DS 574
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Health Insurance Markets
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Mechanism Design for Social Good

The Process

For each problem:

1. Learn about the area (from domain experts!)—basic rights that people don't have, inefficiencies in government policies, global harms.
2. Hone in on a high-level problem suitable for our tools.
3. Determine the model (with domain experts!)—what to keep, what to abstract.
4. Solve your theory problem.
5. Circle back **with domain experts** about results.

Regulation in Health Insurance Markets

Setting. There are $n \geq 2$ sellers (insurance plans). Each seller i posts a price $p_i \geq 0$. Sellers have zero costs and can serve any number of consumers.

A consumer has values $(v_1, \ldots, v_n)$ drawn i.i.d. from a continuous distribution F on nonnegative values. They choose the available plan maximizing $v_i - p_i$. They *must* purchase, even if every option gives negative utility.

The designer chooses the entry rule before sellers set prices:

1. **Free market:** all sellers enter.
2. **Limited entry:** exclude the most expensive seller; break price ties uniformly at random, independently of values.

Research question:

The Limited Entry Setting

Each seller posts a price. What's the unique equilibrium? (The price must be a best response.)

Consumer utility:

The Free Market Setting

Fix the other sellers' prices at p. Seller i chooses a price q. When does the consumer buy from seller i?

Idea: Treat seller i as a monopolist facing a new distribution of willingness to pay.

A new monopoly-pricing problem

Let W_i be the consumer's willingness to pay for seller i, given the competing offers. Write F_p^* for its CDF.

Seller i's expected revenue at price q:

A symmetric equilibrium: When is $q = p$ a best response?

Comparing Free Market and Limited Entry

Result. For uniform or exponential F, limited entry gives at least as much expected consumer utility as the unique symmetric free-market equilibrium.

Conclusion:

Circle back with domain experts: