

Use bcc:

kseim@wharton.upenn.edu, bkobayas@gmu.edu,
 haltiwan@econ.umd.edu,
 apakes@fas.harvard.edu,devesh.raval@gmail.com,
 kate.ho@princeton.edu,ptebaldi@uchicago.edu, ryan.mcdevitt@duke.edu
 <ryan.mcdevitt@duke.edu>,
 nwilson@ftc.gov,paul.eliason@byu.edu,
 benjamin.heebsh@duke.edu,j.roberts@duke.edu,
 torgovitsky@uchicago.edu <torgovitsky@uchicago.edu>,
hyang1@g.harvard.edu,

ga6x@virginia.edu, ciliberto@virginia.edu, leyden@cornell.edu,
sdb8g@virginia.edu, abito@wharton.upenn.edu,
y-salant@kellogg.northwestern.edu , grennan@wharton.upenn.edu,
aswans@wharton.upenn.edu, shotaichihashi@gmail.com,
 arieguy@gmail.com, gloria.sheu@usdoj.gov, d-
 besanko@kellogg.northwestern.edu,judith.chevalier@yale.edu,
 jin@econ.umd.edu, afradkin@gmail.com,bjlarsen@stanford.edu,
erikb@mit.edu,hortacsu@uchicago.edu,tobias.salz@columbia.edu,

<https://fivethirtyeight.com/features/how-to-win-a-trade-war/>

November 2, 2018



Eric Rasmusen, erasmuse@indiana.edu,

Notes on the FTC Micro Conference

FTC Constitution Center | 400 7th Street, SW | Washington, D.C.
 Sponsored by:Federal Trade Commission Bureau of Economics
 Northwestern University's Searle Center on Law, Regulation and
 Economic Growth

Thursday, November 1

8:30 a.m. Registration

9:00 a.m. Welcome

9:15 a.m. Paper Session - Chaired by David Besanko (Northwestern University, Kellogg)

Gaurab Aryal (University of Virginia) with Federico Ciliberto (University of Virginia), and Benjamin T. Leyden (University of Virginia), Public Communication and Collusion in the Airline Industry

Discussant: Gloria Sheu (U.S. Department of Justice, Antitrust Division)

ga6x@virginia.edu, ciliberto@virginia.edu, leyden@cornell.edu



Awaya and Krishna 2016-17-18

Cheap talk in stochastic demand, noisy monitoring, helps collusion in repeated PD.

Do you look at other words besides “capacity discipline”?

What is the timing of earnings calls? Are they ever simultaneous? Is the order of companies always the same?

How about nonlegacy carriers? You find they don’t reduce capacity. Do they talk about tit?

You look at what happens to capacity. How about prices?

Do the analysts bring up “capacity discipline”?

Do private firms (in general) ever have earnings calls? They do have investors, just not a lot of them.

Talk more about earnings calls in the paper.

I love your Figure 2. Make it bigger on the page tho. Also, it is a total waste to list the airlines alphabetically. Make the order convey information. Order them by size, maybe, or separate out non-legacy carriers, or both. In fact, add a column for some measure of average size over the period--- I know! Two columns, one at the far left for initial market share, another at the far right for end share.

table 2, summary stats: You have just Legacy and Nonlegacy. Put in individual airlines too, as in Figure 2.

MOST of the time, certain airlines talk about capacity discipline in their calls.

You should look at what happens when airlines talk about “capacity” but don’t use the word “discipline”. Maybe “discipline” is a codeword, but when an airline talks about “overcapacity” or “excess capacity” or “capacity reduction” there is no message. Or maybe not.

A really good test for you: When the legacy airlines say capacity discipline”, they reduce capacity. Theory says the nonlegacy airlines should at the same time INCREASE capacity, since they’re not in the implicit cartel. But you don’t find that. Why not?

On the other hand, what theory would say that only the legacy carriers would reduce capacity all at the same time?

Don’t write “LCC”, write “nonlegacy”. the reader won’t know what LCC means. I had to go back and hunt for the meaning. Don’t use code words!

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The commenter Gloria Sheu made the good point about why the collusion was only now and then and not all the time. Theory is needed. Maybe the conference calls are only used when tacit collusion has broken down and needs to be set up again. Can you predict when “discipline” is used?

How about the word “discipline” in other contexts? Do they talk about pricing discipline? Cost discipline?

A questioner talked about how maybe there’s a just a general demand drop and that’s why more than one airline is talking discipline. A response is that then even one airline talking would be some indication of general demand drop, and why doesn’t that have at least half the effect of two airlines talking? A response to the response is that maybe when one airline talks discipline, that airline has had some airline-specific shock to its cost or demand and is whining for help.

Shota Ichihashi (Bank of Canada), Online Privacy and Information Disclosure

Discussant: Guy Arie (University of Rochester, Simon)

I don't know if the papers below are relevant (you don't cite them), but they are by smart people and you should be aware of them.

An introduction to privacy in economics and politics GJ Stigler - The Journal of Legal Studies, 1980 - journals.uchicago.edu Cited by 332

The economics of privacy

RA Posner - Introduction to Privacy in Economics and Politics," J. Legal Stud., Dec 1980, 9, 623-44 ...Cited by 380

Economics of privacy

KL Hui, I Png - 2006 - papers.ssrn.com Cited by 123

Privacy, property rights and efficiency: The economics of privacy as secrecy

BE Hermalin, ML Katz - Quantitative Marketing and Economics, 2006 - Cited by 141

The economics of privacy A Acquisti, C Taylor, L Wagman - Journal of Economic Literature, 2016 - Cited by 266

The model is too complicated, so I will try to reconstruct it. The buyer has some values V_1 and V_2 for 2 products, unknown to himself or the seller. He first decides whether to tell the seller something that will let the seller, but not himself, learn whether V_1 and V_2 are HI or LO, but not their exact values. The seller then recommends product 1 or 2 and offers a price for it. After the recommendation, the buyer learns his exact value of the offered product and decides whether to buy it or not.

Alternatively, the seller chooses the prices P_1 and P_2 in advance so the prices have to be independent of V_1 and V_2 .

Alternatively, the seller can choose whether to be in the first game or the second.

It is hard to skim the model and figure out what is going on. You need an example or to get rid of spurious generality. When consumers choose functionals that map distributions to distributions, you're in heavy math territory and all intuition is lost. I wouldn't be surprised if you could just

ahve the buyer choose 0 or 1 instead, revealing a scalar value in $[0, \bar{v}]$.

In general, with just one product, can price discrimination increase consumer surplus? Yes. Let demand be $P=10$ for $Q < 100$, and then the demand curve is linear down to $P=0$ at $Q=150$. Then with a single price, Can it hurt seller profits? No. The seller can always choose to use just one price instead of two; expanding his choice set can't hurt him if there's just one product.

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10:45 a.m. Break

Stephen Bruestle, Maritime Commission. sdb8g@virginia.edu, machine learning, **K-means is a marketing technique** maybe good for my conservatism paper.

“k-means clustering is a method of vector quantization, originally from signal processing, that is popular for cluster analysis in data mining. k-means clustering aims to partition n observations into k clusters in which each observation belongs to the cluster with the nearest mean, serving as a prototype of the cluster.”

“Voter Ideology: Regression Measurement of Position on the Left-Right Spectrum,” (with J. Mark Ramseyer). For scholars who need a measure of political preferences, a person's position on the ideological spectrum provides a good start. Typically, scholars identify that position through factor analysis on survey questions. In effect, they assume that the calculated synthetic variable marks the person's location on the liberal-conservative spectrum. They then use that ideology variable either as the focus of a study on ideology, or as a control variable in other regressions. The leading attitudinal surveys--- the GSS, the CCES, and the ANES--- include a variable giving a respondent's self-identified ideology. Factor analysis assigns this variable no special prominence. To treat this self-identification appropriately, we urge scholars to instead measure ideology using the fitted value from a regression of self-identified ideology on other survey responses. In contrast to factor analysis, the regression approach assigns proper priority to self-identification; it lets us test whether voters identify their own ideology through identity-group variables; it avoids the bias introduced in choosing the issue variables to include in the factor analysis; and it identifies the issues that the average voter thinks best define “liberal” and “conservative.” <http://www.rasmusen.org/papers/spectrum-ramseyer-rasmusen.pdf>.

Market Failure and Government Failure: The Regulation of Business.

I am writing an undergraduate textbook on regulation. I start with 4 chapters of theory (supply-and- demand, market failure, government failure, discounting and life valuation) and have just 2 chapters of antitrust, with 6 more chapters on other topics. My aim is to write a relatively short book (350 pages) with lots of photos and stories, skipping many topics and being interesting enough for someone to read for recreation. I also want to charge a low price, and I might well self-publish. <http://www.rasmusen.org/g406/chapters/>

11:20 a.m. **“How Efficient is Dynamic Competition? The Case of Price as Investment.”**

David Besanko (Northwestern University, Kellogg)



Sacrificing current profits for the sake for future profits. Investment, sure, but also behavior---learning curve, war of attrition, habit formation. Some of these are surplus-maximizing (learning curve), some kill surplus (war of attrition, predatory pricing).

Relate this to bargaining, too. Bargaining creates delay, which hurts surplus. Are there war of attrition bargaining models? Rubinstein (1982) is kind of like that, really---the shrinking pie model. Except he has no delay in equilibrium. I do, in my current bargaining model, and it shows up in asymmetric info bargaining models like Reinganum's.

"Back to Bargaining Basics." Nash (1950) and Rubinstein (1982) give two different justifications for a 50-50 split of surplus to be the outcome of bargaining with two players. I offer a simple static theory that reaches a 50-50 split as the unique equilibrium of a game in which each player chooses a "toughness level" simultaneously, but greater toughness always generates a risk of breakdown. Introducing asymmetry, a player who is more risk averse gets a smaller share in equilibrium. If breakdown is merely delay, then the players' discount rates affect their toughness and their shares, as in Rubinstein. The model is easily extended to three or more players, unlike earlier models, and requires minimal assumptions on the functions which determine (a) breakdown probability and (b) surplus share, as functions of toughness.

<http://www.rasmusen.org/papers/bargaining50.pdf>

Besanko has a learning by doing model with private heterogeneous setup costs and M potential firms. It seems that all firms have identical cost functions otherwise. What is neat in this model is that if Apex sells more, not only does it reduce its own costs, it prevents Brydax from selling more and getting experience.

