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5   NORTHWESTERN UNIVERSITY   )

6   SECOND ANNUAL:)   Matter No.

7   MICROECONOMICS CONFERENCE   )   PO85800

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11   THURSDAY, NOVEMBER 19, 2009

12

13   Conference Center

14   Federal Trade Commission

15   601 New Jersey Avenue, N.W.

16   Washington, D.C. 20580

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18   The above-entitled hearing was held, pursuant

19   to notice, at 9:00 a.m.

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PROCEEDINGS

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1 DR. FARRELL: Good morning, everyone. Thank you

2 for coming. Welcome to the Federal Trade Commission and

3 the Second Annual, I think that makes it a tradition,

4 FTC/Northwestern Microeconomics Conference.

5 I'm told the Chairman will be arriving any

6 minute to give -- and here he is, Chairman Leibowtiz.

7 CHAIRMAN LEIBOWITZ: I thought I had really bad

8 timing. Were you introducing me, Joe?

9 DR. FARRELL: I was just introducing you so it's

10 perfect. This is Jon Leibowitz, Chairman of the Federal

11 Trade Commission.

12 CHAIRMAN LEIBOWITZ: I work for Joe, as everyone

13 here at the FTC knows, and thank you all so much for

14 coming. I've noticed that when we pair with

15 universities to do our conferences, the food is much

16 better. We inherently have hot coffee as opposed to

17 cold coffee.

18 So anyway, thank you all. Thank you all so much

19 for coming and welcome to the Second Annual FTC and

20 Northwestern Microeconomics Conference, which brings

21 together cutting edge academic economic research with

22 real world policy problems, and that's very much in line

23 with the Commission's mission of protecting American

1   consumers.

2   The conference began last year when my

3   colleague, Bill Kovacic, who was then Chairman, and is

4   now a Commissioner, and was the brain child of your

5   predecessor, former Bureau of Economics director,

6   Michael Baye, who teaches at Indiana, wanted to do

7   something focused around the Big Ten. I know it's early

8   in the morning, but that was a joke. We hope this is

9   going to become a regular and important part of the

10   FTC's fall schedule.

11   We're grateful to Northwestern University and

12   the Searle Center on Law, Regulation and Economic

13   Growth, as well as the Center For Study of Industrial

14   Organization for cosponsoring the conference.

15   I'm delighted to note that Northwestern and the

16   Searle Center will also be hosting our third workshop on

17   the horizontal merger guidelines. That's in Chicago on

18   December 10. I'm going to try to make it because if

19   there's one thing I love about Chicago, it's being there

20   in December. It can only be topped of course by being

21   there in January.

22   For those of you who are here from other

23   institutions, and I'm sure there are some of you, just a

24   few words about us. As you know, the FTC is an

25   independent agency that enforces antitrust law,

1   alongside the Department of Justice, and also enforces

2   Federal consumer protection law.

3   As Joe Farrell, our fabulous Director of the

4   Bureau of Economics likes to say, these missions

5   reinforce each other. Competition is sharper and better

6   aimed when consumers are making well informed decisions

7   and free choices, and consumer protection works best of

8   course when consumers have real alternatives. We think

9   of our consumer protection and our competition missions

10   as both trying to make the marketplace work better.

11   The Bureau of Economics is home to even more

12   Ph.D. microeconomists, including our visiting scholars,

13   we have about 75, which is more than our colleagues,

14   friends, neighbors at the Antitrust Division have. That

15   may make BE, as we call it, our Bureau of Economics, the

16   biggest institutional center for microeconomics in the

17   world, and of course we're bigger today by virtue of all

18   of you coming.

19   I want to thank a number of people who have

20   helped to put this together. We have a really

21   distinguished scientific committee again this year, and

22   if you're here this morning and I mention your name,

23   please stand up or at least raise your hand, including

24   Professor Kyle Bagwell from Stanford University. Thank

25   you.

1   Professor Marianne Bertrand from Chicago's Booth

2   School of Business. Not here yet.

3   Professor Aviv Nevo from Northwestern? Coming

4   here soon I'm sure.

5   And Scott Stern from MIT Sloane School of

6   Business. Thank you, Scott, so much.

7   I understand all four of you -- or the two of

8   you here and the two of you who are not here yet --

9   worked very, very hard in creating this fantastic

10   program. I also want to thank Joe for putting this

11   conference together, and from the bureau as well, where

12   are Chris and Paul, Chris Adams and Paul Rothstein?

13   Thank you for organizing the conference and other bureau

14   staff members, including Viola Chen, Loren Smith, Maria

15   Villaflor, Alethea Fields and Laura Kmitch for their

16   hard work.

17   Let me highlight just a few topics of great

18   interest, I think for all of us at the conference and

19   for the Commission. This morning we have a very timely

20   panel discussion on mortgage delinquencies and loan

21   modifications. We have now brought more than two dozen

22   foreclosure rescue scams and mortgage modification

23   cases.

24   We have brought literally more than two dozen,

25   it will be two dozen by next week, cases on mortgage

1   modification and foreclosure rescue scams alone this

2   year. We're also in the process of writing two major

3   rules in this area and we've been given, for purposes of

4   doing that, APA rulemaking authority, which makes it

5   much easier for us to write rules. It is sort of a

6   medieval form of rulemaking, and we got this authority

7   in the Omnibus Appropriations Act earlier in the year.

8   I'm sure you've heard the old saying that laws

9   are sort of like sausages. You don't want to know what

10   goes into it, but it comes out okay usually. I would

11   say that's probably, at least with respect to our new

12   jurisdiction for rulemaking in the Omnibus Act,

13   certainly that's the way we can think about it, and it

14   hopefully will do a good thing for consumers. We think

15   it will.

16   We have paper presentations this morning also

17   looking at the interaction between competition and

18   innovation. In the afternoon we have presentations

19   looking at the relationship between advertising and

20   consumer choice, which is, I'm sure you know, a question

21   or an issue of perennial interest to the Commission.

22   Tomorrow morning, we have papers on some very

23   interesting topics, including online privacy, which is

24   also very timely, and discrimination in the nation's

25   peer-to-peer lending market. We also have a panel

1   discussing the very important topic of innovation

2   policy, and somewhere in between it, I think you guys

3   have dinner at Johnny's Half Shell, which is a wonderful

4   restaurant nearby.

5   So welcome again, and enjoy the program. We

6   appreciate all of you coming. We think it will be

7   incredibly useful going forward. We hope again to do

8   this annually. And thank you so much. I will return it

9   back to you, Joe.

10   (Applause.)

11   DR. FARRELL: Thank you, Chairman. A couple of

12   logistical things. The rest rooms are across the

13   hallway. It is possible, but you have to be careful, to

14   get to the restroom and back without going through

15   security.

16   Speaking of security, the security briefing is

17   as follows: If you go outside the building or get lost

18   on your way to the restroom without an FTC badge, you

19   have to go through the security check again. That's why

20   you want to be careful.

21   If there's a fire, or for any other reason an

22   evacuation of the building, please leave the building in

23   an orderly fashion. I'm not quite sure what that is,

24   but you can probably interpret it.

25   Once outside the building, you're supposed to go

1   across the street and to the right, or maybe just to the

2   right.   It's a little ambiguous, but anyway, go away

3   from the fire and try to meet up somewhere off to the

4   right.

5   In the event that it's safer to remain inside,

6   you will not be asked to leave the building.   And if you

7   spot suspicious activity, I think that means not taking

8   account of colinearity, please alert security.

9   We're running a little bit late, that's my

10   fault.   I wasn't quite sure what the timing of the

11   Chairman's arrival was going to be, so let me just make

12   some very brief remarks, and I hope we can catch up

13   without too much trouble.

14   It's amazing to me, and yet the calendar assures

15   me, that I've been here at the FTC for almost six months

16   now.   The time has whizzed by.   There's way too much

17   going on and I try my best to think about what I'm

18   doing, but that's a challenge.   I encountered this

19   phenomena for the first time, this is my third time in

20   Washington, for the first time when I went to the

21   Federal Communications Commission in 1996.

22   At that time, foolishly, indeed insanely, I was

23   also trying to edit the Journal of Industrial Economics,

24   JIE, and one thing that made me realize was it's stupid

25   to try to do too many things at once, but a deeper thing

1   it made me realize is you know how in macro they teach

2   you or they used to teach you that you're not going to

3   find any markets with rationing both on the supply side

4   and on the demand side -- well, that's false.

5   So as JIE editor, I kept receiving these

6   articles that obviously talented economists had put

7   immense amounts of thought and work and energy and

8   intellect into, and they were about questions that

9   nobody cared about the answer to.

10   So that was disturbing, and it was even more

11   disturbing in the contemporaneous presence of the fact

12   that there at the FCC, and in fact throughout

13   Washington, there were important and urgent questions of

14   how to do microeconomic analysis or this or that policy

15   question that were languishing or being decided wrongly

16   because nobody was putting the energy, the intellect,

17   the time, and the thought into figuring them out.

18   So that's what the entrepreneurship community

19   calls a profit opportunity. I tried to take that profit

20   opportunity, not in the form of money but in the form of

21   trying to make things work better, and so at JIE, we

22   tried to encourage people to write and submit papers

23   that were a little closer to real world policy or just

24   real world industrial organization questions. And it

25   didn't necessarily reflect quite the obsessive attention

1   to model building that's traditional in the academic

2   journal world these days.

3   I can't say that we had as much success as we

4   hoped for, but at least we tried, so this conference I

5   think is also along those lines in the sense that it's

6   trying, as the Chairman mentioned, to bring together the

7   academic community and the Washington policy economics

8   community for mutual pleasure and profit.

9   So this happens in a number of ways. I think

10   journals are slowly but surely, at least some of them,

11   getting better about the kind of work that they

12   encourage and reward. We have, especially at the

13   Federal Trade Commission, part of whose statutory

14   mandate it is, a healthy program of research by staff

15   economists, and you will hear about some of that over

16   the course of the next two days.

17   And of course we have, what I think is in the

18   rest of the world regarded with envy, a tradition of

19   academic economists coming to Washington, both for

20   periods of months or years and also frequently for hours

21   and days. And all of those things I think help us to

22   bridge the gap that we're talking about.

23   So enough of that. Let me turn to introducing

24   our first speaker who is Scott Stern. Scott is a

25   professor of management and strategy at the Kellogg

1   School. That's at Northwestern for those of you who

2   don't know. Scott is currently visiting professor at

3   the Sloan School, which is at MIT.

4   Among his many activities, Scott is co-organizer

5   of the NBER Innovation and Policy on the Economy Working

6   Group, which puts out a nice annual volume, and a senior

7   fellow of the Searle Center on Law, Regulation and

8   Economic Growth. That's back at Northwestern.

9   Scott also tries to make the journals work as

10   well as they can be made to work. He's an associate

11   editor of Management Science and of the aforementioned

12   Journal of Industrial Economics and the International

13   Journal of Industrial Organization and serves on the

14   board of management of the International Schumpeter

15   Society, so Scott obviously has not learned a lesson

16   about not trying to do too many things at once.

17   In addition, he has served on the editorial

18   boards of the Antitrust Law Journal and the Journal of

19   Business and Economic Statistics.

20   In 2005, Scott was awarded the first Ewing

21   Marion Kauffman Prize Medal for distinguished research

22   in entrepreneurship. His work explores how innovation,

23   that is the production and distribution of ideas,

24   differs from more traditional economic goods and the

25   implications for business and public policy. Often

1   focusing on life science industries, this research is at

2   the intersection between IO and the economics of

3   technical change.

4   Among Scott's recent studies have been work

5   examining the determinants of R&D productivity, the role

6   of incentives and organizational design on the process

7   of innovation, and the drivers of commercialization

8   strategy for technology epidemiologies.

9   I've known Scott for quite awhile. He's always

10   fun to listen to and always provocative, so I look

11   forward to hearing what he has to say.

12   DR. STERN: The first thing that I'm going to

13   say is that there's going to be some sort of -- thank

14   you, Joe, and I'm hoping we can avoid the reverb. I

15   speak loud enough that if anyone is going to induce it,

16   it's going to be me, so I'm a bit worried early in the

17   morning people kind of having the fingernails on the

18   chalkboard sound, as it's always wonderful.

19   What do I want to talk about? This is

20   actually I want to call it a paper, but it's not really.

21   It's a set of slides that my coauthor, Joshua Gans and I

22   are trying to make into a paper. I'm going to give you

23   some flavor of it, but it's really drawing out some of

24   the implications of a body of research that we've done

25   for really thinking about the antitrust and innovation

1   policy implications.

2   I should mention that Josh is traditionally at

3   the University of Melbourne at the Melbourne Business

4   School, but is actually going to be visiting in the U.S.

5   for all of calendar year 2010, which is academic year

6   2010 in Australia because they have different seasons,

7   and anyone who wants to have him come give a seminar or

8   whatever, he's going to be in the U.S. and a little

9   easier to get ahold of so you can avoid seeing me give

10   these talks.

11   Basically what I want to talk about today is

12   essentially one piece of positive economics, which

13   really is an area that I've worked on quite a bit, which

14   is: How do formal intellectual property rights, most

15   notably patents, impact cooperative commercialization,

16   particularly between technology entrepreneurs, start-up

17   innovators and dominant incumbent firms?

18   And then I want to do a bit of speculating about

19   the normative analysis; namely, what are the antitrust

20   policy implications of that? And then essentially what

21   I'm going to try to do there is actually draw a bit on

22   recent models, most notably the very nice work of Segal

23   and Whinston that essentially introduces a nice dynamic

24   framework for thinking of innovation and

25   commercialization.

1   So some facts. There are a bunch of sectors as

2   were mentioned. I know a little bit, but I don't know

3   much, but I know a little bit about life sciences. One

4   thing you see is that the dominant way these new biotech

5   drugs actually get into the market is not by some

6   start-up innovator outside of MIT attracting capital and

7   then doing all the regulatory trials themselves and then

8   marketing and pricing the drug. But is instead by

9   basically remaining mostly a research boutique,

10   occasionally trying to do one or two things downstream,

11   and ultimately, for a variety of reasons under different

12   conditions, achieving some cooperative agreement,

13   usually with a dominant incumbent player in the relevant

14   therapeutic market.

15   So Bristol Myers now, after many iterations,

16   continues to be the dominant marketing firm that's

17   choosing pricing in most cancer markets, even though the

18   innovation in cancer markets is coming from many other

19   locations.

20   To be clear, that pattern of cooperative

21   commercialization between tech entrepreneurs and these

22   dominant firms is really not constrained to

23   biopharmaceuticals. Indeed, if you look over time, how

24   do venture capitalists actually make money to the extent

25   that they do? This is not going to be a great year for

1   them this year, but to the extent that they make any

2   money, what do they do?

3   It turns out there's really been a sea change

4   over the last 20 years, one that has not received that

5   much policy attention, and that is where the usual way

6   that firms made money was through IPOs. That was the

7   exit strategy, it is now the case that more than 75

8   percent of value and more than 80 percent of exit

9   transactions of venture capitalists are essentially

10   through acquisition. And the model form of those

11   acquisitions is by dominant downstream players in the

12   market. Think of companies like YouTube and Google.

13   Indeed, there are some companies, and we write

14   about these and teach them in business school with great

15   aplomb, essentially a company such as Cisco, that's all

16   they do. They advertise themselves quite explicitly as

17   not really being in the research business but being in

18   the research buying business. And then they kind of let

19   a thousand flowers bloom and essentially over many

20   generations of the technology, Cisco maintains a

21   dominant position in the downstream market and relies on

22   different innovators over time for upstream innovation.

23   Now, the question is: Where is that coming

24   from? What are the institutions that have led to this

25   sea change? And Josh and I have investigated in a

1 number of ways, along with some other coauthors and

2 other groups have also looked at this, what I call the

3 commercialization hypothesis. That is that effective

4 intellectual property protection; the rise in the use

5 and the sophistication around patenting has promoted

6 trade in the market for ideas, this upstream innovation

7 market. And that's enhanced cooperative

8 commercialization patterns between start-up innovators

9 and the people that can most efficiently get those

10 products into the market, namely these downstream

11 dominant firms. The welfare consequences of that of

12 course are ambiguous.

13   Just to kind of round out some evidence around

14 this, Ashish Arora and his colleagues down at Duke have

15 provided broad based evidence across many different

16 sectors that just show a tight correlation, really a

17 correlation in the data between all sorts of patenting

18 activity and all sorts of licensing receipt activity.

19 They've cooked that up as sort of saying, it seems like

20 these patents are facilitating the market for

21 technology.

22   Josh and I have gone a little bit deeper into

23 that in two very brief studies I'll talk about. One was

24 a paper that we did a few years ago with David Hsu in

25 the RAND, where we surveyed a whole bunch of

1   entrepreneurs and figured out how they ended up making

2   money from their innovation, which you might think is

3   kind of an obvious thing to do, but not a lot of people

4   have done that, so that was good for us.

5   Basically it turns out that if you can get a

6   patent and if there's relatively reasonable size

7   barriers to entry in the industry, you end up with a

8   very high rate of cooperative commercialization. So

9   relative to the rate when there are no patents in the

10   industry and this low fixed cost where you get a very

11   few innovators, only 14 percent are earning money

12   through cooperative commercialization or more than 50

13   percent are earning money through partnering in the

14   patent high entry cost situation.

15   So then you might say, there's something about

16   patents that is pretty closely aligned with this

17   strategy, but is it really the patent system per se? Is

18   it patent policy that matters?

19   In a very recent study that we published in

20   Management Science, I think we provided some

21   interesting, pretty causal evidence for this. What we

22   did was look at the timing of licensing by a fairly

23   large sample of technology entrepreneurs and we looked

24   at exactly when the licensing occurred.

25   Now remember it takes almost forever to get

1   these patents and it's very random. And so what we

2   looked at was: How does the hazard rate of licensing

3   change after you get your kind of envelope from the

4   Patent Office down the street -- I guess it's across the

5   river, in Boston that means something else -- but how

6   does getting the grant notice from the Patent Office

7   change the hazard rate of licensing?

8   It turns out that a tremendous amount of all

9   licensing occurs essentially within about 12 to 18

10   months after the patent is actually granted, so there's

11   a long delay where there's not a lot of licensing. Then

12   you get the patent. We see this very dramatic rise in

13   licensing rates.

14   So what does that all mean? That's a good

15   question. On the one hand there's a piece of positive

16   economics here. There seems to be this different role

17   for intellectual property such as patents, not simply

18   the usual. It let us enhance the innovation incentives,

19   but it's actually enhancing the ability to contract in

20   the market for ideas, facilitating cooperative

21   commercialization and potentially avoiding product

22   market competition between innovators and dominating

23   firms.

24   Let's be clear. In most of this research, if

25   you read, it is not focused on the antitrust

1   implications. Ashish Arora and his colleagues, and to a

2   certain extent our work, really have this kind of broad

3   sense that, hey, this is a pretty good thing because it

4   is somehow enhancing the division of innovative labor.

5   There are probably some R&D productivity benefits here

6   and there are very few attempts to really draw out the

7   implications of this sea change in commercialization

8   strategy in terms of its antitrust implications.

9   Few attempts are made within the licensing

10   guidelines, though there's relatively little enforcement

11   of the idea, to evaluate a dominant firm, say a Google

12   or a Microsoft that picks up a true start-up innovator,

13   a YouTube or Twitter or something like that. There is

14   very little, usually relatively little evaluation of

15   those mergers in terms of really understanding that

16   maybe YouTube could have been the competitor. So what

17   we're going to try to do here is analyze what are the

18   antitrust implications of the impact of formal IPR on

19   cooperative commercialization.

20   To do that, I'm going to take one little side

21   detour. Do I still have 20 minutes to talk? I'll try

22   to do it in all 18.

23   DR. ROTHSTEIN: You have another ten minutes.

24   DR. STERN: Perfect, thanks. So we're going to

25   take a very short detour into what I think is one of the

1   most interesting papers in this area over the last

2   pretty long while by Segal and Whinston that appeared in

3   the AAR many years ago. Many of you are probably

4   familiar with it in which they undertake an explicit

5   dynamic analysis of the impact of antitrust policy,

6   basically should we allow or disallow certain practices

7   on innovation, incentives and welfare.

8   Essentially their idea is really to model an

9   environment, a kind of a dynamic environment that is a

10 step-by-step environment where ultimately a single firm

11 is the dominant firm at any moment in time. There's a

12 firm competing for the market, but there's an outsider

13 who's doing R&D to leapfrog over the current established

14 firm, and therefore earn some rent and promote this kind

15 of gale of creative destruction.

16   Very nicely the incentives for the outsider to

17 enhance the probability of innovation, called PI, are

18 grounded in the expected nature and duration of product

19 market competition once a breakthrough has been

20 realized. So when I'm a potential entrant, I think,

21 well, if I actually do this, if I'm successful, I'm

22 going to have some competition with the incumbent as I

23 displace him; then I'm going to have a certain length of

24 time in which I earn monopoly profits with my new

25 leading technology and then ultimately I'm going to get

1   displaced.   Perhaps I'm going to get displaced, and I'm

2   going to have the duopoly profits during that time.

3   Key insight is that I, as the entrant, am

4   thinking about the fact that if right now I face high

5   barriers to entry, namely, there's all sorts of

6   exclusionary practices against me, I'm not so unhappy

7   about that because I'm going to be able to do that when

8   I'm the innovator, when I'm the established firm I'm in

9   the next period.   So incumbent firm actions and

10   antitrust policy is then modeled as a parameter that

11   essentially terms how much of this detouring activity

12   the established firm can take on.

13   Basically what they're able to do is very nicely

14   divide this into an innovation benefit curve.   That's

15   the kind of sloppy thing that goes down that looks

16   vaguely like a demand curve and then they have this

17   innovation supply curve.   Most importantly, it is upward

18   slopping at every point and then the point is that if

19   the IS curve is upward sloping, essentially the dynamic

20   equilibrium impact of antitrust policy on innovation

21   incentives can be evaluated.   Essentially you shift the

22   innovation supply curve when you change the antitrust

23   policy.

24   You just change the returns to innovation, and

25   so if you know how the alpha, the antitrust parameter,

1   shifts around this IB curve, you're going to get your

2   impact on welfare.

3   Key insights. The very practices that are seen

4   as barriers to entry by a traditional antitrust analysis

5   essentially also serve as innovation incentives since

6   the returns to being the monopolist become higher.

7   At the same time, the net impact of allowing

8   such policies can still often be detrimental, so sort of

9   if you cooked up this line, that allows for a pretty

10   permissive antitrust policy because, let's face it, that

11   actually gives an incentive for the market. You

12   actually wanted pretty good antitrust policy because the

13   net effect, even after accounting for the fact it is

14   positive, and part of that is because the entrant faces

15   the costs of the deterring activity upfront while they

16   only realize the benefit way out in the future.

17   Now, I'm going to draw out the implications of

18   that type of model for a world in which we think about

19   the market for ideas. In particular, there are two very

20   important assumptions in the Segal Whinston framework.

21   The first is that the strategic impact of the monopolist

22   only impacts the returns to innovation, but they can't

23   affect the innovative productivity of the potential

24   entrant. They can't shift that innovation supply curve.

25   Moreover, the potential entrant always has

1   access to the incumbent's technology and they can really

2   focus all their efforts on going that next step. So

3   that in some sense implies a background assumption that

4   the established firm, once they're dominant, has to give

5   over a lot of technical information and proprietary

6   knowledge to potential entrants to allow them to

7   innovate.

8   At the same time, once the entrant has developed

9   a breakthrough, the only strategic action available is

10   to enter the product market. In the interest of time,

11   let me just note that both of those assumptions are

12   really almost counterfactual. On the one hand, the one

13   thing established firms can do through their strategic

14   actions is really limit the ability of entrants to even

15   do R&D in their industry.

16   At the heart of the Microsoft case, for example,

17   were lots of claims about the ability of potential

18   innovators to get access to certain code that would

19   allow them to develop competing products. At the same

20   time, if you develop and develop your breakthrough

21   innovation as the entrant, now you know you're going to

22   enter and you face a prospect of competition with the

23   current established firm, you have pretty good

24   incentives to collude, which in the business schools we

25   call cooperative commercialization.

1   So what we're going to do in our last few

2   minutes is say: What's the impact of these alternative

3   policies on allowing or disallowing different types of

4   transactions in the market for ideas? I'm just going to

5   highlight two things that we're looking at, one of which

6   is an extension of a point that Segal and Whinston bring

7   out and one of which is a bit more explicitly novel.

8   The first point is to note that any strategic

9   action by the current incumbent to reduce the R&D

10   productivity of potential entrants turns out to reduce

11   total innovation incentives. To be clear, there are two

12   effects and so this is where we go a little beyond Segal

13   and Whinston. On the one hand, you would be shifting

14   down that innovation supply curve; that's bad. But that

15   very fact also means that there's a higher innovation

16   benefit.

17   The innovation benefit curve is going up so that

18   might actually enhance R&D incentives. It turns out

19   that the net impact when you do an equilibrium analysis

20   turns out to be negative, so anything that reduces the

21   R&D productivity of potential entrants actually has a

22   negative consequence on welfare in one of these kind of

23   cumulative innovation markets.

24   At the same time, the ability of potential

25   entrants to access the technologies of current

1   incumbents is severely limited as an empirical fact.

2   Trade secrecy, proprietary systems, exclusionary

3   standards all serve to reduce the ability of innovators

4   to leapfrog current technologies, and this is

5   particularly true in my evaluation in these markets in

6   which people are competing for the market.

7   The last insight is, and this is just drawing

8   out the logic of it, if you have competing for the

9   market antitrust policies, so kind of the Evans and

10   Schmalensee kind of policies, which might have something

11   to them, and you separately advocate for a

12   strong intellectual property regime, namely giving

13   people tons of patents, that's not going to imply

14   competing for the market where you have serial

15   monopolists, but is basically going to imply the

16   persistence of dominant firms.

17   Schumpeterian analyses emphasize that innovators

18   compete for the market. They often say, oh, we don't

19   really need a lot of antitrust because someone is going

20   to come in and be the next big thing. Many of these

21   same animals actually also are very big on, let's also

22   give everybody patents for everything, but if an

23   enhanced IPR facilitates the market for ideas, a loose

24   antitrust policy includes limited review of mergers or

25   licensing between dominant firms and start-up

1   innovators. The equilibrium prediction is not serial

2   monopolists but serial innovators commercializing with a

3   persistently dominant firm.

4   As some concluding thoughts, I hope that from an

5   empirical perspective, we have some evidence that's been

6   accumulating that formal intellectual property serves to

7   enhance the rate and extent of cooperative

8   commercialization, particularly between these

9   entrepreneurs and established firms. But there's been

10 very little policy analysis of really what's been a sea

11 change in technology entrepreneurship strategy on

12 antitrust policy.

13   And this preliminary analysis suggests that

14 allowing dominant firms to reduce innovator R&D

15 productivity likely reduces welfare and that practices

16 allowing free form licensing between start-up innovators

17 and dominant firms may indeed reduce the competitive

18 pressures associated with technology entrepreneurship.

19   Thanks.

20   (Applause.)

21   DR. FARRELL: Thank you, Scott.

22   DR. SCHNEIDER: Scott, can you point to what

23 changed in the patent system that would cause this

24 five-year change? What would cause a sea change?

25   DR. STERN: So there's a beautiful book by Jafee

1   and Lerner and endless National Academy reports, and

2   they all basically say that there were a few different

3   things that mattered here. The first was that the

4   centralization of the Court of Appeals for the Federal

5   Circuit, which basically then became the Appeals Court

6   for patents in the early 1980s, initiated a process that

7   ultimately probably enhanced the incentives to get a

8   clarity of patent law.

9   There were substantive extensions of patent law,

10   a number of them, particularly over basically living

11   organisms, business practices, things like gene patents,

12   a whole bunch of different areas there. And then

13   finally the other institutional shifts that encourage

14   venture capital, for example, Prudent Man Rules and

15   things like that, the change in Prudent Man Rules

16   allowed for the financing of these technology

17   entrepreneurs.

18   Since they have no other assets but basically

19   what's in their head and some designs, that separately

20   probably kind of concentrated on the patents. And then

21   there's a bunch of hypotheses, more among dominant firms

22   themselves, say in the semiconductor industry, about

23   basically these kinds of arms races in patenting that

24   Byron Hall and others have talked about quite

25   extensively.

1   DR. FARRELL: Apparently you answered all the

2   questions. So what do we have next?

3   DR. ROTHSTEIN: We have the panel on mortgage

4   and foreclosure.

5   DR. FARRELL: Thank you, Scott.

6   (Applause.)

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1   PANEL SESSION ONE: Mortgage Delinquency and

2   Modification: Economic Research and Policy

3   PANEL MEMBERS:

4   PAUL ROTHSTEIN, FTC, Panel Chairman

5   PAUL WILLEN, Federal Reserve Bank of Boston

6   RICHARD BROWN, Federal Deposit Insurance Corporation

7   MARK MCARDLE, U.S. Department of Treasury

8   LAURA SULLIVAN, FTC

9

10   DR. ROTHSTEIN: Good morning, everyone. Thanks

11   for coming to the event, and especially for this panel

12   on a very timely topic, a topic that you will see

13   written about in the newspapers regularly: Mortgage

14   delinquency and modification. It's also very timely for

15   the Commission, because as the Chairman said, we're

16   involved in a very broad rulemaking on the loan

17   modification process.

18   So we're going to get right to it. We have Paul

19   Willen to speak first. He's a senior economist and

20   policy advisor in the research department at the Federal

21   Reserve Bank of Boston.

22   We have Richard Brown, who is the chief

23   economist at the FDIC, and he's worked for many years on

24   housing finance issues. If you're wondering what the

25   FDIC has to do with loan modification, he'll tell you

1   about that. It's a bit of a surprise.

2   Mark McArdle is a senior policy analyst at the

3   U.S. Treasury working with the Making Home Affordable

4   Program which deals directly with foreclosure issues.

5   And Laura Sullivan, who is an attorney here at

6   the Federal Trade Commission, in the Bureau of Consumer

7   Protection, and in the Division of Financial Practices.

8   She's working directly on the rulemaking issues and

9   litigation involving scams associated with foreclosure

10   and loan modification.

11   So we have the range of experts here from the

12   academic side who have been writing about mortgages, the

13   decision to default, the decision to foreclose on loans,

14   down to the consumer protection issues that are very

15   much a part this entire process.

16   I will not take up any more time. Thank you.

17   DR. WILLEN: I would like to thank Paul for

18   giving me the chance to talk today, and it looks like

19   I'm presenting a paper. I guess maybe I am, but I'm

20   really telling you about our research on understanding

21   loan renegotiation. So first let me say I'm speaking

22   today as a researcher and as a concerned citizen and not

23   as a representative of Boston Fed or the Federal Reserve

24   System and that's important right now.

25   Let me start by saying, and I may get fired for

1   this, when we first started in 2005 really worrying

2   about the mortgage crisis, the incipient problems in the

3   mortgage industry, the first response of the Federal

4   Reserve in any consumer protection issue is to put

5   together a brochure.

6   So we did, and it's called "Interest Only

7   Mortgage Payments and Payment Option Arms: Are They For

8   You?" The answer was, no, so it could have been a much

9   shorter brochure, but anyway, the thing is once we

10   realized the brochure wasn't going to be enough, we then

11   started thinking about loan renegotiation, so this was a

12   long time ago.

13   The thing about loan renegotiation is that it's

14   very hard to talk about. You know how if someone asks

15   you what a goatee is, it's very hard for people to

16   explain it without touching their chin. It's very

17   difficult to talk about loan renegotiation without at

18   some point saying, it's a win/win proposition, so I

19   actually googled it.

20   I found this example basically of the

21   conventional wisdom on why loan renegotiation is such a

22   good idea, and this is a quote, "the problem is that

23   foreclosure is costly for both the borrower and the

24   lender. The mortgage holder gains only half of what is

25   lost by the homeowners." The solution, according to

1   this author, was that in the old days, when the mortgage

2   was granted by your local bank, there was a simple

3   solution to this tremendous inefficiency, and the bank

4   forgave part of your mortgage.

5   The problem is unfortunately this win/win

6   solution is not possible today. Your mortgage has been

7   sold and repackaged in an asset backed security pool and

8   sold in tranches with different parties. This comes

9   from an article from the Economist's Voice by Luigi

10   Zingales but you can see versions of this quote, this

11   argument all over the place.

12   There are three things we did in our research on

13   this: The first thing was just to go to the data and

14   measure the number of modifications lenders were

15   actually doing and basically how common was it for

16   lenders to forgive part of your mortgage effectively.

17   The answer is -- and the conventional wisdom was

18   that it was not very common, and in fact that's exactly

19   what we found in the data, and this is the number for

20   private label, which are securitized mortgages. These

21   are loans that are not securitized by the GSCs but

22   securitized by someone else.

23   So what we found was that of loans that became

24   seriously delinquent in the year subsequent to the first

25   serious delinquency, less than 3 percent of private

1   label loans received modifications. So that part of the

2   conventional wisdom is right.

3   What turned out to be wrong was that

4   securitization didn't seem to matter much. If we looked

5   at portfolio loans, which were loans that were held in

6   the portfolio of a bank, the difference was miniscule,

7   and in fact it's insignificant statistically. And this

8   is for modifications which lowered borrower's payments,

9   but in fact the results in a sense are even weaker; in

10   other words, securitization seems to matter less when

11   you look at broader definitions of renegotiations.

12   And the broadest possible definition of

13   renegotiation is to look at the cure rate, which is the

14   probability that a seriously delinquent borrower either

15   becomes current or pays off their mortgage. It captures

16   anything that the servicer might do to help the

17   borrower. Even with this broadest definition, the

18   difference between portfolio and private label loans is

19   small. It's significant for all of the loans.

20   But for the sub samples of the data where we

21   think there's less unobserved heterogeneity, that

22   difference actually goes the wrong way; in other words,

23   the portfolio loans are actually less likely to get any

24   form of renegotiation, and it's important because I'll

25   come back to this, we think most of these cures in the

1   data and the difference that we observe are due to self

2   cures.

3   In other words, they have nothing to do with any

4   action taken by the lender to help the borrower and the

5   reason we say that is because basically this is looking

6   at cure rates. This is the hazard of curing after you

7   first become seriously delinquent and what you see is,

8   this is for portfolio loans, most of the cures occur in

9   the first three months. And in fact the difference

10   between private label and portfolio appears entirely in

11   those first three months.

12   So then the question is: Why do we see so few

13   modifications? And of course there's this logic, which

14   is quite compelling, the logic that Luigi laid out. The

15   logic is foreclosure costs lenders a lot. Lenders

16   typically recover less than half the balance on the loan

17   and wouldn't a concession to the borrower cost less?

18   And the answer is not necessarily and the reason is that

19   what people generally do is to compare renegotiating the

20   mortgage with foreclosing on the borrower, but there is

21   a third possibility, which is to do nothing.

22   It's possible that the borrower will cure

23   without assistance before foreclosure occurs and this is

24   what we call self cure risk.

25   This is a timeline of foreclosure in California,

1   and you can see here that from the moment that the

2   borrower defaults, which is 90 days after the borrower

3   has stopped making payments. If everything goes

4   according to plan, I mean, there are no hiccups, the

5   foreclosure sale occurs 235 days later. So this means

6   between the first missed payment, between even serious

7   delinquency and foreclosure sale, typically in

8   California at least, there's going to be a year.

9   And so the perception is that you're making a

10   decision, I immediately foreclose on you and cease the

11   property or I renegotiate, and that's not the decision

12   you're making. The decision is: Do I renegotiate right

13   now or do I wait and see what happens?

14   So what we show in the model, we have a simple

15   model, we find alpha nought to be the probability of

16   default without a modification and alpha one to be the

17   probability of default with a modification, and

18   basically what we show is you can divide up the sample

19   into three groups.

20   There's the difference between the probability

21   of defaulting without a modification, that's your

22   baseline, and then the amount that you reduce that

23   probability, that's the difference between alpha nought

24   and alpha one. And those are the people for whom

25   renegotiation is effective, and that part of the

1   distribution is where renegotiation is effective.

2   The problem is there are two other groups.

3   There is alpha one. That's all the borrowers who are

4   not going to repay either way and there in general we

5   would say it's a bad thing because basically you're

6   delaying the foreclosure. The house prices are going to

7   fall. The property deteriorates. Right now arguably it

8   might not be so bad because house prices are going up.

9   On the left here, we have self cure risk, which is

10   basically all the borrowers who are going to pay back

11   either way.

12   That's re-default risk. This is self cure risk.

13   Zingales' argument really is just focusing on that

14   center column there, and the problem is we really can't

15   tell these people apart. Those are houses, I don't know

16   if you recognize it, and they all look the same, so all

17   the borrowers come in, and they all say they want a

18   modification, and you can't tell which one of these

19   types they are.

20   So what do firms actually do? Rich Brown is

21   here from the FDIC. This slide is actually from an Indy

22   Mac PowerPoint presentation about doing modifications

23   and it basically replicates what we have in the model.

24   Basically there's cure rates. If you don't modify, then

25   you go along the foreclosure track. There's a cure rate

1   over here. That's the possibility the borrower cures

2   without any assistance and then you have re-default over

3   there on the far right, so this is exactly what lenders

4   do or at least what they say they do.

5   The problem was this argument that was not new

6   to the FDIC, to Rich, but it was new to a lot of

7   reporters who had been covering the story since 2007,

8   people who I had been talking to for years. When we

9   wrote this paper, when this got out there, they thought

10   this was news. They had never had heard of self cure

11   risk.

12   The reason is the proponents of renegotiation

13   focused on the costs of foreclosure and the benefits of

14   renegotiation. They rarely discussed the cost of

15   renegotiation. The Congressional Oversight Panel

16   Report, which made a big push for mass loan

17   modifications, did not mention self cure in 187 pages of

18   detailed discussion of the issue.

19   Papers by Allen White, who's a law professor at

20   Valparaiso University, who has gotten a lot of attention

21   for his papers, never mentioned self cure. And then

22   there's this paper the economists paid attention to by

23   Piskorski, Seru, and Vig, again no discussion in there

24   of self cure risk. It never even occurred to them that

25   it was an issue.

1   So the paper says that lenders don't renegotiate

2   a lot of loans, but actually over the last two years, we

3   saw a huge increase in the number of modifications.

4   This is in logs. You'll see why in just a second, but

5   you can see they went from modifying on a monthly basis

6   5/100ths of 1 percent of the loans up by the end to 1

7   percent. There was a huge increase in the frequency of

8   modifications.

9   What it parallels is a huge decline in the self

10   cure rate, so basically as borrowers became less and

11   less likely to fix their own problems, lenders became

12   more and more willing to assist them, which is exactly

13   what the model would say and in a sense exactly what

14   their own documentation says.

15   Let me just conclude. One of the criticisms of

16   our study is that if you put the numbers into that

17   model, you still get most loans being positive NPV. And

18   let me just illustrate that it is very difficult to

19   figure out what the true self cure probability and the

20   true re-default probability of the borrowers we're

21   looking at are, basically because we aren't doing

22   randomized trials.

23   If modification was a medicine, we wouldn't just

24   go to the data and say, let's look at the people who

25   took the medication and the people who didn't in non

1   experimental data. And the way to see this just as an

2   example, one of the things that people point to all the

3   time is evidence for why modifications are good is they

4   point to different modifications. These are

5   modifications that increase the principle balance.

6   This is the re-default rate for those and they

7   compare it with loans in which the lender reduced the

8   interest rate, and what you see here is the re-default

9   probability. There's a huge difference in re-default

10   probabilities between the interest rate reductions and

11   principal increases.

12   What's the problem with this picture? The

13   problem with this picture is it assumes that the

14   borrowers were all the same at the beginning. In fact,

15   in this very picture, I've just imposed the assumption

16   that they were all delinquent at the time, at the

17   beginning. In fact, it's not true. The guys who got

18   principal increases, 85 percent of them were delinquent,

19   so, in fact, the number who are delinquent a year later

20   is actually lower than before they got the

21   modifications.

22   But if you compare that with the people who got

23   interest rate reductions, in fact, less than 20 percent

24   of them were delinquent when they got the modifications.

25   So, in fact, the treatment effect, if you just took

1   these reduced form estimates and you tried to plug them

2   into the model, what you would see is that the

3   probability that the borrower is delinquent a year after

4   getting a modification is higher than it was before.

5   Obviously there's a huge amount of selection

6   going on here. That means you cannot interpret these

7   numbers as estimated. You can't just plug them into the

8   model which is what people have been doing.

9   Here's the slide you've all been waiting for.

10   DR. ROTHSTEIN: We'll go straight to Rich.

11   DR. BROWN: Thanks. Good morning. I have seven

12   minutes this morning to talk to about what FDIC did at

13   Indy Mac Federal Bank to modify mortgages, so I'll give

14   you a little background. The problem as it first hit

15   was with sub prime mortgages in 2007. It was a problem

16   of affordability. These are people with low credit

17   scores, that's what sub prime is, but a lot of these

18   loans were done at 40 and 50 percent ratios of debt

19   service to income on a monthly basis, and they were

20   usually done on a hybrid basis.

21   They would have a two-year introductory rate of

22   like 6 to 8 percent, not that low, but after the

23   two-year period was up, they would ratchet it up, it was

24   based on LIBOR, but it would frequently go to double

25   digits.

1   So the point was these folks could marginally

2   afford these loans during the intro period, but after

3   the reset, they certainly couldn't afford it. What

4   happened was they had prepayment penalties during the

5   first two-year period and after that prepayment penalty

6   was up and the loan ratcheted up to a higher interest

7   rate, they all scattered. They either repaid,

8   refinanced, got another loan or they defaulted on it.

9   So what we found is among the 2004 vintage of

10   sub prime hybrid loans, after four years, more than 95

11   percent had either defaulted or prepaid. Nobody stayed

12   around and paid the full rate for long.

13   What happened in 2007 is the sub prime market

14   went away. You couldn't get a sub prime loan. You

15   couldn't qualify for any loan because your home was

16   declining in value and so the game was up. Instead of

17   pre paying, what were they doing? They were defaulting.

18   So our Chairman, Sheila Bair, advocated in a

19   series of speeches to freeze that introductory rate at

20   the starter rate. Maybe they could afford it if you

21   don't ratchet it up because the game was up in terms of

22   new credit.

23   And that was the beginning of our forays into

24   interest rate modification. We ended up doing a lot

25   more work looking into some of the legalities, what

1   could be done under these pooling and servicing

2   agreements. It's a contractual basis where these

3   servicers control the loan after its securitized, what

4   is legally available, and what we found was that it was

5   legal under most, maybe 90 percent of the pooling and

6   servicing agreements, to do an interest rate

7   modification.

8   You can change the interest rate if you can show

9   that that's raising the net present value of the pool

10   itself. You typically could not do principal reductions

11   on a loan that stays in the pool and so that's a real

12   limitation there and especially in today's world with

13   underwater mortgages.

14   But in any event, we had a chance to put this

15   into practice ourselves when we became conservator in

16   July 2008 at Indy Mac Federal Bank. It was a

17   $32-billion California thrift. At that time it was the

18   largest failure in the FDIC's history, of course dwarfed

19   since then by the Washington Mutual failure, but we

20   became conservator. We ran Indy Mac from July 2008

21   until early this year when we sold it to OneWest; as

22   part of that, we inherited a $160 billion mortgage

23   servicing portfolio, about 650,000 loans. They were

24   serviced for Indy Mac, loans that were in their

25   portfolio, as well as under pooling and servicing

1   agreements for third parties.

2   So we wanted to put this modification into

3   practice and we came up with something that was very

4   streamlined, a streamlined interest rate modification

5   that would work not just for the loans that Indy Mac

6   owned, but also for the third-party serviced loans.

7   We knew it would work under the pooling and

8   servicing agreements because it was an interest rate mod

9   and we had a pretty straightforward protocol. Basically

10 to qualify, you had to have a debt service ratio to

11 income ratio of more than 40 percent. It had to be

12 unaffordable and you would reduce that debt service, the

13 monthly payment, down to at first a target debt to

14 service income ratio of 38 percent. We eventually

15 reduced that to 31 percent.

16   We did it in three ways. The first thing that

17 you do is lower the interest rate for five years and the

18 floor was 3 percent. And in 70 percent of the cases,

19 that got you to the target debt service income ratio.

20 If that didn't you get all the way there, the next thing

21 you did is extend the term out to 40 years and that got

22 us there for another 21 percent of the cases.

23   The third tool, the third arrow in the quiver

24 was to forebear principle, not forgive because you can't

25 do that for the service loans, but to forebear principal

1   until the loan was repaid, and that got us there in the

2   rest of the cases, to the 31 percent debt service to

3   income ratio.

4   What we found when we got there, of the 650,000

5   loans, about 10 percent were delinquent when we got

6   there. Of those, we found about 40,000 loans that were

7   candidates for modification. That means that the people

8   were still in the home. It was owner occupied. It

9   wasn't in bankruptcy. It wasn't in litigation and

10   hadn't already been modified.

11   So that was our pool to start from and the

12   benefit of what we were doing is you could get there

13   fast. You could automate the process. You could do the

14   analysis off site. So you could send them a letter, run

15   the numbers and send them a letter, we think your

16   payment could be X, and believe me, the response rates

17   on communicating with delinquent borrowers are very low.

18   We got a better response rate by sending these letters,

19   call us back, we want to reduce your payment to this.

20   Now, of course, it worked for the service loans

21   also, which is a big benefit. You didn't need the

22   permission of second lienholders. That was a big

23   benefit and you could automate the documentation. You

24   could go get tax records if they signed a waiver and you

25   could document the income that you needed to make sure

1   that the numbers actually, in fact, worked. But the

2   critical thing was we had to implement a net present

3   value test, as Paul mentioned.

4   We have a fiduciary responsibility to maximize

5   the returns to our receivership assets. We can't just

6   do mods because we think it's a good thing to do. Same

7   thing under the pooling and servicing agreements, we

8   have a legal obligation to maximize the net present

9   value, so our NPV test is just as Paul said. We analyze

10   two strategies: Either you mod or you don't mod. If

11   you don't modify, you have to take into account the cure

12   rate. We assume 15 percent. You have to take into

13   account foreclosure costs, what the loan to value of the

14   loan is, what the discount rate is going to be.

15   Same thing with modification. You have to

16   assume a re-default rate, how many of them are going to

17   come back to you, and we assumed a 40 percent re-default

18   rate at Indy Mac and we assumed the re-default would

19   happen in three months. It would take six months to

20   sell the property. Home prices would fall at an annual

21   rate of 15 percent. That turned out to be about

22   accurate in California for that period.

23   So we did about 22,000 in all at Indy Mac

24   between August of 2008 and July of this year when the

25   last ones came through. How did we do in terms of

1   experience?

2   Well, for the 2008 vintage modifications, the

3   re-defaults are pretty high. We're looking at a 33

4   percent seriously delinquent rate now on the loans that

5   were modified in 2008. Look what's happened though

6   since 2008. California lost 750,000 jobs. Their

7   unemployment rate went from 7.3 to 12.2 during that

8   period, just about the worst economy you can imagine,

9   but we're still under the 40 percent assumption. I

10   think we may get to 40 percent before that program is

11   done. Most of the re-defaults come early, but they're

12   still building up.

13   For the 2009s, the re-default rate so far is 19

14   percent, but those are a newer vintage, and they're also

15   all at the 31 percent debt to income ratio. They're

16   stronger modifications, so we think those will be more

17   durable.

18   We made a proposal late last year to use part of

19   the TARP money when that came about to provide

20   incentives for servicers to do modifications; in other

21   words, could you pay them to do a thousand dollars

22   upfront to do the work? Could you pay them if the

23   borrower re-defaulted to take some of that loss? And we

24   do loss sharing all the time with our bank acquirers, so

25   we talked to the outgoing Bush Administration about it,

1   talked to the incoming Treasury with the New

2   Administration, and eventually I think that idea of

3   using TARP funds to provide incentives to servicers to

4   do a pretty standard modification protocol is what is

5   going to be described to you in a moment about the HAMP

6   Program.

7   Again I think the benefits -- we showed it can

8   be done. It can be done on a pretty large scale. It's

9   not a silver bullet; it doesn't cure all the problems,

10   but by definition, if our assumptions hold, the math

11   works. It enhances the net present value of those

12   portfolios and if we hit the 40 percent re-default rate,

13   assuming the 15 percent cure rate and all the other

14   assumptions, out of the 22,000 mods we did, we kept an

15   extra 10,000 families in their homes, still paying their

16   mortgage every month and not in foreclosure, not as a

17   distress sell.

18   If you ramp up the numbers with HAMP, I think

19   they've done 650 trial mods so far. Again under the

20   same assumptions, you would be looking at keeping

21   300,000 people in their homes, so it can have

22   macroeconomic impact, but it really gets at the

23   affordability problem.

24   I think now we have an underwater problem, a

25   problem of strategic defaults being underwater. This is

1   not as effective in dealing with that problem, but I

2   would say that the NPV test is actually enhanced for

3   underwater loans. You take such a bath in foreclosure

4   on an underwater home. If you can get people to

5   reaffirm and keep paying, the benefits are all that much

6   greater.

7   So I look forward to the other comments on the

8   HAMP program.

9   DR. ROTHSTEIN: Just a quick question on the

10   Indy Mac. There was no taxpayer money or other subsidy

11   being paid to induce the modifications, was there?

12   DR. BROWN: That's right.

13   DR. ROTHSTEIN: So why weren't these people just

14   doing it anyway, if there was no subsidy? What's your

15   explanation for why the market wasn't just having these

16   modifications occur anyway?

17   DR. BROWN: Well again, when we talked about

18   freezing the interest rate on the sub primes at first,

19   there was a lot of resistance in the servicing community

20   in saying, no, that interest rate mark up is ours, we're

21   going to collect that. And we had to convince them, no,

22   you're not going to collect it, they're all going to

23   default or prepay, you're never going to get that reset

24   payment.

25   Again, I think there's a lot of inertia in the

1   servicing community from their main strategy of

2   collecting the checks and going to the contract to

3   trying to switch strategies in a very adverse housing

4   market. They're not very eager to switch strategies.

5   DR. ROTHSTEIN: So it's just some black box of

6   transactions cost at the moment.

7   DR. BROWN: It's a hard to say.

8   DR. ROTHSTEIN: Here come the subsidies.

9   MR. MCARDLE: Yes, there are tax dollars

10   involved with my program, lots and lots and lots of tax

11   dollars.

12   FDIC was a model as we were designing our

13   program, and we were authorized by ESA, which had two

14   stated goals, including preserving home ownership and

15   protecting home values. It explicitly instructed the

16   Treasury Department to create a modification program in

17   Sections 109 and 110.

18   The model we used started with some FDIC work,

19   but we also agree with the NPV. It was the cornerstone

20   of our model, so we wanted to show what everybody sort

21   of knew, that some of these modifications were in the

22   best interest of all parties, and then we also had

23   incentives through the tax dollars to make sure all

24   people's interests were aligned.

25   We use a similar waterfall. The steps are

1   similar. The borrower comes in. We capitalize all the

2   outstanding debt, escrow advances, any out of pocket

3   servicing expenses, but no late fees. We reduce the

4   interest rate, all as low as 2 percent, and that's the

5   first step in the waterfall.

6   We also have the same target rate payment, 31

7   percent, so to qualify for a program, you have to be

8   paying more than 31 percent for your mortgage, and then

9   our goal is to lower you down to 31 percent. We do it

10   through these steps, reducing the interest rate. Then

11   we can extend the term out to 40 years if necessary, and

12   then finally the last step would be deferring a portion

13   of the principal interest free until the loan is paid

14   off, and that would just be the last step in the thing.

15   You can also forgive principal. That's an

16   option you can do at any point in the waterfall, but by

17   and large, that doesn't happen as often as you can

18   imagine.

19   The other thing is this has created sort of a

20   standardized modification process, and we find a lot of

21   the banks are now actually imitating ours, even for the

22   loans that don't qualify for our program, so this has

23   sort of become the new standard modification.

24   One thing also we do is we have a trial period,

25   so once the borrower qualifies, the NPV's positive, they

1   enter a three-month trial period where they see if these

2   new payments work for them. So that's sort of another

3   way to see how this is going to work out and we mostly

4   have trials at this point. As it was mentioned, we have

5   650,000 trials at the current moment.

6   I wanted to talk a little bit about the

7   incentives and why they're there and how they work. By

8   the way as he mentioned, most pooling agreements do not

9   prohibit modifications if you can show it's in the best

10   financial interest to them, and that's the point of the

11   NPV, but we have actual financial incentives as well.

12   If the loan is above 38 percent, the investor

13   takes most of the eating to get it down to 38, but

14   between 38 and 31, we have a cost share payment that we

15   pay to the investors to lower it down to 31 percent.

16   And there also is a $1,500 up-front payment for a

17   successful modification, not a trial, once they go final

18   into a permanent modification.

19   For servicers, who you've probably read a lot

20   about, they sometimes have incentives to go either way,

21   there are other incentives. We have a thousand dollars

22   upfront for a successful modification, one that comes

23   from trial to official. There's also a $500 bonus if

24   it's a loan that isn't yet delinquent because one

25   feature of our program is you can be in imminent

1   default. You can be facing payment shock. You could

2   have lost your job. You can still qualify for this

3   program without going 60 days delinquent.

4   And so there's an extra bonus, but obviously

5   that's something new. We had to sort of sweeten the pot

6   for that, and also there's pay for success for servers,

7   sort of an incentive to keep this borrower going

8   onwards. For three years they can get up to a thousand

9   dollars accruing monthly and paid annually.

10   Now, the borrowers also get a success payment,

11   so they can get up to a thousand dollars a year, which

12   is paid towards their principal balance to help lower

13   it, if they remain current for that year, so it's their

14   incentive to keep this modification going and making it

15   sustainable.

16   So it's sort of a balance. I mean, there's a

17   lot of extra work with this program, with the servicers.

18   The investors obviously have to take a sacrifice, so do

19   all parties, we try to re-distribute the pain a little

20   bit. How much time do I have left?

21   DR. ROTHSTEIN: Take another three minutes, or

22   not. It's up to you.

23   MR. MCARDLE: One of the denial reasons that can

24   happen in our program is the pooling agreement still

25   prohibits the modification. We don't abrogate those

1   contracts, so if there's an outright ban, they are not

2   obligated to take the modification.

3   They are obligated to approach the pooling

4   agreement and try to seek an exception and we're also

5   tracking data, so everyone knows about the Berkeley

6   study. We'll have a pretty big pool of data about

7   exactly which investors prohibit modifications and under

8   what circumstances and we're collecting that now.

9   I guess those are my major points, but I'll

10   leave the rest for questions.

11   DR. ROTHSTEIN: The only thing you didn't say

12   was it's 50 billion.

13   MR. MCARDLE: Yes, we have $50 billion to help,

14   so there's a lot of taxpayer subsidies involved here, I

15   should mention that.

16   DR. ROTHSTEIN: An additional 25 --

17   MR. MCARDLE: 25 goes to the GSCs for their

18   program, which is HARP.

19   DR. ROTHSTEIN: So a total of?

20   MR. MCARDLE: 75 billion. A lot of the HARP

21   money, the 25 billion is for refinancing, and I should

22   also say that our program, it's not the solution for

23   everything. We targeted mostly to sub prime borrowers

24   with higher rates, and that's the population that was

25   originally focused on.

1   Unemployed borrowers with no income, our program

2   doesn't work so well for as the COP report rightly

3   pointed out. Also there are some types of loans that

4   are just impossible to modify and can change into a sort

5   of a standard amortizing project. If you have a pay

6   option ARM where you're paying only a tiny bit of the

7   payment each month, it's very hard to restructure those

8   loans into something sustainable, which is our goal.

9   Our goal is two things: To get people in these

10 modifications, but also to keep them there, and we have

11 made some progress. I'll cite the COP report that said

12 on average our interest rates have dropped from over 7

13 percent to 2 percent for the trials we've made.

14   The front end ratios have dropped from 47

15 percent to 31 percent, so they were paying on average --

16 actually that's the median, 47 percent for their debt

17 ratio, and there were drops to 31 percent. And their

18 average payment dropped by a third, so from $1,500

19 dropped $600 each month, so that's the one thing they

20 cited, that we have created affordable payments for

21 these borrowers and giving them a chance to maintain

22 their homes.

23   This program is targeted toward the borrower who

24 wants to stay in their home. This is a long-term

25 commitment on both parts, so it's not targeted to

1   underwater mortgages; it's not primarily designed to

2   address that. It's primarily designed to keep the

3   borrower who wants to stay there and make a commitment

4   to their home.

5   And I should also mention one more feature about

6   our program, so the rate goes down to 2 percent, and

7   after the five-year program ends, it goes up, but it

8   goes up only to market rate. So you had a 9 percent sub

9   prime loan, your loan is now a permanently fixed rate

10   mortgage at whatever the market rate is at the time of

11   the official modification, and it goes up only 1 percent

12   a year after the five-year period, so you have a chance

13   to adjust to the new rate, and then it's capped.

14   So this is a long-term sustainable product,

15   especially if you had a higher interest rate loan to

16   come in.

17   DR. ROTHSTEIN: A lot of these modifications

18   that are being drawn under HAMP though will certainly be

19   for people whose loans are underwater?

20   MR. MCARDLE: Yes, and there's nothing about the

21   program that discourages it. It's just when you're

22   deeply underwater, your incentives change. There might

23   be a point where you decide this isn't working for you.

24   DR. ROTHSTEIN: Right, but this is an important

25   point in Paul's work though, which is that economists

1   might tend to say, well, if you're underwater at all,

2   there's some strong incentive to walk away, but the data

3   say that that's not what people do.

4   MR. MCARDLE: No.

5   DR. ROTHSTEIN: There are some other reasons you

6   might expect some of these underwater people to stay in

7   their homes when you really look at the accounting.

8   MR. MCARDLE: There are a lot of people

9   underwater who are staying put.

10   DR. ROTHSTEIN: That's right.

11   MS. SULLIVAN: Good morning, everyone. It's

12   very nice to be here today to talk to you about the

13   consumer protection angle.

14   As you can probably anticipate, much of the

15   perspective we come at this issue of dealing with a

16   secondary market that has a -- a fairly robust secondary

17   market that has developed in response to the

18   introduction of government programs as well as the

19   mortgage crisis itself.

20   From the consumer's perspective, there's been an

21   increased awareness of the ability to potentially modify

22   the loan. Consumers are facing difficulty in making

23   their payments and it's been introduced into the public

24   consciousness that there may be an ability to approach

25   your lender and to obtain a loan modification. And that

1 has created some issues, from the consumer protection

2 standpoint.

3 We've seen a secondary market of companies that

4 offer services to deal with the lender on behalf of the

5 consumer. Here is a general timeline.

6 The government programs have been introduced and

7 we have seen a corresponding increased awareness in

8 consumers about the ability to seek relief. First in

9 August 2008 there was the Hope For Homeowners Program,

10 and that was primarily a refinancing program. I think

11 it only had marginal success and very few, if any,

12 borrowers derived benefit from that.

13 In October 2008, in California, in one of the

14 hot spots of activity for the foreclosure crisis, the

15 California AD reached a multi state predatory lending

16 settlement with Countrywide, which as you can imagine, a

17 large number of the sub prime loans and the pay option

18 ARMs and ARMs generally were Countrywide loans, now

19 acquired by Bank of America. Basically as part of

20 settling their predatory lending case, Countrywide

21 agreed to modify certain qualifying loans.

22 Finally, more recently in March 2008, as we're

23 all aware, the Making Home Affordable Program was

24 announced. And we've seen an uptake in activity

25 corresponding with this timeline.

1   This is a very basic graph, but essentially from

2   a consumer protection standpoint the ideal line of

3   communication is you have your incentive programs,

4   Making Home Affordable and others, the lender, the

5   servicer and then the home owner. We would like to

6   encourage communication along this line.

7   There are also nonprofit borrower assistance

8   programs free of charge available to consumers to

9   facilitate communications with the lender, but the

10   problem area that we've seen is this for profit mortgage

11   assistance and they are diverting consumers away from

12   these programs. They're paying money that they would

13   otherwise not need to pay and more importantly and what

14   our law enforcement addresses is the promises that these

15   companies are making often have no basis. They're

16   making guarantees to consumers essentially that they can

17   obtain a loan modification and stay in their homes and

18   that's not always the case.

19   We've brought many law enforcement actions which

20   indicate how important a problem this is. We've brought

21   22 cases since early 2008. It's a larger number of

22   cases than normal and there will be more by the end of

23   the year.

24   In April 2009, we sent warning letters to 70

25   companies that were advertising mortgage loan

1   modification services. We've also engaged in consumer

2   education; we are in the midst of a rulemaking process

3   and we've partnered with Treasury, HUD, the states and

4   other agencies to figure out the best way to address

5   this problem.

6   As far as our law enforcement cases, the trend

7   that we've seen is initially these intermediary

8   companies were marketing short-term, high cost loans to

9   homeowners facing foreclosure. The loans were supposed

10   to be a bridge to allow homeowners to get through a

11   tough spot. Later in that year, companies began making

12   promises that they would be able to obtain mortgage loan

13   workouts for consumers that would prevent foreclosure.

14   And this is the standard model. They would

15   require up-front payment of large fees. This trend has

16   continued in 2009. We've brought 17 cases just this

17   year. For-profit mortgage loan modification and other

18   mortgage assistance services have simply exploded.

19   Most of them ask large advanced fees and they

20   make guarantees that they'll be able to obtain a

21   mortgage loan modification that will reduce the amount

22   of the monthly payment for consumers. Another trend

23   that we're disturbed by is that attorney participation

24   to circumvent some state laws has increased greatly.

25   And many of our law enforcement actions involve

1 attorneys.

2   Some of the techniques that relate to the Making

3 Home Affordable Program and other programs that are

4 available to consumers are we've found that many of

5 these companies are masquerading as being affiliated

6 with the government or are, in fact, the servicers or

7 lenders or even in some case nonprofit housing

8 counseling services.

9   Another issue with these for-profit mortgage

10 assistance counseling services is they tie up the home

11 owners for several months. They will often represent

12 that it will be several months before they'll receive an

13 answer from the lender or servicers, so consumers are

14 held in abeyance, and this is problematic because they

15 should be going directly to their lenders and taking

16 steps to address their situation.

17   Another unfortunate technique that is used is

18 they're specifically advising homeowners to stop making

19 mortgage payments. They represent to homeowners that

20 this will make it more likely that at the end of the day

21 they'll obtain a mortgage loan modification. They also

22 tell consumers to stop talking to their lenders and

23 interacting with their lenders, and as you can imagine,

24 this escalates to problems for consumers.

25   Another tactic that they use is they tout

1   special skills and connections in the mortgage industry

2   to negotiate mortgage loan modifications. This is to

3   get around the fact that there are many services that

4   are available free of charge, and consumers can

5   negotiate with their lender directly.

6   DR. ROTHSTEIN: Is that it?

7   MS. SULLIVAN: I would just like to talk or to

8   touch upon the rulemaking. We're engaged in it, and

9   there's not much that I can say, but through a rule, we

10   would like to address the problem globally, and as

11   you've seen, some of the issues arise from the type of

12   representations and whether there's certain information

13   that should be disclosed to consumers that would correct

14   the possibility that they would be deceived by these

15   types of for profit service companies.

16   One of the issues under consideration is whether

17   there would be a need to address the collection of fees

18   in advance of performing services. As I indicated,

19   deception is pervasive. Based on our law enforcement,

20   we've seen a large number of companies that are making

21   outright deceptive claims about the services.

22   And once the consumer agrees to purchase the

23   services and pays the upfront fees, again they are tied

24   up for a certain period of time, so the question arise

25   whether we need to prohibit the collection of advanced

1   fees until the consumer actually receives the result

2   that they're expecting. That's one of the issues under

3   consideration.

4   DR. ROTHSTEIN: Thank you. Thank you very much.

5   So what we've had is we've gone from a completely

6   unstructured kind of negotiation, traditionally you go

7   in and you miss some payments and maybe you ask the

8   lender or services if they can do something for you.

9   If you noticed on Paul's charts, one of the

10 things that they might do for you is increase the

11 principal. They wouldn't reduce the principal. You

12 would miss payments, the missed payments would be added

13 to the principal, and then you would have a higher new

14 payment. This is forbearance. If you could make those

15 payments, you were fine, and if not, you lose your home,

16 and that was the end of the story.

17   Now we have this much more structured

18 negotiation, going from the FDIC's development of its

19 product which is called the Standard Waterfall in the

20 literature, to the adoption of it by the Treasury. What

21 the Treasury is adding are a number of financial

22 incentives into that negotiation process.

23   Regarding unintended consequences, one of the

24 major ones is whenever consumers are directly approached

25 by a policy that might be able to help them, scam

1   artists come along and say, let us be your guide on this

2   journey to get your benefit. It seems to always happen,

3   and it certainly has happened in the loan modification

4   process.

5   We've got just a couple minutes. I had some

6   questions, but why don't we see if anyone in the

7   audience wants to ask a question.

8   Yes?

9   DR. LEWIS: My name is Greg Lewis. I guess my

10   question is about the use of incentives. That seemed an

11   interesting twist on the program. I first wanted to

12   know why we thought it was important to add incentives

13   to the mix, and second, the trial periods that came

14   along with that, is that sort of a screening device? I

15   don't want to handout bonuses, I want to first screen

16   someone first.

17   MR. MCARDLE: Yeah, the second part is right.

18   No incentives are paid until after the trial, so the

19   trial period is a way to wean out those who are probably

20   going to fail, not just fail but just not be able

21   to make the payment, even the new payment.

