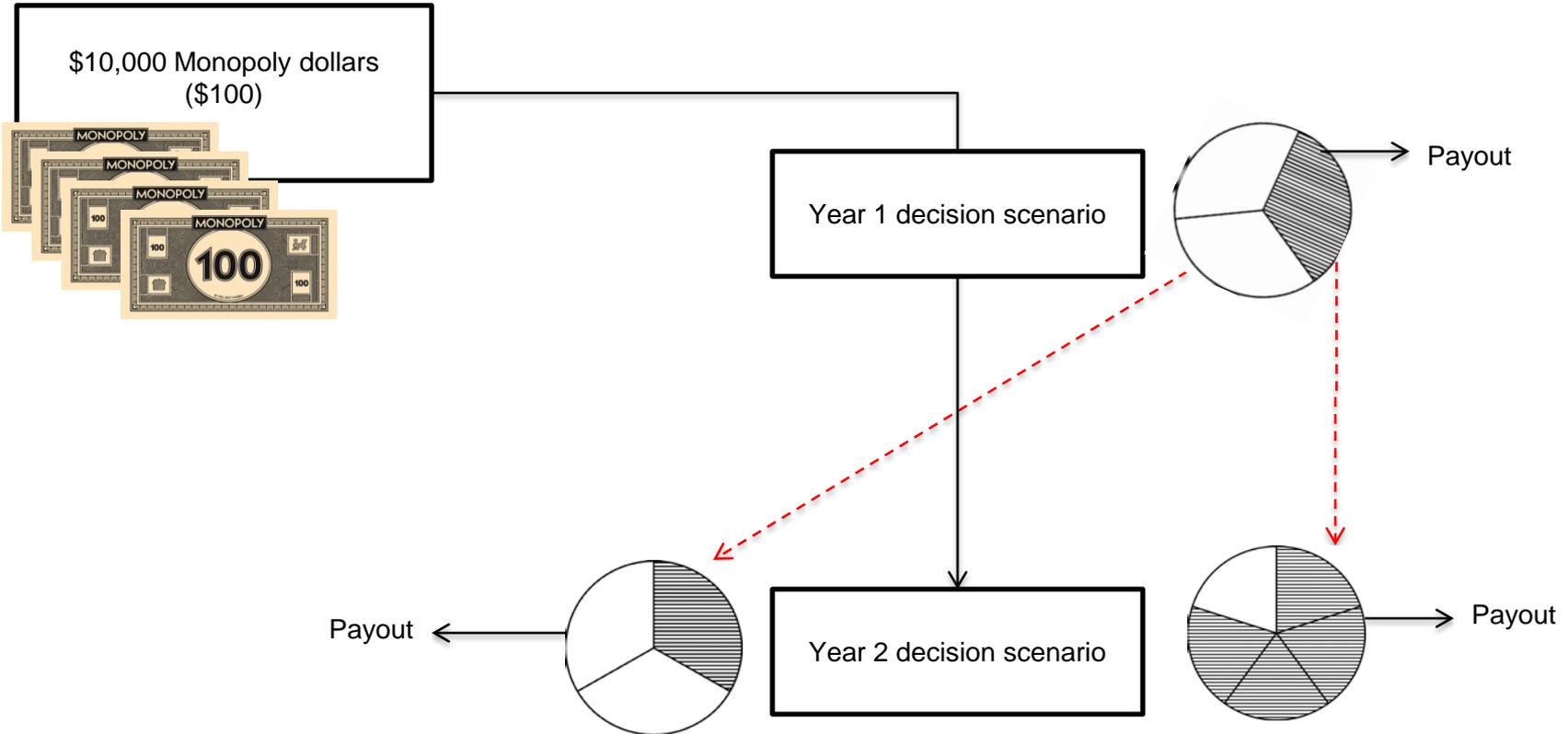$10,000 Monopoly dollars
($100)

Year 1 decision scenario

Payout

If you get sick, you will need to see a primary care doctor four times during Year 1. Visiting a primary care doctor cost $500 each time for a total of $2,000. This $2,000 is the only cost you will have if you get sick.