Does the social optimum have just one entrant? Probably you said that and I missed it. Ah—the model has differentiated products, so the social planner wants more than one firm. That's realistic, but we know that even in a no-learning differentiated product model there can be either overentry or underentry and no clear result, as I recall.

This sounds like it could lead to something similar our naked exclusion model:

“Naked Exclusion,” American Economic Review (December 1991) 81: 1137-1145 (with J. Mark Ramseyer and John Wiley). Exclusive- dealing contracts can be part of rational entry deterrence if there is even a small positive minimum efficient scale. The excluder can get the other side of the market to agree to his exclusive contract without a side payment if they believe all others will sign too, and so the excluder's rivals will cease to exist.

http://rasmusen.org/published/Rasmusen_91AER.exclusion.pdf . See also our reply to a comment/extension/correction by Siegel and Whinston (AER, March 1990: 90: 310-311) and longer comments (ascii). I need to add to my website my notes on how Siegel and Whinston’s finding of a mistake is actually very special but they covered that up; see **Naked Exclusion with Private Offers** J Miklós-Thal, G Shaffer - American Economic Journal: Microeconomics, 2016
<https://www.aeaweb.org/articles?id=10.1257/mic.20150332>
 and
<http://www.rasmusen.org/papers/2015-whinston-siegel-error.pdf>

HOMOTOPY method. “In topology, two continuous functions from one topological space to another are called homotopic if one can be "continuously deformed" into the other, such a deformation being called a homotopy between the two functions.”

There are multiple equilibria, which is interesting--- why not just one, with either accommodation or a war of attrition? I’m too sleepy to figure it out.

Does this model depend on firms having different set-up costs?

It would be interesting to let firms have different marginal cost functions too, even tho there’s plenty going on already in this model. A GOOD thing about a war of attrition is that it helps figure out who’s the low-cost firm. This would go against the fact that there’s overentry when all firms have the same marginal cost function, so it’s important for thinking about policy. This reminds me of the old Lippman-Rumelt paper *Uncertain imitability: An analysis of interfirm differences in efficiency under competition*
 SA Lippman, RP Rumelt - *The Bell Journal of Economics*, 1982 -

Actually, has someone done a war of attrition with unknown heterogeneous marginal cost functions? First, with symmetric info; second, with private costs that are signalled by a firm’s output behavior.

How were the square DeadweightLoss All Paramaterizations diagrams drawn? What software? Can Python or Mathematica do it?

My old learning curve model is similar in having lots of firms, but totally different in that we have diseconomies of scale nad infinitesimal firms, so no thought of denying other firms experience by expanding sales.

The Learning Curve in a Competitive Industry. (with Emmanuel Petrakis, and Santanu Roy), The RAND Journal of Economics (Summer 1997) 28: 248-268. We consider the learning curve in an industry with free entry and exit, and price- taking firms. A unique equilibrium exists if the fixed or entry cost is positive. While equilibrium profits are zero, mature firms earn rents on their learning, and no firm can profitably enter after the date the industry begins. However, under some cost and demand conditions, firms may have to exit the market despite their experience gained earlier. Furthermore, in an equilibrium with exit, identical firms facing the same prices produce different quantities. Industry concentration need not increase in the intensity of learning. The market outcome is always socially efficient, even if it dictates that firms exit after learning. Finally, a perfectly competitive market might sustain firms having different costs and different learning capabilities.
http://rasmusen.org/published/Rasmusen_97RJE.learning.pdf

“Indiana University’s Kelley School of Business Students Are Almost As Good As Harvard Students” Weblog essay estimating Harvard mean SAT score (and others) and comparing to Indiana business students.
<http://rasmusen.dreamhosters.com/b/2018/10/indiana-universitys-kelley-school-of-business-students-are-almost-as-good-as-harvard-students/>

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12:00 p.m. **Lunch**

Sponsored by the Searle Center on Law, Regulation and Economic Growth



Talked with Judy Chevalier. She's doing concentrated MBA teaching, lots of sections in one day. You might like my notes on how to do the high school math of exponents and on the Cournot model. Both are new approaches that I also wrote to teach my own children. The exponent approach is very intuitive. One of my MBA's called it "mindblowing", which may or may not be a compliment. They needed the notes because of Baye-Prince Production, where they have problems with the Cobb-Douglas production function.

<http://www.rasmusen.org/papers/exponents.pdf>

The Cournot notes are for teaching Cournot and Stackelberg. I think maybe it is best to start with multiplant monopoly, and to use asymmetric cost plants and firms, and to de-emphasize diagrams. That way, everything can be boiled down to first-order conditions and solving equations together. I think that might be easier even for MBA students, provided they are using simple calculus already. Also, it's good to put in INCREASING MC, not zero or constant. It doesn't really make it harder, and that way a monopoly would use both plants instead of the one with lower MC. It's important to have asymmetry because that too makes it easier--- easier to understand, to avoid the temptation to insert $Q_1=Q_2$ too early, and to see which reaction curve is which.

