Should There Be Vertical Choice in Health Insurance Markets?

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Vertical choice

= Choice over financially vertically differentiated plans



Is vertical choice efficient?

- Adverse selection a familiar problem for competitive ins. markets
  - Resulting in too little insurance
- Regulation could easily 'fix' this by mandating full insurance
  - Resulting in too much insurance
- Optimal insurance trades off risk protection ($\Uparrow$) and moral hazard ($\Downarrow$)
  - Could mandate an intermediate level of coverage for everyone

  $\rightarrow$ 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 $\underbrace{\text{health spending}}_{E(\text{Out-of-pocket}) + \text{Premium}}$

Two-contract example

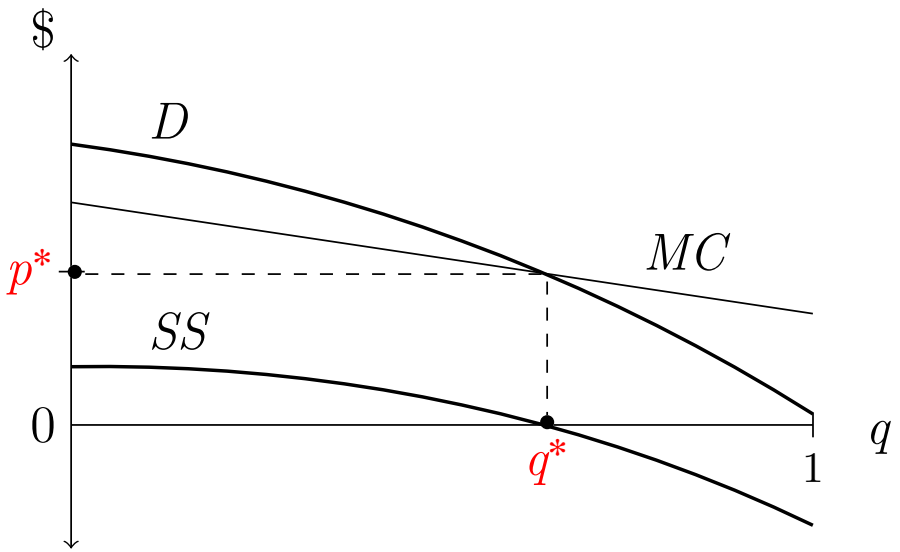
Market for high-coverage contract, outside option is low-coverage contract

Two-contract example

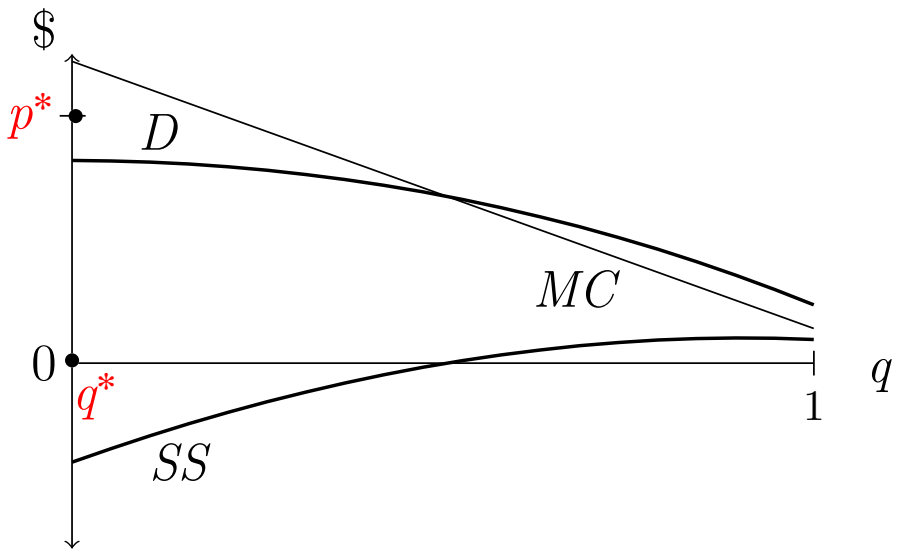
Market for high-coverage contract, outside option is low-coverage contract