22   And as to the first part, servicers get paid

23   regardless. They get paid even if the home goes to

24   foreclosure. So you had to change that incentive

25   structure somewhat to make this worthwhile for them and

1   also give them an investment in making sure that the

2   borrower succeeds.

3   The investor obviously is taking a hit and needs

4   an investment, obviously a subsidy as well. And

5   finally, we wanted to really incentivize the borrower to

6   perform well. It's not like this is cash that goes to

7   him. It goes toward his unpaid principal balance, which

8   might actually get larger, depending where he ends in

9   the waterfall.

10   So it creates a long-term incentive for him, at

11   least for five years, to make those payments regularly,

12   to stay on this program, to have a successful,

13   sustainable modification.

14   DR. BROWN: If I can just add: Our original

15   idea to use with the HAMP money to essentially tilt the

16   NPV test in favor of modification was based on the idea

17   that there are externalities. There are macroeconomic

18   consequences. The fundamental source of uncertainty in

19   our economy was falling home prices, distressed sales.

20   If we could just take a chunk out of that, we could

21   actually have some social benefits. That was the

22   original public policy rationale for tilting the NPV

23   test.

24   MR. MCARDLE: Especially the inventors

25   incentives go right into the NPV model and tilt it, make

1   it more likely that a modification is going to occur.

2   We even have a special set of incentives for our areas

3   that are suffering severe price declines called home

4   price protection; if a property is located someplace

5   where the price is dropping rapidly, the investor is

6   going to say, cut my losses, I want out now. This gives

7   them some added incentive to make a modification in

8   those areas.

9   DR. ROTHSTEIN: All right. Yes? Joe?

10   DR. FARRELL: Joe Farrell with the Bureau of

11   Economics. So it seems as if there should be pretty

12   strong incentives to really negotiate if the lender has

13   reason to believe that the alternative is default or

14   certainly if it's going down the path towards

15   foreclosure which is no fun for anyone.

16   But I would guess that a lot of resistance to

17   renegotiation might come from the fact that it's still

18   true, I take it, that most loans don't go into default.

19   So the inframarginal, non defaulters are in some sense a

20   disincentive to renegotiation for those loans that are

21   in trouble.

22   A natural way to try to address this would be to

23   try to predict which loans are at high risk and which

24   loans are not at high risk of going into default. Paul

25   mentioned in passing earlier that being underwater is

1   perhaps surprisingly not a very good predictor. What

2   are the good predictors and how good or mediocre are

3   they?

4   DR. WILLEN: Let me take this one. The negative

5   equity thing is widely misinterpreted and misunderstood,

6   even by some very distinguished economists. Negative

7   equity is, in theory, a necessary condition for default.

8   Nobody defaults when they have positive equity.

9   I don't need the microphone. I'm really loud,

10   you may have noticed and literally, not just

11   figuratively.

12   So the negative equity is a necessary condition.

13   Very few people default when they have positive equity,

14   because they can sell the house. It's a dominant

15   strategy to sell the house rather than to go into

16   foreclosure because you can sell it profitability.

17   So having negative equity is necessary. The

18   problem is that what has been wildly misinterpreted is

19   that it's not sufficient. So nobody who has positive

20   equity defaults and most people who have negative equity

21   don't default either, so the problem is that we have a

22   lot of things that can tell us which group is more

23   likely to default. But it's the famous I know half of

24   the money is spent in advertising and is wasted.

25   I know 20 percent of the borrowers in a given

1   pool are going to default. I just don't know which 20

2   percent, and if I give assistance and I offer assistance

3   to those borrowers, all hundred percent of them are

4   going to come forward. That's the problem, and that has

5   bedeviled loan modification all along right now.

6   People say, well, we know from that the

7   probability of self cure after 90 days is very small.

8   The problem is once you announce that, all right, I'm

9   going to wait until 90 days before I modify loans, then

10   you get the scam -- they're not scam artists. They come

11   along and they say, miss three payments and you'll

12   qualify for a modification.

13   DR. BROWN: Yet there are two conditions. One

14   for the Indy Mac program was you need to be 60 days past

15   due, but also you had to have a debt service to income

16   ratio of at least 40 percent, so it was based on ability

17   to pay. It's much easier to document than willingness

18   to repay, so that's another strength of the program.

19   DR. WILLEN: Let me just say one last thing.

20   The problem is there is no scientific evidence. The

21   difference between a 20 percent debt to income ratio and

22   a 15 percent debt to income ratio, when you model this,

23   has a tiny, tiny impact on default hazards. Just to

24   give an example of this, in the automated underwriting

25   programs that Fannie Mae and Freddie Mac use, the models

1   said 90 percent debt to income was okay, and so they

2   just put in an arbitrary rule that they wouldn't approve

3   a loan above 50 percent.

4   DR. ROTHSTEIN: Thank you very much. We do need

5   to end. Maybe we'll start again in ten minutes instead

6   of fifteen, and we'll get back a little closer to

7   schedule. Thank you very much, everyone.

8   (Applause.)

9   (Whereupon, a brief recess was taken.)

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1   PAPER SESSION ONE: Competition and Innovation

2   SCOTT STERN, Northwestern University-Kellogg, Chairman

3   CHRISTOS GENAKOS, University of Cambridge, "Leveraging

4   Monopoly Power by Limiting Inter-Operability: Theory

5   and Evidence from Computer Markets," Presenter

6   PAI-LING YIN, Massachusetts Institute of Technology

7   Sloan, Discussant

8   JACOB GRAMLICH, Georgetown University, "Gas Prices, Fuel

9   Efficiency, and Endogenous Product Choice in the U.S.

10   Automobile Industry," Presenter

11   MATTHEW CHESNES, FTC, Discussant

12   JOHANNES VAN BIESEBROECK, Katholieke Universiteit

13   Leuven, "Market Structure and Innovation: A Dynamic

14   Analysis of the Global Automobile Industry," Presenter

15   ADAM COPELAND, Federal Reserve Bank of New York,

16   Discussant

17

18   DR. STERN: Okay. So we are delighted to start

19   with our first paper session, which is kind of rough and

20   ready titled "Competition and Innovation," though I

21   think the topics here are pretty broad. What we're

22   going to do is start off with a paper by Christos

23   Genakos from Cambridge and a variety of distinguished

24   other coauthors, and what did we say, how long do they

25   get, 20 minutes? Okay, 20 minutes, done, and then

1   there's going to be time for a discussant.

2   DR. GENAKOS: Thank you very much. This is

3   ongoing work, as you can see, and it's still a work in

4   progress, so comments are more than welcome.

5   So what I'm going to be talking about is

6   leverage but of a different kind. So I'm going to be

7   talking about the basic question of: When will the

8   monopolist extend market power into a complementary

9   market by reducing compatibility? This is going to be

10   very interesting of course in the market that I'm going

11   to be analyzing, which is the software market, but it's

12   also obviously very interesting in many network

13   industries, like the telecommunication industry and so

14   on.

15   This is a big policy issue. The underlying case

16   that I'm going to be talking about resulted in the

17   biggest fine in EU, the biggest fine for a user of

18   monopoly power, of the order of 500 million Euros. But

19   I think it's also interesting from an academic

20   perspective in the sense that foreclosure theory has not

21   been merged with empirics, so what we're going to try to

22   do is to merge a theory of foreclosure together and take

23   this field to the data.

24   Of course you always have to answer the Chicago

25   critic, which is: Is there a problem to begin with? So

1   let me give you the basic idea in a very basic slide.

2   So assume you have two markets. Assume you have the

3   monopoly market. I'm going to be talking about

4   Microsoft in the PC operating system market as the

5   monopoly market and you have also the complementary

6   market that is competitive so my example is going to be

7   the servicer operating system market.

8   So Chicago economists in the early '50s and '60s

9   made the following very basic argument: If you have a

10   monopolist here competing in a complementary market,

11   this monopolist has no incentive whatsoever to try to

12   mess with a competitive market. Why is that? Because

13   he can extract all the surplus through his monopoly

14   market, so he can extract the full surplus by just being

15   a monopolist in its monopoly market.

16   So following this argument, in fact this

17   argument can be made even stronger. So if you have

18   product differentiation here, the monopolist welcomes

19   this product differentiation because it's only going to

20   increase the profits that he's making in this market.

21   So following this argument, there was a lot of

22   literature trying to come up with efficiency reasons for

23   these sort of behavior, foreclosure behavior. On the

24   other hand, much more recently there's a large stream of

25   theoretical research, again let me quote a couple of

1   names, Whinston and Bernheim and Whinston in '98,

2   Farrell and Katz in 2000 and Carlton and Waldman in 2002

3   in very well specified models show that foreclosure

4   indeed can arise as an equilibrium behavior.

5   In other words, if you look at the long run, and

6   if you look at a very simple model, a two-period model,

7   it might be the case that a monopolist is doing

8   something that is unprofitable in the first period, but

9   then is doing that in order to monopolize that market,

10   or to exclude competitors in the second period, and that

11   arises through a dynamic mechanism like learning by

12   doing or like investment and so on.

13   We do something completely different. We

14   propose a foreclosure theory that is based on short run

15   incentives, so we see our approach as complementary to

16   the current literature, the theoretical literature. And

17   the reason why we emphasize the short run incentives is

18   both because we think that there are relevant short run

19   incentives in this market, and also because we want to

20   take our model to the data, so the crux of our model is

21   as follows.

22   The basic Chicago argument assumes that the

23   monopolist can extract everything from the monopoly

24   market. As soon as you have an inability of the

25   monopolist to extract a full surplus because they're

1   heterogeneous consumers and he cannot perfectly price

2   discriminate, for example, all due to arbitrage, due to

3   many reasons, then this leaves surplus on the table.

4   Leaving surplus on the table means that it

5   creates incentives for the monopolist to try to enter,

6   to try to mess with the complementary market in order to

7   link these two products and extract a biggest surplus,

8   so that's the core of what we are doing.

9   Is there a truth or a little bit of truth in the

10   real case? This is an email by Bill Gates that was

11   presented in court, so: "What we're trying to do is to

12   use our server control to do new protocols and lock out

13   Sun and Oracle specifically . . . the symmetry that we

14   have between the client operating system and the server

15   operating system is a huge advantage for us."

16   Obviously this can be just cheap talk, right?

17   But what's amazing is the market outcome. So what you

18   can see here is the Microsoft market in the server

19   operating system, and it started around 20 percent at

20   the beginning of '96, and by 2001, it had risen to

21   something like 60 percent, so a really huge increase in

22   the market share.

23   So what we're going to do in this paper is

24   analyze theoretically and empirically the incentives of

25   the monopolist to leverage a complementary market by

1   degrading interoperability. And we do that in three

2   simple steps. So in the first step we just present the

3   basic mechanism with a simple model.

4   In the second step we make the model a little

5   bit more complicated by adding differentiated products

6   and heterogeneous consumers and then we take this to the

7   data by having a structural model of differentiated

8   goods and complementary markets. Again we do that in

9   order to emphasize the short run incentives. There are

10   always going to be also long run incentives.

11   Particularly in this market, there are very strong

12   longer incentives, but we want to take our model to the

13   data.

14   Why do we care? Well, it's kind of the first

15   attempt to merge the theory with the empirics, so I

16   think it's interesting for public policy but also for

17   research. Also I think inherently the two markets, the

18   PC and the server markets, are very interesting markets

19   because they form the backbone of what we call the new

20   economy, or they are essentially inputs for many other

21   industries.

22   And the results that we get, the kind of

23   incentives that we have, are also relevant for other

24   complementary methods. So Microsoft has been accused of

25   all sorts of things, for these sort of behaviors in

1   other markets like the web based application or PDAs and

2   so on, so forth.

3   Finally I think there is some added value

4   academically in the sense that what we saw empirically

5   is that we have a model, I can sell it as BLP, Berry,

6   Levinsohn and Pakes model, a structural demonstrative

7   model, but for complementary markets, so I think there

8   is some added value to that in the sense that this sort

9   of structure can be used in other industries as well.

10   All right. Let me give you briefly the idea

11   behind the simple model. So the simple model assumes

12   that there's a monopolist. The monopolist is always

13   going to be the PC operating system firm facing two

14   customer segments with different elasticities, so think

15   of the two customer segments as large businesses and

16   small businesses, and we're going to assume that these

17   two different customer segments have different

18   elasticities. So the large businesses are more

19   inelastic in terms of their demand for PCs.

20   We're also going to assume that the large

21   businesses are more likely to buy servers, so they have

22   a more inelastic demand for PCs, but they're also more

23   likely to buy servers.

24   These two components give us that if the

25   monopolist can perfectly price discriminate, then we are

1 back in the Chicago world in the sense that we are back

2 in the real world where there are no incentives to mess

3 up the complementary market. But as soon as

4 this perfect price discrimination argument breaks, due

5 to arbitrage, due to any reason, then the monopolist can

6 restore this price discrimination ability by trying to

7 monopolize the complementary market.

8   So in the simplest case where, for example,

9 Microsoft's quality of the operating system is better

10 than all the rivals, this just restores the price

11 discrimination ability of Microsoft. So the welfare

12 effects of that are not clear apparently.

13   On the other hand, if the rivals are better,

14 then our little model shows that Microsoft can have all

15 the incentives in the world to exclude arbitrarily

16 better rivals, and that has very clear welfare

17 implications. So this is a simple model in the sense

18 that there is not product differentiation, so the more

19 general model has product differentiation and we're

20 going to assume that each buyer decides either on the

21 bundle, which in this market is called a work group, so

22 a server with W PCs, a PC or nothing. And we're going

23 to allow W to be heterogeneous in the population of the

24 world, so we're also going to allow for heterogeneous

25 preference for all the other groups.

1   So let me just give you a sense of the utility

2   that we're using. It looks very complicated, but I

3   think it's very simple. It follows all the recent

4   literature in differentiated goods. So the consumer has

5   a preference for the bundle, JK, J denotes the PCs, K

6   denotes the servers.

7   So the consumer "I" has a preference for the

8   bundle, and that is a function of the PC characteristics

9   and some parameters. Of the server characteristics on

10 some parameters, the prices of the two and some

11 unobserved brand specific characteristics, as well as

12 idiosyncratic error, so you buy the bundle of the

13 characteristics. That's the idea.

14   The only different thing is that we are adding

15 this alpha parameter, which you can think of it as a

16 matrix or as just this color that denotes how well the

17 rival server operating systems interoperate with the PC.

18 So for the case of Microsoft, we're going to assume that

19 this color is one, so it's perfect interoperability.

20 For everyone else, it's going to be something less than

21 one.

22   We are interested in the profits for the

23 monopolist, so this is the monopolist of the software.

24 There are some choices that we had to make at this

25 point. Here is the profit margin from the PC, so this

1   is price and this is marginal cost times the quantity of

2   PCs, and this is the margin on the server side.

3   So we do not observe the margins, which is the

4   usual problem in structural IO. What we do observe is

5   prices of PCs and servers, so we're going to infer the

6   margins through our demand estimation. The way we model

7   the monopolist is as if the price of software is just

8   added to the price of hardware. In other words, the

9   software producers and the hardware producers set price

10   simultaneously. If that wasn't the case, we would need

11   to model the strategic interaction.

12   It becomes very complicated we think with no

13   added value because we're going to assume that the

14   software producers and the hardware producers act

15   simultaneously. In that world, we can focus on our

16   monopolist in the software market, so the monopolists

17   are recognizing the joint profits from the PC and the

18   server.

19   The incentive is to degrade, so when you

20   differentiate these profit functions with respect to

21   alpha, which is the interoperability parameters, it

22   comes from a trade off. It is a very basic trade off in

23   the sense that the more market share you shift from the

24   PC side, the higher is going to be your server profits,

25   but on the other hand, you are losing PC sales, so let

1   me make this more clear.

2   So when you take the derivative, you arrive at

3   this basic inequality, so this is the server margin

4   denominator, and this is the PC margin. We call this

5   the relative margin effect and this is the effect on

6   sales of PCs of degrading interoperability and this is

7   the effect on servers by degrading interoperability. So

8   this is the relative outward effect, how much demand

9   changes as you change the interoperability.

10   So the idea behind this is very simple, right?

11 The higher your margin in the server, the more you're

12 going to gain by shifting sales from your competitors to

13 your own server operating system market. On the other

14 hand, by degrading the interoperability of your rivals,

15 some of the consumers that were buying your rival's

16 servers, are not going to buy your PCs anymore. So that

17 costs you because you're going to lose some PC sales.

18 The fewer the PC sales, the smaller is going to be the

19 relative output effect.

20   So our paper is about to test this basic

21 inequality, the inequality that says that you're going

22 to gain more by shifting sales to your servers, and

23 you're going to lose by losing sales from the PC side.

24   This is just repeating what I just said, so the

25 third step is to take this to the data. Because of our

1   structure, we can estimate the relative margin basically

2   by estimating demands elasticities for the PCs and

3   servers. So we formulate the model where it's a

4   structural model differentiated oligoplastic market for

5   complementary robust, and we can estimate the relative

6   output in one goal in a sense through our model.

7   So that's how we do it. Again very quickly, the

8   structure of the model is very similar to the basic BLP

9   model, so this is the mean utility for PCs, and this is

10   the difference, the individual differences from the mean

11   utility for PCs. This is the mean utility for servers,

12   and this is the individual differences from this mean

13   utility, which depends on the characteristics and an

14   unobserved product characteristic as well as the random

15   coefficients.

16   So what is different is that our consumer has a

17   preference for the bundle, so that's what we model here.

18   Consumers choose the highest utility because our theory

19   dictates that these two products are compliments, right?

20   Somebody might say, do you need to impose that? In

21   fact, we're going to estimate two alternative models,

22   one in which what we call strong complementarity where

23   we assume that everybody thinks of PCs and servers as

24   strong compliments, and another that we call frequent

25   complementarity that we allow the data to determine the

1   complementarity or the substitutability. This is in

2   line with recent work by Genakos and Song and

3   Chintagunta.

4   So data that uses PC and ID PC and server data,

5   and we go through the painful process of matching this

6   with the characteristics from all sorts of sources, so

7   we have a relatively large cross-section of PCs and

8   servers. We don't have that much of a time series. We

9   have about 21 quarters.

10   The estimation algorithm looks very much like

11   the BLP algorithm that says given some starting values

12   of non-linear parameters and the calculated brand market

13   shares, do the contractual mapping. Now, the only

14   unique thing is because of the complementarity, we need

15   to compute this mean utility for each product category

16   and then do the same for the other category, conditional

17   on the mean utility of the other's complementarity.

18   Otherwise it's exactly like the BLP estimation

19   algorithm.

20   Results, let me not show you any coefficients.

21   Let me show you the results. We tried to quantify you

22   remember the relative margin and the relative output so

23   this is a plot of the two models for our sample period.

24   What do we observe?

25   First of all, the red line is the relative

1   margin, so the fact that it's positive means that the

2   server margin is higher than the PC margin, which

3   confirms our prior thoughts about this market. Server

4   margins are way larger than PC margins.

5   On the other hand, the relative output is also

6   positive, which means of course there is a real cost of

7   Microsoft degrading the interoperability of everybody

8   else because it loses PC sales. So if you look at the

9   graph, what you see is that at the beginning of the

10   period, there's a clear dominance of the relative output

11   to relative margin.

12   That means Microsoft has no incentives

13   whatsoever to degrade interoperability, but these two

14   lines follow opposite trends. So the relative margin

15   steadily increases and the relative output steadily

16   decreases. By the end of the period, there is the

17   reverse order, so the relative margin is much higher

18   than the relative output, which indicates that Microsoft

19   really had strong incentives to degrade interoperability

20   by the end of the period.

21   What's also very interesting is that the key

22   point of divergence in these two lines is around the

23   beginning of 2000, which coincides with the release of

24   Windows 2000, which we know from the court case, had the

25   most difficulties. Rival server operating systems had

1   the most difficulties connecting this with a PC

2   operating system.

3   This is from our baseline model. We do it in

4   terms of robustness, in terms of the samples of

5   consumers, different assumptions, potential market size,

6   blah, blah, blah.

7   Is this model driven? That is our last

8   question. So we estimate two alternative models, right,

9   so we want to see how model specific is this result, so

10   we estimate both a more restrictive model, where we

11   assume that consumers buy only the bundle or nothing or

12   another one is what we call the frequent

13   complementarity, where it allows the data to estimate

14   the complementarity or the substitutability between the

15   two segments.

16   What we find: This is the result from the

17   strong complementarity case, so the button is almost the

18   same as before in the sense that relative

19   output dominates relative margin. So there are no

20   incentives at the beginning of the period, very clear

21   incentives at the end of the period, and now the 2000

22   event plays an even bigger role.

23   With the frequent complementarity, results are

24   much more mixed. Let me just say, because I'm not

25   showing you these here, that the estimate of the

1   parameter that controls the complementarity is positive,

2   meaning that the data tells us that the two markets are

3   indeed complementarity, so that's a verification of our

4   intuition.

5   On the other hand, the two results are a little

6   bit more mixed at the beginning, but again there's a

7   clear positive outcome at the beginning meaning again

8   that Microsoft had these incentives at the end.

9   So we model these monopolist behavior to try to

10   leverage a complementary market. We have explicit

11   conditions and we test these predictions. That's the

12   whole point of the paper and we think that we find

13   robust evidence that these incentives were there, and

14   they go stronger over time.

15   Thank you very much for your time.

16   DR. STERN: And our discussant is Pai-Ling from

17   MIT.

18   DR. YIN: Thank you. Yes, here I am. So thank

19   you very much for inviting me to discuss this paper. I

20   think it's a really nice paper and it fits in with what

21   I've seen this morning. I found the conference already

22   to be very interesting and relevant to a lot of issues

23   that we have to deal with today. I think this paper

24   fits right in with that in the sense that Christos and

25   his coauthors come up with a very robust and show a very

1   robust incentive for monopoly firms who leverage their

2   power into a complementary product via interoperability

3   degradation.

4   One thing they don't emphasize in this paper,

5   but hopefully they will in future papers, is that

6   there's also part of their theoretical model that shows

7   that if the possibility of this complementarity between

8   the monopoly firm and their complementary market and

9   this ability to degrade it so interoperability is not

10   taken into account, then you might actually overestimate

11   margins on monopoly products. So that might be a more

12   general statement about how we think about defining

13   markets when we're trying to estimate markups.

14   Now, if this was a theoretical paper and it just

15   stopped there, then my discussion would be over because

16   I'm not a theorist, so I would just say you've convinced

17   me of this model and that this result would occur and

18   that would be the end of it. But I really applaud the

19   authors because they go beyond just making a theoretical

20   contribution, and they say, okay, well, does this

21   actually matter in a market that we care about, and I

22   think this really brings us to the fact that this is a

23   very relevant paper.

24   So they estimate in a real life, timely setting

25   the competition between Microsoft and the server market,

1   and I would say that no good deed goes unpunished. And

2   so it's along the empirical implementation that I'm

3   going to give a few comments about where I think they

4   might be able to make some improvements. And more

5   importantly, where us as readers might be able to make

6   some improvements, as well because I think the

7   exposition is so easy to follow in this paper that it's

8   really something I encourage people to read. It

9   actually could be implemented, plus Chris generously

10   answered all my questions before this discussion, and he

11   shared his data before this discussion so he might be

12   willing to also answer any questions that you had after

13   your paper if you want to try to implement the result.

14   One thing I will say right now is along the

15   lines of emphasizing this extra contribution, since they

16   do actually bring the model to the data, you might be

17   able to actually give some estimates about what would be

18   the error we would be making if we didn't take this into

19   account versus you've already got the results where we

20   do take this idea of interoperability degradation into

21   account, so that might be an interesting counterfactual

22   to create.

23   So why did I ask Chris for the extra data?

24   Well, one of the things that I'm always careful about is

25   that when we look at market shares, I always wonder: Is

1   the shift in market shares due to market share stealing

2   or is it due to an increase in market share? And, in

3   fact, for all of my comments, I really am convinced of

4   the result, and I think that the interoperability

5   degradation issue still goes through in this market.

6   I think one of the interesting things that you

7   have to think about is notice that the market share of

8   Microsoft, which is not being shown, but it's the big

9   dark blue at the bottom, it's actually increasing, in

10   part because they're stealing market share from netware,

11   but also in part because clearly there's just an

12   explosion in demand in the server market over this time.

13   So one thing we just want to be careful of is:

14   Is this all just market share being taken away because

15   of diminishing interoperability, or are there also some

16   other factors about demand that might be driving a

17   specific preference for Microsoft? And in that case,

18   maybe there's some flexibility on the parameters that

19   you estimate, not just over heterogeneous consumers over

20   the whole time period, but could you split between the

21   heterogeneity of consumers in the early period versus

22   something about the consumers and their heterogeneity

23   and their preferences that is changing later on in that

24   period that also explains why there's just a huge

25   increase in demand, period, for servers?

1   The second area that I would want to make some

2   comments on is about this interoperability coefficient

3   alpha. This is the key thing that we want to deal with

4   and we want to estimate in this model. Let me say, in

5   full disclosure, that Christos and his authors have

6   actually addressed a lot of the things that I'm going to

7   suggest in this slide. And the problem is it's just

8   really hard to estimate these coefficients in general,

9   and especially given that they have a limited time

10   period.

11   But if you're out there thinking about a

12   different data set, maybe you can take some of these

13   suggestions and think about. If you could do things

14   with a little more flexibility, you might actually get

15   some precise estimates. So just to remind you we're

16   going to specify the coefficients that are actually

17   going to estimate this alpha, this interoperability

18   parameter in the actual paper as a coefficient on RAM

19   and on RAM times Windows.

20   So one of the things is that we're just in the

21   paper going to let random coefficients exist on the RAM

22   variable, and not on RAM and Windows. And I think that

23   may be a little inconsistent because, first of all, our

24   coefficient on both of these is going to be determined

25   by the same underlying variables so it seems strange to

1   allow one to be a random coefficient and one not to be.

2   More importantly, given that these coefficients

3   are so close together because the Windows is just dummy

4   that turns on when the RAM measured for that server is a

5   Microsoft server. It seems like maybe by imposing that

6   restriction that one is a random coefficient and one is

7   not, you're actually forcing the random coefficient to

8   predict less heterogeneity than you would if you allowed

9   random coefficients on both.

10   Again it's hard to allow more than a few random

11   coefficients on this and still get precise estimates,

12   but again thinking about another data set, that would be

13   something you would want to do. Again it's going to

14   effect PC demand, but probably the larger incentive

15   results go through.

16   Something that concerns me a bit more is that in

17   this model, we're going to estimate incentives and

18   alpha, assuming that the alpha, this interoperability

19   effect is constant and not optimally chosen. So the

20   concern I have is that anecdotally, we feel like

21   Microsoft was allowing more interoperability early in

22   the period and then allowing less so later in the

23   period.

24   So what I would like to do is let alpha vary

25   over time, so that the estimates of incentives would

1   change, and I think the result of this would be that you

2   would have a less stark difference in the results graph

3   between the relative margins and the relative outputs.

4   I still don't think this rules out the same result, but

5   I just think that we're going to have maybe less stark

6   results if we allowed that flexibility.

7   Now, as for the alpha not being optimally

8   chosen, I think the authors present some great arguments

9   why we might think that would be true, right? There are

10   a lot of reasons why Microsoft can't choose the optimal

11   level of interoperability because there are a lot of

12   costs in terms of trying to make things less or more

13   interoperable, but what I would say is again in the

14   caveats to the application is that interoperability,

15   they show how it could be more optimal.

16   Interoperability could also be less optimal,

17   right? So there's not a one-sided effect in the sense

18   that I think you're giving a little too much credit to

19   the Microsoft workers if you say that they're able to

20   structure everything to some optimal level. So a more

21   gentle interpretation of what's going on here is even if

22   Microsoft is not explicitly degrading, maybe the

23   monopolist has no incentive to exert extra effort to be

24   more or less interoperable than however they turn out

25   from their software engineering side.

1   And finally a small point is just for the

2   instruments that they use. In this market you have

3   prices falling at the same time that product

4   characteristics are improving over the whole time

5   period. So just if you think about using the same

6   instruments that he does in another data set, if you're

7   implementing their paper, then you just want to check

8   that you have a consistent pattern as opposed to maybe

9   prices rising and then falling with product

10 characteristics improving over time.

11   But otherwise I think it's a really interesting

12 paper, very clear to read. I highly encourage you to

13 look at it, and ask Chris for any help if you need it in

14 implementation. Thanks.

15   DR. STERN: Should we do maybe just one or two

16 questions before we move to the next paper?

17   DR. O'BRIEN: Yes, Dan O'Brien, Bureau of

18 Economics. I just wanted to ask Christos: What can we

19 say about the welfare effects of what I think of as

20 really tying going on in your model? I mean, we have

21 complements, and you made an assumption that you can't

22 completely extract. We know that when you sell

23 complements and you're a firm with market power and you

24 can't completely extract surplus with fixed fees or

25 whatever, that tying is a way to extract more surplus.

1   You mentioned that the price discrimination

2   effects are ambiguous and I'm just wondering if you

3   thought about measuring what the ultimate welfare

4   effects were or if you had any results in that?

5   DR. GENAKOS: Should I answer?

6   DR. STERN: Go ahead.

7   DR. GENAKOS: The quick answer would be we

8   haven't done full-blown welfare calculation, but my

9   comment from the very simple model that we had at the

10   beginning was that if the monopolist has this incentive

11   to exclude arbitrary rivals, there's a clear welfare

12   effect there in terms of the sign.

13   In terms of the magnitude, we haven't done the

14   exercise yet, so this is something to be done, but the

15   incentives are there to exclude an arbitrarily better

16   rival, so that will be my quick comment on that.

17   DR. STERN: Great. To keep ourselves, if not on

18   time at least equally far behind, I think we're going to

19   start with Jacob Gramlich from Georgetown, and we're

20   moving from the industry of the second half of the 20th

21   Century or maybe the 21st Century to the automobiles,

22   which is I guess an industry from the early 20s. Okay.

23   DR. GRAMLICH: But still an industry.

24   DR. STERN: And an important one. We all own a

25   little share. I'm a shareholder in many of these

1   companies now. Okay. So we'll hear a little bit about

2   gas prices, fuel efficiency and endogenous product

3   selection in the U.S. automobiles. I wonder when this

4   project was started.

5   DR. GRAMLICH: When this project was started?

6   You will see that when we get to the counterfactual:

7   That one of the things we will talk about is when gas

8   prices are high, but there are still other implications

9   because there's still a lot going on with fuel

10 efficiency, so thanks for having me.

11   So as Scott pointed out, this paper is about gas

12 prices and their effect on fuel efficiency. The

13 endogenous product selection basically means: How do

14 gas prices affect the choice of fuel efficiency?

15   So the goals of the paper are very simple: One,

16 to model the auto manufacturers' choice of fuel

17 efficiency. And when I say fuel efficiency, I mean

18 miles per gallon. For the rest of this talk, it's

19 expressed a little bit differently in Europe, as you

20 might know, but basically it's an expression of how much

21 fuel a car uses to move some certain amount of distance,

22 okay.

23   So we want to model auto manufacturers' choice

24 of this variable and then use the model to predict the

25 market equilibrium in various counterfactual scenarios.

1   When I say market equilibrium, what I mean is supposedly

2   we have a gas price increase or a gas tax. Would that

3   affect the miles per gallon that we see in the

4   marketplaces?

5   By miles per gallon, I mean both what is offered

6   by firms and what is purchased by consumers. So why do

7   we want to do this? There are sort of general reasons

8   that aren't specific to the auto industry and then there

9   are specific reasons in the auto industry. Generally I

10   think it's fair to say that understanding the

11   determination of product characteristics is an important

12   exercise.

13   So there are a lot of characteristics besides

14   price that we actually care about in a lot of

15   industries, so variety, quality, efficiency, location.

16   I mean, this is not new, but there's not a lot of

17   modeling on how these characteristics are set, so the

18   only reason they're limited endogenous modeling, there

19   are plenty of models where there are characteristics in

20   there, but models where the characteristics are chosen

21   are few.

22   I mean, the literature goes back far. In 1929,

23   I guess was Hoteling, so that is what I'm thinking of as

24   a model of endogenous characteristic determination,

25   right, but already once that model goes to sort of two

1   dimensions of characteristic choice, it's already a very

2   unsatisfying model, both because there's no nice

3   analytic solutions and also because there's multiple

4   equilibrium.

5   So there's an empirical literature, which this

6   is a part of, that is addressing this, and that's to say

7   sometimes the models are more interesting in an

8   empirical setting when they're not in a theoretical

9   setting. And that is because the fact that you have no

10   analytical solution will not be a constraint. There are

11   still going to be some multiple equilibria issues,

12   although less so in this paper, and I'll talk about why.

13   So that's to say the question of product

14   characteristics is a real one, and I would say in

15   particular in the auto industry. So the auto industry

16   itself is just very big and uses a ton of our carbon,

17   did I say a ton of carbon? I shouldn't have said that

18   because I didn't literally mean that. It uses a lot of

19   our carbon, okay? It has a big energy footprint, both

20   in terms of energy usage and pollution, and miles per

21   gallon itself is one way to think of or one way to

22   summarize what is a car's impact on the environment.

