

# Should There Be Vertical Choice in Health Insurance Markets?

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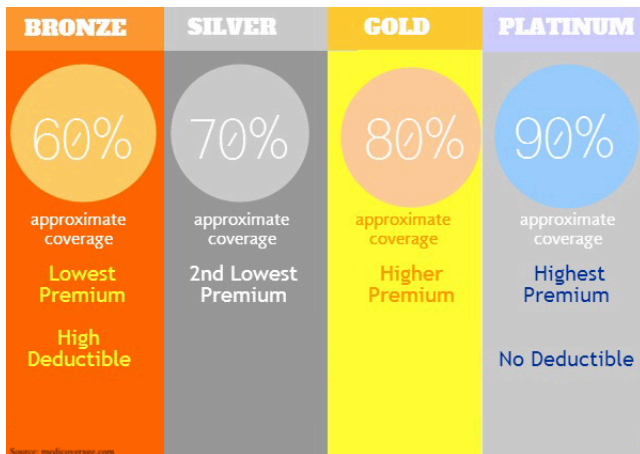
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July 2020

# Vertical choice

= Choice over financially vertically differentiated plans



# Is offering vertical choice efficient?

- Adverse selection a familiar problem for competitive ins. markets
  - Resulting in **too little** insurance
- Regulation can easily fix this by mandating full insurance
  - Resulting in **too much** insurance
- **Optimal** insurance trades off risk protection (↑) and moral hazard (↓)
  - Could mandate an intermediate level of coverage for everyone
  - But consumers are heterogenous... could do better?

**Research Question:** Should planner offer multiple coverage levels?  
i.e. *vertical choice*

# This paper

- Develop a generalized model of a health insurance market
  - Consumers demand both **health insurance** and **healthcare utilization**
  - Supply of contracts vertically differentiated by financial coverage level
- Use model to qualify and quantify **constrained** efficiency
  - Each consumer's efficient coverage level determined by tradeoff between risk protection ( $\uparrow$ ) and moral hazard ( $\downarrow$ )
  - But **cannot** observe consumer type; consumers self-select
- Characterize constrained efficient allocation

Offer choice only if *higher* WTP consumers should have *higher* coverage

  - Theoretically ambiguous
- Investigate empirically in one population

# Main empirical findings

- Substantial heterogeneity in efficient coverage level across households
- But efficient coverage level **not** increasing in willingness to pay

## Key Conclusions

- Vertical choice should **not** be offered in this population
- Optimal single coverage level increases welfare by **\$330** per household relative to a status quo with vertical choice
  - *And* leads to a more even distribution of health spending

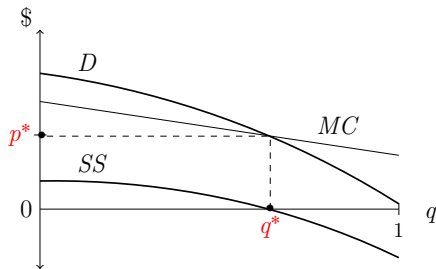
$$E(\text{Out-of-pocket}) + \text{Premium}$$

# Two-contract example

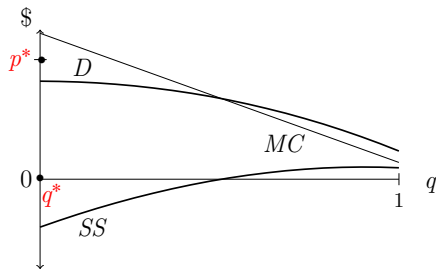
Market for high contract, outside option is low contract

- Consider demand ( $D$ ) and marginal cost ( $MC$ ) curves for two populations
  - $SS = D - MC$  : Not everyone has same optimal contract
  - What is optimal marginal premium  $p^*$ ?

(a) Population A



(b) Population B



$q \equiv$  Pct. of consumers

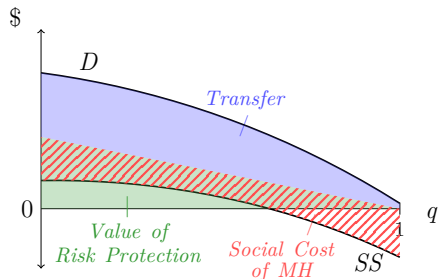
$SS \equiv$  Social surplus

# Model demand for healthcare and health insurance

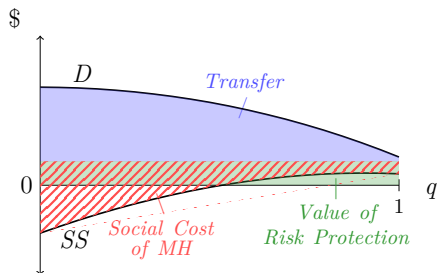
- Consumers face distribution over potential health states
  - 1 Choose an insurance contract → Maximizing expected utility
  - 2 Health state is realized
  - 3 Choose healthcare utilization → Trading off **benefit** and **out-of-pocket cost**
- Willingness to pay = Expected value + Risk protection  
= EV(**benefit**) + EV(**\$**) + Risk protection  
↳ “Transfer”
- Cost = EV(**\$**) + EV(Moral hazard \$)
- Social surplus = Willingness to pay - Cost  
= Risk protection - Social cost of moral hazard