<http://www.rasmusen.org/papers/cournot.pdf>

If you want to use my source files:

<http://www.rasmusen.org/papers/exponents.tex>

<http://www.rasmusen.org/papers/cournot.tex>

12:30 p.m. - Chaired by Nathan Wilson and Ted Rosenbaum (FTC)
Jose Miguel Abito (University of Pennsylvania, Wharton) with Yuval Salant (Northwestern University, Kellogg), The Effect of Product Misperception on Economic Outcomes: Evidence from the **Extended Warranty Market**



Discussant: **Ginger Jin** (University of Maryland)

Good subject to study. People see the TV price before they buy, so stores compete on that, but they don't ask the extended warranty price till they are about to pay. So the TV is sold at a competitive price, but the warranty is sold at a monopoly price. The result will be that the TV competitive price will be below MC and the warranty above MC, creating **a double distortion--- too many TV's bought, and too few warranties.**

There is not necessarily any consumer misestimation. I bet there isn't-- consumers know about how often products fail. People just really hate paying for repairs. They want to bring it back and not have to worry about repair cost. It isn't really risk aversion. It's having to make decisions about whether to repair, the transaction cost of finding a repair shop, and one that is cheap and good, and monitoring the repairman so he doesn't overcharge. So really modelling it with risk aversion isn't a good idea.

Note, too, that it seems unlikely risk neutral consumers would think they're making a winning bet with the seller. People know the sellers are clever and better informed and are making money from the warranties. So I don't think it's pure probability distortion.

You do a survey to see if people know the probabilities, and find they overestimate them. But I don't find that useful. People aren't good with probabilities. In numbers, they will not distinguish between 5% and 10%, even if in behavior they do. I'm surprised they do as well as they do, and that there weren't a lot of people who said there was a 50% failure rate, meaning a big rate. So I bet that if you tell people the true failure rate is 5%, their estimate of the failure rate will get closer to 5%, but their behavior won't change much.

If you ask people, why do they say they buy extended warranties? Try a focus group, maybe, or just interview randomly, asking people if they have ever bought an extended warranty.

An interesting finding is that if people are asked about the failure rate first, and willingness to pay for a warranty second, their willingness to buy falls, but it is even lower, a lot lower, if they are asked about failure

rate first and told that a friend said it was 5%. So it isn't just that asking about failure rate first puts this into their heads as something to think about. The information matters, even if there is no reason to think it is accurate. Even if this is anchoring, it shows that maybe their willingness to pay can be changed.

Might it be that people are not willing ENOUGH to pay if they have the 5% number in mind? People are strange about probabilities. Maybe 5% sounds trivial, but 1 chance in 20 sounds like something you should worry about, or "once in a while they break down" sounds like something you should worry about.

In the end, I think you're right, though, and people overestimate the chance of failure. This is especially true for electronics maybe and for cars, since over the past 60 years I know the failure rate has declined drastically. I don't know about over the past 20 years. I think it probably has. Hard drives used to fail and I never hear about that any more (and sometimes now they are solid-state and NEVER fail). Actually, something else important is that product innovation has probably gotten faster, so people don't keep their electronics for 4 years.

Of possible interest:

Eric B. Rasmusen, "**Leveraging of Reputation through Umbrella Branding:** The Implications for Market Structure," *Journal of Economics and Management Strategy*, 25(2): 259-535 (Summer 2016). A firm with a reputation for high quality in one product may usefully extend that reputation to other products. It can displace other producers despite a higher price because of its higher quality in a way that looks like monopolistic leverage but is beneficial to consumers.
<http://www.rasmusen.org/published/umbrella.pdf>.

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Chiara Farronato (Harvard University) with Andrey Fradkin (Boston University), **Bradley J. Larsen (Stanford University)**, and Erik Brynjolfsson (MIT Sloan), **Consumer Protection in an Online World: When Does Occupational Licensing Matter?**
 Discussant: **Judith A. Chevalier** (Yale University)

2:00 p.m. Break

Interior painting has a very odd pattern of states that require licensing--- Western and southern cluster of Louisiana-Miss-Al-Arkansas. There is geographical clustering, rather than income or naything I could figure out.

On the online platform, customers submit jobs and painters submit bids, up to a maximum number of painters.

It seems that if you are a pro, and licensed, you get more five star ratings, but it's because you're good, not because you have a license. That makes sense--- consumers wouldn't rate some as good even if they were bad just because they had a license. The real question is whether they would use the license as a signal and hire nad pay licensed painters more. So that's the main thing in the paper.

They insturment for price to try to figure out the effect of review quality and being licensed and having lots of reviews.

They do a double ML technique, using ML for Machine Learning, which is terrible terminology. (Max likelihood!). Thi smeans to do Lasso on half the data to figure out the RHS variables and then do OLS with those variables on the other half. This means you don't have a shrinkage estimator at the end of the day and you get standard errors. Good idea, but I bet it would be better to use Lasso on only $\frac{1}{4}$ of the data, since extra data would, I think, be more important for point and confidence estimation than for variable selection.

How about interacting licenses with number of reviews, to see if a license helps you get started in the business?

I need ot move to be near a plug, side of room or back, pillars have their outlets taped up, and think about being able to stretch out more because of my back.

