

This exam is comprised of two sections. The first section is for material covered in ECON 220A taught by Ben Handel. The second is for material covered in ECON 220C taught by Kei Kawai. There are three questions in section one, worth a combined 100 points. There are two questions in section two worth a combined 100 points. You should answer all questions.

Part 1

Question 1 (35 points)

In Handel, Hendel and Whinston (2015) the authors study equilibrium and long-run welfare in health insurance exchanges. Answer the following questions related to this paper.

1. (10 points) Write down the structural demand model estimated in the paper. Describe the key parameters and key parameter estimates that the authors use to study counterfactual scenarios related to insurance exchanges.
2. (10 points) What is the central policy tradeoff the authors study in the paper? Clearly explain why the tradeoff exists and what the authors find regarding this tradeoff in their counterfactual simulations.
3. (10 points) Write down the key features / assumptions in the insurance exchange modeled in this paper. Then, define the three types of equilibria the authors study in this paper. Which equilibria are more likely to exist, and why?
4. (5 points) Clearly write down the long-run model of welfare studied in this paper.

Question 2 (35 points)

Answer the following questions relating to papers we discussed in class.

1. (10 points) What are the major innovations in the Nevo Econometrica paper on breakfast cereals, relative to BLP (1995)? Describe innovations in (i) demand estimation and (ii) dealing with endogeneity. What are the main results Nevo finds in his paper?
2. (15 points) In Crawford and Yurokoglu (2012) the authors study the vertical supply chain for TV programming. Clearly right down the part of their model related to bargaining and describe why the authors model bargaining in their setup (5 points) . Next, describe the main policy question the authors study and the theoretical intuition behind the key tradeoff they investigate (5 points). Finally, describe how you would alter their model if studying TV programming provision in 2018 (5 points).
3. (10 points) Describe three behavioral phenomena quantified in Grubb and Osborne (2015). Discuss how the authors model these phenomena and how they are identify them empirically.

Question 3 (30 points)

Answer the following questions relating to Hortacsu and Syverson (2004)

1. (10 points) Write down the consumer search model the authors use and describe how the authors solve this model analytically.
2. (10 points) How do the authors identify search costs in their framework? What aspect of consumer demand that economists typically model has to be assumed away in order to identify search costs?
3. (10 points) Describe 4 concrete steps you would take to improve the empirical analysis in this paper if you had access to better data. Describe both what data you would look to acquire and what key economic phenomena the new data would allow you to identify / model, in addition to what is done in Hortacsu and Syverson (2004).

Part 2

Question 4 (50 points)

Olley and Pakes (1995) propose a procedure for estimating production functions. The production function they consider is as follows:

$$y_{it} = \beta_0 + \beta_a a_{it} + \beta_k k_{it} + \beta_l l_{it} + \omega_{it} + \eta_{it}$$

where y_{it} is log of output from plant i at time t , a_{it} is its age, k_{it} is the log of its capital input, l_{it} is the log of its labor input, ω_{it} its productivity, and η_{it} is an error term.

1. Describe why the paper argues that an OLS estimate of the production function is unlikely to yield consistent estimates of the parameters of interest.
2. Olley and Pakes do not assume a particular law of motion for ω_{it} . Suppose that $\omega_{it} = \omega_{it-1}$, so that plant productivity does not change. Does a fixed effect regression yield consistent estimates of the parameters of interest? Discuss the limitations of using the fixed-effect estimator given their research question.
3. Describe the estimating procedure of Olley and Pakes.
4. If you read any of De Loecker's papers, describe the contribution of the paper.

Question 5 (50 points)

Magnac and Thesmar (2002) study identification of dynamic discrete problems. In their model, agents make a discrete choice every period. The decision, denoted as d , is equal to one of the alternatives in $I = \{1, \dots, K\}$. The state variable, denoted as h is composed of an observable (to the econometrician) component and an unobservable component as $h = (x, \varepsilon)$. Agent's period utility function is assumed to take the form $u_i(x, \varepsilon) = u_i^*(x) + \varepsilon_i$. The unobservable component is assumed to be mean independent of x as $E[\varepsilon|x] = 0$. Furthermore, the agents are assumed to have rational expectations over next period state variables $h' = (x', \varepsilon')$, and ε is assumed to be independent of x and ε' .

1. Write down the expression for the choice specific value function.
2. Show the following:

Proposition. Let $C = \{c | c = (\beta, G, u_K^*(X), v_K^*(X'))\}$ be the set of possible discount factors, random preference shock distribution functions and preferences in the reference alternative.

- i) Fix $c \in C$. There exists only one vector $(u_1^*(X), \dots, u_{K-1}^*(X))$ compatible with data.
- ii) For two different elements of C , it is always possible to find other structural parameters and, in particular, utility functions, that are compatible with given data.