23   It's not the only way, but it's a pretty good measure.

24   It's such a good measure that there's a whole set of

25   Federal regulations called the CAFE standards, which

1   actually target this particular product characteristic

2   in this particular industry.

3   And we've heard about this a lot recently

4   because the CAFE standards, which sort of mandate sales

5   weighted fuel efficiency, basically say, if you want to

6   sell cars in this country, you have to sell firm by

7   firm. You have to sell sales weighted fuel efficiency

8   of fill in the blank and that number has been about 27

9   miles per gallon for a long time. Recently their

10   regulations pushed up to 35 miles to the gallon. There

11   are literatures on each, but I'm not going to go into

12   that in a presentation of this amount of time.

13   So let me give you an overview of basically how

14   the model works. So if you sort of know Berry,

15   Levinsohn, Pakes 1995, you can kind of update that into

16   your RAM and then we'll build on that. That's what's

17   going on downstream, so we're going to have a two stage

18   game basically.

19   In the first stage firms are going to choose

20   characteristics of their automobiles knowing that then

21   there's going to be some innovation in the gas price,

22   and we're going to play a down stage Nash Bertrand

23   pricing game over the top of the fixed characteristics.

24   So in the first stage you get to the choose the

25   characteristics and then in the second stage the

1   characteristics become fixed and all you have control of

2   is price.

3   So down here we're in sort of this

4   differentiated products Nash Bertrand pricing game,

5   which is very familiar to the literature. And up here

6   we're adding this characteristic setting game.

7   So the most interesting thing or sort of the

8   summary of this upstage game that I'm adding is that the

9   gas price is stochastic. I'm not going to go any

10   further than that, but there's some element of

11   randomness to gas prices. They move around, and that is

12   going to shift consumers' preferences for fuel

13   efficiency. So if we were paying attention in the

14   summer of 2008, gas prices were very, very high and

15   everyone wanted very fuel efficient cars, no one wanted

16   the gas guzzlers.

17   So at times of high gas price, consumers are

18   very sensitive to fuel efficiency. They want it. At

19   times of low gas price, consumers don't care about fuel

20   efficiency. Think of the late '90s, early 2000s, when

21   the SUV industry was big, a segment of the market was

22   sort of born during these low gas prices. Firms can

23   provide fuel efficiency to consumers, but they can't do

24   it for free, okay.

25   So there is a technology frontier between

1   providing fuel efficiency and then providing other

2   stuff, so a lot of the other things we really like about

3   cars. We like it when they're fast; we like it when

4   they're big; we like it when they're roomy and powerful

5   and all those things are sort of negatively related to

6   fuel efficiency, okay.

7   So basically there's going to be a gas price

8   that's bouncing around. Firms are going to face this

9   technology frontier and they're essentially going to

10   slide along this frontier in response to the gas price,

11   knowing that their profit maximizing fuel efficiencies

12   are going to be higher under high gas price and lower

13   under low. That's all I want to say about that.

14   Let me preview the results. On the modeling

15   side, I do model product selection and that's a way of

16   saying there are some endogenous shifters that will

17   actually shift around what I want to endogenize. We'll

18   talk about that in a second. The other is I'm going to

19   use less restrictive identifying assumptions than what

20   we've tended to use in this industry, so we often assume

21   that unobserved quality is uncorrelated with observed

22   quality. There's a way to relax that, not fully but

23   some here.

24   These two points are a little more general.

25   This third point is just about cars, so you'll care

1   about this third point if you care about cars. Previous

2   empirical demand estimation on cars has not found much

3   consumer sensitivity to fuel efficiency. Even if you go

4   back to BLP in '95, you can look at consumers'

5   willingness to pay for fuel efficiency and it just

6   doesn't look like they're willing to pay.

7   And the reason is because there is actually this

8   exact technology frontier that I just showed in the

9   slide before, so by sort of explicitly accounting for

10   that here, my results would definitely say that firms do

11   care about fuel efficiency and the willingness to pay

12   numbers will show that.

13   Then the counterfactuals, I'm going to use the

14   model and sort of run two counterfactuals. So the

15   counterfactuals, just to say what they do, basically

16   say, plug in some new after tax gas price. So suppose

17   we want to say what would happen in the car market if we

18   had $4 gas, $5 gas or $3 gas. You stick in an after gas

19   price.

20   You let all the firms re optimize, knowing that

21   the consumers will repurchase on top of that, and you

22   have new sales weighted fuel efficiencies. I look at

23   two sort of counterfactuals. One is the summer of 2008

24   because as Scott pointed out, that was really

25   interesting. At the time I thought that's interesting,

1   gas prices are high, where will this market go.

2   So the market didn't necessarily head in the

3   direction it was heading in the summer of 2008 because

4   gas prices didn't stay there, but we can sort of look at

5   the sales patterns that the model would predict for the

6   summer of 2008 and compare that to the actuals, and it's

7   a decent fit. I'm not going to editorialize. I'll show

8   it to you.

9   Then this is sort of the punch line. Recently

10   the new CAFE standards, which you have to keep track of

11   week to week almost or you forget where we are, but

12   essentially we're going to achieve 35 miles per gallon,

13   sales weighted for the entire domestic fleet, by 2016,

14   2020. Anyway, we're going to do that with CAFE

15   standards, so there's just a mandate that we're going to

16   do this with CAFE standard.

17   Some people don't like CAFE standards and would

18   prefer a carbon tax or would prefer for gas prices to

19   simply be higher and have that get us to this elevated

20   fuel efficiency. If you wanted to do it that way and

21   you asked my model, what should we make after tax gas

22   prices to get to us to 35 miles per gallon, okay, the

23   model would say we need $4.55 gasoline so that's sort of

24   the punch line.

25   DR. STERN: You've got seven minutes.

1   DR. GRAMLICH: That's fine. That's why I put

2   everything that's important upfront, so I'm going to dip

3   into this a little bit, but of course this quickly, you

4   can't dip too far. I think if there's one sort of way

5   to drill into the model and see what's going on, I think

6   this sort of tells you a lot of what's going on.

7   This is the utility specification. These are

8   consumers that care about price, fuel economy, quality,

9   and then our unobserved quality so this is observed

10   quality. This is unobserved quality. These are

11   characteristics related to the nesting structure and

12   then this is a nested logit error. These preferences

13   for fuel economy vary by nest, by subsegment.

14   Now, the thing I want to say is that the

15   trade-off that I showed you before was essentially

16   saying you can deliver consumers fuel economy or you can

17   deliver them quality, but not necessarily both at the

18   same time, so I want to capture both of these terms in

19   the utility function but you need proxies for them.

20   There's a natural one for fuel economy, and

21   that's just dollars per mile. It's an interaction of

22   the gas price itself with fuel efficiency, and this is

23   kind of what delivers you, in that in the summer of 2008

24   when gas prices are high, people are paying a lot more

25   attention to fuel efficiency.

1   Now, this is the thing that seems backwards I

2   think when you first look at it. At least it still

3   seems backwards to me when I first look at it, but I

4   think it actually is consistent with that technology

5   frontier that we showed. If you want some proxy for

6   quality, and I've sort of drilled into this, empirically

7   the best proxy is actually miles per gallon itself,

8   assuming that you've controlled for full economy. This

9   is what sort of the earlier empirical papers missed.

10   They didn't include both controls. They only

11   included one and so it basically didn't pick up the

12   effect. But when you include this interaction with the

13   gas price, you actually do pick up these negative

14   quality trade-offs.

15   The reason I don't use some sort of hedonic

16   quality index based on all of the other characteristics

17   is because even if you do, this piece comes in negative.

18   You can't get the negative and statistically significant

19   sign on miles per gallon to disappear, so I'm just going

20   to take advantage of that and parameterize this

21   technology frontier that way, okay.

22   So I think in the interest of time, I'm going to

23   skip over this. Here's the supply game, so we have sort

24   of a downstream or Nash Bertrand pricing game. Again

25   there's a characteristic setting game earlier. I'm not

1   going to talk about what earlier means. I do a bunch of

2   robustness checks.

3   Here's the business about relaxing the

4   identifying restrictions. Usually we assume that all

5   characteristics are set before these shocks are

6   observed. I'm going to relax that at least for the

7   characteristic of miles per gallon. I think in reality

8   we have always believed that firms know what these are

9   when they choose the characteristics, at least to some

10   extent.

11   So it was never the most plausible assumption

12   but it provides a lot of identifying power. But I think

13   in this context when you're explicitly modeling firms'

14   choices of miles per gallon, it becomes even more

15   egregious to assume that these things are going to pop

16   out and surprise everyone afterwards, so that's relaxed.

17   And that's what I mean about the less restrictive

18   identifying assumption.

19   So profits are maximized. We do GMM. There are

20   some interesting things about how to control for the

21   first order of conditions, and Hanson and Singleton are

22   very useful here. If you think back to

23   optimization environments, but I don't want to go into

24   that.

25   What I want to say is so you can get some

1   estimation results, estimate results in these sort of

2   these logit models don't mean much when you just look at

3   the parameters. If you look at willingness to pay

4   though, you can sort of come up with willingness to pay

5   for fuel efficiency increases in the industry, and it's

6   actually pretty sizeable.

7   The reason this is a chart is because

8   willingness to pay varies with a lot of things. So it

9   varies by the subsegment of the car that you're in, so

10   small, middle, large specialties, SUV. It varies by gas

11   price, so that's sort of what you see, and I don't want

12   to belabor too much of these, but a lot of them are

13   pretty significantly different than zero. These

14   willingnesses to pay are what shape the incentives in

15   the counterfactual to actually scale up your MPG when

16   there are high gas prices.

17   Let's jump over to the counterfactual. Again

18   what the counterfactual does is it essentially maps an

19   after tax gas price into a new equilibrium in the

20   industry. You can sort of think of that in a couple

21   stages, and what I do first is you say: Let's insert an

22   after tax gas price, make fuel efficiency stay where it

23   is, do what consumers do, so that's what the firms

24   haven't had a chance to respond yet.

25   But then a year out or two years out or however

1   long you think it exactly takes for firms to actually

2   adjust these characteristics, the firms will then slide

3   up or down their fuel efficiencies, and we'll have a new

4   equilibrium. So in the summer 2008, you can do the

5   first part of this counterfactual. We got to see what

6   consumers do.

7   We didn't get to see firm responses because they

8   were all thinking, boy, I wish we had higher fuel

9   efficiency in all of our cars, but there's nothing you

10   can do about it once you're in the middle of a model

11   year. The consumers were buying fewer cars overall, but

12   in particular, they were buying fewer utility vehicles

13   and trucks because these are the more gas guzzling types

14   of cars. This is what the model would predict in the

15   summer of 2008.

16   So this gives you a sense that maybe the

17   model has got the general shape, overall level kind of

18   close again. I don't want to editorialize too much on

19   that, but that's what you do. Then this is a chart that

20   has way too many numbers, but I actually did want to put

21   this up just to say this is the type of thing that the

22   model can deliver.

23   It can tell you what happens to quality,

24   quantity, miles per gallon offered and miles per gallon

25   purchased, and again at these sort of various check

1   points, so if you want to think in the short run

2   timeframe where only consumers can respond or in the

3   longer term when firms respond.

4   So that counterfactual that I said, the sort of

5   CAFE equivalent counterfactual, says how high do I have

6   to push up the gas price in order to get a 35 down here,

7   which is the sales weighted fuel efficiency for all

8   vehicles after all firms re optimize and all consumers

9   re optimize? So the punch line is $4.55 according to

10   this model.

11   So for the multiple equilibria interested folk

12   here, it actually doesn't appear to be a problem here.

13   This is not a proof that they're not a multiple

14   equilibria, but I actually have a suspicion there may

15   not be based on the nested logit but more on that is

16   forthcoming.

17   So in conclusion, I model this characteristic

18   choice. It's an interesting characteristic, at least I

19   think. There are less restrictive identifying

20   assumptions and more realistic fuel efficiency

21   preferences. And then in the counterfactuals, again

22   sort of the punch line is you can use the model to tell

23   you if you want to affect certain fuel efficiencies, how

24   high the after gas tax price has to be.

25   To put this in context, $4.55 and 35 miles per

1   gallon, those sound sort of astronomical to us as

2   Americans, but in worldwide developed standards the

3   Europeans are laughing. They're not actually that high.

4   So there's one other thing I just want to

5   mention. There's a shadow cost to firms that I've

6   estimated in this model of these CAFE; it's actually

7   pretty high. We should really ask political economy

8   people about why we're doing CAFE versus gas taxes. I

9   think there may be some political reasons more than

10   anything else, but gas taxes would move MPG if that were

11   one of the ways you wanted to do it.

12   That's all I have. Thanks.

13   DR. STERN: Okay. Matthew Chesnes from the FTC

14   will be our discussant.

15   DR. CHESNES: Thanks. Good morning, everyone.

16   I'm Matthew Chesnes from the FTC, and I'll be discussing

17   Jake's paper. First let me just say, it's a very well

18   written paper. It's a timely topic and addresses an

19   important policy question, so let me just start with

20   just a brief overview of what he did. And I'll

21   highlight a couple things which he didn't have quite

22   time to get to.

23   It's a model of the U.S. industry where he

24   allows firms to choose this fuel efficiency which is

25   something that's not generally done in some of these

1   models. They usually assume that the product

2   characteristics are held fixed. He used a unique

3   identifying assumption based on the timing of the model

4   and that's what he was getting into in some of the

5   moments that he was presenting.

6   It's a nice way to do it that allows the firms

7   to have some estimate of what the gas price is going to

8   be and then react and choose the fuel efficiency of

9   their fleet.

10   It's really interesting that he includes MPG in

11   there twice, once modeling the cost savings of MPG, and

12   the other one looking at the sort of negative

13   relationship between efficiency and other quality of

14   these other things that we care about. So he has a

15   little more realistic conclusion about how consumers

16   actually do seem to care about the fuel efficiency of

17   their vehicles. Then he finally gets into an estimate

18   of the cost of complying with CAFE standards.

19   So briefly the results, again he had the shadow

20   cost of complying. Consumers do care about fuel

21   efficiency, and there's sort of an interesting result,

22   and I'll come back to this. It's the utility vehicle

23   owners, the guys that drive the big cars that actually

24   cared the most. They have the highest willingness to

25   pay for increases in efficiency.

1   If you looked at the results, you see that the

2   willingness to pay varies a lot for different car

3   owners. Luxury car owners are not willing to pay for

4   these increases all the way up to $7,000 for SUV owners.

5   And then there are some robustness checks that he goes

6   through, but I'm going to come back to these in my

7   comments here.

8   So the counterfactuals, again he went through

9   these, but the idea I think is kind of interesting.

10   He's looking at, well, we want to raise fuel efficiency

11   of these vehicles, how are we going to do it? Are we

12   going to increase the gas taxes or just tell them you

13   have to have a fleet at a certain level? And again when

14   you look at some of the results, you see the overall

15   efficiency goes up by 31 percent.

16   But if you look at the individual car classes,

17   you see some really interesting results with some cars.

18   Like for cars actually, the MPG falls because the

19   incentive is if the MPG is going to be that high, the

20   equilibrium will put more weight on those other

21   characteristics of MPG, the quality factors, but for

22   CUVs, the MPG goes up quite a bit, so I think looking at

23   some of the segments is really interesting too, to see

24   at what's the reaction for the different types of

25   vehicles.

1   A couple quick comments. Again very nice paper.

2   There's a little data issue with your MPG. It looks

3   like they're only for base models and the higher trim

4   levels of the cars is not reported. So if higher trim

5   cars have lower MPG in general, then this is going to

6   bias some of these estimates, so it might be good to

7   have some evidence as to whether we should worry about

8   this and how important the biased MPG estimates are.

9   Getting back to this idea of the U.S. versus

10   Europe, what would your model say if we applied it to

11   after tax prices of seven or eight dollars per gallon?

12   Would we get the observed 40 miles per gallon

13   efficiency? There's a paper by Molly Espey that sort of

14   talks about sort of the willingness to pay for

15   efficiency in different countries, so that's probably

16   something to kind of take a look at.

17   You actually mentioned this in the paper, but I

18   think one thing you're not allowing is that the car

19   manufacturers can introduce new products, introduce

20   hybrids and things like that. I understand why you

21   didn't do it, but I think this would be definitely a

22   nice extension.

23   Then the last slide is on the sensitivity of

24   utility vehicle owners. I agree with the story; I think

25   you can back it up with some evidence showing that say

1   in the summer of '08, we see not necessarily a reduction

2   in sales of these vehicles, but maybe people switching

3   from less efficient to more efficient SUVs and CUVs.

4   The gasoline press expectations are something

5   which I think what you do is probably right, but you can

6   maybe convince us by saying what would happen if we used

7   forward prices. What if firms were looking at some sort

8   of estimate of what gas prices are going to be over the

9   next year and used that to choose their efficiency?

10   Maybe it's not going to be matter. Most consumers hold

11   their cars for several years, but this might be a way to

12   kind of convince us that your estimate is the right one.

13   Gasoline price volatility is kind of

14   interesting. Do consumers have more of a preference for

15   efficiency when there's more volatility? Not

16   necessarily that it's higher or lower, but maybe there's

17   just more volatility, so maybe the variance of gasoline

18   prices in addition to DPM on the right-hand side of your

19   demand model might be an interesting exception.

20   Finally one kind of more big picture item that I

21   think is relevant is that there's this paper by Hughes,

22   Knittle and Sperling which essentially says that

23   consumers are pretty insensitive to changes in the gas

24   price. They don't change their driving patterns and

25   things very much, but what you're saying is, well, that

1   may be true, but over the longer term, if we see higher

2   gas prices, there is this sort of more macro effect

3   where consumers are actually changing their purchasing

4   decision and the vehicle fleet is changing.

5   So I think that would be a great motivation for

6   your counterfactuals to say, hey, people do care about

7   this and they're reacting to the gasoline price. So

8   that's it. Great. Thanks very much.

9   DR. STERN: That sounds great. You really did

10   save us a few minutes of time. Sofia?

11   DR. VILLAS-BOAS: Sofia Villas-Boas, UC

12   Berkeley. You took the slide away. On the gas price

13   expectations, a former student from Berkeley, Sawhill,

14   actually does this that, the expectation on prices on

15   car automobile purchases. I think he uses the same data

16   set as UC and Zettlemeyer on vehicle choice.

17   I forget what his punch line was, but it was

18   kind of the same idea.

19   DR. GRAMLICH: Well, that paper that you

20   mentioned, that's a paper that actually shows that when

21   the gas prices go up, even on a tight frequency weekly,

22   consumers fuel efficiency responds. One of the results

23   of the paper that Megan and Chris have is consumers

24   actually are very, very responsive to the gas price, so

25   even though you might think you hold the car for seven

1   years, what's the big deal about the current gas price.

2   It actually really does affect people's

3   patterns, even on almost a weekly basis. I don't know

4   if that's what the graduate student found, but that's

5   what Megan Busse's paper essentially found.

6   DR. VILLA-BOAS: Thanks. My other question is

7   if you can say something about welfare because you have

8   the factuals on how you do that.

9   DR. GRAMLICH: To the extent that we add a tax,

10   we're always going to decrease welfare, so again just

11   sort of going to the sign, that's the way it would go.

12   But do you mean sort of comparing welfare of CAFE versus

13   a gas tax or something like that?

14   DR. VILLA-BOAS: You said that you cannot make

15   something very efficient without hurting some other

16   characteristics in terms of the front side, so some of

17   these counterfactuals assume that the other stuff stays

18   fixed. But maybe it's not feasible to make this

19   efficiency, and then still have all those other

20   characteristics.

21   So if you can posit, that relationship to allow

22   the substitution that's going to be done to adverse,

23   that would be probably something that you could do.

24   DR. GRAMLICH: Okay.

25   DR. STERN: You can continue answering.

1   DR. GRAMLICH: One thing to be clear, in the

2   counterfactuals, I do actually have the firms slide

3   along the frontier, so it's not that I improve

4   efficiency but don't make them make the sacrifices.

5   They do make the sacrifice, but you're still right that

6   I haven't calculated out the welfare gains or losses to

7   then compare them to presumably the environment

8   externalities we would be trying to correct with the

9   taxes.

10   DR. STERN: Great. Was there maybe even one

11   more? I think we do one more question if there was

12   great desperation.

13   DR. LEWIS: Gregory Lewis, Harvard. I guess my

14   question was about that first stage game. So it seems

15   like in reality, you have a lot of sunk costs on

16   investments and how they do things or how they produce

17   cost. I wonder what you thought the study could gain

18   was an approximation to and how reasonable it was.

19   DR. GRAMLICH: So I think the characteristics

20   setting game is an approximation to the stage where

21   firms have decided they are going to launch a car like

22   the Toyota Camry. That's a decision they make and then

23   it usually lasts for about seven years or so, but within

24   that timeframe, before they do another re-launch say

25   after seven years, you can look at time series of the

1 characteristics of the Toyota Camry.

2 They're not the same every year. It's not that

3 they launch a car and then only change characteristics

4 once there's a whole new car launch, so they have the

5 ability to trim things sort of up or down. If you talk

6 to people in the industry, they say this: They can sort

7 of swap out materials, make things slightly lighter,

8 they can turn off parts of the engine. I think engine

9 trimmings is probably a big thing.

10 Now, the exact timing of the model is not clear.

11 When do they lock in these decisions? Are they exactly

12 a year before? In my model I have to assume it's either

13 exactly one or two or three because I have to take some

14 snapshot of the gas price. It actually doesn't matter

15 much because gas prices are so serially correlated that

16 essentially the results go through largely unchanged, so

17 I don't know if that answered it, but I think I should

18 step down and talk to you more later.

19 DR. STERN: Johannes, come on up. As Johannes

20 continues our discussion of innovation and market

21 structure and innovation, in the global automobile

22 industry, it seems just as a final comment as he's

23 putting it up that these major model changes really are

24 the place where they make the major fuel efficiency

25 choices.

1   And I know it's outside the specifics of your

2   model, but it's always surprised me that no one has ever

3   exploited that, that these companies make these eight

4   year decisions over a three year period, before they

5   even get to market. That's really where the main design

6   choices are being made, and they could follow those out

7   for the IO implications.

8   With that, Johannes on even more cars.

9   DR. VAN BIESEBROECK: Yes. So exactly what you

10 just said. It's a very good place for this paper, and

11 I'm going to continue this. It's even more to the point

12 that I will be doing something very similar to him, but

13 in a very different way and I do it in a different way

14 because my motivation is very different.

15   The crucial thing that I want to look at is this

16 interrelation between market structure innovation. I

17 will explore a dynamic game and I think here I'm going

18 to go away from the miles per gallon choice because for

19 me the car characteristics are crucially chosen

20 strategically and forward looking.

21   So a couple of people have estimated these

22 dynamic games, and most of the time the type of dynamic

23 parameters we want to do are then defined as sunk cost

24 of entry, switching costs. And what we want to do is

25 estimate the cost of doing R&D because that's not our

1   crucially dynamic parameter.

2   So when I present this in an hour and a half, I

3   never get through my slides, so now I have 20 minutes,

4   which is not an advantage. I'll have to skip an

5   enormous amount. I'll flip through some of these

6   slides. The problem is there are a whole bunch of steps

7   in the paper, none of it terribly complicated, but there

8   are a whole bunch of decisions we had to make, and so

9   it's very hard to leave them out, but when I don't have

10 anything interesting to say about them, I'll just fly

11 by.

12   So basically I guess everybody knows what

13 Schumpeter's argument was, that monopolists are not

14 necessarily so bad for innovation because they have they

15 have the RAMS, they have the incentives. But then on

16 the other hand, the incentive is only there if there's

17 going to be competition for the market. And there are

18 two possible effects of market power and innovation, so

19 that's what I want to look at.

20   How do I want to look at this? So there's an

21 enormous array of reduced form studies, so you see I can

22 even list five different surveys, so these are clearly

23 hundreds of papers, and they all have the same

24 structure. You have a measure of innovation. You have

25 a measure of market power. You address one or the

1   other. You try to draw some inferences.

2   So sometimes useful things come out but because

3   neither of these two things are exogenous, it's very

4   hard to draw strong conclusions. So now there are these

5   three other papers already who have similar objectives

6   as me; they basically treat market power also as an

7   endogenous characteristic.

8   So I will continue with the automotive industry.

9   It's extremely innovative and interesting for me.

10   There's been quite a number of important changes in

11   market structure, not only organically but also through

12   mergers, and I will incorporate that in a moment.

13   So as I mentioned, one of the objectives is to

14   estimate one of these dynamic games because we think

15   it's an important application of this. And then the

16   nice thing we can do, theorists do this always, but when

17   you go to empirics, you have to limit yourself, and so

18   we can be a little more flexible because we're going to

19   be very explicit about the incentives for innovation.

20   So if you don't like the structural approach to

21   modeling, you're not going to like our paper, but if

22   you're willing to be convinced, the nice thing that we

23   can do is we can explicitly give the firm a couple of

24   different incentives to do innovation. The first one is

25   you make your power more attractive, so that was the

1   previous paper as well. Better miles per gallon will

2   change your demand.

3   Another reason why you might want to do

4   innovation is because you will change your decision of

5   your competitors today but also in the future. If I

6   innovate a lot, maybe my competitor will be pushed away

7   or pushed down on their response function and they might

8   innovate less. It can go many different ways, but we

9   will model the strategic effects explicitly.

10   Then a third thing which is more unique to our

11   specific application is there have been a lot of mergers

12   in the industry. We allow a firm to do innovation

13   because when they will be taken over, it will be good

14   for their shareholders because they will get a better

15   price for the firm. So I guess this is building on what

16   Scott was saying and then the middle one was building on

17   Christos' papers, so everything together and we will

18   have to make dozens of assumptions you're not going to

19   like.

20   At the end of the day, pay off is what we can

21   quantify as the effect of those three incentives. And

22   then finally we can also look at how to change the

23   market structure because now for us, we have a model of

24   how all these things are connected. We can have some

25   parameter changing or something else changing in the

1 industry exogenously which has some sequencing effects

2 on market function and innovation, and we can see how

3 everything moves together. So that's what we want to

4 do.

5   So how do we do this? You see from the top,

6 I'll have to talk about the demand side; the supply side

7 is merging and equilibrium. The demand side is

8 interesting so I'm not going to say much about it.

9   The one thing which I will say or I actually

10 have this utility for consumer "i" who buys a vehicle,

11 so for us innovation is the crucial characteristic you

12 want to look at. Innovation leads to knowledge, this

13 omega, and knowledge immediately pushes up the utility a

14 consumer gets from your car, so this is just a shorthand

15 way of saying if you have more knowledge, you can

16 introduce novel product features. You can make your car

17 more attractive. You can do all kind of things that

18 make people want your car more.

19   So this is one crucial characteristic of a

20 vehicle. Then you have to charge a price for your

21 vehicle, and then we have these usual -- Xi because for

22 us we have a dynamic model. We have to take a stand on

23 what happens with all those things over time. So what

24 we will say is prices are chosen strategically during

25 the period, can adjust fully in the period, are chosen

1   by maximizing a differentiated product virtual model,

2   conditioning on all the state variables of the model.

3   Omega is basically the stock of knowledge which

4   a firm can influence by doing innovation, and that will

5   be chosen strategically in a forward looking manner.

6   Then we have the Xi, the unobserved quality of the

7   vehicle that the consumers agree about, and that will

8   follow an ARS process with a fixed effect, but it will

9   evolve exogenously so no one can influence it.

10   Consumers and firms observe it, and it might influence

11   the pricing and innovation decisions but they cannot

12   control this area.

13   There's a whole bunch of things going on, and we

14   map that into this type of reduced form utility

15   function. I don't want to go through it twice, having

16   the model and all the estimates, so I will show some

17   estimates as I go through it. So let me say something

18   about how I'm going to estimate this.

19   We think innovation is truly a strategic global

20   variable, so when these firms decide on this, this is a

21   global choice, and it will effect all the vehicles

22   they're making worldwide. So we basically are

23   collapsing all this rich car data to have firm year

24   observation, so one observation is GM worldwide in a

25   certain year, and so in order to do that, we need to get

1   some innovation measures, and we have the patent data

2   that provides it.

3   We need to get a market share, so the number of

4   cars GM sells, and we also need to have a price. So

5   here what we're doing is we estimate a demand pricing

6   model in the U.S. and in Japan. We get firm dummies

7   basically controlling for all the characteristics, how

8   much is a windshield wiper for a car for a certain firm,

9   and I think of a weighted average of this dummies as

10   basically the price. So because this comes from this

11   hedonic regression because we can't control for all the

12   characteristics in this dynamic model, that's going to

13   limit some functional form choice but that would all

14   happen below the surface.

15   There's the data set we're working with. So

16   then we estimate it. We find that this is basically the

17   coefficient of knowledge in the utility function. It's

18   positive for price. It's negative and we use

19   instruments just like in DOP so at least we have this

20   enormous aggregation at first in all of its reduced

21   form, but at least at first glance these results seem

22   reasonable.

23   So on the supply side, this is what happens. We

24   start out with 23 firms. They observe their individual

25   and industry states so the state is the knowledge stock

1   and the quality that succeed for all firms, plus the

2   size of the market. So there are 47 state variables.

3   You can see this is going to be a nightmare to

4   estimate, but that's what we started from, so that's

5   what firms observe. They make pricing and investment

6   decisions within the period. Profits are realized. All

7   the individual states are updated and then there might

8   be some mergers. I will say exactly what we do with it,

9   but the crucial thing is this is not a model of mergers.

10   This is a model of innovation. First make strategic

11   innovation decisions, mergers might happen and they

12   might take into account that these mergers might happen

13   but they happen exogenously, so if they happen, state

14   variables are further updated.

15   So we have the usual profit function. We have

16   the first order on conditions which will give us

17   marginal costs and then we can relay these marginal

18   costs to other variables in the model. So these are

19   still results from a two state estimate, but now we

20   estimate both the demand and the marginal cost in one

21   joint estimation.

22   So basically we can allow the marginal cost to

23   be a function of the knowledge relative to GM because we

24   normalize everything, and then succeed relative to GM.

25   So what we find in log is that your marginal costs are

1   higher where we have higher knowledge, so this could go

2   either way because more knowledge will lead to more

3   features in the vehicles, and this might be expensive to

4   produce.

5   But on the other hand, this knowledge which

6   further is going to be patents, might be process

7   innovation. And they might lower the knowledge. There

8   has to be positives, so these features dominate the

9   cross innovation, and the second one, this one on is

10   clearly positive for succeed.

11   We do it quadratically, at least here it's

12   negative quadratic term coming in, so this coefficient

13   is squared. This might re-interpret then that if you

14   have lots of patents, there are going to be some more

15   processing patents too and they might lower marginal

16   costs.

17   All right. We have demand. We have marginal

18   cost, so basically from those we can calculate profits

19   in every possible state of the world, which we'll need

20   in our summation. Then there is innovation, so this is

21   here and this is our crucial dynamic parameter, this Xi.

22   What does it cost for a firm to apply to obtain an

23   additional patent?

24   So this is a crucial dynamic parameter we want

25   to estimate and of course we do this by maximizing this

1   dynamic optimization problem where the expected value in

2   the future is taken into account with the entire vector

3   state variables for all the different firms.

4   DR. STERN: I'm sorry, how does your investment

5   affect stock of knowledge?

6   DR. VAN BIESEBROECK: Exactly, only through the

7   Omega. The demand is static and this is sort of dynamic

8   choice comes in. So we have laws of motion, which you

9   already mentioned.

10   So this is basically how the Omega is involved

11   then. Basically what happens is for us, you have some

12   target level of innovation and you need investments to

13   get there, but there's some randomness in the R&D

14   process. So this is still a stochastic evolution of

15   your knowledge in the future because you might want to

16   target five or ten or a hundred new patents, but then at

17   the end of the day you might only have 95. So we

18   estimate those things.

19   Then our mergers, so this is just an example

20   with two firms, and it's quite mechanical because the

21   idea is simple, it just leads to incredible estimation

22   problems so let me just show you. So this is the value

23   function of Firm A when there's two firms in the

24   industry, so all of the states entered. This is the

25   profits, cost of investment.

1   There's a probability that they don't merge and

2   that you just have the expected value of the firm in the

3   future, but there's also a probability PM that a merger

4   takes place. When a merger takes place, A and B merge,

5   their states are updated, and then we can do lots of

6   robustness checks how we update their states.

7   This is one possibility, but then only a

8   fraction of the value of these merged firm will accrue

9   to the shareholders of firm A, and that's this. It's

10   basically the standalone value of A and the sum of the

11   two evaluations, so if do you lots of innovation, this

12   is going to be higher and you get a greater share of the

13   merged firm.

