What if everybody had a choice? Using hypothetical choice experiments to analyze the demand for private health insurance

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Motivation

President Obama's Health Care Reform

- Main goal: Reducing the number of uninsured.
- The old system with insurance by
  - employers,
  - Medicare for the old,
  - Medicaid for the poor,
  - and private insurance remains in place.
- Health insurance remains an individual's free choice.
- Insurance is offered by private companies.
- Coverage cannot be denied on the grounds of preexisting conditions.
- Health insurance will be subsidized.

Motivation

Most recent reform: Medicare Part D (2006)

- Large new government programme offering subsidized prescription drug insurance for 45 million Medicare recipients.
- Before 2006, roughly 30 percent of the elderly aged 65+ had little or no insurance coverage for their prescription drugs.
- Evaluating Part D is important, because
  - it has been the largest single expansion in social insurance in the USA since 1965.
  - it is similar in many ways to Obama's health care reform.
  - in the design of social insurance, individuals are presented with choices more often (instead of the "one fits all option").

Contribution

Research Question

Can hypothetical choice experiments be used to predict the demand for new forms of government sponsored insurance?

Use the introduction of Medicare Part D as "Policy Experiment"

Literature

Literature on Consumer Choice in Part D based on active deciders

- **Abaluck and Gruber** (AER, forthcoming)
- **Heiss, McFadden and Winter** (2009, Research Findings in the Economics of Aging) and **Winter et al.** (2006, Proceedings of the National Academy of Sciences)
- **Kling, Mullainathan, Shafir, Vermeulen, Wrobel** (2008, mimeo)
- **Lucarelli, Prince and Simon** (2008, NBER WP)

Motivation

The empirical problem

	Active Deciders	Passive Participants
Description	• No coverage before Part D • ⅓ of relevant Market	• Coverage before Part D - Employer - Medicaid - Medicare Advantage - Private - Veterans
Actual Decision	✓	
Hypothetical Choice Experiment	✓	✓

Data

Retirement Perspectives Survey

- Internet survey of elderly Americans
- Based on a random sample of the population.
- Four waves: 2005, 2006, 2007, 2009
- Focus on Medicare Part D.
- Aim: Studying information, perceptions, and preferences regarding prescription drug use, cost, and insurance.
- Conducted by Heiss, McFadden and Winter.
- Administered using the Knowledge Networks (KN) panel, a commercial survey firm.
- Panel households are provided with Web TVs.

Estimation

Estimating Strategy

1. **Hypothetical Choice Experiment**: All consumers
2. **Revealed Choices**: Active deciders
3. **Joint model of hypothetical and revealed choices**

Multinomial Logit Model

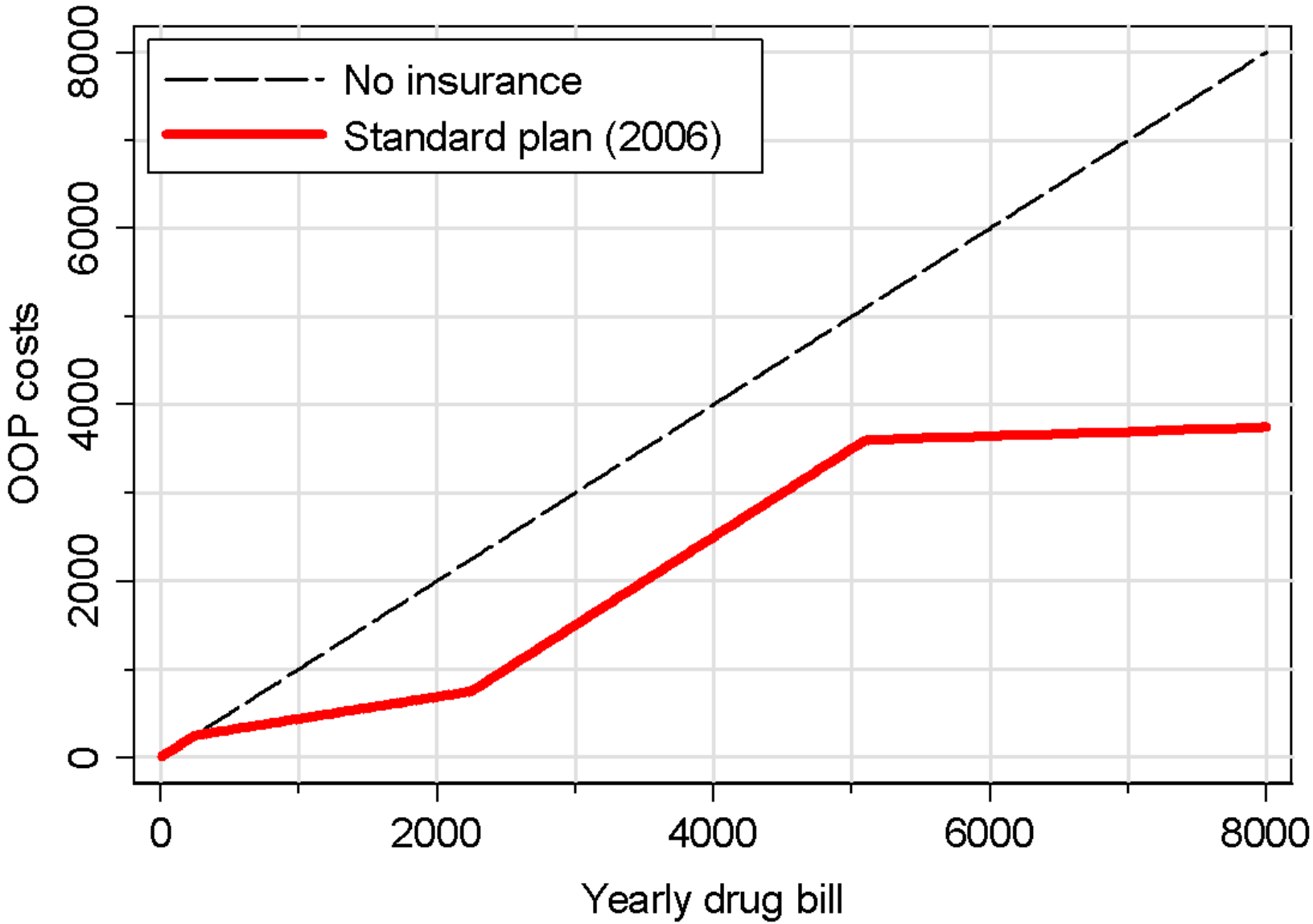
Let the indirect utility that consumer i obtains from the insurance contract j be