What is maybe the best reason to have licensing is so the government can take away the license for misbheavior. Doesn't apply to painters maybe. Well, it does. A painter might burglarize your house. In fact, maybe it wouldnt even be burglary, legally, since they wouldn't have to

illegally enter a building. Anyway, we could require doctors to pay \$100 for a license, but then if they kill someone, take away their license and put them on an online list so consumers can check. I think Business Licenses might work like that.

Is a babysitter an independent contractor? Probably a many-time relationship turns her into an employee, but how about one time? What if she is a minor? Probably not, then, because she can't make a contract, which in effect waives her right to sue you if she slips in your house. Or maybe the contractor can sue you too. Or maybe neither can sue you unless you're negligent. (I bet either can sue you if you ARE negligent)

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2:30 p.m. - Chaired by Ali Hortaçsu (University of Chicago)

Matthew Grennan (University of Pennsylvania, Wharton) with Ashley Swanson (University of Pennsylvania, Wharton), **Diagnosing Price Dispersion**

Discussant: Tobias Salz (Columbia University)



Hospital supplies—sutures, bone nails, pacemakers.

I am wiped out. My brain can't understand the speakers really, during this talk. The words roll past my brain, without making an impact. I need to take a break after this one. Do my online videos then. Block pricing and double marginalization. Check emails.

Is there a difference between a hospital being **price sensitive** and a hospital having a lot of **bargaining power**? It seems like there should be, even tho they both result in low prices for supplies. Yes. Price sensitivity pertains to the marginal benefit curve of the hospital. Bargaining power pertains to the unmodelled bargaining ability of the hospital, its ability to get a bigger share of the surplus of its willingness to pay over the seller's marginal cost. For example, the hospital might have a low willingness to pay and be highly price sensitive, but have a high discount rate and so get only 10% of any surplus that exists.

I have a new model of bargaining that does 50-50 better than Nash or Rubinstein. In my model, the reason for not 50-50 can be risk aversion or differences in discount rates. I suppose I could also insert it via an assumption that one player's marginal toughness causes a greater increase in the probability of breakdown than the other player's. I should add that, as a way to parameterize bargaining strength. It might work out to a neat formula---probability it can, if I choose the difference parameter right.

"Back to Bargaining Basics." Nash (1950) and Rubinstein (1982) give two different justifications for a 50-50 split of surplus to be the outcome of bargaining with two players. I offer a simple static theory that reaches a 50-50 split as the unique equilibrium of a game in which each player chooses a "toughness level" simultaneously, but greater toughness always generates a risk of breakdown. Introducing asymmetry, a player who is more risk averse gets a smaller share in equilibrium. If breakdown is merely delay, then the players' discount rates affect their toughness and their shares, as in Rubinstein. The model is easily extended to three

or more players, unlike earlier models, and requires minimal assumptions on the functions which determine (a) breakdown probability and (b) surplus share, as functions of toughness.

<http://www.rasmusen.org/papers/bargaining50.pdf>

Nicely preestnded. **12% of dispresion is demand stuff, 88% is bargaining strength differneces** is the bottom line--- excellent couple of numbers to conclude with.

The discussant borught up <http://www.healthcarefinancenews.com>, a trade journal site. It looks very good, sitmulating for research. See its SUPPLY CHAIN tab. For example,

OCT 05, **U.S. hospitals pay as much as 6 times more for medical devices than European counterparts, study shows** Prices for devices varied within each country studied as well, except for France where prices stayed largely uniform for all devices.

<https://www.healthcarefinancenews.com/news/us-hospitals-are-paying-much-6-times-more-medical-devices-european-counterparts-study-shows>

U.S. hospitals pay as much as 6 times more for medical devices than European counterparts, study shows Prices for devices varied within each country studied as well, except for France where prices stayed largely uniform for all devices.

Beautiful “Model:” slide, discussant Tobias Salz! You should number your slides, though, so I could refer to it.

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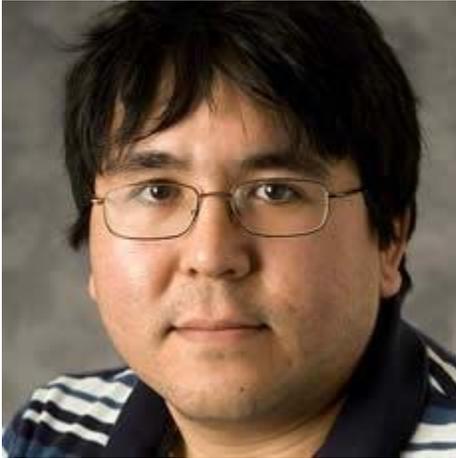
Group Purchasing Organizations. Hopstials buy via them. This increases bargaining power. Why? Not just volume, I bet. I bet what is equally important is that they can afford to hire a better manager to do the buying, someone who is very good at getting a good price and finding speical deals. This, by the way, could easily be confused with the effec tof simple size, and is one reason why bigger

**Gastón Illanes (Northwestern University) with Manisha Padi
(University of Chicago, School of Law), Competition, Asymmetric
Information, and the Annuity Puzzle: Evidence from a Government-
run Exchange in Chile**

Discussant: Jean-François Houde (University of Wisconsin)

This was probably a good paper, but I was too tired to listen, so I ewnt out and drank pepsi during it and emailed back Li Liu with advance because he was beat up by a youth gang in Hyde Park last night and sent to the emergency room and wanted advice.