14   So this is in there. The problem is this makes

15   a problem not linear in the dynamic parameters any more

16   as in the original Bajari, Benkard and Levin paper. And

17   so instead of estimating this in one or two hours, as we

18   thought we would be able to do, it takes us two days and

19   then another couple weeks to get standard errors, so

20   these keep going, but you don't have to worry about

21   that.

22   So these were innovations. The estimate is just

23   following the, Bajari, Benkard, Levin paper, if you

24   haven't seen it, I will not be able to explain it in

25   five minutes.

1   There are an enormous amount of assumptions.

2   Every time I present, these people come up with other

3   inconsistencies. It's a little bit lower now because we

4   changed the data set a little bit, so now our estimate

5   is about $30 million to obtain one patent.

6   When we look for firms who report R&D, we get a

7   mean of just under $60 million for a patent so at least

8   we're ball park, but it's really, especially our choice

9   for marginal cost is very low, so we have some

10   robustness checks, basically varying things in the model

11   to see what's important.

12   So this is very important, for example, this

13   depreciation rate of patents. We have a patent stock,

14   an economic value of the patent stock, and these

15   patents. The economic value depreciates, and so the

16   assumptions we take, 15 percent, which is taken from the

17   literature, 5 or 25 percent, have enormous effect on

18   this estimate to the consumers.

19   That's the first thing we did. The results we

20   got out of it are sensible now. This is raw data on the

21   horizontal axis. We have a number of firms, we start

22   out with 23 firms in 1982.

23   Then all these mergers happen and there are only

24   13 firms at the end. And what we see is there's a lot

25   more patenting activity. This is a scatter plot.

1   What's the difference? This is industry innovation.

2   This is average firm level innovation, when you move to

3   the left, so forward in time. Then if it gets more

4   concentrated, we see more innovation, but of course we

5   know patenting has been strengthened, as was already

6   mentioned before.

7   So if you control for flexible time trends, it

8   really depends. We might get a U-shape, an inverted

9   U-shape like in the papers. So just from the raw data,

10   it's hard to make a clear case what's going on, but now

11   we have a model, and we can do something more.

12   So this was basically at the industry level, at

13   the firm level, these inverted U shapes seem to be

14   coming out more nicely, but the curvature differs a lot

15   when we look for firm difference in '82 or 2004. So

16   this is the raw data, but now with our model we can take

17   our model from a certain starting point and simulate it

18   forward and see what kind of results come out.

19   So in the other one, the only X variable measure

20   of competition of market structure we had was number of

21   firms. Here we can calculate marginal cost to price

22   ratios. My coauthor was a macroeconomist, and I was

23   telling him, oh, we just want to look at the learner

24   index, but he has to read up on it so he insisted on

25   this measure.

1   The one thing that's crucial to interpret this

2   is as the industry gets more competitive and moves

3   forward, I have to think myself, more competitive means

4   lower prices, so we're referred to the right, mergers

5   happen. We move left and we see this inverted U at

6   altitudes. It's coming through very clearly in the data

7   as we run our model forward.

8   The industry level also comes out very nicely,

9   and this is all we do when we start our model in 1982.

10   If we do the same thing but we start it much later, at a

11   much more concentrated state, then this inverted U is

12   maybe a little impaired in the beginning, but basically

13   we're all on this downward sloping trajectory, so this

14   is the opposite from what Schumpeter says.

15   From our model and this industry, if the

16   industry gets more concentrated, innovation seems to be

17   going down. And then we can go back to our model to

18   really say which parameter our model is causing this.

19   If you shed down some of these values, how does this

20   change or how doesn't it change?

21   So now the one thing we were doing now is we're

22   solving this model exactly because once we solve the

23   model, then we can really change some exogenous

24   parameter and see whether the equilibrium innovation

25   that our model would predict it, but with 46 state

1   variables, that's impossible, so right now we're able to

2   solve it for four firms allowing for one or two mergers,

3   but those results I'm still waiting for myself.

4   So then I want to take out what simulate; we

5   estimate this model and most of the things we get out of

6   this after our enormous amount of assumptions do seem to

7   make sense. And then we can confirm this result from

8   the QG from a couple of years ago that there is this

9   inverted U relationship. Only we are much better able

10   to figure out which part of the model is driving this

11   result and we also find if you start from an initial

12   stage, which is quite concentrated, this inverted

13   U-shape is not there anymore.

14   All right.

15   DR. STERN: Great. And your discussant is Adam

16   Copeland.

17   DR. COPELAND: Let me just say, first of all, I

18   really enjoyed reading the paper. I got a little

19   different version than the one presented here since one

20   of my graphs is a little bit older. And also let me say

21   that these are my own views, not those of the Federal

22   Reserve Bank in New York or the Federal Reserve System.

23   So like I said, I like this paper a lot. I

24   think it has a lot of potential. There's still a bunch

25   of work that needs to be done. It's actually a really

1   old question of economics and a really important one

2   that looks at how the changes in market structure affect

3   innovative activity.

4   You're looking at the global automotive market,

5   and Johannes sort of mentioned this, but in the

6   theoretical camp, there are sort of two schools of

7   thought generally speaking. One is the Schumpeter

8   thing. It says that if you have more and more

9   competition, you'll have less incentives to innovate.

10   The idea is you put these huge fixed costs in to

11   come up with an innovation and the marketplace is really

12   competitive, you can't extract enough to payoff the

13   fixed costs. But there's another school of which has a

14   complete reverse because as markets get more

15   competitive, there are more incentives.

16   The idea there is in competitive markets, you

17   want to differentiate yourself, and that leads you to

18   innovate, and that leads you to innovate so you can

19   differentiate yourself and charge at a higher price.

20   So really it becomes sort of an empirical

21   question about what the relationship is between

22   innovation and market structure. Like Johannes sort of

23   mentioned and has done a bunch of work, but it is

24   unusual, the fact that when firms are making the

25   decision whether or not to innovate they're forward

1   looking, and they're taking into account and they have

2   expectations about how the market structure will evolve.

3   So very importantly here, their innovation

4   decision doesn't affect how the market structure

5   evolves. They're just taking that into account, so if I

6   invest a lot of innovation now, I don't say that's going

7   to make the market structure more competitive or less

8   competitive, I'm just looking forward and saying, okay,

9   there might be some merger downs the road, how does that

10   affect how I innovate or not.

11   Now, the main result is really interesting

12   because when I sort of loosely characterized the

13   theoretical literature, everything was monotone,

14   individuals are either increasing competition or

15   decreasing competition.

16   Where it gets I think a little more complicated

17   is that we have this relationship which is the inverted

18   U-shape relationship, so this is a graph from the older

19   paper, but it has the same sort of humped shaped look

20   that he ended with.

21   So the horizontal axis accounts for price, so

22   .84 means that marginal cost is 84 percent of price. As

23   you go towards the right, you get more competitive, and

24   on the vertical axis, you have how much innovation

25   you're doing. So you can see as you go from left to

1   right, you have this sort of monotone relationship,

2   which is sort of outlined, which is very cool.

3   One thing I think would be sort of neat, just to

4   give you some better intuition about the models, is if

5   you fixed your level of competition at .84 and then just

6   showed how much innovation you would do given different

7   expectations of what the future will be. So if you

8   think it's going to be very competitive in the future,

9   you can innovate more or less conditional on the current

10   level being .84, or just some graph like that might be

11   useful just to flesh out how these forces are working.

12   Then I have some comments. In the interest of

13   time, I'm going to skip the first one and just talk

14   about the merger process, and this is going to be sort

15   of a smaller point. I have a bigger point to make.

16   The smaller point right now is that mergers are

17   completely exogenous and random. So you decide, this

18   will fall from the sky, and I understand why they're

19   doing this, and I thought, well, one way to improve it

20   right now is to say, well, when two firms merge, you

21   have two product lines like Chrysler and Mercedes Benz.

22   They merge, and it becomes one product, with a number of

23   products.

24   And I think as a consequence of that is the

25   profits of the firm before the merger added together are

1   higher than the profits from the firm after it merges,

2   so I guess it's a destruction value added, which is sort

3   of troubling because it means why did they merge in the

4   first place.

5   I thought one way around that might be, one, you

6   keep the number of products the same, so when Daimler

7   and Chrysler merge, they still sell two products, but

8   maybe they have the stock of knowledge that gets a fixed

9   function or some function. So both their products are

10   improved, but you don't reduce the variety, and that

11   actually might make mergers sort of profitable, and

12   maybe it would be more powerful than what we currently

13   have.

14   If it's true that mergers are more profitable,

15   you can actually rate mergers. Right now mergers I

16   think are just completely a uniform of probability, so I

17   think GM and Ford merging had the same probability as GM

18   merging with BMW, which probably isn't true, but if you

19   could say different mergers have different levels of

20   probability. You could assign higher levels of

21   probability to them and that also might be kind of neat.

22   So skip that. Let me end with sort of a big

23   picture point. When I was reading this paper, I kept

24   asking myself this question about, what's going on in

25   the industry as a whole, and as you saw, the picture got

1   very concentrated over time.

2   So I thought it might be nice to have sort of a

3   big picture, and this might be a separate paper. It

4   might be something you draw in a deduction. I don't

5   really know, but I really thought that Sun's argument

6   about endogenous fixed costs was really related to

7   what's going on in the current industry on the global

8   scale.

9   The idea there is that in the Sun models, you

10 have four firms in a market, and they actually control

11 the fixed cost to entry, which would be advertising or

12 R&D. And this demand on that market grows larger and

13 larger and larger.

14   The way these four firms block other firms from

15 entering is that they say, we're going to spend more on

16 R&D and more on advertising to raise the fixed cost, and

17 that deters entry, and I thought this might be the story

18 with automobiles as well.

19   In the beginning of our sample, maybe the market

20 wasn't so global. Rather it was sort of fragmented

21 because of trade barriers or income. Certain parts of

22 the world are just too poor to buy GM cars or whatnot.

23   Then over time, these segmentations disappeared

24 and you can have a truly global market. In reaction,

25 what the firms have done is said, well, what I'm going

1   to do is sort of raise the fixed costs by investing

2   quality in such, and that's going to drive other firms

3   out of business.

4   So that will give you sort of a nice general

5   framework of thinking about how the industry is going.

6   What I really liked about this, and this will probably

7   be a second paper, is now you have innovation market

8   structure being decided at the same time, so when you

9   make your innovation decision, you're actually raising

10   the endogenous fixed cost to entry, and you're affecting

11   market structure in the future. I think that would be a

12   very cool model to sort of estimate something else.

13   So I really like this framework. It's a simple,

14   dynamic story, and it's consistent with what had

15   happened to other industries. He has a whole book that

16   goes into the sugar market, stuff like that, so I

17   thought that would be a sort of tie in point.

18   Okay. Thanks a lot.

19   DR. STERN: Very, very good. Okay. I

20   think that any questions we have are between us and

21   lunch, but ideas are food as well, so do we have one or

22   two questions to sort of finish us off? Over there.

23   DR. BONER: I notice your model has a machinery

24   for looking at welfare. My name is Roger Boner. I'm at

25   the FTC. I know your model has the machinery for

1   examining welfare as it varies with market structure.

2   Did you happen to look at that?

3   DR. VAN BIESEBROECK: So we didn't initially.

4   Some of the slides I skipped had some consumer effects

5   too, but there are two problems there. One is that we

6   don't have an outside good and industry choice matters

7   greatly for welfare, so that's one thing that we don't

8   really trust our results for.

9   The second thing is that the way modeled mergers

10   really matters, so as Adam pointed out, the way we

11   modeled mergers, leads to products that disappear, so

12   choice for consumers goes down, and this has a negative

13   impact on welfare.

14   So for us there are two things: There's this

15   consumer choice, which goes out, but then innovation

16   might go up or down, and it has opposing effects in many

17   situations. So the short answer is we can do it, but we

18   don't trust our model sufficiently yet that I want to

19   show you those results.

20   DR. STERN: I think we should give our

21   presenters and discussants both a hand. Everyone did an

22   excellent job at presenting, stayed within the time

23   well. We started late. That was exogenous, but we

24   ended equally late, so there you go. And really I

25   wanted to thank everyone for excellent papers and

1   discussions.

2   (Applause.)

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1   AFTERNOON SESSION

2   DR. ROTHSTEIN: Good afternoon, everyone.

3   Welcome to the key note address. It was scheduled for

4   lunch, so you're doing exactly what you're supposed to

5   be doing, and I'm going to grab a sandwich in a second

6   too.

7   It's a pleasure to introduce Jan Pappalardo.

8   She's the Assistant Director in the Division of Consumer

9   Protection in the Bureau of Economics. Jan has studied

10 a wide range of issues in her two decades at the Bureau,

11 including consumer perceptions of health claims for

12 foods, the meaning and measurement of deception in

13 advertising, and the costs and benefits of regulating

14 advertising.

15   She has been a strong voice regarding the

16 importance of consumer research in understanding

17 consumer behavior and she's most recently done work with

18 James Lacko on ways to convey information to consumers

19 about financial products that demonstrably help

20 consumers make superior decisions.

21   Jan has published in the Review of Industrial

22 Organization and the Antitrust Law Journal; she serves

23 on the Editorial Board of the Journal of Public Policy

24 and Marketing.

25   Jan, over to you.

1   DR. PAPPALARDO: Well, I hope lunch is good

2   because then you will be a happy audience.

3   I'm very pleased to be here today. I was very

4   honored that my colleagues asked me to speak to you a

5   little bit about what we know about consumer protection

6   regulation, and as with all of these things, it's not

7   really until the day before that I really try to focus

8   on what the main message is for the presentation.

9   As I thought about it when I was driving to work

10   yesterday, I think the message I want to leave with you

11   is that we have to move beyond the economics of

12   information, which provides the backbone to most of our

13   analysis of consumer protection, to the economics of

14   consumer comprehension, understanding that just throwing

15   information out there may not mean much if consumers

16   don't understand the information in the way it is

17   intended.

18   The views expressed today are those of the

19   presenter. They are not necessarily shared by the

20   Federal Trade Commission or any individual Commissioner.

21   So I think a big silver lining in the financial crisis

22   is that you read more and more about consumer protection

23   in the newspapers and on television everyday. I think

24   for those of us who have been working in consumer

25   protection for decades, this provides a golden

1   opportunity, an opportunity to get more minds working on

2   consumer protection issues and trying to make sure that

3   we get consumer protection policy right.

4   But with it also comes a responsibility because

5   big change in most regulatory areas, and consumer

6   protection is no exception, comes along once in a

7   generation. So I think it's really important to rather

8   than rush ahead to do things, because doing something

9   seems better than doing nothing, to make sure that what

10   is done is really well thought out and likely to really

11   do more good than evil.

12   What can I contribute to the debate? Well, I've

13   been here, as Paul said, for over two decades. I can't

14   believe it's been over two decades. It seems like just

15   yesterday I was pouring through job openings for

16   economists in graduate school, and I remember clearly

17   staring at the ad for the Federal Trade Commission

18   thinking that it was my first choice job, despite the

19   fact that I really love teaching. And it was a really

20   hard choice to make, I'm really glad that I came to the

21   Federal Trade Commission.

22   I came from the back end of being primarily

23   interested in consumer policy first and economics

24   second. I think most people who work here come from an

25   interest in economics first and then come to consumer

1   policy. I did my graduate program at Cornell University

2   where there used to be a program called The Department

3   of Consumer Economics in Housing.

4   That program no longer exists because people

5   couldn't figure out what it meant to be the Department

6   of Consumer Economics in Housing, and so now it's the

7   Department of Policy Analysis and Management. In

8   graduate school I came to love economics when I was

9   doing my master's thesis. I was doing a study of

10   regulation of home insulation, of all things.

11   And I started out with a minor in public policy

12   working with a wonderful political scientist, but it

13   wasn't until I studied industrial organization that I

14   could see how I could model the problem in my industry

15   in a way that really made sense, pairing away the

16   unimportant facts and getting to the meat of the matter.

17   So I'm a real believer in the helpfulness of

18   microeconomics to try to understand consumer policy

19   problems.

20   Then again my experience may not be very

21   helpful. I stole this lovely cartoon from one of my

22   colleague's doors. "They pretend to know? Yes. Yet

23   they don't know? Correct. And they get paid for this?

24   Paid well, too. Man, I want to be an economist."

25   Where to begin? It's hard to know after 20

1   years here. There's 20 million things I would like to

2   say, but you can only say a few. One thing I would like

3   to say is that the consumer protection group at the FTC

4   is probably the best group of people that study consumer

5   protection anywhere in the world. I've been so pleased

6   to learn by having so many wonderful mentors over the

7   years, people like Jerry Butters, who was my boss for 20

8   years, who understood information in markets better than

9   anybody I know, and is also the kindest person I know;

10   people like Pauline Ippolito, who has really done a lot

11   of pioneering work in the role of information in many

12   markets, particularly regarding health claims in foods.

13   The list could go on. My colleagues are experts

14   in all kinds of information and regulation areas, and

15   even as you look at the papers today, I notice there's a

16   paper on direct to consumer advertising. Well, people

17   probably don't realize that the very first article I

18   believe applying economic analysis of information to

19   direct to consumer advertising for prescription drugs

20   was written by Alison Masson and Paul Rubin, both of

21   whom worked on that while in the Division of Consumer

22   Protection. Alison went on to Pfizer Pharmaceuticals,

23   and actually Pfizer funded much of the research done by

24   Ernie Burton and others to understand DTC advertising,

25   so I can only scratch the surface today of what's been

1   done in this area.

2   I have to pick a few points. "A point in every

3   direction is no point at all," as Harry Nilsson tells us

4   and now we say you can focus on no more than three

5   points in a presentation, so here are the three points.

6   I won't get to the end most likely, so I want to

7   make them clearly now. First, consumer protection

8   policy is often tricky because people are unique.

9   Second, consumer protection policy is unlikely to be

10   effective without a joint mandate to promote

11   competition.

12   Many years ago the American Bar Association did

13   a review of the Federal Trade Commission and examined

14   among other things, the role of economics in consumer

15   protection at the FTC. It included a compendium of

16   articles on the topic written by a lawyer, who basically

17   said that the consumer protection group at the FTC

18   compared favorably to those anywhere and it was largely

19   because consumer protection, as is studied at the FTC,

20   includes an understanding and concern about competition.

21   What often happens with consumer protection is

22   people focus on one side of the market; they focus on

23   consumer behavior. They focus on demand, which is

24   great, but that's only half the story. If you're not

25   also looking at the other side of the market, trying to

1   understand how policies are going to affect firm

2   incentives, you're unlikely to ever end up with

3   solutions that aren't going to do more good than evil.

4   And finally, the third point I would like to

5   make is that information remedies are generally

6   preferred to product restrictions if, and only if,

7   information policies focus on consumer comprehension.

8   The key point of economics in consumer

9   protection is that competition in the free market will

10   usually bring the greatest benefits to consumers.

11   Economics helps identify those areas where intervention

12   may be useful.

13   I love this article that was written by John

14   Vickers. It always seems that when someone has an

15   English accent, even in writing, it always just sounds

16   much more -- it just carries more weight to it. I found

17   this article, and I thought, this is great, here's a guy

18   across the pond who thinks the way I do, that

19   competition and consumer law should be seem as one

20   subject, not two.

21   Competition is pro consumer for the simple

22   reason that rivalry among suppliers to serve customers

23   well is good for customers. In such rivalry, the

24   suppliers who serve customers best will prosper, and

25   those that serve them poorly will not.

1   Competition between sellers is great because it

2   lowers price. Competition on quality improves products.

3   Competition means consumers can go elsewhere if they are

4   not happy with a particular seller and imposes

5   discipline on sellers' behavior. An important consumer

6   protection mission is for government to ensure a

7   competitive marketplace.

8   The power of competition to benefit consumers

9   depends on honest information. Competition can lead to

10   more honest information if competitors have incentives

11   to point out other's lies. Government policies should

12   encourage provision of honest information.

13   Competition is great, but it is not perfect.

14   Asymmetric information can lead to market failures.

15   Sellers with good products may not be able to convince

16   buyers of the good quality. Sellers may try to convince

17   buyers that products are better than they really are.

18   We have fraud, outright lies about worthless products,

19   and we have more fraud cases than you can possibly

20   imagine. We see them everyday, and deceptive claims,

21   not quite a fraud, not quite a lie but stretching the

22   truth about a legitimate product. Government no doubt

23   has a role in stopping fraud and deceptive claims.

24   Now, when you work in consumer protection, what

25   are some of the things that you consider when someone

1   asks you to review an action to see whether or not it's

2   unfair or deceptive under FTC law? The first question

3   is: Exactly what is the problem?

4   Oftentimes policymakers have a solution, and

5   when you ask, what's the problem, they're not clear in

6   their own minds. Well, it's hard to have the right

7   solution unless you understand first what the problem

8   is. Two questions that we often have to ask are: Is it

9   an efficiency problem? Or is it an equity issue?

10   And as economists we have different roles to

11   bring to both of these types of questions. Will the

12   problem persist if government doesn't take action? Is

13   there a governmental failure that's contributing to the

14   problem? Gosh, I hate to say how often that's the case,

15   but often it is the case.

16   We try to estimate how much consumer injury

17   there is from a practice. The final question is: Is

18   there a viable remedy? And for economists, that

19   basically means do you have a remedy that you're pretty

20   sure is going to pass a cost benefit test? Often the

21   devil is in the details because often when you try to

22   sit down and think about possible remedies it's not

23   clear what remedy would be best for consumers.

24   So what sort of consumer protection policy

25   remedies exist? Well, I didn't bring up the obvious one

1   which is to do nothing. The famous political scientist,

2   Thomas Dye, says that public policy is the study of

3   everything that you do as well as what you don't do.

4   Doing nothing is a remedy of no action.

5   Another remedy is to inform consumers, give

6   consumers information with which to make better purchase

7   decisions with the idea that the market will work better

8   as a result. One can also educate consumers. In my

9   Lexicon, education goes one step beyond information.

10   Providing information is giving people the facts.

11   Educating consumers is telling them how to use the

12   facts. Often involved in education is some aspect of a

13   judgment call about what the relatively important facts

14   are or how people might want to make decisions.

15   The newest policy remedy is to nudge consumers.

16   For example, one nudge idea is to change opt-in opt-out

17   rules. This hopefully leads people to better outcomes.

18   The final consumer policy remedy, which I would say is

19   the most restrictive, is to restrict product

20   characteristics. You can just say certain types of

21   products are no good for consumers. And they should be

22   banned from the marketplace.

23   In approaching questions about what types of

24   problems should be remedied with interventions and what

25   interventions would be best, we tend to look at several

1   literatures, and in the consumer protection group, we

2   hang our hat on traditional microeconomics. I often

3   hang my hat on household production. I think in terms

4   of models as like Gronau or Becker where individuals or

5   households have a utility function that would include

6   things like health.

7   And then there is a production function that the

8   household has where people can combine different inputs,

9   their time and other inputs such as doctors or medicine

10   to produce helpful outcomes. The economics of

11   information literature is also important. People are

12   maximizing utility subject to budget constraints.

13   Understanding when it makes sense for people to get more

14   information is important for knowing how different

15   remedies will affect the marketplace.

16   We spend a lot of time looking at the marketing

17   research literature. One of my colleagues, Jim Lacko,

18   is always great at finding articles that I've never seen

19   before. He recently showed an article to me that I had

20   never seen before written by Louis Wilde. It was

21   written in 1980, by Wilde of Wilde and Schwartz. It's

22   called the "Economics of Consumer Information

23   Acquisition," and it was published in the Journal of

24   Business in 1980.

25   And in here what he basically says is that

1   traditional economists have a lot to learn from consumer

2   researchers, that the two need to work together to

3   really put some meat on the economic models, and to put

4   some empirical structures on the consumer behavior

5   models. And I feel like not having read this article, I

6   think he would be very pleased to know that this is

7   really what we've been doing in the Division of Consumer

8   Protection over the past 20 and 30 years.

9   Behavioral economics of course I think is

10   important. I think it's very similar to a lot of the

11   traditional social psychology literature which has been

12   included in marketing research, and of course the law

13   and economics literature is very important too.

14   How do you evaluate consumer issues? The FTC

15   prohibits unfair or deceptive acts or practices. What's

16   unfair? What's deceptive? How do you hang some

17   theoretical structure on these terms to have rational

18   regulation?

19   Well, some cases are easy. Outright fraud

20   provides no benefit to society, so resources permitting,

21   action is warranted. There's no concern about over

22   deterrence, but those aren't the interesting cases.

23   Some cases are hard and they require substantial

24   analysis using all available data and the collection of

25   new data.

1   For example, consider advertising substantiation

2   cases where there is scientific support for a

3   relationship between a product and health, but the

4   support is not complete. Without proper substantiation,

5   you can run afoul of government labeling rules with

6   health claims. However, what you can say on a label

7   about health and what metric you focus on will have an

8   effect on how firms compete, what consumers choose, and

9   what's available to them in the marketplace.

10   Differences among people complicates the

11   analysis. Models of constrained utility maximization

12   recognize that people are different. They have

13   differences in tastes. They have differences in their

14   income or wealth constraints. They have different

15   reactions to time constraints.

16   The great thing about economics I think is that

17   it does understand that people are unique, and it's

18   difficult to say because Joe did this and Jim did that,

19   that somehow one was not solving a constrained utility

20   problem.

21   I love this cartoon from the New Yorker. "I

22   want to read something targeted directly at me." People

23   are unique and people want goods and services that fill

24   their unique circumstances, and so there are benefits to

25   having a marketplace to provide many niches for many

1   people.

2   Now, I was going to focus today almost entirely

3   on financial markets, but I wanted to go back to this

4   point about advertising, and that regulation for

5   advertising and health claims for advertising can be

6   very complicated, and regulators can make mistakes.

7   When I first came to the FTC, I was asked to

8   work on a project with Jack Calfee to look at how to

9   regulate health claims in advertising, and in doing that

10   work, I spent a lot of time reading through old

11   scientific literature and learning about relationships

12   between dietary fat, dietary cholesterol, serum

13   cholesterol and heart disease.

14   And what I was surprised to learn was that

15   scientists knew by the late 1950s that cooking oils that

16   are low in saturated fat and high in polyunsaturated fat

17   would reduce someone's serum cholesterol when

18   substituted calorie for calorie. So Ancel Keys was one

19   of the leaders in the area. His research became the

20   foundation for the 1989 Diet and Health Report that was

21   put out I think by the National Academies.

22   What was surprising to me was that I thought in

23   the '80s that the understanding about the relationship

24   between different types of fats and dietary cholesterol

25   and serum cholesterol and heart disease was something

1   new, but it wasn't. Well, why didn't we know that?

2   So I ended up working with a wonderful

3   colleague, Debra Ringold, who is a specialist in

4   marketing research, and we tried to understand more

5   about the role of advertising in the provision of

6   scientific information about goods in the marketplace.

7   Marketing people draw these boxes, so we drew boxes.

8   You have a discovery. It goes to a professional

9   journal. It goes to the popular press.

10   It eventually gets to consumers if they

11   happen to read the popular press, but none of this sort

12   of information is advertising. People can get

13   information from advertising about the

14   relatively healthful attributes of food products.

15   Regulators can asses what happens in advertising and in

16   labeling.

17   They can say, yes, this claim is okay in

18   advertising or, no, it's not, so we did a content

19   analysis. We looked at advertising for fats and oils

20   from 1950 through the 1980s, and what we saw was very

21   fascinating. As soon as there started to be strong

22   scientific support for the relationship between dietary

23   cholesterol, saturated fat, polyunsaturated fat, serum

24   cholesterol and heart disease, that information appeared

25   in high press articles such as in Readers Digest and

1   similar places, and manufacturers started to put that

2   information in advertising for corn oils.

3   Corn oils, I will have you know because I did a

4   lot of this research, actually have the best profile of

5   any oil that was studied by Keys. It went beyond the

6   typical saturated fat, polyunsaturated fat piece of

7   their regression analysis because there's something in

8   the unsupportable fraction of corn oil that made it

9   particularly good for your serum cholesterol.

10   So people, firms like Mazola, started bringing

11   this information to consumers. We're looking here at a

12   measure of the content of the advertising. We looked at

13   ads with any heart disease claim, so information about

14   heart disease in an advertisement.

15   We looked at two types of advertising. We

16   looked at advertising to professionals, for example, in

17   the Journal of the American Medical Association or the

18   Journal of the American Dietetic Association, and

19   advertising to consumers in popular magazines.

20   So what did we find? We found that as soon as

21   there started being strong evidence, in the period 1955

22   to 1959, the manufacturers tried to bring the

23   information to the consumers in their advertising.

24   Regulators, however, thought that the information was

25   premature. FDA policy made sure that this information

1   was no longer available to consumers.

2   What's interesting is if the information was so

3   bad and didn't have much scientific support, then why

4   would you have that same information going to the

5   professionals? So the fact that it went to the

6   professionals, the dieticians and the doctors who are in

7   the best position to know whether or not the scientific

8   support had merit, but didn't go to consumer suggests

9   that consumers didn't get important information for

10   decades.

11   You see similar patterns, but not quite as clear

12   with dietary cholesterol claims and not quite as clear

13   as with saturated fat claims. What happened was doctors

14   were telling their heart patients to look for products

15   that were low in saturated fat, but you had to have

16   that information from your doctor or another source to

17   know why saturated fat mattered for heart disease.

18   So the point is this: Regulating information is

19   very difficult. Recalling the differences between type

20   one and type two regulatory errors, harming people from

21   allowing information that turns out to be false versus

22   harming people from prohibiting information that turns

23   out to be true, is a balancing act that must be done.

24   It's very difficult to do, but if we're going to have

25   rational consumer protection information policy,

1   appreciation for both type one and type two regulatory

2   error is important.

3   Let me talk about financial products. This is

4   the hot thing in the news and what I've been working on

5   lately. It is particularly difficult to judge consumer

6   choices for financial products. Where is a customer in

7   their life circle, their earning cycle? Where you are

8   in the life cycle is going to determine how much you're

9   willing to spend versus save.

10   When you're looking at housing decisions, how

11   much is a person willing to sacrifice to buy a house in

12   a good school district? Education is tied to housing

13   through school districts, so this is an important

14   consideration for many people. What are expectations

15   about future income? There are so many unobservable

16   factors that affect choice that makes it very difficult

17   to say what's best for someone.

18   The FTC put a conference together back in 2008

19   trying to understand more about the role of consumer

20   information in the mortgage market. We had several

21   sessions where we brought together people. Susan

22   Wachter was there from Penn, Anthony Pennington - Cross,

23   Chris Mayer from Columbia to look at the economic

24   analysis of mortgage product development, market

25   structure and mortgage outcomes. The question in the

1   first session was: How has this market developed? What

2   kinds of products have developed to meet what kinds of

3   needs and why?

4   The second session was economic analysis of

5   consumer information and mortgage choice, trying to

6   understand more about the role of consumer information

7   and the understanding of that information and consumer

8   choices.

9   The third session was a general roundtable on

10   information in the mortgage market crisis. The final

11   session was developing disclosures for real consumers to

12   help prevent deception, delinquency and foreclosures,

13   and where policymakers should go from here.

14   So I want to go back to this discussion earlier

15   about policy remedies, what remedies are available.

16   Research is showing that non prime products are not

17   necessarily inherently flawed. And I think suggesting

18   that product restrictions, regulations that basically

19   say certain types of products cannot, will not exist

20   anymore for consumers with less than prime credit can

21   easily do more harm than good.

22   During the conference, Chris Mayer talked about

23   the rise in mortgage defaults, facts and myths, had many

24   sources and take-aways that he was willing to share with

25   us. His research at the time, this is 2008, showed that

1   defaults appeared to be unrelated to mortgage market

2   innovations, including prepayment penalties, rate resets

3   on short-term ARMs, interest only or option ARMs.

4   The evidence was that unprecedented rise in

5   defaults and foreclosures was primarily due to

6   stagnation in housing prices, perhaps driven by the sub

7   prime collapse and slackened underwriting and poor

8   economic conditions in some locations.

9   His suggestion of where to go at that point in

10   time, again this is 2008, was to encourage the private

11   sector to responsibly replace a trillion in lost

12   mortgage originations. Consumer protection regulation

13   should be carefully constructed to ensure credit is

14   available to risky borrowers who can afford it. Legal

15   changes that would allow cram downs or require

16   negotiations would surely reduce the new supply of

17   credit, possibly extending house price declines.

18   We also had work by Paul Willen exploring

19   whether market participants could have or should have

20   anticipated large increases in foreclosures. We

21   basically concluded that analysts on the whole

22   understood that a fall in prices would have disastrous

23   consequences for the market but assigned a low

24   probability to the event. The subprime market opened up

25   home ownership opportunities, and again he gave us data

1   from his research showing that foreclosure rates

2   basically tracked changes in housing prices.

3   During the conference, I had the opportunity to

4   ask all the panelists, and it was an esteemed group of

5   panelists, the following question: Assume that you are

6   a philosopher king or queen with the power to change one

7   consumer policy to improve the mortgage market; what, if

8   anything, would you change? And on a scale of zero to

9   100, with zero being not at all certain, and a hundred

10 being absolutely certain, how certain are you that

11 benefits of this change would outweigh the costs?