If you do not get sick, you will only have to pay the annual premium if you choose to buy insurance or the tax penalty if you choose not to buy insurance. If you purchase insurance, you will have to pay the annual premium, and, if you get sick, some of the costs of seeing the doctor will be covered by the insurance plan depending on the plan you choose.

If you buy an insurance plan, you have six insurance options (A, B, C, D, E, or F). You also have the option of not buying insurance. However, if you choose not to buy insurance, you will have to pay a tax penalty and, if you get sick, pay the full costs of visiting a primary care doctor. All insurance plans are for individual coverage. That is, imagine you are only buying insurance for yourself. Please make your decision now.

Plan name	A	B	C	D	E	F	No insurance
Annual premium or tax penalty	$108	$156	$400	$492	$1,148	$1,348	$695
Annual deductible	$5,500	$4,500	$2,250	$3,350	$2,000	$2,000	Not applicable
Out of pocket maximum for the year	$6,350	$6,350	$6,350	$5,500	$3,000	$3,000	Not applicable
Cost of 4 doctors visits	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Total you win if you get sick and need to see the doctor *including* annual premiums or penalties	$7,892	$7,844	$7,600	$7,508	$6,852	$6,652	$7,305
Total you win if you don't get sick and don't need to see the doctor	$9,892	$9,844	$9,600	$9,508	$8,852	$8,652	$9,305

Experiment

$10,000 Monopoly dollars
($100)