4:30 p.m. **“Search, Asymmetric Information, and Competition”**
Ali Hortaçsu (University of Chicago)



In the Hortacsu model, borrowers who search more end up paying a higher interest rate. That's because they get rejected by lenders a lot. At the end of the day, are some of them accepted by mistake? (in which case some must be made to pay high interest by mistake, so pooled they yield zero profits).

Once they control for lots of variables, the residual is symmetric, whereas I think the uncontrolled raw interest rates are skewed

with a big right tail.

They look at what kind of people make a lot of inquiries. Education doesn't matter.

The interest rate obtained from being someone who searches more is U-shaped. Lowest is with 3 searches. People with bad FICA scores, it's just increasing. Very high FICA is at 4, medium at 5 for the lowest. Beyond the minimum, it must be people with bad variables observed by the lenders but not by the economist.

I wonder if when someone searches 5, the first lender realizes that they are the kind of person who searches 5 and gives them a low interest rate, so their search is unnecessary (but they don't know it). This is a paradox, of course, like Newcombe's Paradox about opening the envelope.

How about people who never get a mortgage? I guess people are learning about their own type, too. That isn't in the model. Is it important? Maybe not, unless you want to explain who drops out when. It could be that the very worst drop out early, but the qualitative results would be the same. Even that would not happen if the only info the borrower gets is Offer-from-Bank/Reject, in which case everybody who's been rejected 4 times would have the same beliefs about their own quality. So maybe that could be put into the model with no added complexity.

It's interesting to think about that search model, though, even just theoretically. There are old models of how the searcher is learning about the seller price distribution. Here, the customer is learning about HIMSELF, even if he knows the seller price dispersion exactly. And

dropping out is a key decision. Think about the hazard rate. If someone has searched 0 times, maybe his expected number of searches is 3. If he has searched 3 times, maybe it goes to 4, or maybe it goes to 7. Actually, the hazard rate even in the current paper, where nobody gives up, is interesting. What is it? In the current model, it is just a matter of the value of searching more. Or maybe it is Markov, because lenders do not know how much you've searched already. I guess that's the case. Really, lenders should be allowed to pool info, just by knowing how many times somebody has been rejected. It would be interesting to estimate the effect of the policy change of making number of previous searches public info.

Is this like multiple takes of the SAT test? The dumber students take it more times, because the brightest students bump up against the 1600 maximum. Probably not a good match. But it is true that a bad student will apply to more colleges, because he's hoping for a mistake by some college. No, not even that. What is special about lending is that it's not competition of customers, it's that some customers are undesirable even if the bank has the money to lend. It would be like colleges that often did not fill up to capacity for their freshman class.

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5:10 p.m. Hors d'oeuvres Reception

FRIDAY TALKS

Friday, November 2

9:00 a.m. **Chaired by Katja Seim** (University of Pennsylvania, Wharton) Paul J. Eliason (Duke University) with Benjamin Heebsh (Duke University), **Ryan C. McDevitt (Duke University, Fuqua)**, and James W. Roberts (Duke University), **How Acquisitions Affect Firm Behavior and Performance: Evidence from the Dialysis Industry**
 Discussant: **Nathan Wilson (FTC)**



Something neat about your paper is that you can point to specific areas where Medicare can try to control quality. It looks like septicemia is a big deal, and that's due to infection from the machines not being cleaned or the hooking or unhooking. Cardiac arrests, on the other hand, is too general--- it's not clear what exactly is causing the problem.

I haven't read the paper, so maybe you do this, but you could point to dollars lost to Medicare due to some particular cause and they could do cost-benefit on monitoring to prevent that.

It looks like you have the right emphasis--- that what is important here is not preventing acquisitions, but to regulate dialysis companies.

As the commenter is saying, looking at anecdotes makes this very plausible. Does the paper have a section of anecdotes? It should. Probably at the end, to keep referees from being impatient, but somewhere in the paper.

Note somewhere that market power per se, and acquisition by another firm in a competitive market, does NOT imply lower quality. It's ambiguous, but my personal opinion is that I'd expect quality to move to the efficient level, whether that be higher or lower. Here, though, is a special case. Price is fixed, because Medicare is paying, probably using nationally based rates, and certainly not

Test for cardiac events being VIA septicemia, etc.

If you can **divide between Culture and Cost-Cutting** as causes, that would be neat.

You didn't understand the first question. It was whether total surplus maybe went up, and whether you can measure that. You said that well-being fell, but that's not an implication of consumer surplus falling, not at all. If costs fell more, then total surplus can rise, and that often happens with quality reductions.

So what the question was suggesting was that you take a look at the increase in profits, and also put a dollar value on the reduction in quality, which means putting a dollar value on hospitalization days in pain and suffering, a dollar value on loss of life, as well as the increase in costs for Medicare. Almost certainly, you will find that surplus falls. Quite possibly, the rise in profits will be less than the rise in Medicare costs by itself, even ignoring loss of life and health. That is because this is a special market. Ordinarily, I would expect a hospital acquisition to result in lower costs, and I wouldn't be surprised if quality fell too, but in that case we'd expect revenue to fall also, because the private insurance companies in their hospital-specific prices would negotiate lower reimbursement when quality is lower, or even cut the hospital off from their provider network. Medicare can't do that. This kind of verbal theory is crucial background for your paper. You could even make a little theory section putting it into equations, which might be worthwhile.

