Perfect Competition in Markets with Adverse Selection

Discussion: Matthew Gentzkow

Motivation

- Economist's (usual) world: Set of products given, key variable is **price**
- Real world: Choice of *which* products to offer often as or more important

- Product characteristics are both
  - An instrument of policy
  - Endogenous to policy

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- E.g., cars...
  - Regulation of gas mileage, emissions, etc.
  - Changes in product mix after bailout (Wollmann 2015)

- E.g., insurance...
  - Mandates, minimum coverage requirements, etc.
  - Endogenous plan offerings on ACA & MA exchanges, employer coverage decisions

State of play

- Theory and empirics with endogenous product characteristics is hard
  - Structural IO models: simple settings, small space of possible goods
  - Selection markets: all these problems plus issues of existence, etc.

- *"Allowing the contract space to be determined endogenously in a selection markets raises challenges on both the theoretical and empirical front"* (Einav & Finkelstein 2011)

- Frontier: Handel et al. (2015) = 2 potential products

This Paper

- Theory: New definition of competitive equilibrium
  - Exists
  - Gets rid of pathological equilibira
  - Robust to perturbations
  - Differentiated-Bertrand foundation

- Application: Einav et al. (2013)
  - Equilibrium inefficiency is large
  - Mandates increase efficiency but have unintended consequences
  - Characterize social-planner's price schedule

Assessment

- Questions I'll leave to real theorists...
  - Is introduction of behavioral types an "appealing" refinement?
  - How large is the conceptual contribution relative to past literature (esp. Handel et al. 2015, Dubey & Geanakoplos 2002)?

- *Is this a useful applied tool that allows us to do things we couldn't do before?*
  - Their answer: **Yes**!!! Arbitrarily rich product spaces! Ten-dimensional heterogeneity! Behavioral consumers! Complex regulations!
  - My answer: **Yes**! (Though the authors could do (even) more to sharpen marginal contribution, and show their model not only nests these cases, but lets us learn something novel and interesting about them.)

Birds-Eye View

Which Products?

- Fact: Tiny subset of potential products are sold in equilibrium

- Possible explanations
  1. Fixed costs
  2. Unraveling (Ackerlof, Hendren)

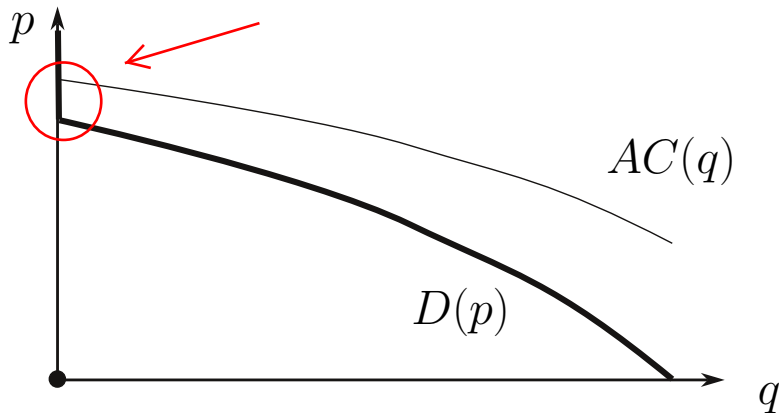## Which Products?

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- This paper: How far can we get with (2) alone?

- Key Predictions
    - If x is sold, $p^*(x) = AC(x)$
    - If x is not sold, set of types that would value it most includes somebody with $AC(x) \geq WTP(x)$
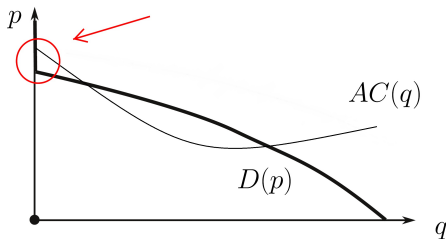
p

$AC(q)$

$D(p)$

q
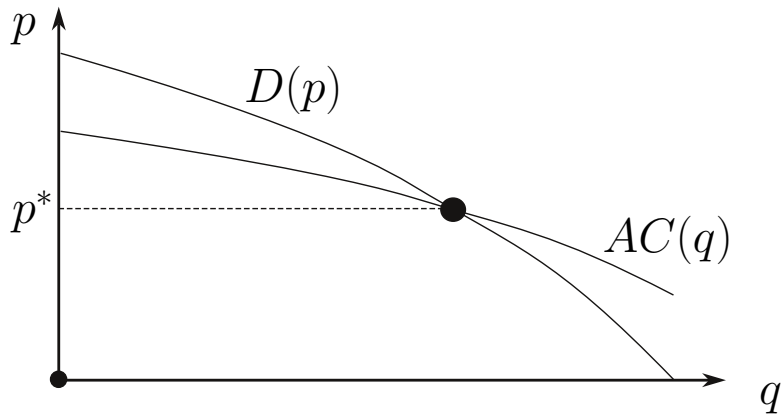
Note: Local Concept

- Highest WTP types could have $AC(x) \geq WTP(x)$, and yet there could be some price at which $p^* > AC(x)$
- E.g., if marginal costs decrease rapidly
- Also, can have multiple equilibria in lemons model when other equilibrium concepts select one

Questions / Suggestions

Useful Tool for Applied (Pen & Paper) Theory?

- "Correct" prediction in canonical models (like many previous papers)
- No other analytical results

- Could be hard...
  - Directly checking equilibrium conditions not promising
  - Prop 1 provides necessary, but not sufficient conditions
  - Can prove there is exactly one p^* that satisfies necessary conditions; but will this work outside simplest models?

- Give us sufficient conditions, at least for special cases; or explain more clearly where the gap lies

Useful Tool for Numerical Theory?

- Current application makes a pretty convincing case

- Practical Issues:
  - Multiplicity
  - Computation

- Is iterative algorithm guaranteed to find equilibrium? Under some conditions?
- How far can we push the product space and still compute equilibrium?
- Compare ease of computation to other equilibrium notions (e.g., Handel et al.)

Useful Tool for Empirical Work?

- Can we fit real data with *only* unraveling?

- The truth is in many markets, including many insurance markets, fixed costs are important
- In application, model predicts full set of possible products will be offered – not a good prediction
- I suspect most/all empirical applications will require strong exogenous restrictions on X

- Can you give examples of markets where you think this is not the case, and zero fixed costs is a good approximation?
- Are there examples where predictions are *robust* to the choice of X?
- Can we reconcile the importance of fixed costs with perfect competition?

- Novelty of theory is equilibrium product selection (I don't think you get credit for $P = AC$)

- But this plays little / no role in the application
  - All (almost all?) products X are offered in equilibrium
  - Not relevant to social planner problem

- Can you show us more about what your model predicts about *product selection*?