

This exam is comprised of two sections. The first section is for material covered in IO 220A taught in Spring 2014 or Spring 2015 by Ben Handel. The second covers material by Joseph Farrell taught in Fall 2014 or Fall 2015. There are two questions in section one, worth a combined 70 points. There is one question in section two worth 40 points. You should answer all questions.

Part 1

Question 1 (40 points)

Bresnahan (1987) empirically studies an automobile manufacturer price war that occurred in 1955. This was one of the first empirical papers structurally modeling consumer demand in a differentiated products industry, and testing competitive hypotheses on the supply side. The following questions relate to this paper, and the related papers that follow in the literature.

1. (10 points) Write down the demand model for automobiles that Bresnahan estimates in his paper. If you don't remember the exact specification, you can get most of the credit by describing the key features of the model. Specifically, describe (i) how products are differentiated from one another and (ii) how consumer demand interacts with that differentiation.
2. (5 points) Describe (i) the key competitive supply hypotheses that Bresnahan tests (ii) what he concludes and (iii) the basis for identification for these effects, given the model he has specified.
3. (10 points) Berry, Levinson and Pakes (1995) improves upon the demand specification (and estimation of demand) in Bresnahan's paper in two key ways. Write down the baseline demand model in BLP (1995), and describe in detail the two key advantages

in the empirical approach relative to Bresnahan. Importantly, describe precisely why these additions are valuable for economics.

4. (10 points) Nevo (2000) studies differentiated product demand and mergers in the ready-to-eat cereal industry. Describe what differentiates the data he uses from the data used in BLP (1995). Next, discuss how those data allow him to use a different empirical strategy to deal with price endogeneity. What are the two different strategies used by these two papers to deal with this endogeneity? How does Nevo's demand specification differ from that in BLP (1995)?
5. (5 points) Describe the key steps you used to estimate the mixed logit model in the problem set that we did in class based on BLP and Nevo. An outline of the steps you took is sufficient.

Question 2 (30 points)

This will be a three-part question asking you about different aspects of papers that we read and discussed in class.

1. (10 points) In Handel (2013) how is inertia separately identified from persistent unobserved heterogeneity in risk preferences? Next, describe the main steps necessary for estimation of the choice model. Finally, discuss why reduced inertia leads to increased adverse selection, and describe how that conclusion might be reversed if aspects of the environment changed?
2. (10 points) In Cohen and Einav (2007) the authors estimate risk preferences in the context of auto insurance deductible choice. Describe how risk preferences are identified with the model / data. For 5 extra points (above the 10) discuss how correlations between risk preferences and risk are identified. How would these risk preference estimates be biased if consumers had a decision-heuristic that caused them to over choose comprehensive insurance relative to their true value for that insurance, if fully informed?
3. (10 points) Describe the bargaining framework that Crawford and Yurokolu (2012) use (write down an example equation) and discuss why they need to incorporate that into their analysis. What cost-related assumption allows them to pin down the bargaining parameters? Give an example of another industry where you would want to employ a similar model. Finally, describe the assumptions and model used for competition between downstream firms in their analysis. What choice variables are firms maximizing profits with respect to?

Part 2

Question 3 (40 points)

Consider a firm M that is the only producer of good 1, which has marginal cost c and average cost $C > c$. Firm M competes against other firms ("rivals") in providing good 2 to consumers. Good 1 is not sold to consumers but is an essential input in producing good 2, so the rivals depend on being able to buy good 1 from firm M; the rivals often complain that firm M denies them access to good 1 but firm M claims that those incidents merely reflected industry-wide shortages. The rivals may be more or less efficient than firm M in producing good 2 using good 1.

(a) Assume that firm M is not regulated. Explain the "one monopoly rent" or "ICE" argument that firm M will not choose to exclude more efficient rivals, even if legally it could choose to do so. Explain at least one circumstance in which that argument is incorrect.

(b) Now assume instead that firm M is regulated. The regulator would like to deregulate the price of good 2 and rely on regulation of the price of good 1, together with competition in good 2, to keep the price of good 2 reasonable. The rivals argue that good 1 should be priced at marginal cost c , with the difference between marginal cost c and average cost C being covered by general tax revenues even though the incremental general taxes would be significantly distortionary, because otherwise firm M, whose marginal cost is c , would have an unfair competitive advantage. Evaluate this argument, and/or explain what further information you would need in order to evaluate the argument and why.