$$U_{ij} = V(a_j, p_j, y_i, s_i, g_i) + e_{ij} \tag{1}$$

where

- a_j: the attributes of the insurance contract,
- p_j: the contract's premium,
- y_i: the income of the insured,
- s_i: socio-economic conditions,
- g_i: the group of the population.

Part D Basic Coverage



Hypothetical Choice Experiments

No coverage:
Insurance -
No deductible -
Gap coverage -
Premium: 0

Basic:
Insurance +
No deductible -
Gap coverage -
Premium: randomly assigned

Enhanced:
Insurance +
No deductible +
Gap coverage -
Premium: randomly assigned

Premium:
Insurance +
No deductible +
Gap coverage +
Premium: randomly assigned

MNL Regression of Plan Choice

	(1)	(2)	(3)	(4)
Plan attributes				
Reference group: no coverage				
Premium	-0.0263***	-0.0298***	-0.0301***	-0.0311***
Insurance	1.100***	1.487***	0.913***	1.256***
No deductible	0.652***	0.618***	0.561***	0.459**
Gap coverage	0.730***	0.384***	0.435***	0.200
Real coverage				
Reference group: active deciders				
Passive x insurance			0.456***	0.413**
Passive x no deductible			0.249*	0.230
Passive x gap coverage			0.324***	0.262**
2005 drug costs				
Reference group: medium drug costs				
No costs x insurance		-0.604***		-0.581***
No costs x no deductible		-0.593***		-0.580***
No costs x gap coverage		0.185		0.200
High costs x insurance		0.195		0.193
High costs x no deductible		0.174		0.170
High costs x gap coverage		0.406***		0.400***
Socio-economic variables				
Female x insurance		-0.123		-0.107
Female x no deductible		0.160		0.167
Female x gap coverage		-0.112		-0.110
Low income x insurance		-0.223		-0.197
Low income x no deductible		-0.245*		-0.227
Low income x gap coverage		-0.239*		-0.219*
Higher education x insurance		-0.116		-0.144
Higher education x no deductible		0.0652		0.0532
Higher education x gap coverage		0.136		0.122
SHRS poor/fair x insurance		-0.116		-0.151

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* denotes p<.1, ** denotes p<.05, and *** denotes p<.01 for a two-sided t-test.

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Low expected costs

High expected costs

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Higher education x gap coverage		0.136		0.122
SHRS poor/fair x insurance		-0.116		-0.151
SHRS poor/fair x no deductible		-0.170		-0.182
SHRS poor/fair x gap coverage		0.381***		0.371***
Age > 75 x insurance		-0.0322		-0.0352
Age > 75 x no deductible		0.116		0.118
Age > 75 x gap coverage		-0.111		-0.108
Risk averse x insurance		0.100		0.114
Risk averse x no deductible		0.223		0.228
Risk averse x gap coverage		0.333***		0.334***
Observations	6262	4531	4604	4531

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Low income

Poor SRH

Risk aversion

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Passive participants

Hypothetical Choice Experiment

Hypothetical Choice Experiments

- ⊕ We observe the demand curve and not market equilibrium
- ⊕ We can create variation in attributes
- ⊕ We can estimate demand for groups of consumers whose actual demand is unobserved
- ⊖ "What people say is not what people do."
  $\rightarrow$ Use actual demand to base hypothetical choices in reality

Combination of actual and hypothetical choices

In Logit Models...

- ... we do not identify β,
- but β/λ
- with $\lambda^2 = \sigma^2 * 6/\pi^2$.

When combining different data sources...

- ... we have to allow for different scale factors in the data sources.

We use a Nested Logit Model...

- ... as an auxiliary construct
- in order to allow for different scale factors
- in the actual and hypothetical decisions.

Combined Data

Relative Variance

Finding: Unobserved variance of the hypothetical choices is about half of the variance of the real choices.

Willingness to pay

$$WTP = -(\beta_{attribute} / \beta_{premium}). \tag{2}$$

Results (Combined Model)

Demand and Supply of Part D Coverage

	Basic	Enhanced	Premium	
WTP Combined Model	\$35.39	\$51.84	\$72.39	
			Generics	**Generics & Brands**
Average Monthly Premium (All available plans)	\$ 30.75	\$ 37.92	\$ 48.13	\$ 61.88

Results

High WTP for private health insurance for consumers

- in poor health or with high expected prescription drug spending $\rightarrow$ Adverse selection,
- with high income
- with high risk-aversion
- whose actual decisions are unobservable.