# Two-contract example, from fundamentals

(a) Population A



(b) Population B



$D \equiv$  Willingness to pay

$q \equiv$  Pct. of consumers

$SS \equiv$  Social surplus



# Empirical setting

- Data from the Oregon Educators Benefits Board
  - All public school employees in Oregon
  - ~45,000 households (~115,000 individuals)
  - Between 2008 and 2013
- Individual-level panel dataset
  - Health insurance plan choices, choice sets, and demographics
- Health insurance claims data

⇒ Key points:

- Existence of vertical choice
- Plausibly exogenous variation in premiums and choice sets

# Empirical model

- Parameterize model of demand for healthcare and health insurance
  - Consumers have 3-dimensional type  $\theta$ :
    - $F$  = Distribution over potential health states
    - $\psi$  = Risk aversion parameter
    - $\omega$  = Moral hazard parameter
- Incorporate specifics of empirical setting
  - Consumers are households made up of individuals
  - Multiple insurers
  - Repeated choices

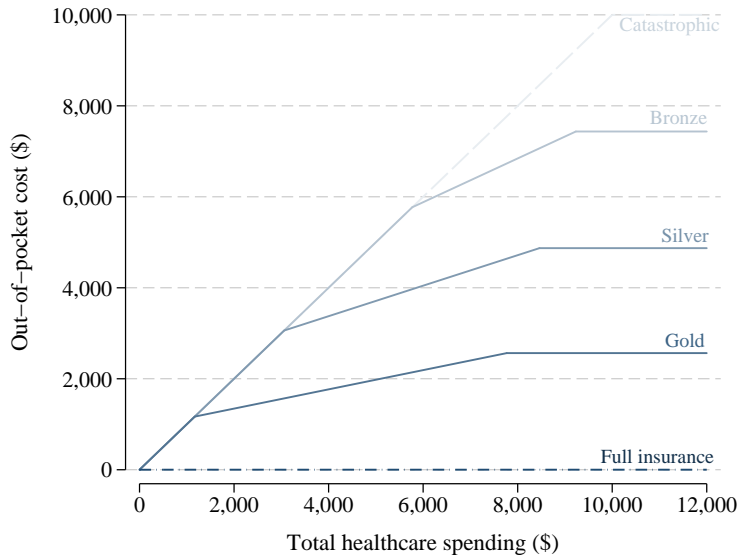


Estimate model . . .