A really nice **insight for a future study is that if a patient is at a higher altitude** (Colorado), his body makes more hemoglobin, so he doesn't need as many expensive drugs to help him with that.

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Pietro Tebaldi (University of Chicago) with Alexander Torgovitsky (University of Chicago), and Hanbin Yang (University of Chicago),
Nonparametric Estimates of Demand in the California Health Insurance Exchange

Discussant: **Kate Ho (Princeton University)**

10:30 a.m. Break



I got distracted by trying to figure out what “**absolutely continuous**” meant. Wikipedia and Wolfram are bad in their explanations. Better is the *Encyclopedia of Math*,

https://www.encyclopediaofmath.org/index.php/Absolute_continuity

“An absolutely continuous function is **differentiable almost everywhere.... The differentiability almost everywhere does not imply the absolute continuity**: a notable example is the Cantor ternary function or **devil staircase** (see Problem 46 in Chapter 2 of [Ro]). Though such function is differentiable almost everywhere, it fails to satisfy 1 since the derivative vanishes almost everywhere but the function is not constant.”

An absolutely continuous function is always continuous. Indeed, if the interval of definition is open, then the absolutely continuous function has a continuous extension to its closure, which is itself absolutely continuous. A continuous function might not be absolutely continuous, even if the interval I is compact. Take for instance the function $f : [0, 1] \rightarrow \mathbb{R}$ such that $f(0) = 0$ and $f(x) = x \sin x^{-1}$ for $x > 0$. The space of absolutely continuous (real-valued) functions is a vector space.

It sounds like we need that the set of **values where the function is differentiable is dense** in the set of all values. I should **ask Chris Connell**. **$f(x) = x \sin (1/x)$** would seem to satisfy that, though, excluding point 0. Ah--- they don't exclude point 0, they assign it $f(x)=0$.

I used a similar function in a recent paper on quasiconcavity that you might like, since you're mathematical. That paper might help with being understandable in the way Kate Ho was suggesting. We couldn't get it published for quite a while in econ journals, so then we stripped out pretty much all the explanations, examples, and intuition, and got it published without revision in a good math journal--- but that's a much worse version, I think. The published version is:

<http://www.rasmusen.org/papers/quasi-short-connell-rasmusen.pdf> .

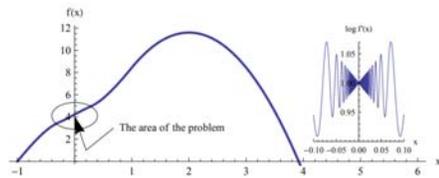


Figure 8: MOST SUBTLE OF ALL— NONCONCAVIFIABLE STRICTLY QUASICONCAVE FUNCTION WITH STRICTLY POSITIVE DERIVATIVES BUT UNBOUNDED VARIATION

Christopher Connell and Eric B. Rasmusen, "**Concavifying the Quasi-Concave**," *Journal of Convex Analysis*, 24(4): 1239-1262(December 2017)

We show that if and only if a real-valued function f is strictly quasi-concave except possibly for a flat interval at its

maximum, and furthermore belongs to an explicitly determined regularity class, does there exist a strictly monotonically increasing function g such that g of f is concave. We prove this sharp characterization of quasi-concavity for functions whose domain is any Euclidean space or even any arbitrary geodesic metric space.

<http://www.rasmusen.org/papers/quasi-connell-rasmusen.pdf> As published, short and worse version:

<http://www.rasmusen.org/papers/quasi-short-connell-rasmusen.pdf>.

I'm just too sleepy. Kate Ho is a very good presenter, and I still am not following. Another late night--- up till 2, doing video lecture recordings on block pricing and double marginalization for the online MBAs, after napping a couple of hours earlier and then drinking coffee.

Ho, Kate; Rosen, Adam M. 2016. I think she implies it is published in 2018.

Working Paper. **Partial identification in applied research: Benefits and challenges**

<https://www.econstor.eu/bitstream/10419/149791/1/866556877.pdf>

Most presentations were very good, but I am still going to refer everyone to my notes, "**Aphorisms on Writing, Speaking, and Listening**"

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11:00 a.m. **“Ownership Concentration and Strategic Supply Reduction”**

Katja Seim (University of Pennsylvania, Wharton)



It is not at all obvious to the listener why the broadcast TV markets would be different from the wireless market. A circle around New York would be a big market for both, wouldn't it?

We'll take that as given, though. The big problem is that if the spectrum allocated to broadcast is reduced, the existing locations of TV stations becomes inefficient. The broadcast spectrums are not allocated by auction--- which would solve the problem, maybe, but we have to rule that out for political reasons.

Ah, no--- I am wrong in what is going on. The political problem is solved, by being a legal problem, I expect. The FCC is **buying back** licenses from TV stations in order to get more spectrum that it can auction off to wireless companies. Thus, we have a **reverse auction** first, and then resell the spectrum at **forward auction**. Ah—but this is done as one big auction, which means that the amount of spectrum bought and resold can be endogenous and thus efficient. Clever.