- 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



Model demand for healthcare and health insurance

0 Consumers each face some distribution over potential health states

1 Choose an insurance contract → Maximizing expected utility

→ Health state is realized

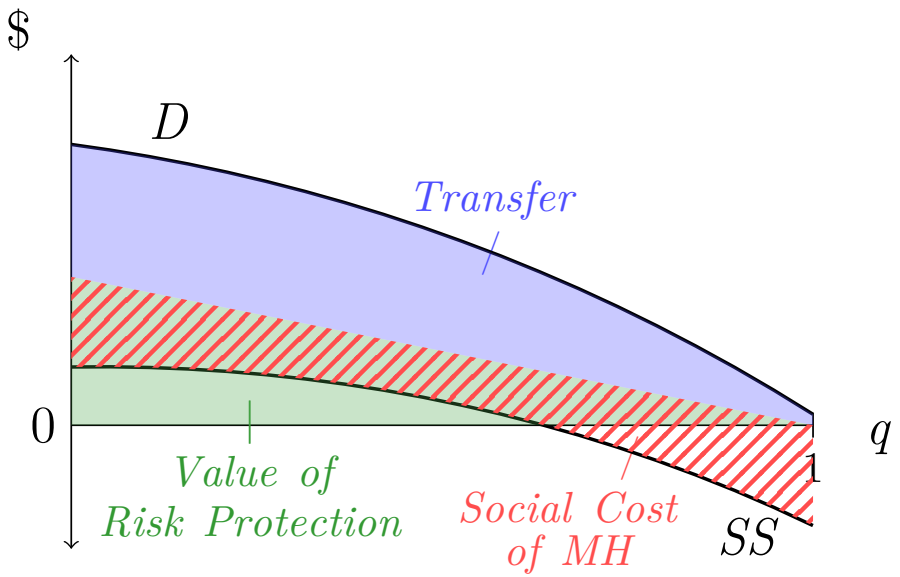
2 Choose healthcare utilization → Trading off benefit and out-of-pocket cost

- Willingness to pay = Expected value + Risk protection
  $= \text{EV}(\text{benefit}) + \boxed{\text{EV}(\$)} + \text{Risk protection}$
  ↳ "Transfer"
- Cost = $\boxed{\text{EV}(\$)} + \text{EV}(\text{Moral hazard } \$)$
- Social surplus = Willingness to pay - Cost
  = Risk protection - Social cost of moral hazard

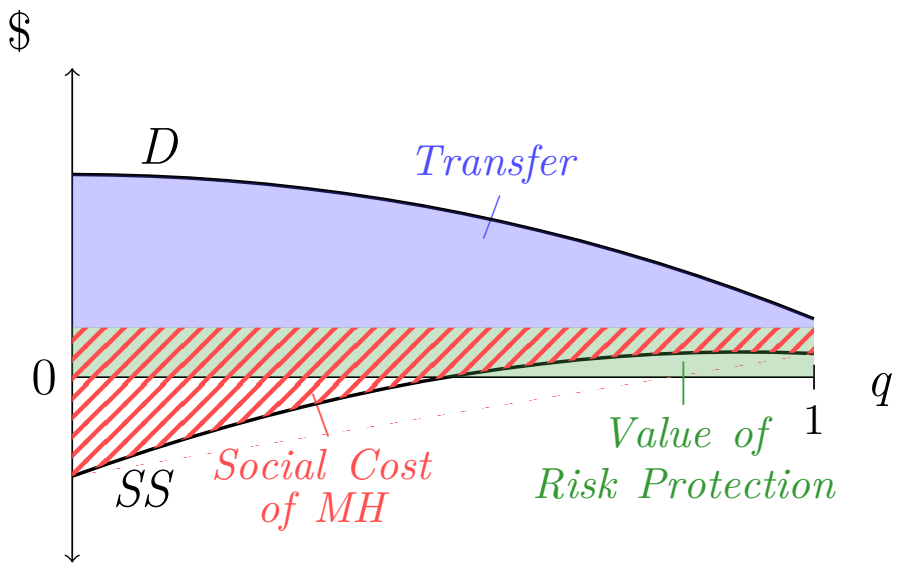
Two-contract example, from fundamentals

Market for high-coverage contract, outside option is low-coverage contract

(a) Population A



(b) Population B



$D \equiv$ Willingness to pay $\quad q \equiv$ Pct. of consumers $\quad SS \equiv$ 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:
    - F = Distribution over potential health states
    - ψ = Risk aversion parameter
    - ω = Moral hazard parameter