12   One panelist out of the 17 who responded

13 suggested a nudge strategy, a 30 year fixed rate, no

14 fees default mortgage that you would have to opt-out of.

15 Almost everybody suggested an information remedy. One

16 remedy was a federal rule preempting state law that no

17 disclosure could be promulgated without scientific

18 support that consumers make better decisions with the

19 information than without it. Simplify, simplify,

20 simplify as much as possible. People need

21 simplification and mild guidance.

22   Other reforms include improved consumer

23 financial education, improved property and foreclosure

24 records, and developing a recommendation tool to sort

25 alternatives in an order correlated with that consumer's

1   personal utility function. This allows consideration of

2   fitting options and makes costly consideration of not

3   fit.

4   John Lynch of Duke University is working with

5   Susan Woodward on this now, trying to come up with

6   decision tools that would be more useful for consumers.

7   So again, coming back to the point of information

8   remedies, oftentimes it's going to be the best for

9   consumers, assuming that we come up with information

10 remedies that actually work.

11   To go back to this favorite article by John

12 Vickers, because he sounds so eloquent, while no one

13 could doubt the wisdom of banishing quacks practicing as

14 doctors or fraudulent advertising, there eventually

15 comes a point beyond which constraining freedom of

16 contract further brings costs that outweigh benefits.

17 These costs, which consumers ultimately bear and which

18 may be hidden from view, can stem from less choice and

19 competition as well as the cost of regulation itself.

20   Indeed, the best solutions often involve better

21 consumer information rather than less consumer and

22 producer choice. But improving consumer information is

23 often easier said than done, especially information that

24 is of immediate and direct, practical use, for as

25 consumers, we are all boundedly rational, and rationally

1   so.

2   Now I would like to talk a little about research

3   that we did trying to understand the perils and promises

4   of information remedies in the mortgage market. This is

5   work I did with my colleague Jim Lacko. The motivation

6   for the research was that there has been a long history

7   of mortgage disclosure requirements in the United

8   States.

9   The Truth in Lending Act goes back to '68 and is

10   often held up as a great example of consumer protection

11   regulation. The Real Estate Settlement Procedures Act

12   goes back to 1974. Yet there is still concern about the

13   effectiveness of the disclosures required by these laws.

14   We at the FTC see deceptive lending cases all the time,

15   deceptive lending cases in instances where consumers

16   received every required federally mandated disclosure,

17   and that leads one to ask the question: How can people

18   be deceived if they're receiving these disclosures? Is

19   it possible that the disclosures are flawed?

20   Despite concerns about disclosures, it's hard to

21   believe, I know, but when we started looking at the

22   mortgage market -- maybe '94 -- there was no

23   quantitative research on consumer interpretation of

24   mortgage disclosures. Let me say that again. People

25   are buying houses. The federal government is requiring

1   disclosures. It's against the law to not fill out the

2   disclosures.

3   Yet there was no consumer research on how

4   consumers understood or misunderstood the federally

5   required mortgage disclosures. The objective for this

6   study was to see how consumers search for mortgages, how

7   well consumers understand disclosures and whether it's

8   possible to develop better disclosures. It was a two

9   part study. It consisted of a series of qualitative

10   interviews with consumers who were recent mortgage

11   buyers.

12   Let me tell you a story there. It's not so easy

13   to find a sample of recent mortgage buyers. We had

14   contracted with a firm that was going to do this for us,

15   but it turned out that we wanted people who had closed

16   on a mortgage within two, three, four months at most.

17   We couldn't find that data set. We found the data by

18   going to the courthouse in Montgomery County, Maryland,

19   myself and various RAs, and sifting through mortgage

20   records to try to put together a list of recent mortgage

21   customers that could then be sent to the contractor.

22   General observations: In the qualitative

23   research, most respondents began the interview happy

24   with their mortgage experience. These were not a sample

25   of complainers, but they're attitudes deteriorated

1 during the interview as they recalled problems, and they

2 got very nervous as they started looking more and more

3 at the disclosures because they started to realize, I

4 don't know what I bought. Even people who were

5 attorneys didn't know what they had bought.

6   Many were unaware that they had a lack of escrow

7 for taxes and insurance or large balloon payments or

8 adjustable rates or prepayment penalties.

9 Misunderstandings were present among prime and sub prime

10 respondents, both those who had done extensive

11 comparison shopping like you think a good consumer

12 should do, and those who had not done any.

13   Many respondents could not understand their own

14 loan terms. They were confused by fees. Few understood

15 the APR. Many people believed it was the interest rate.

16 I think one person thought it was the highest rate that

17 could be charged. The current disclosures were a

18 problem and things that are required by law proved to be

19 big problems.

20   The amount financed is one of those big boxes in

21 the trial form; that's like a center piece of consumer

22 regulation. Many consumers believed that the amount

23 financed was a loan amount, rather than the loan amount

24 minus any settlement costs you are financing, the

25 pre-paid finance charges. So what does that mean? It's

1   a place to hide deception.

2   If you thought you borrowed a hundred thousand

3   dollars and didn't realize that $2,000 are going to pay

4   for upfront fees, so really you're borrowing a $102,000,

5   you look at the Truth in Lending statement, it would say

6   amount financed a hundred thousand dollars. That form

7   would never give you a clue that you were rolling the

8   payment of upfront fees into loan principal. Discount

9   fees, people thought that those were a discount fee that

10   they received rather than the fee to be paid. Well,

11   discount fee, what is that? It's very confusing.

12   We then showed people our disclosure form and in

13   qualitative research, they liked it. Then we did

14   quantitative tests in an experimental setting in 12

15   locations across the country, with 819 recent mortgage

16   customers, half prime, half sub prime.

17   We tested in head-to-head competition the

18   current forms, the title form and the good faith

19   estimate, against a prototype disclosure form developed

20   by FTC staff, primarily my colleague Jim Lacko who's

21   great at putting these forms together, to try to

22   understand whether it's possible to improve consumer

23   recognition of the costs and features of a mortgage

24   loan.

25   We used fixed rate disclosures. The prototype

1   format was a one-page summary of key loan costs and

2   features and two pages of further detail. This is what

3   the prototype looked like.

4   In the testing procedure, respondents were given

5   disclosure forms for two hypothetical loans. Half were

6   given current forms, half were given the prototype

7   forms. They were instructed to examine the forms as

8   they would if they were shopping for a mortgage. They

9   were asked a series of questions about a dozen different

10   loan terms and able to continue examining the forms

11   throughout the questioning, so they either had the old

12   forms or the prototype forms.

13   We tested different loan scenarios. Here's the

14   bottom line: Percentage of questions answered

15   correctly. When you asked objective questions of

16   consumers under these two different information

17   scenarios. In both loans, a simple loan and complex

18   loan, under the current Truth in Lending Act and

19   disclosures used during the time of the studies, 61

20   percent of these questions were answered correctly; for

21   the prototype, 80 percent were answered correctly.

22   That's an increase of 19 percentage points.

23   That's huge and that's based on one prototype written by

24   two economists with some input from various colleagues

25   at the FTC. Think how much better you could do if you

1   put even more research behind it.

2   I know that we're out running out of time so I

3   sort of need to get to the end here. Our bottom line

4   finding was that it's possible to create new disclosures

5   that significantly improves consumer recognitions of the

6   costs in terms of a mortgage, and improved disclosures

7   could provide significant benefits to both prime and sub

8   prime borrowers.

9   What is the impact of ineffective current

10   disclosures? The ineffectiveness of currently required

11   federal disclosures is likely to have contributed to the

12   market crisis. Study results show that the current

13   disclosures are not even effective for plain, vanilla,

14   fixed rate loans. They are likely to have been even

15   worse for more complicated loans, which were popular in

16   recent years.

17   We don't want to imply that all consumers

18   misunderstood their loans or that ineffective

19   disclosures are a primary cause of the current crisis,

20   but results suggest that it's likely that many consumers

21   did not know what they were getting into and that this

22   lack of understanding made the current problems worse.

23   For example, some of the loan terms currently of

24   concern and being addressed by new regulatory

25   restrictions are terms that current disclosures were

1   particularly ineffective for consumer understanding,

2   like prepayment penalties, lack of escrow for taxes and

3   insurance and balloon payments.

4   I wanted to mention one more. There is another

5   study that Jim and I did called "The Effect of Mortgage

6   Broker Compensation Disclosures on Consumers and

7   Competition" where we tested the effect of compensation

8   disclosures. The question here was, what was the impact

9   of how much compensation the loan originator was

10   receiving on consumer understanding of the costs of

11   loans. We found that that disclosure actually caused

12   people to make worse decisions than they would have

13   without the disclosure.

14   So the bottom line is that new mortgage

15   disclosure should not be implemented unless consumer

16   testing demonstrates that they're better than those

17   currently required. You can't rush to do something

18   without really testing it. It's very important and it

19   is true that bad disclosures can really do more harm

20   than no disclosure at all and it's important to

21   recognize.

22   But I don't want the take away message to be

23   that disclosures cannot work. In fact, I still think

24   that they're probably better than many other

25   alternatives that are available. Going back to my final

1   point: Consumer protection policy is often tricky

2   because people are unique.

3   You have to be careful banning a type of

4   prepayment penalty: If you ban prepayment penalty,

5   there is no sub prime lending. A lot of people think

6   the government should ban prepayment penalties. If that

7   happens, that's the end of sub prime lending. If you

8   think that's a good thing, that's good. If you think

9   it's not a good thing, it's not good.

10   There are other things that you can do rather

11   than ban the prepayment penalty. Well the prepayment

12   penalty disclosures that we have had for years stink.

13   They say things like "may, may not" have a prepayment

14   penalty. I kid you not, "may, may not" have a

15   prepayment penalty. Well, nobody can tell what that

16   means. I can't tell what that means.

17   Consumer protection is unlikely to be effective

18   without a joint mandate to promote competition. It's

19   very important when doing consumer policy to think about

20   the firms' side of the market and information remedies

21   are generally better than product restrictions, but

22   untested remedies can do more harm than good. We must

23   move beyond the economics of information to the

24   economics of comprehension.

25   And I think there's great potential for success.

1   The stars are aligned for further consumer research and

2   development. I think the future contribution of

3   economics will depend on defining common ground among

4   microeconomics, behavioral economics and marketing

5   research.

6   I think it's very important as policy debate

7   moves forward for people to really be clear about what

8   we are really assuming in traditional post 1970 models

9   of consumer behavior and what assumptions may or may not

10   be founded based on behavioral economics and marketing

11   research. And where there is the common ground because

12   policymakers, to move forward, really need to understand

13   where the common ground is.

14   Thanks very much.

15   (Applause.)

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1   PAPER SESSION TWO: Advertising, Information and

2   Consumer Behavior

3   KYLE BAGWELL, Stanford University, Chairman

4   FEDERICO CILIBERTO, University of Virginia, "Push-Me

5   Pull-You: Comparative Advertising in the OTC Analgesics

6   Industry," Presenter

7   PAULINE IPPOLITO, FTC, Discussant

8   BRETT WENDLING, FTC, "The Impact of Drug Advertising on

9   Consumer Choice in Health Care," Presenter

10   JAYANI JAYAWARDHANA, Medical University of South

11   Carolina, Discussant

12   SOFIA VILLAS-BOAS, University of California, Berkeley,

13   "Another Nutritional Label-Experimenting with Grocery

14   Store Shelf Labels and Consumer Choice," Presenter

15   JAYACHANDRAN VARIYAM, U.S. Department of Agriculture,

16   Discussant

17

18   DR. ROTHSTEIN: We'll go right into the

19   session, thank you very much, which will be chaired by

20   Kyle Bagwell. Hi, Kyle.

21   So Kyle Bagwell is here to lead the next

22   session. Kyle is the Donald L. Lucas professor of

23   economics at Stanford University, as you all know. He's

24   written on topics ranging from the general agreement on

25   tariffs and trade, the value of price as a signal of

1   quality, the economics of collusion and the economics of

2   advertising.

3   Kyle is a fellow of the Econometric Society and

4   an editor of numerous journals. He's a former editor of

5   the Rand Journal of Economics, but I will stop there.

6   The full bios are available online at the conference web

7   site, and let him get on with the work of the day.

8   DR. BAGWELL: Thank you, Paul. I want to thank

9   Chris and Paul for organizing this great conference and

10   everyone at the FTC and Northwestern as well.

11   The title of this session is "Advertising

12   Information and Consumer Behavior," and our first

13   speaker I believe is Federico Ciliberto.

14   DR. CILIBERTO: So thank you for having me here.

15   It's a wonderful opportunity to somewhat hopefully help

16   shape some policy, so this is a work with Simon

17   Anderson, Jura Liaukonyte and Regis Renault.

18   So the question that we addressed in this paper

19   is really this: How do firms strategically use self

20   promotion advertising and comparative advertising to

21   push up their own brand perception along while pulling

22   down the brand that consumers have of the rivals?

23   So the way that you want to think about it is

24   that you can have two types of advertising really. One

25   is non comparative advertising, which is only positive

1   promotion. And then you have the other one, which is

2   comparative advertising, which has these two components

3   in it, which is on one hand you are pushing up your own

4   perception, but you're also pulling down the perception

5   of the quality that the other products have.

6   So the main objective in a sense is quite

7   confined. So what we want to do is this: We want to

8   have as simple a model as possible. It's going to be a

9   static model and it's a model of targeting advertising.

10   By targeting we mean that it incorporates this

11   comparative advertising rate. And then what we want to

12   do is we want to figure out how to get to some

13   specifications that we can run on some data, and from

14   this specification, learn something about whether or not

15   the comparative advertising is effective, to what extent

16   it is and how you can compare it to self promotion and

17   other things.

18   In case I don't have time to finish the

19   presentation, we show that higher market shares are

20   associated with the higher self promotion advertising,

21   so bigger firms are going to do self promotion more than

22   smaller firms.

23   My outgoing attack against say Chris' is half as

24   powerful as a self promotion for my own quality, so by

25   spending one dollar of competitive advertising I'm

1   pushing up myself by as much as 50 cents. That's the

2   notion. We show that instead of every dollar which is

3   spent by the competitors or incumbent requires 40 cents

4   to me, so incoming attacks also have an effect.

5   So to some extent what you want to think about

6   of this paper as really trying to ask the question: Is

7   this competitive advertising really as effective or is

8   it just something that the firms do? And it's not

9   really as effective as we expect, so we really want to

10   quantify in a sense that they're wrong.

11   We have a model where we have two endogenous

12   variables. One is comparative advertising, one is self

13   promotion. So we will have first two conditions, one

14   for each variable, and when we look at the comparative

15   advertising conditions, we show that the larger the firm

16   is, the more it has an incentive to attack another firm.

17   And the larger the attacked firm is, the stronger is the

18   incentive to attack so there is this interaction in the

19   size of the firms.

20   The paper has a very long literature review

21   which I'm not going to do. I'll go directly to the

22   content. Hopefully I'll give you the main points of the

23   paper. So think of it as each consumer has an intuitive

24   function. In this intuitive function there is a quality

25   function, which is a function of the self promotion

1   advertising by the self promotion advertising by the

2   firm J, so AJJ will be how much the firm J is spending

3   to self promote itself.

4   And then you have AJK which is how much I'm

5   spending to attack my competitors. This will be for all

6   the competitors that I have, and then I will have H and

7   J which is how much competitors are spending against me.

8   So very, very intuitive, very simple.

9   The demand is the classic demand. I'm not going

10   to spend too much time on it. It's a descriptive model,

11   which is written here as logit. The paper is still

12   ongoing in a sense, and now we're working on the next

13   logit. The results still hold, so let me stay on this

14   simple specification.

15   We have a profit. The profit again is quite

16   simple. We have the classic part, which is the market

17   size times the unit price minus marginal cost times the

18   share. But then here we also have the advertising, so

19   the advertising here is being endogenized in the model,

20   which -- I'm not going to spend too much time -- but

21   this is one important part of this work.

22   You have gamma. Gamma is the marginal cost of

23   the comparative advertising. So basically we are saying

24   that it can be that your art is challenged so there is a

25   chance that you have to drop it. And that increased to

1   the cost, that increases the costs of the comparative

2   advertising so think about it.

3   We have an intuitive function. We have a demand

4   and then we have the profit function. We get to the

5   first condition. We will have two first conditions.

6   One is for the non comparative advertising, one is for

7   the comparative advertising, and they lead to an

8   extremely nice and simple relationship, which I think

9   you will see it as a point of strength.

10   The first one is the no comparative advertising

11   which we use to derive the first prediction, which is

12   firms with larger market shares will use more non

13   comparative advertising, and you really see it in the

14   equation itself. This will remind you, for those who

15   are not familiar with the Doveman Steiner condition, but

16   in a context where we have comparative advertising. So

17   here it is really saying that for the larger firm, there

18   is a larger incentive for self promotion advertising.

19   Then we have the other first condition which is

20   the comparative advertising condition. And again is

21   very, very simple after you work it out. There are some

22   literature creeks but nothing particularly devious.

23   Everything is very transparent.

24   You have this comparative advertising condition,

25   again quite simple. Remember gamma is the marginal cost

1   of the comparative advertising. Lambda is what we will

2   show is the suitability parameter between self promotion

3   advertising and comparative advertising so basically

4   this is sort of the cost of doing comparative

5   advertising.

6   Cost, the marginal cost, any cost is affected by

7   not using self promotion advertising, and on the

8   left-hand side, you will see the key relationship, which

9   is the interaction of the share. The larger the share

10   of your comparative advertising, the more likely it is

11   that you attack each other. And then so you can

12   formalize these and get the results, which is that the

13   larger will target more of the competitors and the

14   larger is attacked more, so very, very simple

15   predictions you can derive.

16   So what do we do at this point once we have the

17   model set up? We get to the data. The data is the

18   over-the-counter analgesics market. All of us have

19   probably dealt at some point in our life with this, so

20   we have some nationally advertised brands, which are

21   Tylenol, Advil, Motrin, Aleve, Bayer and Excedrin. And

22   then what we do, we have three data sets.

23   The first one is a pretty classic data set.

24   It's aggregate sales, so what is really new here about

25   this paper is the number 2 and number 3. Number 2 is

1   basically a data set; think of it as a self file where

2   one entry is videos, so you click on that entry and you

3   watch the videos. So for that particular ad, you know

4   how much you will spend per month in a particular year,

5   but then you also watch the video.

6   So what's special here is that you will see the

7   content, so you see what the firm is saying, what the

8   one firm is saying against the other firm. So we called

9   each one of them in the following way: Basically we

10   watched the movie. We watched the video, and we ask,

11   who is the firm who is attacking whom? Say Tylenol is

12   attacking Advil, and so that's going to be a comparative

13   ad.

14   We know how much they're spending and then

15   another entry so far will be a self promotion

16   advertising where Tylenol is just self promoting itself;

17   very, very simple. I mean, this is the data set, and

18   then you want to quote it to be merged with the sale

19   data set, okay. It's simple, but really this is a

20   crucial part of the paper.

21   In order to do good empirical work, we want to

22   identify the source of exogenous variation. There will

23   be two sources of exogenous variation. One is the

24   medical news data, so basically we do a search on

25   Lexis-Nexis for any possible negative shock or positive

1   shock which hit the industry at any point in time in our

2   empirical study. Then we use generic price as an

3   instrument, and I will try, if I have time, to discuss

4   why we believe that that's a good instrument.

5   I'm not going to spend too much time on the

6   sales data, just take my word, and then we can go back

7   if you ask me. What's normal in terms of data is really

8   this attack matrix, so if you really want to think about

9   what is this paper trying to do, this paper is trying to

10   explain what this entry is. So you look at this table,

11   and you say Advil is attacking Aleve by 17.80 billion

12   dollars and say Advil is attacking Tylenol, 160.

13   So Advil is attacking Tylenol much more. It

14   makes sense within the model. Tylenol is a bigger firm,

15   but notice that many of the predictions of the model are

16   really there in this simple table, okay.

17   So again, when you ask yourself, what is this

18   paper trying to do? It's really looking at this table

19   and saying, can I explain this entry within a model of

20   profit maximizing behavior?

21   UNIDENTIFIED SPEAKER: Is this just a

22   cross-section?

23   DR. CILIBERTO: No, no, no. Oh, I see. This is

24   the sum over time, the sum of a time, so I could have

25   for each month a little table, but I didn't do that. I

1   mean, in the estimation that's what I'm using. This is

2   just this is describing the general parameter.

3   Okay. So this is the first data set, and then

4   this one really discusses advertising data. News shock,

5   so the key idea is the following: Again you go to

6   Lexis-Nexis. You have some key words. The key words

7   are say Aleve. You look for any possible shock that hit

8   Aleve, and then you create a table.

9   I always like full transparency, so here is what

10   it is: You find the particular shock. You know the

11   date when this shock happened, and then you want to

12   verify that this shock was relevant from a medical point

13   of view. You don't want to take shocks which don't have

14   any effect.

15   Some of the shocks are measured because they

16   appear on USA TODAY or CNN or this type of media, and

17   some are smaller in the sense that they don't appear on

18   major newspapers, but they still are there.

19   So at this point basically we have seen the

20   model. We have seen the exogenous variation. You need

21   to bring the model to the data. I only have five

22   minutes. Can I take your question later?

23   So now you want to see the regression, so if you

24   want to have some type of structure award, you will have

25   to assume some function on the base quality.

1   We spent how much time on this project, months?

2   And when you look at it you say, oh, it looks

3   complicated, and it's not complicated. So why did we

4   spend so much time? Because we want something simple

5   where we capture the major vision of the model without

6   driving the results. You will see the results are not

7   driven by this.

8   Basically you think of this is a approximation

9   of a quality function. It's quadratic in the outgoing

10   and the incoming. I cannot spend too much time on this.

11   So given that you derive nice ancillary

12   conditions, which basically are written as the self

13   promotional is a function of your shares, a function of

14   how much you're spending in comparative advertising and

15   how much you are being attacked. And the comparative

16   advertising is a function of this product of this share,

17   how much the guy you're attacking is spending in non

18   comparative advertising, how much he's spending in

19   comparative advertising, and how much other people are

20   attacking him.

21   So say, for example, they don't tell you that

22   there was a model. And we started my presentation from

23   here and it was a purely reduced form presentation, no

24   structure or anything, and then you ask yourself: What

25   type of regression do you want to run? And then you ask

1   yourself: Are these reasonable? Is this a reasonable

2   regression? And I think the answer is yes.

3   When you think of self promotion, you think that

4   that self promotion is a function of how much you're

5   spending, for example, in comparative advertising, how

6   much you're being attacked. So if you want to have a

7   miniscule view of this paper, you can also look at this

8   as what we are running.

9   I don't have time for the identification. We

10   spent a long time, a lot of time on the paper there.

11   The way we do this is Talbot regressions because many

12   times the first doesn't do any comparative advertising,

13   and so here are the results. We get the result and the

14   way you want to think of it is we can look at this

15   column, at the fourth column, and the fourth column is

16   where we put all the news shock, and you want to look at

17   this number. It is minus 0.452. This is really the

18   marginal substitution of self promotion and comparative

19   advertising.

20   So this is telling you that for each dollar that

21   you spend on comparative advertising, basically that's

22   worth for you 45 cents of self promotion, okay?

23   Similarly, you look at what you do when someone

24   is attacking you and you have the economy parts, which

25   is this one, and you get 0.637. So this again tells

1   you, first of all, it's in terms of the effect. There

2   is an effect. People will tell you that you do have an

3   effect on your quality, okay, and that's what it

4   measures.

5   We are still in the process of determining

6   exactly what this number means, but this is going to be

7   determining the marginal substitution of incoming attack

8   and self promotion attack. Then there is the next

9   table, which is the comparative advertising. I guess I

10   have two minutes at this point.

11   Here the product of the shares are interacted,

12   but they're in the denominator so in effect the factor

13   2, so you will find that indeed you have this

14   relationship in the data that the bigger one is

15   attacking more and the bigger is attacked more.

16   So essentially all the predictions that I tell

17   you are there in the data, but you also learn something

18   about other relationships such as the self promotion

19   advertising of the attack. So you see that the self

20   promotion attack doesn't seem to change my behavior in

21   terms of how much I'm attacking him.

22   So this was quite long. Let's finish it with

23   the conclusions. There are some limitations which I

24   talked with Pauline about, and she anticipated it. In

25   the paper we are extremely clear about it, but if you

1   notice there is no information here. It's all about

2   persuasion, so she can tell you more, okay.

3   If you think about the literature in

4   advertising, there is a big divide between persuasive

5   advertising and informative advertising, and this

6   empirical work is particularly strong. Empirical work,

7   it's clear. You really have these two directions, so

8   when you think of comparative advertising, you really

9   think of the paper by Goeree as the top way, I think of

10   thinking how you model information advertising.

11   Here we really look at persuasion, and we are

12   emphasizing the advertising. And we are trying to see

13   how firms choose in the context where they can have both

14   self promotion advertising and comparative advertising.

15   People question: Can you do welfare analysis or

16   not? No, because we don't have the demand. In

17   principle, when you want to do the welfare analysis, you

18   really need to have an equilibrium model. The perfect

19   paper will be a paper where you tell the firm that they

20   cannot do any more comparative advertising. This is an

21   old idea; it's not our idea.

22   Is there a prisoner's dilemma here where firms

23   are attacking each other and they don't change the

24   share, which is what we see? We don't see changes in

25   the shares in the data. The only time when the shares

1   were changed in the data is when Aleve was hit by a

2   shock at the end of 2004. But the advertising doesn't

3   seem to change the share. So the question is: Are they

4   attacking each other, spending a lot of money and they

5   don't move much? Modeling that is beyond what this

6   paper is trying to do.

7   That's it.

8   DR. BAGWELL: Thank you very much. Pauline will

9   be our discussant.

10   DR. IPPOLITO: Thank you. Well, just to let you

11   know you're in Washington. I speak for no one who

12   matters.

13   This is a very nice paper, and he does a good

14   job in laying out the model. It's a relatively simple

15   model as these things go these days and it predicts

16   results that are not surprising, which is if you're

17   going to attack someone, you attack someone big because

18   you get more share from them, and if you're a very small

19   firm, you're not likely to attack someone big because

20   others will share in the migration away from that firm.

21   It all comes out of an equilibrium. We get the results.

22   So this is in the tradition of IO people who

23   look at advertising issues. It's all about how much you

24   are spending and how it affects share. The paper adopts

25   the unfortunate labeling from the literature and I wish

1   we could all agree to never use these words again. The

2   unfortunate labeling is that there's informative

3   advertising and there's persuasive advertising.

4   Persuasive advertising in this literature means

5   anything that moves demand, and it comes out of the old

6   literature on hidden persuaders, you know, what

7   advertising was doing was getting people to buy things

8   they really didn't want. So if you think about olive

9   oil telling you that saturated fat causes heart disease

10   and therefore you should choose olive oil because it

11   doesn't have saturated fat, that of course shifts demand

12   for olive oil and it is quite informative in the English

13   sense of the word.

14   So this labeling is really unfortunate and I

15   wish we could all collude to never use it again. What

16   makes it particularly unfortunate though, especially

17   when IO people are already thinking about rivalry and

18   only about rivalry, is it leads you down a path to cause

19   you to say things like the authors did in this paper.

20   In the conclusion they say, this gives us quite

21   a negative view of comparative ads in the sense that

22   there is much wasteful battling just to stay afloat.

23   And so I started thinking about, well, is it really that

24   negative a conclusion? Should we think that this is a

25   waste?

1   So I did a little bit of research on the

2   analgesics market and I'm going to give you a

3   three-minute tutorial, and then you will tell me whether

4   you think this is all a waste or not.

5   So in the analgesic market, there are basically

6   two classes of drugs, acetaminophen, Tylenol, and the

7   NSAIDs, which means nonsteroid something or other and

8   inflammatory drugs. Those are aspirin, ibuprofen and

9   naproxen, so that's everything else; so it's Tylenol

10   against everything else. So acetaminophen, Tylenol, is

11   the major brand, reduces fever and it moderates pain.

12   The NSAIDs do both of those things, and they

13   also reduce inflammation, so if you get a joint injury

14   from exercising too much, it's inflamed, you want to use

15   an NSAID. You don't want to use acetaminophen. If

16   you've just got a plain old headache, you might want to

17   use Tylenol, but that's not the end of the issue. There

18   are also the risks. So what are the risks?

19   Well, for Tylenol, acetaminophen, it can cause

20   serious liver damage, and the tolerance limits between

21   the normal dose and an overdose are really quite small,

22   quite narrow. If you get an overdose of Tylenol, you

23   destroy your liver as in you're on the list for a liver

24   transplant.

25   So it's a very dangerous drug in some

1   circumstances. And if you drink alcohol, it magnifies

2   the effect, so a weekend of the flu and a party, you're

3   on a list for a new liver. So that's an issue.

4   Now, what about NSAIDs? So then you should say

5   take NSAIDs. Well, no, NSAIDs are very hard on the

6   stomach lining. They cause ulcers, and they certainly

7   exacerbate ulcers, so that's a serious risk for certain

8   people. It promotes bleeding. If you're prone to small

9   strokes, as an older person, you don't want to be

10   talking a lot of NSAIDs. A small stroke can become a

11   big stroke.

12   Kidney problems, the NSAIDs cause work on your

13   kidney. If you have kidney disease, you don't want to

14   be taking this category of drugs and it's doing harm to

15   your kidney if you're taking them a lot.

16   Then there are the cardiovascular events. Vioxx

17   was pulled from the market, but most people today think

18   that Vioxx really isn't any different than these other

19   drugs in this category and there is a small chance of a

20   major cardiac event from taking NSAIDs.

21   So this is the two minute version of this drug

22   choice. It's not simple. It depends who you are. It

23   depends what ails you. It depends what else is wrong

24   with you. So it's a category where you see a lot of

25   comparative advertising.

1   I don't know what it means. Could be rivalry,

2   could be wasteful, but it could be informative. And so

3   one of the things I would like to suggest to the author

4   is I would like to know a little bit more about the

5   content of those comparative ads, where they're bringing

6   out these kind of issues. The drugs are better for some

7   things than other things. They have different side

8   effects, depending who you are. You might care more

9   about one or the other. If they are, then I'm not so

10   such it's always full rivalry.

11   In terms of the modeling, the understanding of

12   what's going on in this market, the two issues that I

13   would raise or the one in particular that I have

14   concerns about was they model advertising as having the

15   same effect on all consumers. So advertising for

16   Tylenol has the same effect on everyone. Advertising

17   for aspirin has the same effect on everyone.

18   Given the heterogeneity of consumers and the

19   different effects here, I'm not so sure I'm comfortable

20   with that, though I don't think it would matter for the

21   results they find. And then I have three little

22   requests for things they might consider.

23   First, I think the paper really should have a

24   little bit of a discussion of what's in these

25   competitive ads so we can judge this issue. The other

1   thing is this is data to die for. Nobody has this kind

2   of content data for advertising systematically collected

3   over time. What is in these ads? Really look harder at

4   the information issue relative to this competitive

5   issue.

6   I mean, if you really were going to get serious

7   about trying to test the persuasion wasteful advertising

8   against information in this market, you would want to

9   look at: Did the competitive advertising just add to

10   cost and raise prices? Or did analgesic choices get

11   better over time because of this, or coincident with

12   this advertising? With other kinds of data, you might

13   actually be able to look at that, especially where you

14   have the actual ads.

15   Then one final just tidbit: It's absolutely

16   standard, if you're going to do a content analysis, that

17   you explain who did the coding and how they did the

18   coding. I would really hate to have the marketers say

19   we're sloppy.

20   Thanks.

21   DR. BAGWELL: Thank you, Pauline. We have time

22   for one question? Is there -- an earlier question? I

23   can't remember. Nope. Federico, would you like to

24   respond in any way?

25   DR. CILIBERTO: I'll give a brief response. So

1 the coding was done by a law student and then

2 independently we hired another RA who did the collating,

3 and if you feel that we should say it, we will.

4   To some extent, so I'm very sympathetic to what

5 you're saying in terms of the information. Let me

6 give let's call it a cheap answer, and what I think is a

7 better answer.

8   The cheap answer is again, there are no

9 empirical works which do both. I cannot think of them

10 so either the advertising is put in the demand, and then

11 there is a waving of the hands and they said, oh,

12 advertising is there, we just see how it effects, or

13 it's explicitly said it's persuasive or informative.

14   We didn't want to have the waving, so we would

15 rather took the hit, a lot of hit, and we say it is just

16 persuasive.

17   The other part is you described the industry

18 very well, and I thank you for doing that. My hope when

19 we're using the news shocks is that what you're

20 saying about the liver, we caught it now. In other

21 words, what we hope is that by including the news shocks

22 as the exogenous variation, we are in some way lowering

23 the fact that we are not having information. So we hope

24 that somewhat this information directly put on the

25 inside addresses what you're saying.