Private equity firms have been buying low-profit TV stations for potential resale of spectrum later. But they don't always sell. **Auction Talk Draws TV Spectrum Speculators**
<https://tvnewscheck.com/article/49326/auction-talk-draws-tv-spectrum-speculators/> Good for teaching G406. maybe as discussion article for C530 too.

“Cheap beachfront real estate. That's how NRJ TV, a fledgling media group, views cellar-dwelling TV stations in major markets. Betting on an eventual auction of broadcast spectrum by the federal government, NRJ is buying such TV stations on the cheap in the hope of one day sharing in the proceeds of that auction.”

Stations vary enormously in value, even when they have the same amount of spectrum. What about diameter of service area, strength of signal?

Descending clock auction is what was used. As the price falls, a station says at some point “The price is too low now. I won't sell out,” so they leave the auction. If each company owns only one station, not too hard. Somehow, tho, due to repacking constraints, if a company owns two stations, that company might strategically want to have one station leave the auction so as to raise the price for the other one.

Would buying a station so as to keep it OUT of the auction a violation of Section 7 of the Clayton Act? Suppose you even admitted this was the reason. Yes, I guess it would be. You would have to get merger permission, I would think, and it would be denied. Suppose you didn't admit it. Then, the merger might go through due to the FTC and Justice not realizing that an auction was coming up. Later, it would be too late, I should think, to ask for an injunction. I don't know the law of antitrust remedies I find, tho.

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11:40 a.m. Panel: Estimating Markups – Chaired by **Devesh Raval (FTC)**

- Allan Collard-Wexler (Duke University)
- **Matthew Grennan (University of Pennsylvania, Wharton)**
- **John Haltiwanger (University of Maryland)**
- **Ariel Pakes (Harvard University)**

12:40 p.m. Close



“Labor has not seen a .6 R-squared in a long time.”

It’s tougher doing supply estimatoin

than demand estimation, because of measuring labor, capital, and multiproduct firms. But the computational demands are lower than for demand.

LRD is good data, better than Compustat. Longitudinal Business Database .”The LBD is a census of business establishments and firms in the U.S. with paid employees comprised of survey and administrative records. The LBD covers all industries and all U.S. States.” 1976-2013.
<https://www.census.gov/ces/dataproducts/datasets/lbd.html>

“The Business Dynamics Statistics (BDS) is a public use data set of annual aggregate statistics describing establishment openings and closings, firm startups, job creation and destruction by firm size, age, industrial sector, and state.”

A kind of data we could use a lot more of is **supply chain data**. Who buys from whom? Maybe if the US had a VAT we’d have that--- so maybe Canada and European countries have it.

The different agencies, BLS and BEA, for example, are forbidden to share their data with each other. **Who would lobby to get that changed?** Who would oppose it? Is it statutory, or by executive order? Pakes says the agencies are terrified of what could happen to them if proprietary data got out. Probably they don’t trust each others’ security, and Census would be blamed if some of its data got out, even if it was BLS’s fault for poor security. Actually, with modern software, maybe with FBI and CIA help, it should be much easier than in the past to see who is to blame for data getting out. But that doesn’t help so much with accidental release due to researcher negligence—human error.

Pakes: We owe accolades to John Haltiwanger for working hard to improve data.

Pakes ending statement: Dynamics is important.

If we could get any data we want from a firm, what would we ask for? I guess this is the question of what the manager wants from his cost accountant. A second question is: in what direction are they going to lie if you ask a manager?

If we assume the production function is the same across firms, but the markups differ, is that more reasonable than that the markups are the same, but the production functions differ?

Chad Severn and John Haltiwanger have worked on this together.

JPE paper on transactions data at product level supply and demand. Nested CES. Feenstra idea: Double difference to get rid of cost shocks. KILTS data from Chicago-Booth for 100 product groups. Weinstein and co-authors.

Classic article on ag production: Mundlak.

Haltiwanger is great at knowing the literature and describing papers succinctly.

Hsieh/Klenow (2009) quantification of misallocation.

http://www.chrisedmond.net/phd2014/90065_lecture10.pdf

Production technology, demand. CES demand. The elasticity of substitution is 4 in their calibration, for all firms. International comparisons. Let TFPQ denote physical productivity and TFPR denote revenue productivity

There's a good paper in macro on the evolution of the distribution of markups across firms over time. NY Times mentioned it.

Chad Severn, Carl Shapiro, Using concentration ratios is the Original Sin or the Forbidden Regression, Jackson Hole conference. The old Demsetz problem, I guess, of cause and effect. Macro people don't know about that, it seems.

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Idea of a CHECKLIST of things to do in rewriting a paper. Good idea:

1. Have I put each diagram in the right place?
2. Do I use any unnecessary acronyms like NYKU?
3. Are equations numbered where they are important and cross-references but not otherwise?
4. Are my diagrams and tables pretty well self-contained, so a skimming reader can tell what is going on?
5. Do I refer to each diagram and table in the text?
6. Is each reference cited? Is each work cited present in the list of references at the end?
7. Can I cut out any words without losing meaning? (Strunk and Whiting)
8. Can I cut out non-data ink on my diagrams and tables (Tufteing)
9. Do I have all the notation in pretty much one place in the paper rather than bringing it in in bits and pieces?