- Recover distribution of types  $\theta = \{F, \psi, \omega\}$  in population

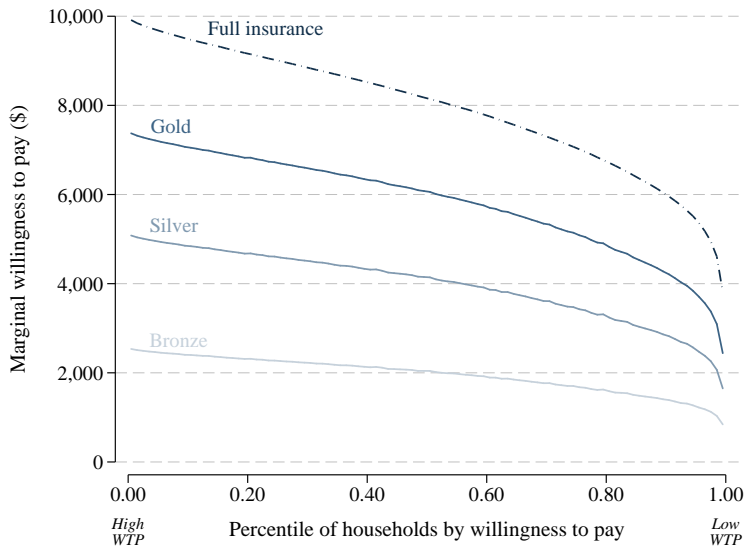
# Plans to consider

## Out-of-pocket cost functions



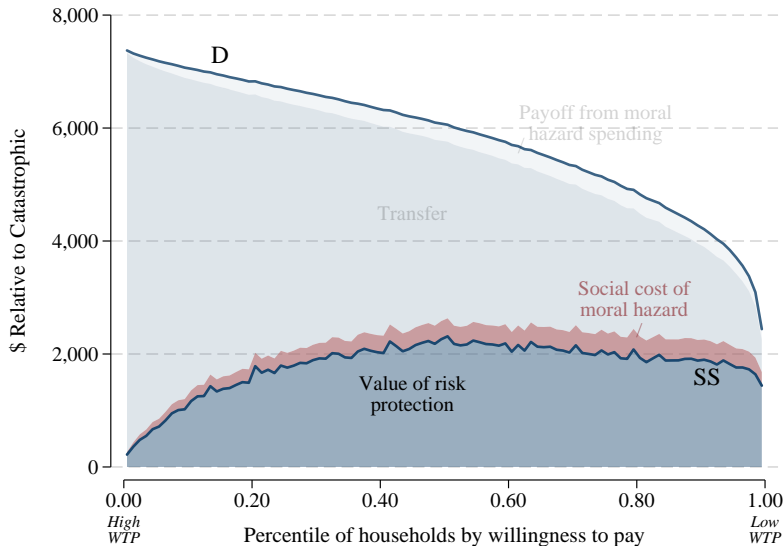
# Willingness to pay

Relative to Catastrophic → the “low” contract



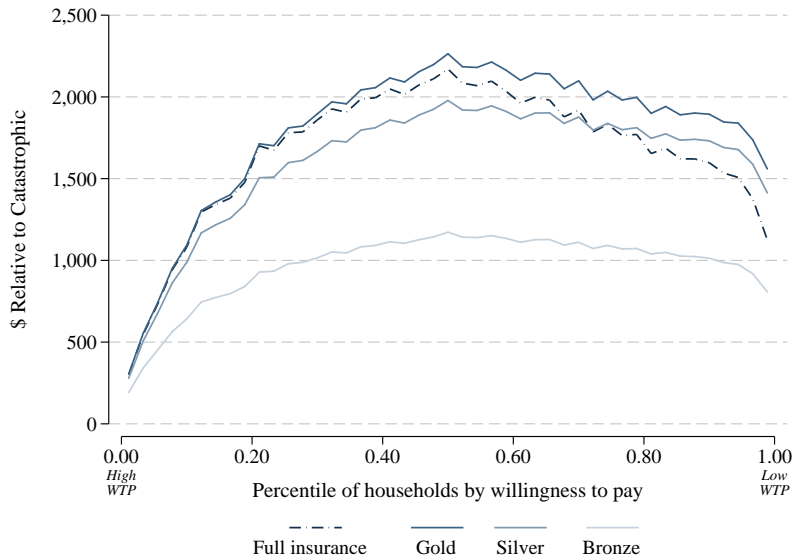
# Breakdown of willingness to pay

For Gold plan



# Social surplus

Relative to Catastrophic



# Welfare under alternative policies

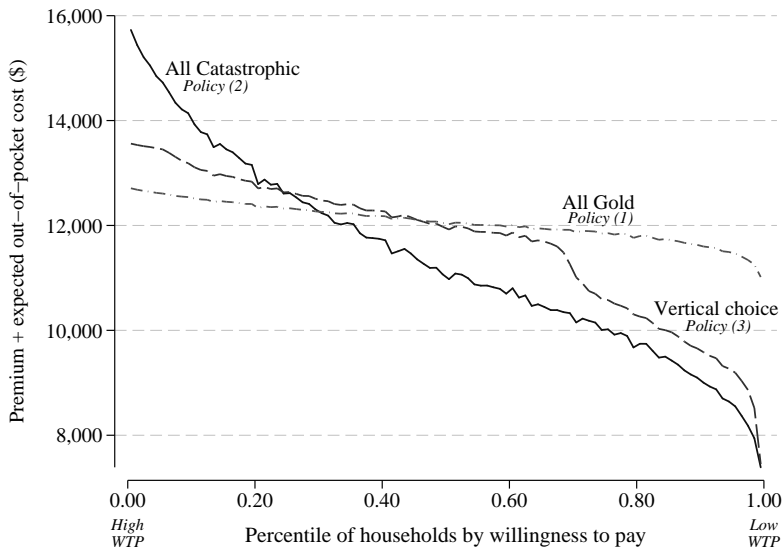
	Policy	Surplus per HH <sup>†</sup>	% Enrollment				
			Full	Gold	Silver	Bronze	Ctstr.
(1)	Regulated pricing with community rating	\$1,802	–	1.00	–	–	–
(2)	Competitive pricing with community rating	\$0	–	–	–	–	1.00
(3)	Subsidies to support vertical choice	\$1,472	0.01	0.07	0.63	0.28	0.01

<sup>†</sup>Relative to everyone in Catastrophic

⇒ Putting everyone in Gold (1) generates additional **\$330** in welfare per household relative to status quo vertical choice (3)

# Distribution of health spending by WTP

Health spending = Premiums + expected out-of-pocket cost





Thank you!

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