1   DR. BAGWELL: Thank you very much.

2   Our next talk is by Brett Wendling.

3   DR. WENDLING: So my colleague, Dan Hosken, and

4   I are looking at how drug advertising direct to ad

5   consumers affects their propensity to visit physicians

6   for check up visits. We call our paper "Informing The

7   Uninformed."

8   So advertising in drug markets is fairly

9   controversial. The proponents of advertising for drug

10   markets suggest that advertising can be informative in

11   the sense that if Lipitor advertises their drug, then

12   consumers become aware of the fact that cholesterol

13   conditions are important medical conditions, that they

14   might have a high cholesterol problem, and that there's

15   a treatment available for that condition in the

16   advertisement.

17   Moreover, these proponents argue that these

18   advertisements directed at consumers might be aimed at

19   the least informed consumer, namely the patients who

20   might know very little or relatively less than

21   physicians about these health conditions.

22   The critics of allowing advertisements to be

23   directed at consumers suggests that the profit motive

24   provides incentives to firms to mislead consumers in the

25   sense that they might omit certain types of information

1   or they might misrepresent other types of information.

2   And there has been some documentation by a recent GAO

3   report that suggests that firms have not complied

4   completely with the regulations for the advertisements.

5   An additional concern of critics of

6   advertisements in drug markets in particular, is that

7   advertisements just raise the cost of drugs without any

8   commensurate benefit. These critics don't believe that

9   there are benefits, and in an environment where drug

10   costs are very large and have been rising over the past

11   decade, the increased drug costs of advertising is a

12   concern.

13   These arguments by these critics have actually

14   gotten some traction, and drug advertising directed at

15   consumers has been banned in certain countries. In the

16   United States, prior to 1997, the FDA regulations in

17   place effectively had banned advertisements direct to

18   the consumers and on television and on the radio.

19   And so there are important policy implications

20   for our decisions of how to treat drug advertising.

21   Specifically, should we ban direct to consumer

22   advertising, and if we should allow it, should we

23   regulate it more?

24   So our study is trying to address more of the

25   first one. We're interested in whether drug advertising

1   could provide some sort of informative benefits to

2   consumers. So what we're going to do is we measure how

3   direct advertising affects a consumer's choice to see a

4   physician for a check-up visit, and we're particularly

5   interested in check-up visits because we believe that

6   check-ups are sort of, by their very nature, an

7   informative medical service.

8   You go to get a check-up because you might be

9   unaware of the conditions that you have and you're

10 hoping that the check-up will resolve uncertainty about

11 the information that you might not have about your

12 condition.

13   We're going to focus on a population of the

14 undiagnosed in our analysis where these people are

15 defined as individuals that do not have any chronic

16 condition. This is a particularly relevant policy

17 segment of the population because this is a group that

18 is not receiving treatment for any type of condition and

19 therefore are likely to be uninformed about their

20 medical condition. And we're going to use the detailed

21 personal level information to be able to control for

22 personal level heterogeneity in their decision to visit

23 the physician.

24   So the relevant recent literature on drug

25 advertisement has basically focused on: How

1   advertisements affect the demand for drugs and/or

2   medical services that are related to the prescription of

3   drugs, an office visit where a prescription occurred.

4   And the basic findings of this literature are

5   that increases in the demand for specific drugs raise

6   the sales of the entire category, so there's sort of a

7   free riding problem for any firm. So if Lipitor spends

8   more money on their drugs, cholesterol drugs go up. All

9   cholesterol drugs go up, but Lipitor sales are not

10   disproportionate to the sales of cholesterol drugs.

11   So this got us to thinking, well, there's sort

12   of the mechanism for how these drug advertisements are

13   working is that individuals see the advertisements, and

14   that inspires them to go to the doctor. And then the

15   doctor prescribes the medication, and if that's the

16   case, then there might be, in addition to this sort of

17   free riding within a category, spillover across

18   conditions where you see a drug advertisement for

19   analgesics and you go to the doctor and you learn about

20   your hypertension problem.

21   So in addition to that, we were interested in

22   seeing if there are sort of differential effects across

23   different consumer groups with respect to drug

24   advertising as Ippolito and Mathios found for food

25   advertising in their grant paper. So the advertising

1   data that we're using in our paper is sort of common in

2   this literature. It's TNS Media information where they

3   report advertising expenditures separately by drug,

4   region, quarter and media type where the media type

5   includes information like the television channel of the

6   spending or the radio channel of the spending.

7   What we observe is that most of the advertising

8   in this data are national campaigns. There's very

9   little regional variation. More than 90 percent of the

10   data is national, so we've just decided to aggregate

11   nationally.

12   However, the advertisements do appear to be

13   targeted at different individuals so there's a

14   significant variation across media channels. For

15   example, advertisements that are targeted at birth

16   control ads or acne medications are disproportionately

17   on MTV, which you might think is a younger demographic,

18   whereas prostate condition ads and allergy medication

19   ads are on the golf channel, which is likely viewed by

20   old men who play golf, I guess.

21   So in order to exploit that variation in data

22   across these groups, what we're going to do is assign

23   the advertising to the individuals in our data, sort of

24   based on the demographic characteristics of individuals.

25   For example, we're going to assign sort of menopausal

1   treatment ads to women age 45, so age is going to play a

2   part as is sex. But we're going to allow for every

3   person, advertisements across all the conditions that

4   are relevant to them to be exposed to all those

5   different types of ads.

6   So what we end up with is advertising that

7   varies along several different dimensions. As I

8   mentioned in the beginning of the talk there was this

9   large increase in advertising over the period 1996 to

10   2004, which is our sample period, so we're going to have

11   that variation over time. And we're going to see

12   variation along age and sex characteristics sort of in

13   the way that I was describing earlier where we're going

14   to assign drugs that are relevant to certain age groups

15   to those groups. It's easier to understand that some of

16   these advertisements are not going to be relative or

17   relevant for the different genders.

18   So the data that we used for the demand for

19   office visits is the medical expenditure panel survey,

20   and this is a nationally representative sample of

21   individuals where it follows each of the individuals for

22   two years. What we do is reconstruct for every

23   individual in the period 1997 to 2004, and we construct

24   the four six-month panels, because we observed them for

25   two years.

1   This has a lot of demographic medical care and

2   health information that's relevant for our study. We

3   have age, sex, income information, insurance status.

4   For medical care, we observe whether you went to the

5   doctor for a physician check-up, so somewhat importantly

6   we directly observe whether an individual chooses not to

7   go to the doctor.

8   So we're following individuals over time rather

9   than physicians so we observe when someone chooses not

10   to respond. And we don't have to instrument for sort of

11   the population of people that are relevant.

12   With regards to the health information, we

13   observe self reported health status activity

14   limitations, which vary over time, in addition to

15   chronic conditions which are measured as international

16   classification of disease codes.

17   So in our empirical model, our dependent

18   variable is going to be an indicator of whether a

19   patient has a check-up during the period. It's going to

20   be a function of the advertising, which again varies by

21   these age and sex characteristics over time for a sample

22   of individuals that don't have a diagnosed medical

23   condition as identified with these ICD-9 codes.

24   For a group of individuals that are over 35, and

25   we choose 35 because most of these conditions that are

1   advertised are sort of these late onset chronic

2   conditions that the earliest days for which they're

3   usually observed in the data is for individuals 35 or

4   older.

5   To write down an equation, the estimating

6   equation that we have is: The probability that a person

7   i visits a physician in period t for a check-up is going

8   to be a function of the person specific direct to

9   consumer advertising expenditures as indicated by the

10   DTC. These demographic characteristics that are

11   changing over time such as the self-reported health

12   status; these activity limitation variables like income,

13   et cetera; a person specific fixed effects because again

14   we have this panel of people over time; and finally some

15   controls for the time, such as year dummies and a

16   seasonal dummy.

17   We estimate the equation separately by race, sex

18   and education, and we do it using a linear probability

19   model and a fixed effects logit model. But in the

20   linear probability model, it allows us to interpret the

21   coefficient as sort of the marginal effect.

22   And what we find is that for both men and women,

23   they respond to advertising, and the effects are

24   economically important and statistically significant for

25   both groups, but there's a fairly differential effect.

1   Women are much more responsive to advertising, so the

2   coefficient on the log of advertising is .147 for women

3   and .05 for men.

4   So women are almost three times more responsive

5   than all men. We also find fairly large differences in

6   across other demographic groups, namely race and

7   education levels.

8   With respect to race, we find that Hispanics are

9   particularly unresponsive to advertising. This is not

10   that surprising to us because most of the advertising in

11   our data set is television advertising, and you might

12   believe that Hispanics are less likely to watch English

13   channel programming than other groups.

14   With respect to education this was sort of

15   surprising for us, the college educated appear to be

16   more responsive to advertising than high school grads or

17   less than high school grads. Although all these

18   differences that we're finding are fairly large and

19   economically important, they're imprecisely estimated.

20   So even though we're finding that these

21   differences exist, we can't make statistical statements

22   that they're different from each other, but the

23   magnitudes look like that they are potentially different

24   from each other.

25   So one of the concerns of trying to identify

1   effect using data that trends so hard with respect to

2   advertising is that you might be worried that you're

3   just sort of picking up this correlation and two

4   measures that are trending together. So you might be

5   worried that, well, advertising is going up over time,

6   and if office visits are going up over time, that's sort

7   of what's identifying your effect.

8   So we've done a number of things to try to

9   address that issue, including putting men's advertising

10   into the women's equation and the women's advertising in

11   the men's equation. And we find that this sort of

12   irrelevant advertising doesn't explain check-up

13   propensity at all. If you didn't like our group

14   measures or how we assigned the groups, if you just

15   aggregate up to all advertisements, you get smaller

16   coefficients and larger standard errors, but the effects

17   are still there.

18   What we believe are the contributions of our

19   paper to the literature are: We're using person level

20   panel data that allows us to control for a rich set of

21   individual characteristics over time. We're focusing on

22   what we think is a particularly policy relevant

23   population, one that is undiagnosed and therefore

24   unlikely to be informed about their conditions, and

25   consequently could benefit from the advertising.

1   Our metric allows for the spillovers across

2   conditions that other papers have not been able to

3   address so far, and we believe that our methodologies

4   also allow us to isolate the sort of informative effect

5   that direct to consumer advertising has. So we don't

6   believe that advertising directly to physicians is going

7   to effect your decision to go visit a doctor for a

8   check-up.

9   So in that respect it's isolating the effect of

10   the consumer advertising, and we also think that

11   check-ups is really sort of an informative metric of

12   medical care. So we're getting this informative aspect

13   of the advertising, and then finally we've tried to do

14   our best to address the identification issues in the

15   paper.

16   So in conclusion we found that direct to

17   consumer advertising appears to increase physician

18   visits for undiagnosed patients. This would imply that

19   if we had restrictions on advertising, it would lessen

20   the likelihood that the population would seek treatment.

21   Moreover, we have found that advertising does

22   appear to have differential effects across different

23   types of demographic groups. These effects can be

24   large. Advertising is effective for women and the

25   highly educated but we can't reject that they're all the

1   same statistically.

2   Thank you.

3   DR. BAGWELL: So our discussant is Jayani

4   Jayawardhana.

5   DR. JAYAWARDHANA: Well, thank you for the

6   invitation to discuss this paper. I really enjoyed

7   reading the paper particularly because this is an area

8   that I'm really interested in.

9   I thought the authors take a good approach in

10   terms of trying to measure the effect of the DTC,

11   especially the informative effects of DTC on check-up

12   visits.

13   So as Brett just presented, the objective of the

14   paper is to measure how DTC advertising effects an

15   undiagnosed individual's decision of getting a check-

16   up.

17   When I think authors said undiagnosed,

18   undiagnosed for chronic conditions specifically is the

19   group that they're looking at, and I think that's a

20   pretty interesting group to look at because that helps

21   recapture the DTC effect, the informative effects of

22   DTC.

23   So they use two different data sets for the

24   analysts. The MEPS data and the DTC advertising data.

25   The MEPS data is a survey of national sampling

1   of civilians in the U.S., and that gives you information

2   about health utilization data as well as demographic

3   information.

4   Authors do limit the data analysis to people who

5   are over 35 years old and also people who do not have a

6   prior diagnosis of a chronic condition, and the

7   advertising data basically come from TNS Media

8   Intelligence. They provide data of the drug level and

9   this is a national expenditure, national dollars for the

10   drug level.

11   The findings of the paper basically say that the

12   DTC advertising does have a positive and significant

13   effect on the probability of a consumer seeking a

14   check-up visit. They also have that the effect of

15   advertising seems to vary by the demographic group.

16   Particularly they find women with Medicaid insurance and

17   also the highly educated tend to be more responsive to

18   DTC advertising and they also find that Hispanics seem

19   to be the least responsive.

20   So moving on to some of the comments I have

21   about the paper. As I said earlier, they do focus on a

22   group of individuals undiagnosed for chronic conditions.

23   I thought that's a good approach particularly to capture

24   the informative effects of DTC on check-up visits. This

25   is a group that the previous research hasn't really

1   looked at in the DTC literature, so I thought that was a

2   good touch.

3   They also look at the DTC effect at the

4   demographic levels and that gives us much more

5   information to understand how different groups are

6   reacting to DTC advertising.

7   I thought it was very good that they're using

8   the demographic specific advertising dollars into the

9   analysis, because most of the time what I have seen in

10   the DTC advertising literature is that using that

11   aggregated data. And at least they're controlling it by

12   the gender and by age, so I thought that was a good

13   idea.

14   So some questions actually or concerns that I

15   had about the analysis: It seemed to me that from the

16   paper, that an individual in the data set who can be

17   present up to two-year period, which is like four time

18   periods in the data, they could have multiple check-up

19   visits in the data. We all have check-ups and there are

20   annual check-ups that we tend to do, especially people

21   with health insurance tend to do annual check-ups more

22   than people who do not have health insurance.

23   So how do you capture the effect of a check-up

24   visit that happens due to an annual visit versus a

25   check-up that happens due to an advertising effect?

1   Another question is how to identify the

2   check-ups due to advertising versus check-ups that

3   happen due to a prior check-up visit. I think you are

4   excluding people who do have a prior chronic diagnosis,

5   but you do not exclude people from the sample who had

6   prior check-up visits.

7   For example, this is a quote I got from the U.S.

8   Preventive Services Task Force recommendation about

9   blood pressure measurement. You're not supposed to be

10   actually diagnosed as a candidate for hypertension

11   unless you have two check-up visits and be confirmed

12   with positive outcome. On the first visit you may be

13   not diagnosed, but your second visit happens as a result

14   of the first visit may not be necessarily as a result of

15   DTC effect.

16   So that is sort of what I mean by how to

17   differentiate those two effects. The third one is my

18   understanding is that you are not excluding people who

19   may have acute conditions, only the chronic conditions

20   from the sample. So for example, I could do to the

21   doctor for fever and usually when I go to the doctor,

22   they do check blood pressure, right?

23   And I can be a borderline case for blood

24   pressure, and the doctor might say, okay, you may have

25   to watch out your health habits and come again in three

1   months or six months later. And we'll check your blood

2   pressure and see whether you will have high blood

3   pressure or not.

4   So my second visit is due to my first visit, not

5   necessarily again due to advertising effect. How do you

6   capture those type of effects or differentiate the visit

7   from those type of effects?

8   Another comment I had is that you do control for

9   advertising dollars by the gender and age, but also your

10 response to DTC advertising depends on your exposure to

11 DTC advertising, so it would have been nice if you could

12 introduce some exposure data into the analysis so you

13 can have much more control. I know it is very difficult

14 to get such data, but just an idea to think about.

15   The other thing about this recommendation is

16 it's publicly available. For the last few days we have

17 been hearing about this whole thing about the

18 recommendations about breast cancer screening,

19 mammograms, and changing how often you should be doing

20 them.

21   The earlier recommendation was about 40 years

22 old, and you should be doing it annually, but now this

23 new recommendation came up with age 50 and maybe doing

24 it every two years. So this public information is

25 available to us about how often you should be doing

1   testing. Similar recommendations are available for

2   cholesterol, hypertension. How does that type of

3   information affect the check-up visits and how is it

4   differentiated from the DTC effect on check-up visit?

5   So regardless, I thought this was a good

6   contribution in addressing an important question that we

7   are all interested in finding out more information about

8   the DTC effect, and I know it's an ongoing research

9   area.

10   Thanks a lot.

11   DR. BAGWELL: Do we have any questions? Yes?

12   DR. VAN BIESEBROECK: Johannes Van Biesebroeck.

13   I don't know what the breakdown is in advertising

14   expenditures between over the counter drugs and

15   prescription drugs because that seems like a dimension

16   where you could get stronger results if you find people

17   also going to the doctor and they get exposed to

18   competition for over the counter drugs. It seems more

19   closely.

20   DR. WENDLING: So we don't have advertisements.

21   Our advertising expenditures are only for prescription

22   drugs so there's no over the counter advertising

23   expenditures in our area, but you raised a good point.

24   I mean, these -- the over the counter medications might

25   be sending people to the doctor as well, but

1   consequently because I don't have the other DTC, I don't

2   know what the breakout is.

3   DR. BAGWELL: One more question in the far back?

4   MR. STIVERS: Andrew Stivers, the FDA. You said

5   that the advertisement is successful at driving

6   check-ups. Have you thought at all about the next step?

7   I could construct a scenario where actually check-ups

8   are bad for consumers because they're getting too many.

9   Do you have data? Have you thought about

10   linking check-ups then to some actual positive outcome

11   for consumers?

12   DR. WENDLING: Actually the original version of

13   this paper started off looking at the check-up visits

14   and then had sort of a second analysis of how productive

15   those visits have become. So are people learning about

16   diagnoses at those medical conditions? So actually the

17   short answer is yes, we've thought about it.

18   And at one point it was included in this -- on

19   this paper, but it ended up being two different models

20   because we're focusing on the undiagnosed. We have

21   statistics; most of the people that become diagnosed

22   with any condition have initiated that with check-up

23   visits.

24   And I would say of the undiagnosed population, a

25   fairly large fraction of those individuals are becoming

1   diagnosed. I want to say like 20 percent of them, but

2   we're trying to formally model that in this second

3   paper.

4   DR. BAGWELL: Thank you. Next up we have Sofia

5   Villas-Boas from Berkeley, and we're still on time.

6   DR. VILLAS-BOAS: You have all the tough names

7   in terms of --

8   DR. BAGWELL: Sorry about that.

9   DR. VILLAS-BOAS: No, it's perfect. So thank

10   you for giving us the opportunity to present this work.

11   This is work with Kristen Kiesel from the state of

12   California like myself.

13   In this paper we're trying to measure whether

14   nutritional information, more specifically changes in

15   nutritional information available to consumers at the

16   point of purchase has any effect on their actual

17   purchase decisions.

18   We use incredible data, store level scanner

19   data. So from those data, we have quantity as well as

20   the price. With these store level data, we will be able

21   to compare changes in stores where this information

22   occurred to changes in stores where this information did

23   not occur that I'm going to try to convince you are

24   comparable stores. But we can also, using this data,

25   try to see, okay, if people buy the preferred choices,

1   if we take those out of the choice set, and with the

2   model try to assess a willingness to pay for having a

3   certain attribute available in terms of a nutritional

4   claim.

5   Then an accompanying piece with two coauthors

6   from Washington State, Jill McClusky and Hayley

7   Chouinard will take advantage of a little bit more micro

8   data that are the granular of the store level data that

9   I'm going to present to you today.

10   We actually have transaction level data. In the

11   meanwhile we pulled these recent data, and so we have

12   the purchase history of people before the actual change

13   occurred. And we can see all kinds of micro level

14   evidence on changes in behavior, and we can see whether

15   old consumers responded or the changes in information

16   led to consumer entry into the category.

17   So this is like the big picture objective in 20

18   minutes. Let's see how much I can squeeze in here. If

19   I can't, then hopefully my discussant will tell me what

20   I should have said.

21   I had 20 minutes so I assassinated the

22   literature review slide. I apologize to everyone in the

23   audience that has worked on this and knows much more

24   than me on this. You're all here and you know who you

25   are, but there is incredible evidence that consumers

1   devote minimum time and effort to processing

2   information, especially typical grocery store set up

3   where a facing is typically a product.

4   So what I asked was: Does including information

5   in an easy to process shelf label format effect consumer

6   approach? Of course the second step of the story as our

7   lunch presenter said is: If it does, then will firms

8   adjust? We don't have that second part of the story.

9   We will have the first. We will change something, and

10   we will see if consumers respond.

11   So the idea is given the changes we do, we kind

12   of posit that that's reducing the cost of comparing

13   available choices on the shelf. Products have

14   nutritional claims panel facts, but you know that not

15   only the font is very small, but maybe you could argue

16   that there's too much information there or even for a

17   certain product. You don't know what the other products

18   available are.

19   So our change will help decrease the cost of

20   comparing products available at the point of purchase,

21   and we will also repeat already available claims in a

22   more salient fashion.

23   So the overall question is: Does this result in

24   healthier product selection decisions? I'm not making

25   any welfare statements here. I'm just asking: Do we

1   see a shift in consumers as a result of our change?

2   Nothing is saying that it's a good or a bad change.

3   So the last bullet was here, I think it still

4   was here when I presented this to the nice large grocery

5   retail chain that did this. I was just saying that they

6   have an incredible opportunity to affect consumers

7   because they're the last thing consumers see when they

8   buy.

9   Just to give you a very quick idea, we got these

10   data for changes in information from five stores. These

11   are the five labels that were displayed under the price

12   tags.

13   So no trans fat claims, for example, are already

14   part of the product box. Either it says zero or the

15   actual manufacturers will say no trans fat in bigger

16   font than anything else on the box. So by displaying

17   that, for example, claim we're not giving any new

18   information. It's just making it under the price stack.

19   Maybe it's easier to see, we don't know. We will see.

20   Most of what you see here is low calorie, but

21   who defines that? That's another question. In terms of

22   our scale, the 25th percent, 5 percent, 10 percent, in

23   terms of some attribute could be considered low, so

24   we're telling consumers among these options, this is a

25   low calorie product. This is a low fat product, and

1 then this is a low fat product and it's according to the

2 FDA nutrient content claim. Who's telling you this or

3 based on what are we claiming on this?

4   Of course you can't see a thing here. This is

5 an example of too much information. The idea here is

6 just for those that are very skeptical and want to see,

7 but didn't pass the check-up on the 20/20 eyesight, the

8 five treated stores compared to the control stores. We

9 have a lot of control stores, so that's the average

10 among certain attributes that are in the row of the

11 controlled stores.

12   This slide just wants to tell you that the

13 treatment control stores are pretty similar with respect

14 to the assortment of products except the treated store 3

15 had a much smaller display of the category where the

16 changes occurred. There was the popcorn category. It

17 had a much smaller product assortment.

18   The treatment and control stores served very

19 similar demographics and are actually pretty

20 representative of the national average. The product

21 category where the changes occurred is not

22 representative of a typical grocery purchase. It could

23 be seen as a treat or something that you probably want

24 if you're going to do some damage. You're going to do

25 the whole damage when you buy popcorn, so take this in

1   terms of what it is that we're going to show you.

2   So we got data from the periods before, during

3   and after these labels were attached to the price tags.

4   That's a photo of a typical treatment episode. We

5   obtained data for the five treatment stores as well as

6   all possible combinations of control stores we could

7   have received. We received 27 of them. We have store

8   level product sales for four years.

9   We can use the time before the treatment to kind

10   of try to see if we can match control stores to the

11   treated in terms of pretreatment, et cetera, and kind of

12   have an idea of having a nicer control. If you don't

13   believe the difference-in-difference strategies, I will

14   show you these old data can help us match these stores

15   better. And then you will probably be convinced that we

16   have a constructed if not a very good control, but a

17   combination of controls, also called a synthetic

18   control. We just can see if we can create based on that

19   pre period a very nice benchmark for what would have

20   happened if we didn't do these label changes.

21   We have demographic information from the census

22   and the nutritional facts were obtained from the

23   product. So the idea is a difference-in-difference, and

24   we have the treatment store in October of 2007.

25   Everybody knows that in October 2007 -- I'm to going

1   make this up -- some DVD was released, "Twilight" maybe;

2   I don't know. So both in the control and the treatment

3   period popcorn sales went up because everybody wanted to

4   watch the movie and they need popcorn, of course.

5   So that's the idea: Can we compare the change

6   in the treatment store and the change in the control and

7   contribute the difference in this difference to our

8   little experiment? So the difference-in-difference is

9   going to be my average treatment effect. I'm going to

10   show you.

11   If we pool the data and we look at this average

12   treatment effect, we would find no average effect over

13   all the labels that were implemented.

14   The different columns have different additional

15   controls and the results are pretty robust. I want to

16   say that some claims are already part of the box. Some

17   of the manufacturers sell on average more than others so

18   it's important to control for those already, and that's

19   what these columns are doing, adding additional

20   controls. So on average nothing happens, but remember

21   we have five different treatment stores, some where low

22   calorie was the focus and others were low fat, et

23   cetera. We can break this effect a little bit more than

24   just the average.

25   And this is what this table that is also very

1   hard to read says. Again remember I was trying to

2   highlight the top row, and I'll point to some rows if

3   you're interested or if there are any questions. The

4   low calorie has a positive although not significant

5   affect. Low fat, negative, becomes significant in the

6   store where we added the source of where it's being

7   based on.

8   Then the combined, where we start adding claims,

9   after claims, the average effect is negative for low fat

10   and low cal, but again that's an average across low fat

11   low cal. And the others are kind of adding all these

12   attributes, so we can break up this effect a little bit

13   more in detail, so the low fat label on average

14   decreases by 27.5 percent. This is the log of quantity

15   on this dummy, and that's what that number means here.

16   The non trans fat label increases on average by

17   23 percent but not in combination with other claims, so

18   when it's alone, it has that effect, but when it's in

19   combination with other claims, it does not have that

20   positive effect. The label that has the most claims has

21   the most information but the effect just basically

22   starts dissipating. It starts getting closer and closer

23   to the actual panel facts.

24   You may want to know what happened to the

25   products that didn't get those positive claims. By the

1   way, you may wonder why low? You can probably guess,

2   right? The retailer did not want to put other stuff

3   also, so one just has to live with what one can live.

4   But you can see what inference or at least based on your

5   field preference what happens.

6   In terms of the pooled effect on average,

7   nothing happens to the unlabeled, untreated products.

8   With the exception of the store where the low fat was

9   there, the ones where they had no low fat goes up by 16

10   percent. So I'm not a very big popcorn eater, but I

11   would assume that low fat means no butter, tastes like

12   cardboard or something, so you could see that as a

13   correlation. So using the store level data just to nail

14   this, increases in quantity due to no trans fat labels.

15   Again that information was already available so the

16   salients at least did have an effect.

17   Decreases in quantity due to low fat labels,

18   especially when -- the point estimate is estimated with

19   the FDA claim. Increase in quality due to low calorie

20   labels. We performed a lot of regressions, and these

21   actually become significant when instead of doing

22   product by product you aggregate all products by month.

23   So no inference on unlabeled products except for the low

24   fat store, and the effect seems to dissipate the more

25   claims are added.

1   What happened to total category sales? They

2   actually decrease so at least it doesn't seem to induce

3   consumption, although we can go into much detail when we

4   use the micro level data just to see if new consumers

5   came in, which we're dying to do so. The results were

6   robust to all kinds of things that you can imagine.

7   Placebos never work for anything.

8   You may be concerned with whether our controls

9   are actually replicating what would have happened in the

10   treated store in the absence of these label treatments.

11   And given that we had that pre period, or at least we

12   have a lot of characteristics of the possible controls

13   at the treated stores, we can try to match or construct

14   a good control for each of these treatments, and that's

15   what I mean by creating this synthetic control method.

16   So we use the best match, best combinations of

17   all these controls that make the nice super

18   counterfactual that we're going to use, and we compare

19   the change in our treatment to the change in the best

20   controlled counterfactual synthetic control store.

21   And then we can see, okay, this difference

22   compared to the synthetic control isn't significantly

23   different from when we compare all possible placebos,

24   meaning a control to the best comparison to that control

25   also will have an effect, and what happens to our store

1   compared to all possible combinations of control stores

2   versus their best matched counterfactual.

3   So what we see here, for example this picture is

4   for the low fat label, and the red is the treatment

5   store. This is the difference in sales relative to its

6   best synthetic control, so if you don't know what that

7   synthetic control is again, it's just the best

8   combination of all 27 out there. And you create this,

9   so this is a difference in sales due to the treatment,

10 and it shows that less 27.5 units were sold per week of

11 these products in these low fat label stores relative to

12 its best counterfactual.

13   And the drop is larger than the distribution of

14 all these random changes when you put controls relative

15 to their best match. The change in their store is

16 larger than the distribution of these random changes.

17   The low trans fat labels, if you mix similar

18 pictures and it's in the paper, show an increase of the

19 treatment relative to this best counterfactual control,

20 and the low cal labels again here in this approach show

21 a significant increase. So this again confirms the

22 results of the definitive specification.

23   Recap: Consumers purchases are affected. On

24 average there's no effect but if we go into these little

25 sub treatments we find effect. And the effect seems

1   consistent with some that it's not just hanging a little

2   piece of blue paper, people. Some claims effect people,

3   some have negative, some have positive, so it looks like

4   some of the information was somewhat incorporated.

5   The disclosure where it was coming from also had

6   an additional effect. More nutrients on the label have

7   smaller impacts than a single claim label. Do consumers

8   make inferences about the content of products that had

9   no label? Generally, no, except to the low fat

10   treatment.

11   How am I on time, two minutes?

12   DR. BAGWELL: Almost done.

13   DR. VILLAS-BOAS: So if I have two minutes, I

14   can still say that this is a reduced form approach.

15   There is evidence consistent with consumers not fully

16   incorporating currently available nutritional

17   information. You can look at the trans fat that, when

18   we repeated, had an effect, so maybe it's new consumers.

19   We will be able to see this very soon when we

20   look at the micro data, but there is evidence that at

21   least some of these treatments that had existing

22   information did have a change.

23   Consumers may have taste preference with respect

24   to certain nutrients. I have an FDA person present so I

25   don't want to emphasize bullet 3 because there is an

1   effect. It's become significant with it. I don't have

2   anything to say about that. I'm just saying we're in

3   Washington so I didn't do it. I know nothing.

4   So just to give you a preview, with the store

5   level data, you can just estimate a demand level for

6   these products. And then from the demand model you will

7   have a coefficient on a label that was added

8   orthogonally to prices, so when we divide that

9   coefficient that's marginal utility by a certain level,

10   by the marginal utility of price, you get a willingness

11   to pay for a certain attribute.

12   If you do this, the no trans fat label has a

13   willingness -- this is the point estimate; there are no

14   standard errors -- to pay 62 cents. And for the low fat

15   labels, a negative willingness to pay so consistent with

16   the definition.

17   From the household level data, just very fast

18   and very preliminarily, we can look at a lot of

19   measures. We try to see, does purchase frequency change

20   pursuant to the treatments? We didn't find an effect.

21   We find that a higher percentage of new consumers

22   respond to the treatment, and the effects seem to

23   dissipate after the treatment period.

24   Again this is very preliminary, and we would

25   like to estimate something more thoroughly with these

1   household level data.

2   Thank you very much, and I will leave the floor

3   to the discussant.

4   DR. BAGWELL: Thank you very much. The

5   discussant is Jayachandran Variyam.

6   DR. VARIYAM: Okay. So, first of all, thank you

7   for inviting me to comment on this very strong

8   experiment. I learned a lot from it. And basically in

9   this line, I will just go down to the bottom point to

10   say that information plays a small role in the whole

11   purchase decisions that people make, but the seemingly

12   minor impact is somewhat puzzling in the medical work.

13   There are many reasons why we don't find the

14   significant effect for information, and this interacting

15   with the consumer period. One could be simply the

16   complexity of information and the processing costs,

17   which was kind of the focus of this paper.

18   Then there is of course the overload of

19   information, a lot of competing claims, the number of

20   products, and in fact nutritional messages are notorious

21   for being conflicting in many ways. There is of course

22   producer strategy, which can shroud a lot of activities

23   which they do if they have a product that they need to

24   kind of keep away from the revealed information.

25   There are behavioral factors, which was

1   mentioned earlier. People may be better informed, but

2   there are self control issues and other cognitive issues

3   when it comes to actually making the decision. Then

4   when you look at the large population, you may not find

5   any effect, but there could be an effect within the

6   smaller populations, diabetics or hypertensive patients

7   for specific nutrients or higher education level.

8   Also when we look at some outcomes, we don't

9   find a net impact but that could be simply because

10   people are using the information to kind of make some

11   trades and adjustments in the purchase. And I think

12   that's kind of what we find here somewhat.

13   So the study objectives were in this case simply

14   to look at processing costs. They tried to use this

15   label so that it reduces the processing cost or

16   acquisition costs because it's a straightforward front

17   display shelf label and that would affect the choice.