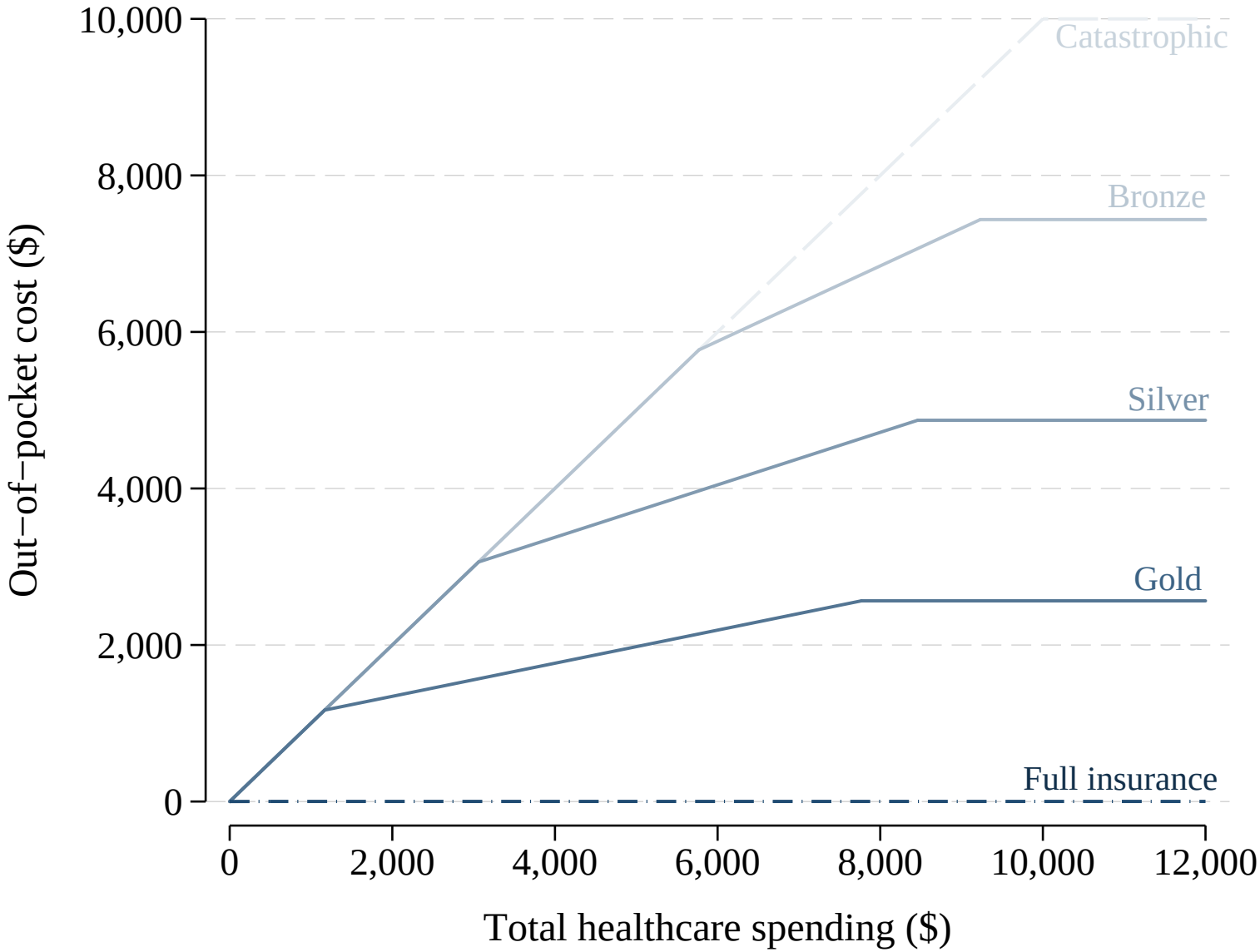
- Incorporate specifics of empirical setting
  - Consumers are households made up of individuals
  - Multiple insurers
  - Repeated choices

 Estimate model . . .