Year 1 decision scenario

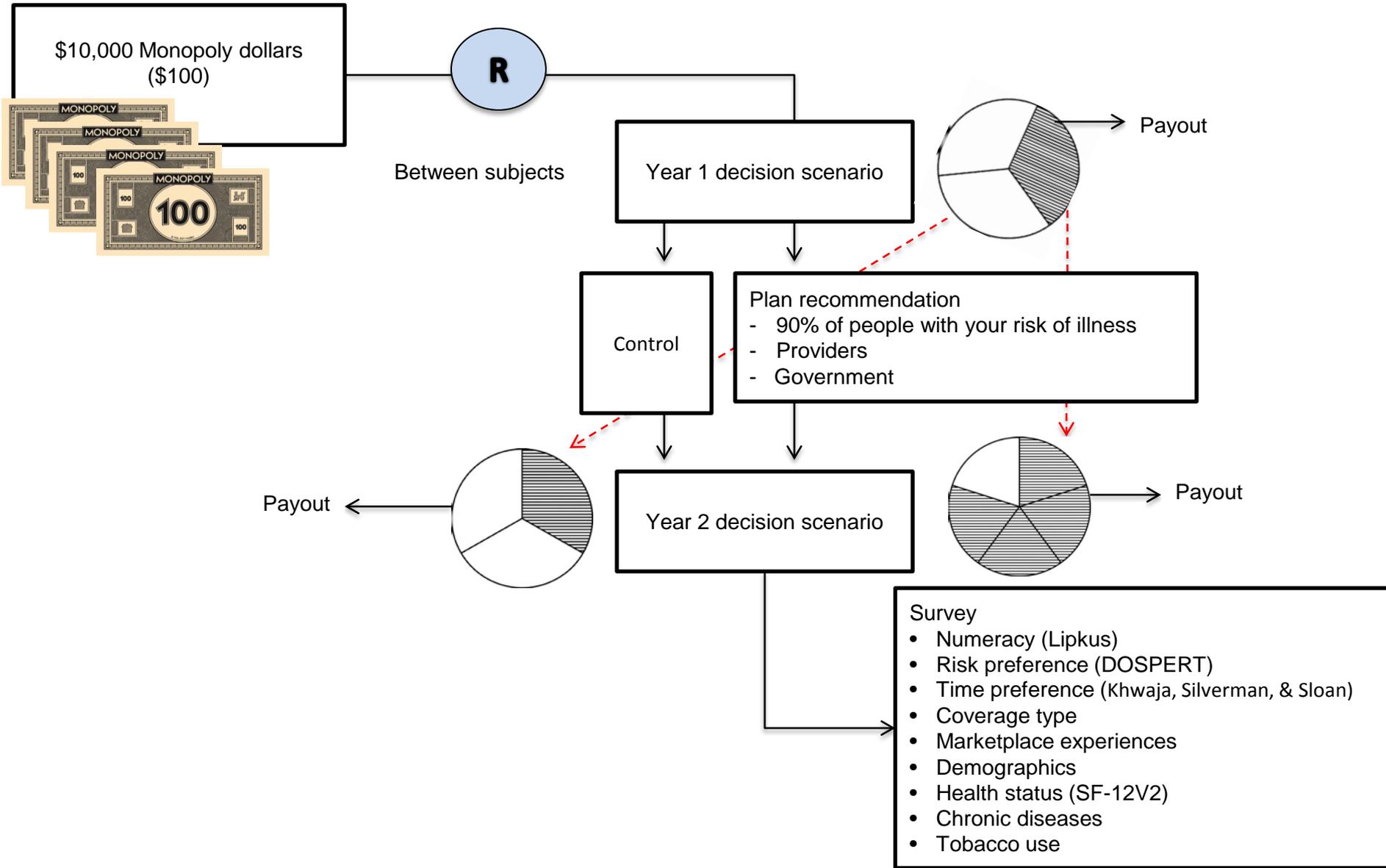Year 2 decision scenario

Payout

Payout

Payout

If you get sick, you will have to go to the emergency room (ER) and then be admitted into the hospital for 15 nights. The bill without insurance will be $5,000 for the ER and $15,000 for the 15 night hospital stay for a total of $20,000. This $20,000 is the only cost you will have if you get sick.

If you do not get sick, you will only have to pay the annual premium if you choose to buy insurance or the tax penalty if you choose not to buy insurance. If you purchase insurance, you will have to pay the annual premium and, if you get sick, some of the costs of going to the ER and being hospitalized will be covered by the insurance plan.

Plan name	A	B	C	D	E	F	No insurance
Annual Premium or tax penalty	$113	$164	$420	$517	$1,205	$1,415	$730
Annual deductible	$5,500	$4,500	$2,250	$3,350	$2,000	$2,000	Not applicable
Out of pocket maximum for the year	$6,350	$6,350	$6,350	$5,500	$3,000	$3,000	Not applicable
Cost of the ER visit	$5,000	$4,725	$3,075	$3,763	$2,900	$2,900	$5,000
Cost of the 15 night stay in hospital	$5,750	$5,250	$3,000	$2,250	$3,000	$3,000	$15,000
Total you **win** if you get sick after your ER visit and hospital stay *including* annual premiums or tax penalty	$3,537	$3,486	$3,505	$3,983	$5,795	$5,585	$0
Total you **win** if you don't get sick and don't need to go to the ER or hospital	$9,887	$9,836	$9,580	$9,483	$8,795	$8,585	$9,270

Experiment

$10,000 Monopoly dollars ($100)

R

Between subjects

Year 1 decision scenario

Payout

Control

Plan recommendation
- 90% of people with your risk of illness
- Providers
- Government

Payout

Year 2 decision scenario

Payout

Survey
- Numeracy (Lipkus)
- Risk preference (DOSPERT)
- Time preference (Khwaja, Silverman, & Sloan)
- Coverage type
- Marketplace experiences
- Demographics
- Health status (SF-12V2)
- Chronic diseases
- Tobacco use

Numeracy

Imagine that we roll a fair, six sided die 1, 000 times. Out of 1,000 rolls, how many times do you think the die would come up even (2, 4, or 6)? Please give your response in NUMBERS not words (i.e. 12, not "twelve")

Number of times:_____

Imagine that we are throwing a five-sided die 50 times. On average, out of these 50 throws how many times would this five-sided die show an odd number (1,3 or 5)?

Number of times:_____

In BIG BUCK LOTTERY, the chances of winning a $10 prize are 1%. What is your best guess about how many people would win a $10 prize if 1,000 people each buy a single ticket from BIG BUCKS?

Number of people:_____

In the ACME PUBLISHING SWEEPSTAKES, the chances of winning a car are 1 in 1,000. What percent of tickets of ACME PUBLISHING SWEEPSTAKES win a car?

Percent of tickets:_____

DOSPERT - Health

- Eating 'expired' food products that still 'look okay'.
- Frequent binge drinking.
- Ignoring some persistent physical pain by not going to the doctor.
- Taking a prescription drug that has a high likelihood of negative side effects.
- Engaging in unprotected sex.
- Never wearing a seatbelt.
- Not having a smoke alarm in or outside of your bedroom.
- Regularly riding your bicycle without a helmet.
- Smoking a pack of cigarettes per day.

DOSPERT – Financial investment

- Investing 10% of your annual income in a moderate growth mutual fund (like a 401K or other retirement plan)

- Investing 5% of your annual income in a very speculative stock (like a stock with high risk relative to any potential positive returns).

- Investing 10% of your annual income in a new business venture

DOSPERT – Financial gambling

- Betting a day's income at a high-stake poker game.

- Betting a day's income on the outcome of a sporting event

- Betting a day's income at the horse races

Time preference

- Would you rather WIN $20 now or $30 a year from now?

- Would you rather LOSE $20 now or $30 a year from now?

- Would you rather WIN $1,000 now or $1,500 a year from now?

- Would you rather LOSE $1,000 now or $1,500 a year from now?

Plan Recommendations

- Participants were nudged into the plan that would maximize their expected earnings
- Participants were given one of the following prompts:
  - 90% of people with their risk of illness choose the Bronze (Gold) plan
  - their doctor recommends people with their risk of illness choose the Bronze (Gold) plan
  - the government recommends that people with their type of illness choose the Bronze (Gold) plan.

Table 1. Expected health care costs in the insurance choice experiment

	Plan A	Plan E	No Insurance
Deductible	$5,500	$2,000	N/A
Out of pocket maximum	$6,350	$3,000	N/A
Year 1			
Total costs if *healthy* and do not need to see a doctor including annual premiums or tax penalties	$108	$1,148	$695
Total costs if *ill* and need to see a doctor including annual premiums or tax penalties	$2,108	$3,148	$2,695
Total expected health care costs	$768	$1,808	$1,355
Year 2 (if ill in Year 1)*			
Total costs if *healthy* and do not need to go to the ER or hospital including annual premiums or tax penalties	$113	$1,205	$730
Total costs if *ill* after your ER visit and Hospital stay including annual premiums or tax penalties	$6,463	$4,205	$20,730
Total expected health care costs	$5,193	$3,605	$16,730

Notes: Shaded boxes represent the plan choice with the lowest expected total annual costs. The chance of getting ill and needing to see a doctor in Year 1 is 33% and the cost is $2,000 before insurance. If a person is ill in Year 1, the chance of getting ill and needing to go to the ER and stay in the hospital in Year 2 is 80% and the cost is $20,000 before insurance. *If a person is healthy in Year 1, they maintain a 33% chance of becoming ill and needing to see a doctor.

Principal Findings

Marketplaces where the government or providers recommended the lowest cost plan resulted in consumers choosing plans that lowered annual costs by approximately $250 compared to marketplaces where no recommendations were made (Table 2, *p<0.05).

Table 2. Adjusted Associations of Nudge Conditions and Insurance Decision Quality

	Average Earnings Across Years 1 and 2 (95% CI)	
Nudge vs. no nudge	217* (28, 405)	---
Doctor nudge vs. no nudge	---	252* (18, 489)
Social norm nudge vs. no nudge	---	139 (-99, 378)
Government nudge vs. no nudge	---	249* (30, 468)

Principal Findings

- We found no significant interactions between the nudge condition and numeracy, education, race/ethnicity, or insurance comprehension
  - Suggests nudges were equally effective among subgroups of consumers.

Implications

- Making simple changes to marketplace design could result in significant financial savings to consumers and the government.
  - Both at initial and re-enrollment periods
  - Plan recommendations proved beneficial to a wide array of consumers, regardless decision-making ability.
- Marketplace redesigns can reduce decision frictions without impinging on consumers' freedom of choice and with little cost to the government.