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

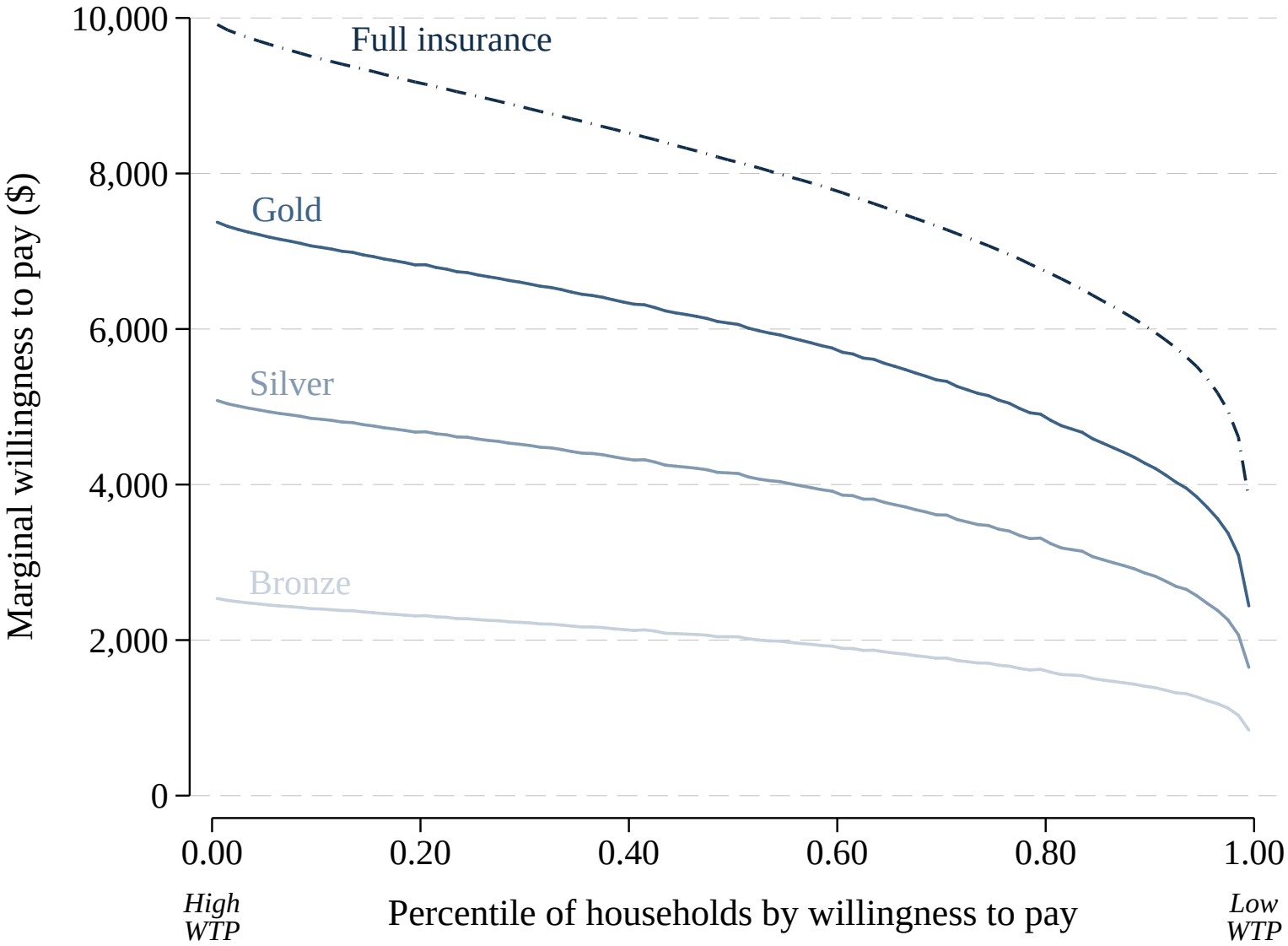
Plans to consider

Out-of-pocket cost functions



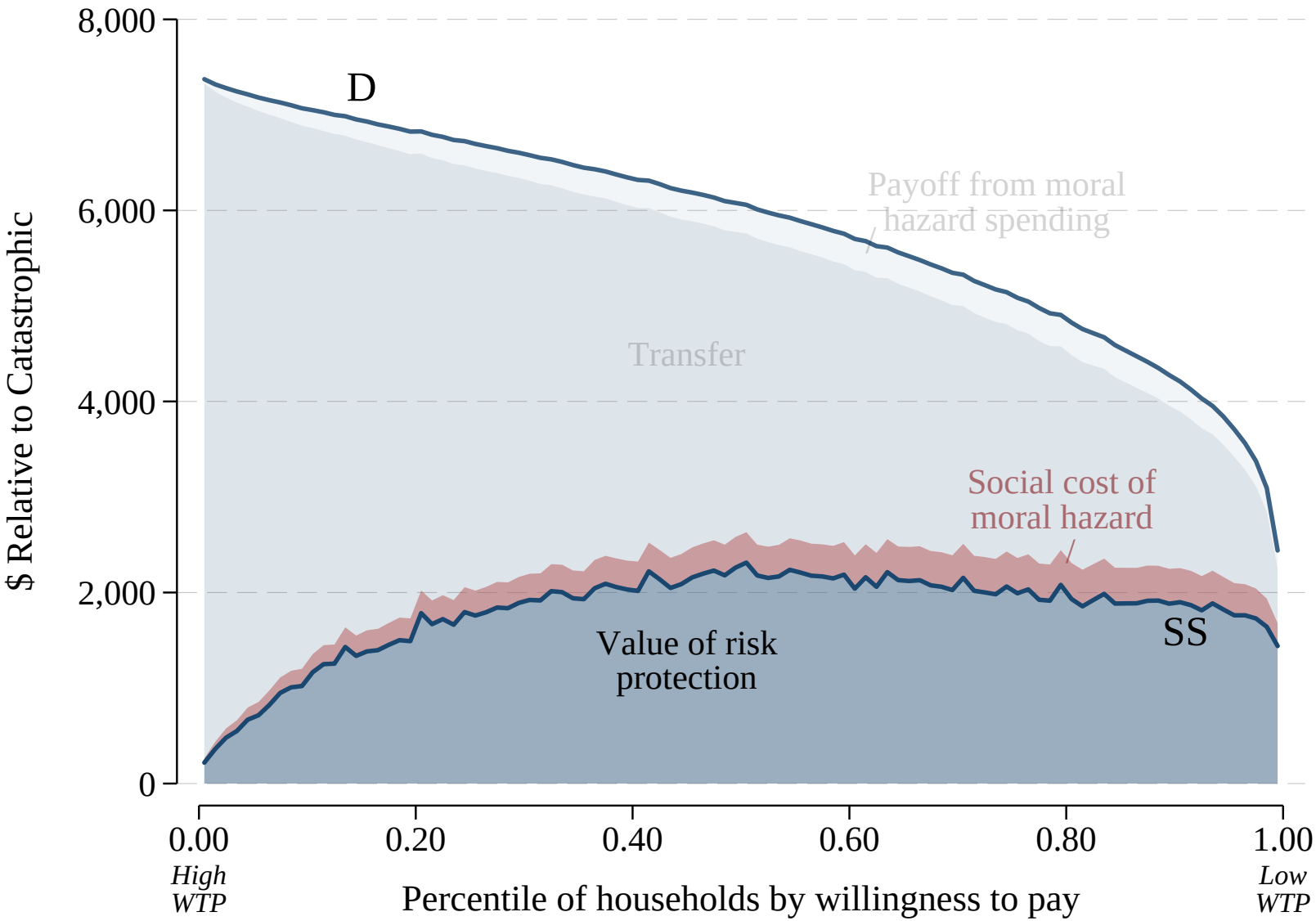
Willingness to pay

Relative to Catastrophic → the "low" contract



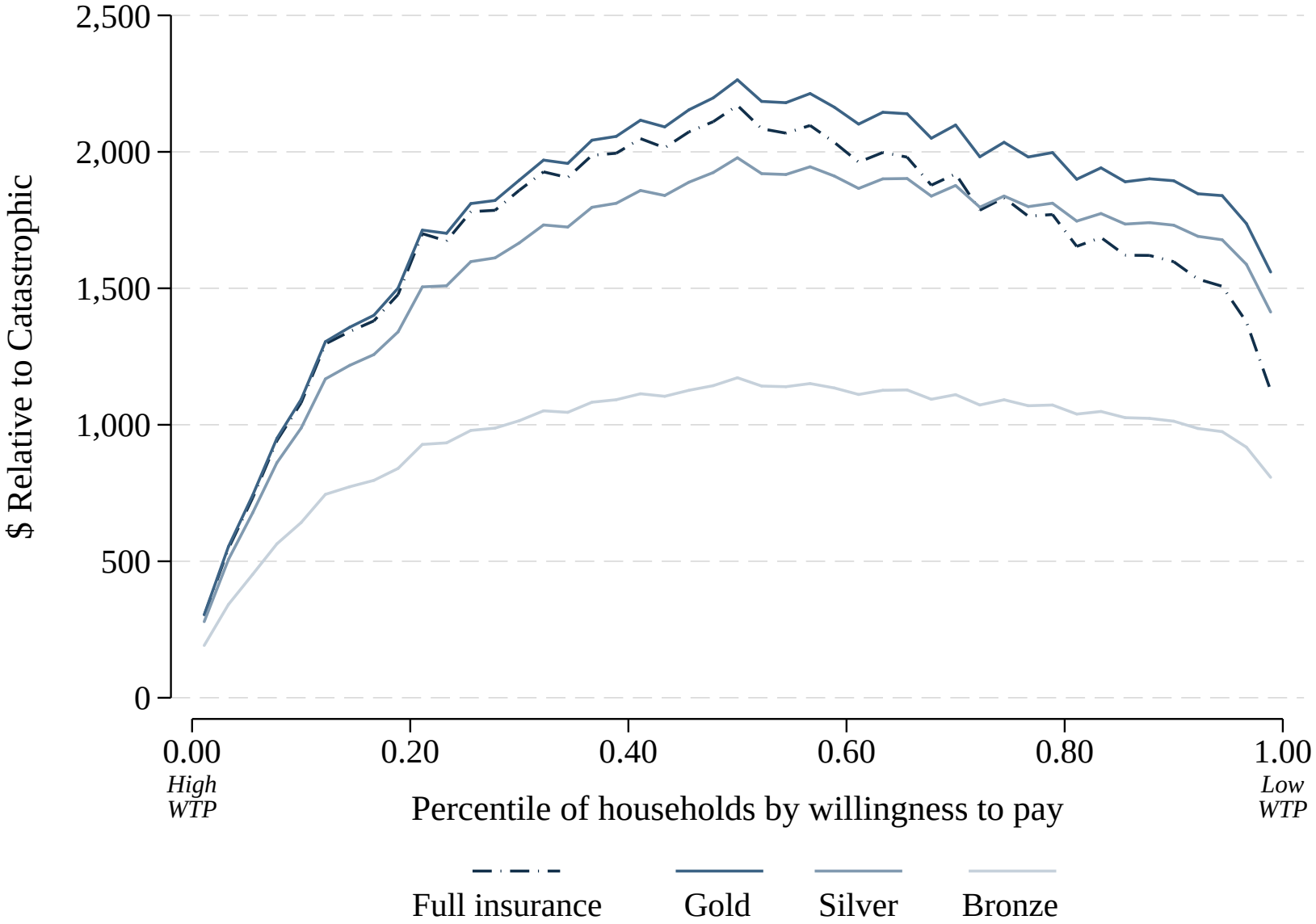
Breakdown of willingness to pay

For Gold plan



Social surplus

Relative to Catastrophic



Concluding thoughts

- Efficiency of vertical choice is theoretically ambiguous
  - Consumer heterogeneity is not a sufficient condition
  - Depends whether high-WTP consumers should have higher coverage
- To implement pooling, only need to enforce a minimum coverage level
  - If some should get more coverage, competitive market could supply it
- Private and social incentives may not align
  - Not always clear that helping consumers privately optimize leads towards the first best

Bonus: Distribution of health spending by WTP

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