18   Then there are some other variations with the

19   index and whether they provide a single piece of

20   information or multiple nutrient information. There is

21   some credibility there with the FDA approval. In the

22   manuscript you say disclaimer. I thought the disclaimer

23   should probably be FDA approved. I don't think it's a

24   disclaimer, a very basic low fat standard based on the

25   FDA standard.

1   Then there is, of course, the question of

2   quality/taste trade-off. From a public health point of

3   view, you provide information expecting a certain

4   behavior. Being healthy is the only kind of

5   consideration involved, but people may have other

6   perceptions for these labels, and that becomes too very

7   clear here. That's why the low fat label kind of

8   misfired and people actually substituted away from it

9   when they saw it.

10   So the design: The way I understood is five

11   treatments, some of them low calorie, low fat with FDA

12   approval and so forth. But one question I had is kind

13   of fundamental was: Why did you focus so much on low

14   fat label? Because I thought it was more of a 1990s

15   issue immediately following all the standards set for

16   making nutrient content claims and health claims.

17   Because more recently and subsequently trade shows that

18   being total fat or being low fat is getting less

19   attention compared with the type of fats and especially

20   more focuses on calories.

21   I'm not expecting to go back but the low fat

22   label has been well researched. So if you looked into

23   the trades a little bit, at least you should look and

24   comment on that.

25   For example, I cite some examples here; low fat

1   labels produced lower anticipated hedonic ratings and

2   high fat labels produced higher hedonic ratings in

3   people who are evaluated eating some kind of soup.

4   Now, what happened after consumption is that

5   soups that were labeled high fat were rated as more

6   pleasant and creamier, surprise, than those labeled low

7   fat, independent of actual fat content. So there is a

8   ton of research showing that people, in fact, if they do

9   consume low fat or low calorie, after some time, that's

10   like a prelude.

11   Then they eat something else, and they eat more

12   of it because they ate less earlier, they got lower

13   calories earlier. So the whole dietary issue is replete

14   with these kind of games people play with themselves and

15   information.

16   And then there's Yeomans economic subject

17   report, where I'm from, looking at new productions.

18   Immediately after the NLEA, when this low fat label and

19   all became standardized, manufactures introduced

20   thousands of low fat products. Then by 1999 the number

21   of product introductions kind of tanked because people

22   were just simply not buying them.

23   But on the plus point, putting that low fat

24   label there kind of provides validation. There's an

25   additional piece that is very neat, and overall for the

1   studies, a very strong experimental set up because they

2   actually went to the stores and randomly assigned stores

3   to treatments.

4   And the stores are within the same price

5   division, so there are no other changes in how they set

6   the prices, and then they actually can do some triple

7   differencing, but then when you come to the actual

8   product, it's microwave popcorn. People make purchases

9   of bundles of goods. You can just think how consumers

10   show up and how much a particular visit of information

11   for a single product really carries over in terms of the

12   decision making.

13   It's kind of a challenge there, and in fact, in

14   the latest section of the paper, I thought you kind of

15   said that our treated product category is characterized

16   by relatively low volume of sales and high fluctuations

17   in sales across weeks.

18   Then perhaps there could have been other

19   products, but again on the strength side, it's an

20   extremely rich data, and you do a lot of robustness

21   checks, so there's less about the findings as opposed to

22   what you could have found in terms of other products.

23   And also one thing is that because of your

24   limitation with your grocery store chain, everything is

25   about low. It is not exactly comparable to the UK

1   traffic signal system because there, there is a red sign

2   saying, if this is not vehicle is recreational, then it

3   says stop. That information is not here, so people have

4   to infer, but they do make inferences. People do make

5   inferences when there is no label, at least in one case.

6   So the main result is overall providing this

7   label, there is no effect, but I thought that it's

8   pretty significant in the sense that all the information

9   from a public health point of view is that people should

10   be using it. It's low in calories, low in fat, no trans

11   fat or a combination of that, so people should have

12   moved towards that whereas it's a wash out, and the

13   reason is because of that low fat substitute.

14   So I thought it's again an interesting result,

15   and it just shows how difficult it is to kind of play

16   with the behavior when you look at these outcomes.

17   Now, when specific treatments are examined, of

18   course as you saw, low fat label reduced sales. I had

19   some questions about whether the treatments were applied

20   in all the stores or each treatment was allocated to one

21   store. It was not clear to me.

22   Also when you do that, when you build down to

23   unusual treatments and do the regressions, is there an

24   imbalance between the controls, just one store, then

25   there's one treatment store and then a whole lot of

1 control stores so I was wondering if there was an

2 imbalance there?

3   And also there is an issue that this is an

4 experimental set up, so I thought the strength of an

5 experiment was you're going with a set design and then

6 you limit your analysis right there. Once you have

7 exhausted your design, running further regressions with

8 the data within that purpose of the experiment, I'm not

9 sure how you are then diluting the strength claimed,

10 that this is a randomly designed experiment.

11   You could have the data and you can run that,

12 but I don't know whether it kind of dilutes the power of

13 the results, so that's something you may want to be

14 cautious about.

15   Of course, sadly the low calorie shelf label did

16 not affect sales at least in some of the initial

17 regressions. When you do some additional analyses, you

18 do see some effects, but by that stage, I'm kind of not

19 confident about that.

20   So that's the nice result. When you actually

21 have the low fat label and the competing product gets no

22 low fat label, the sales of that goes up, so it is clear

23 that, okay, when you see low fat label, you are saying,

24 I don't want that, I'm picking this, and I thought that

25 showed the consumer switch.

1   Just to take away and summarize: I thought it

2 was a very strong experimental study. Consumers use the

3 low fat label in an unexpected way, but it shows the

4 importance of market data in actually evaluating the

5 impact of some of these labels because it may not be as

6 you expect simply from a public health point of view.

7   Then there is some evidence that consumers have

8 attached to some credibility that it's a government

9 approved standard, and that's kind of in line with the

10 expectation. And then of course the other kind of take

11 away is that manufacturer and seller strategies do seem

12 to be working, although it was not the focus of the

13 experiment, but you had some additional data which you

14 could include. It shows that when they had some kind of

15 pink ribbons or when the boxes actually had those health

16 claims, sales actually went up.

17   So that shows they really dominate the effect,

18 at least the way I saw it, so it just goes on to show

19 how difficult it is to kind of play with information and

20 get something back, when all the things are going on

21 simultaneously.

22   So that's my comment. Thank you.

23   DR. BAGWELL: Thank you. I think all of the

24 clocks are in agreement now that we have run late so

25 please join me in thanking the presenters and

1   discussants for a very nice presentation.

2   (Applause.)

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1   PAPER SESSION THREE: Studies in Empirical Industrial

2   Organization

3   AVIV NEVO, Northwestern University, Chairman

4   GREGORY LEWIS, Harvard University, "Demand Estimation in

5   Auction Platform Markets," Presenter

6   CHRISTOPHER ADAMS, FTC, Discussant

7   YING FAN, Yale University, "Market Structure and Product

8   Quality in the U.S. Daily Newspaper Market," Presenter

9   AMBARISH CHANDRA, University of British Columbia,

10   Discussant

11   MITSUKUNI NISHIDA, Johns Hopkins University, "Estimating

12   a Model of Strategic Network Choice: The

13   Convenience-Store Industry in Okinawa," Presenter

14   PAUL ELLICKSON, University of Rochester, Discussant

15

16   DR. NEVO: Why don't we start our third session

17   in this marathon of sessions that we have today. So,

18   the official title is "Studies in Empirical Industrial

19   Organization." That's the official; maybe the

20   unofficial will be "The Young and the Restless."

21   We have three young, brilliant scholars that are

22   going to give three great papers starting with Greg

23   Lewis.

24   DR. LEWIS: Okay. So I think I'm on. Thanks

25   very much. Yes, so this is the paper. It is "An

1   Estimable Demand System For a Large Auction Platform."

2   Its title might suggest to you that you are not

3   about to hear a very empirical paper. Indeed that's the

4   truth. This is going to be I think maybe the only

5   methodological paper on the program, but I'm going to

6   try motivating it. And I'm going to spend a bunch of

7   time motivating it, considering I have 20 minutes,

8   probably too long motivating it. And then I'm going to

9   rush through all the results, and you're not going to

10   understand anything, but maybe you will read the paper.

11   Auction mechanisms are used to allocate goods in

12   many large and important markets, online marketplaces,

13   EBay, the Chinese equivalent, Taobao.com, and online

14   advertising. You can think of key word advertising in

15   particular, huge revenues for Yahoo, Google and

16   Microsoft, massive, on the order of 5 percent of world

17   GDP.

18   Often auction mechanisms are used, Indian tea

19   auction, used car auctions, offline across the country,

20   the list goes on and on, so it's an important set of

21   markets.

22   Characteristics of these markets: It's often

23   the case that we have repeated auctions, that is to say,

24   we don't have an auction for an object once and then we

25   stop. We often auction objects in sequence. This is

1   true obviously of EBay. If you log-in, you will see a

2   lot of items up for sale, typically in sequence.

3   If you look at online advertising, it's almost

4   more than sequential. It's real time. You can

5   routinely update your budgets and your bids on various

6   key words. Procurement auctions arrive as and when

7   procurement needs happen.

8   The other thing that's important is these

9   bidders are persistent, so people will stick around.

10   They're not going to participate in auction, lose and go

11   away. They're going to lose and try and win a second

12   auction or a third auction, and perhaps they're even

13   going to want to win multiple objects. And these

14   markets are infinite horizon. They're not about to

15   disappear tomorrow. These markets persist.

16   Finally, goods being sold are heterogeneous.

17   And you can think of this in a lot of cases and key

18   words. There are different key words. There are

19   different key words in online marketplaces. If I'm

20   looking for a camera, there are a lot of different

21   cameras to buy, and highway procurement contracts come

22   in many different flavors, whether it's sort of

23   repairing a bridge versus repaving a road, large

24   projects, small projects, et cetera. So there's a huge

25   amount of heterogeneous goods, and people have different

1   preferences over these different goods, and that's not

2   surprising.

3   So given that these markets are large and

4   important, we would like to be able to answer some

5   questions about them, and if we had good models both of

6   theory and empirics, I think we could. So let me give

7   you a few applications. You could ask the question:

8   How much consumer surplus is generated by online auction

9   markets? And this is sort of a useful number to think

10   about in analyzing the value of E-Commerce.

11   A second question would be: How would we define

12   a market when allocation is via auctions? So, usually

13   what we want to do is we want to evaluate which groups

14   of products are close substitutes and provide some sort

15   of a test, whether a monopolist could raise prices by

16   some small increments without losing much demand. If we

17   want to get at this, we would like to have a demand

18   system, but we don't really have demand systems for

19   auction markets.

20   A third one which I've actually been asked about

21   before, and I have to say I don't know the answer, is

22   the question of how a seller should dispose of a block

23   of products.

24   So, for example, this came up in the case of

25   Hertz who wanted to know how to sell their used car

1   fleet, so every year they basically have a set of leased

2   cars, and they need to dispose of them because they're

3   too old to lease out to consumers anymore, so they sold

4   them into large off-line used car markets.

5   One company that runs this type of auction is a

6   company called Mannheim. Another company called Odessa

7   has a platform for this, and they wanted to know whether

8   they should just try selling them in one week or if they

9   wanted to kind of dispose of them very, very slowly,

10   over a timeline.

11   They had storage costs, so it would be nice if

12   they could get rid of them in one week, but they thought

13   these products would compete with each other and drive

14   down prices so they wanted to think about what an

15   optimal policy would look like.

16   Here's another one. How much should a seller

17   propose a new product will sell for? In discrete

18   choice, we have demand systems, and we project

19   evaluations down to characteristics. And that means

20   that we can say something about what we think the value

21   of a new good will be in terms of its characteristics.

22   We don't have that analogy in auctions. It

23   seems like it would be useful, especially since if I

24   want to think about trying to work up to how much people

25   are going to bid on a particular product that I'm

1   auctioning in public procurement. In order to do that I

2   really need to be able to have some measure of the

3   underlying cost of bidders in this particular state of

4   the world in terms of the characteristics of the

5   product.

6   Here's two more that I think are really

7   interesting. I think these are the most interesting,

8   but probably the hardest to address since you can't

9   address them with the current version of our paper, but

10   they're interesting nonetheless.

11   One is: How should a platform optimally set

12   fees? So I gave a talk to EBay a couple days ago, and I

13   told them about this, and they sounded very interested.

14   So you have a two-sided market; you want to set fees for

15   say listing products, but it's difficult to work out

16   what would happen if you changed your fees because

17   they're dynamic changes in participation on both sides

18   of the market.

19   If I raise fees, there are going to be less

20   people listing objects. When less people list objects,

21   fewer people are going to participate in the demand

22   side. That's going to drive further sellers out of the

23   market, et cetera. You would like to know where the new

24   equilibrium is and whether that actually raises revenue

25   in the long run or decreases it, and you can't

1   experiment. Large auction platforms run all kinds of

2   experiments all the time, but this is the case where you

3   can't experiment very easily so you would actually like

4   a structural model.

5   The last example: How do we think about mergers

6   between major suppliers? So to the extent that we think

7   search key words on Yahoo and Microsoft are substitutes,

8   what effects do we think that the merger in the key word

9   market should have? Sort of related questions like,

10   what does 'exert market power' even mean in an auction

11   context? It's not obvious.

12   For most of these things we have very good

13   intuition for fixed priced markets, we just don't have

14   that much intuition for in auctions.

15   Given these already interesting questions, why

16   aren't we answering them already? The answer is we

17   don't have very good models. On the theory side, we

18   have a huge literature on static auction mechanisms, and

19   what we don't have is a lot on dynamic marketplaces or

20   sequential auctions.

21   So sort of the classic model on sequential

22   auctions is the Milgrom and Weber paper in '82 but only

23   published in 2000. It talks about sequential auctions

24   of k homogenous goods to n bidders, and this is actually

25   a very, very elegant model that proved very, very sort

1   of elegant results about Martingale pricing, et cetera.

2   But it's a static model. The entire model can

3   be analyzed by the revenue of Collins theorem. There's

4   nothing dynamic in, and the minute you move to an

5   infinite horizon, you allow dynamic entry and exit, and

6   these result goes away.

7   I should say this has dominated the literature,

8   so everybody has written a whole series of papers on the

9   same theme and gone to the data with this sort of thing,

10   and it's just not right for these kinds of markets.

11   So the first problem is we don't know how to

12   think about multi product systems. We're used to

13   thinking in auctions about there being goods being

14   auctioned, not multiple goods. And secondly, these

15   dynamics matter for accurate measurement, so if I want

16   to measure these things precisely, I can't just take the

17   static model and say, oh, well, it's sort of right and

18   hope that things are going to work out. I'm going to

19   show you that actually it makes quite a big difference.

20   How about the empirics? The empirics it turns

21   out were not well suited, although again empirics are

22   very, very elegant, and we have a lot of elegance in

23   this estimation, structural estimation auction models.

24   It turns out that the way those models work is

25   basically like this. This is my opportunity for an

1   animation, so we have these auctions up at the top of

2   the screen. We have these different kinds of people:

3   football players, restaurants and traffic cops I guess,

4   and construction workers, and these completely different

5   sets of people go to these completely separate auctions,

6   and then they bid on them. This happens over and over

7   again, and this generates a data set for me.

8   Well, the data actually looks like there are

9   different goods being auctioned, X, Y and Z. There's a

10   group of people, some of them go to bidding on auction

11   X, and some of them lose, and they will try and go and

12   bid on auction Y because they kind of like auction Y.

13   Maybe a different group of people go and bid on auction

14   Z. So we have the same people bidding on different

15   goods, and the way they decide to bid depends on what

16   kind of preferences they have.

17   Put it in sort of a slightly less animated way,

18   a structural auction is defined for estimation with

19   cross-sectional data. The auction observations are IID,

20   and essentially there's a different population draw in

21   every auction.

22   Products are identical. Or if they're not

23   identical, because data typically doesn't have identical

24   products, we assume essentially that there's only

25   idiosyncratic differences across people, so some people

1 value all products more, but everybody agrees on the

2 valuations of the underlying characteristics. This is

3 sort of the long approach.

4   But actually the data is generally a panel, so

5 we observe the same bidders participate in multiple

6 auctions, and the pattern of participants reflects

7 preferences which says something about which goods are

8 substitutes. You don't have to think very hard to think

9 about a lot of cases in which it looks like a panel.

10 Procurement -- it looks like a panel. EBay -- it looks

11 like a panel. Oil track auctions -- they look like a

12 panel, et cetera.

13   So one way to show that this multiple product

14 thing is actually important is to think a little bit

15 about substitution, so this is sort of a very, very

16 naive way to think about substitution. I'm going to

17 look at digital camera auctions on EBay. I'm going to

18 look at the first auction that people bid in, and then

19 for the people who bid twice, and a lot of people don't,

20 but for people who go on and bid in a different auction,

21 I ask, what's the second auction they bid in? And I

22 divide them up into little categories and I record their

23 bids.

24   The categories are Canon digital camera; a Kodak

25 digital camera; Silicon Valley Peripherals, which turns

1   out to be the small outfit that makes very high mega

2   pixel cameras but very low quality typically, and they

3   sell quite cheaply. And then other is the last

4   category. It's the residual category. And you ask

5   where do people bid the first time that they bid?

6   That's sort of the rows, and then the second time is the

7   columns.

8   So what you will see is if you look at say the

9   Canon box over there, 62 percent of the time if you bid

10   on an auction between zero and 6 mega pixels, the first

11   time you'll bid again 62 percent of the time on the same

12   kind of camera, so within that product category.

13   So that's what we're looking at, so now we go

14   here. About 10 percent of the time actually these guys

15   go to a slightly better camera. The second time around

16   they try their hand at buying a camera between 6 and 7

17   mega pixels. Sometimes they go to one between 7 and 8

18   mega pixels. What we see they don't do very often is

19   actually step out of the Canon segment completely and go

20   and buy another camera, although if they do, it's likely

21   to be a 0 to 6 mega pixel camera.

22   So this is sort of a very naive kind of data

23   set. It's not clear what it's informative of, except to

24   say that people do substitute across products. So it's

25   not like you consider these as a completely separate

1   marketplace and say, well, the right model is just a

2   homogenous goods model, and I'm going to ignore

3   everything else, because there is a substitution across

4   categories and it turns out to be important.

5   Okay. So what are we going to do in this paper?

6   We're going to develop the stylized model of a large

7   auction market, stylized because we need to make a lot

8   of assumptions to actually make some progress here, and

9   this is sort of the first paper that does this, so we

10   try to simplify our lives a little bit.

11   So the sequential second-price sealed-bid

12   auctions are over an infinite horizon; so there's going

13   to be the sequence of them. There's going to be many

14   persistent buyers who are going to dynamically enter and

15   exit. There's going to be an exogenous supply for

16   simplicity, although it's important to think about

17   endogenozing if you want to do some of the applications

18   I'm thinking about.

19   We have multiple products. Importantly we have

20   unit demand, so you only want to buy a camera or a

21   computer, and this is sort of analogous to the discrete

22   choice literature which we're all familiar with in IO so

23   that's sort of where I'm coming from there, and there

24   are multi-dimensional private valuations.

25   So why is that? Well, you've got five kinds of

1   cameras out there. You should have a valuation for each

2   of those five kinds of camera, so that's where you're

3   getting multi-dimensional private valuations from.

4   We're going to characterize the long-run equilibrium, so

5   we're going to define an equilibrium concept which is

6   appropriate for large anonymous markets with a finite

7   buyer-seller ratio.

8   Most of those things are important, and we'll

9   see why later, and we're going to characterize

10   strategies and show existence of an equilibrium.

11   UNIDENTIFIED SPEAKER: Does the unit demand mean

12   you're thinking more of the things like EBay and less of

13   something like procurement?

14   DR. LEWIS: Yes, for sure. That's why I say

15   stylized. I mean, really this is quite a specialized

16   model, and you should definitely start modifying

17   assumptions. Key words is another one where unit demand

18   doesn't make that much sense.

19   We're going to analyze the resulting demand

20   system. We're going to show demand is no one

21   parametrically identified. We're going to provide non

22   parametric and semi-parametric estimation procedures.

23   We're going to show how you estimate when valuations are

24   projected on to characteristics. In fact, that case is

25   particularly simple.

1   It turns out you can run more or less in many

2   cases, and the reason you can do that is because your

3   observed variable. A bid is a continuous variable and

4   discrete choice. We get this horrible discrete choice.

5   It's actually not a very good dependent variable. This

6   is a really good dependent variable. It actually turns

7   out that OLS actually does fine. We're going to perform

8   Monte Carlo experiments to show this working well in

9   finite samples.

10   This last part I'm not going to talk about

11   today, but I'm just going to tell you that we do it in

12   the paper, and the paper is deliberately abstract.

13   We're trying to walk a fine line between worrying about

14   practical estimation issues, trying to do stuff that you

15   would actually estimate, but at the same time try to

16   keep the theory tractable so we're making a lot of

17   assumptions. I'm going to skip the literature.

18   So road map. I'm going to first tell you about

19   the model. I'm then going to tell you about how bidders

20   behave and what an equilibrium looks like, talk a little

21   bit about identification. I'm going to skip estimation,

22   and I'm going to skip the Monte Carlos, so just the top

23   three is the plan for today.

24   So the model has bidders and payoffs to start

25   with. So what are these bidders? They have private

1   valuations X that are defined over a finite set of J

2   goods. The distribution F has a continuous density, so

3   that F is a distribution of these J vectors of

4   valuations. These guys are going to be risk neutral

5   with unit demand. They only want to buy one good.

6   They're going to discount the future at rate 0.

7   The market is going to operate in discrete time.

8   Every period is going to be an auction, and what's going

9   to happen is that at the end of the auction, the winning

10   bidders exit with certainty. That should be true

11   because of unit demand. If I bought my camera and I've

12   got it, then I don't want to stick around. Losing

13   bidders are going to exit randomly at some rate O.

14   Losing bidder payoffs are going to be normalized to

15   zero, sort of a dynamic games assumption.

16   Then new bidders are going to enter, and the

17   number of entrants depends on how many entrants there

18   already are in the market. The assumption in the paper

19   is basically set up in such a way that the market cannot

20   explode, so as a lot of people are in the market, then

21   the set of entrants gets smaller. There are going to be

22   fewer entrants, a lot of people.

23   They're going to draw the valuation then from F

24   on entry, so every period we have entry and exit.

25   Winning people exit, losing people exit randomly, new

1   people come in. How many new people is random.

2   Last, we're going to have a seller who posts a

3   new item to be sold M periods in the future, so what am

4   I thinking of here? I'm thinking of EBay. When do I

5   post my auction? I post my auction today to be sold

6   seven days away from now. And that's important because

7   it means that people can think about what's coming up

8   when they decide what to bid today, the same way that

9   they can look at a Sotheby's catalog and look at how

10   much they're going to bid on this item based on what

11   item they're going to be able to potentially purchase in

12   the future.

13   The auctions are going to be second-price

14   sealed-bid auctions. Bidders can either bid in these

15   auctions if they're live at this time, or they can just

16   not participate. Non-participation turns out to be

17   important, and I'm going to overemphasize it in the

18   talk, but actually it makes a difference to some of the

19   results.

20   The bidder information. The bidders have an

21   anonymized history of the game for the last K periods,

22   so they observed everything that happened for the last K

23   periods, but anonymized so it doesn't reflect identity.

24   That again is very similar to a lot of online markets.

25   EBay, for example, anonymizes user's names so

1   that you can't tell. In the paper we don't do it quite

2   this way. We do a slightly different version, but an

3   anonymization assumption is a good assumption.

4   Then together with the foresight of M upcoming

5   auctions, they have a window of T minus K to T plus M

6   that is public. I know everything that happened for the

7   last K periods. I know everything that's upcoming for

8   the next M periods. In addition to this public

9   information, I know my private valuation, so I know my

10   type.

11   So a generic definition of a strategy: A

12   strategy is a map from an information set to my decision

13   as to what to bid. So it's going to be beta. I'm going

14   to assume symmetric strategies. It's not unreasonable

15   given that everybody is asymmetric.

16   So this the where things start to get a little

17   more complicated. So it turns out that you could think

18   about a Bayes-Nash equilibrium of this game, but if you

19   did, you might hurt your head. It certainly hurts my

20   head, so a Bayes-Nash equilibrium requires bidders to

21   form beliefs about the opposing set of types, because

22   that's what ultimately going to determine my payoff.

23   How am I going to do against the set of people

24   I'm playing against who are going to be playing some

25   sort of the strategies? So the relevant object for me

1   to form beliefs about is a high dimensional vector of J

2   vectors, so how many people are there in the market

3   currently? For each of them, they have J vector

4   valuations. I should know that entire vector of

5   vectors, okay?

6   And given an initial requirement on the state of

7   the market and the type draws in every period, I should

8   solve a filtration problem based on the observed history

9   to work up what my current history is over the entire

10 set of opposing times. This is I think implausibly

11 complicated, and so we're going to simplify.

12   Here are the assumptions, and these are sort of

13 the main assumptions in the paper. If you buy them,

14 everything else you get. You get a lot of nice things

15 after these assumptions.

16   Here is assumption one: Bidders condition

17 beliefs on a finite state variable which is courser than

18 the full history. So the state variable could be the

19 range of transaction prices in the last seven days, the

20 number of upcoming auctions in the next seven days.

21 Basically we don't have very strong restrictions on this

22 at all except that whatever this function is that

23 partitions information sets and states, it partitions

24 them into a finite number of states. And that

25 immediately implies that it can only be based on a

1   finite history, so you're going to get a recurrence

2   property.

3   Then what they're going to do with this

4   information is they're going to believe they are going

5   to face a draw from the long run distribution of types

6   in that state. So who am I facing when I bid? I'm

7   facing a set of people, which is a random draw from the

8   distribution of people in that state.

9   So, for example, if I saw the price in the last

10   ten days being between $90 and $110, I would kind of

11   think, okay, so I'm going to face a random draw of

12   people who are going to bid between $90 and $110, what

13   should I do? So, that's sort of the rough logic. I

14   think this assumption is almost necessary to do anything

15   useful empirically, so I don't feel very apologetic

16   about it at all.

17   The second one I feel somewhat more apologetic

18   about and I think more arguable. Bidders believe that

19   the state transitions are exogenous and first order

20   Markov, so the first thing that's important here is that

21   bidders treat the states as exogenous. That is to say,

22   I don't believe I can affect the state variable. That's

23   going to be wrong.

24   In fact, for example, say that the state

25   variable was what the range of transaction prices were

1   in the last seven days, and it was $90 to $110. If I go

2   and I bid $60, the state variable tomorrow is almost

3   surely going to be $60 to $110 unless someone else does

4   something weird and out of equilibrium.

5   So they're going to be systematically wrong, but

6   in the large market, it's going to be very hard for them

7   to affect the state, and we can make that precise, and

8   we do make that precise in the paper. So, the idea is

9   that this is something that's defensible as an

10   assumption in the large market and probably not so

11   defensible in the small market.

12   Okay. So the formal definition of the

13   equilibrium concept then is a competitive Markov

14   equilibrium with respect to a coarsening function T that

15   partitions information sets into states. And the

16   requirements are that bidders use system metric

17   Markovian strategies to depend only on their own private

18   valuation and the public state variable, that they take

19   these state transitions as exogenous, and they correctly

20   anticipate the transition matrix so they're going to be

21   correct in equilibrium about this, although they're not

22   going to see their endogenized own effect on it.

23   They're going to have correct beliefs about the

24   distribution of opposing types, conditional on state,

25   and they're going to choose strategies that maximize

1   payoffs given these beliefs. So that was a lot of set

2   up. What does it get us? It gets us a really, really

3   neat characterization of equilibrium.

4   So look at the value function for a bidder, and

5   I'm going to explain it because I probably haven't

6   introduced any notation yet, or probably not much, so

7   value V of being in state S given that my private

8   valuation is X, i the maximum of my bid, any bid that I

9   have, of the probability I win.

10   What does that depend on? It depends on just

11   the distribution of the highest competing bid, G 1. All

12   I really care about is: Is somebody going to be able to

13   beat me if I bid B? That determines whether I win. It

14   also determines how much I pay, so my payoff is I guess

15   my valuation on that particular object, whether it's

16   being auctioned at XT minus the expected payment, which

17   is the highest competing bidder, if that bid is less

18   than B, or I could lose, in which case if I lose and

19   don't exit, I discount my future expected payoff. And

20   that's just the transition matrix times my value

21   function from the future.

22   Take a first order condition, you get the

23   optimal strategy. It looks like that. But in words,

24   which are much more intuitive, it says you should bid

25   your valuation less the discounted continuation value.

1   So what do I do in this market? I say how much

2   am I going to get in the future? I'm going to get on

3   the average a surplus of $10. How much is it worth to

4   me? It's worth a hundred dollars. What do I bid? 90.

5   Valuation minus continuation value.

6   Why is this intuitive? Well, the argument is

7   that it's like a second-price auction where the winners

8   get the object, and the losers get the continuation

9   value. So I can turn it into a static second-price

10 auction by reformulizing the prices. So what's the

11 reorganization?

12   I say, suppose that you were in a static

13 second-price auction and the prize was value of object

14 minus continuation value if you won and nothing if you

15 lost, what would you do? You would bid the value of the

16 prize. So the value of the prize is value minus

17 continuation value.

18   So this is true. I should point out that this

19 really neat characterization is not true in the

20 Bayes-Nash equilibrium. We're missing winners' effects,

21 for example. There are more subtle things going on.

22   Buried in that expression is the long run, so

23 how do bidders evaluate their continuation values?

24 Well, I need to know something about this G 1

25 distribution, the distribution of highest competing bid

1   times given the state, but I need to know what the

2   equilibrium distribution of that thing is. This is a

3   dynamic marketplace. People are entering, people are

4   exiting. How do I know what that object is? How should

5   I expect people to have beliefs about it?

6   So this is what the second Lemma in the paper

7   does. It shows that given any equilibrium and any

8   initial measure on the type space, the market converges

9   at a geometric rate to a unique invariant measure of the

10   type space. So basically we're going to get to a

11   stationery distribution over types, and that means the

12   long run makes some sense.

13   I'm going to start this market and people are

14   going to play some strategies for awhile, eventually

15   they're going to end up at a point where there's unique

16   and variant measures of the types. And at that point

17   they're going to have very simple and well formed

18   beliefs.

19   The other thing that's interesting about this is

20   that once we get to the long run, the information

21   demands of bidders are not that strong. How should I

22   try to work out who I'm up against so I can look at that

23   object in the data? It's in the history.

24   How often would my bid have won if we were in

25   state S and just look at the data for the last 20

1   periods, 40 periods, 60 periods? Does it look like a

2   hundred would have been a winning bid very often? I can

3   work that out. So at equilibrium, at least this is not

4   unreasonable to think that bidders might be able to

5   think this way.

6   Then finally we prove existence, and existence

7   is easy if there's one product because the type space is

8   totally ordered, and it's hard in general, but we've

9   proven that in the paper.

10   So let's move on to the question of demand.

11   I've got this equilibrium concept of this neat

12   characterization of how people behave, and now I would

13   like to actually estimate demands. So, remember demand

14   is just willingness to pay, so I want the distribution

15   of valuations. And already, there's an interesting

16   question: Which distribution of valuations? Do I want

17   the entry distribution F, so the people who are entering

18   this market? Would I want the steady state distribution

19   of valuations which is different in general, and this is

20   something F star, right? So random entry and exit means

21   that the state of people in the market in the long run,

22   the steady state is not the same as the set of people

23   who enter.

24   Both of these are identified from panel data.

25   So the data we're going to see is a sequence of bids for

 1   each bidder. An observation then is an auction, a

 2   product that they were bidding on, a bidder and their

 3   bid.

 4   We assume the econometrician knows how to

 5   classify the public history into states, so the

 6   econometrician knows what model these guys have of the

 7   world, right? They don't care about the last seven days

 8   or whatever, and we assume also the econometrician knows

 9   the discount rate or can calibrate it.

10   So I'm going to show identification in the

11   really easiest possible case, which is one product and

12   one state, and the reason I'm going to do that is it

13   just turns out to be easier to follow as an argument.

14   DR. NEVO: We're out of time. Why don't you

15   take a few minutes just to wrap up.

16   DR. LEWIS: I'll finish. I knew this would be a

17   disaster in 20 minutes. Anyway, it's impossible. So

18   anyway, here's how I'll do it. Let me finish with

19   identification, and then I'll stop.

20   So bidders are going to bid according to their

21   bid minus the continuation value. The continuation

22   value can be explicitly written out. I could substitute

23   in the unknown. There was an X in the continuation

24   value I didn't know. I can substitute in bid plus

25   continuation value.

1   An important thing is that when I get this

2   rearranged version of the continuation valuation,

3   everything on the right side of that expression is known

4   in the data. It's stuff you can actually go out and

5   estimate very, very easily.

6   So once you have that, then you know the

7   valuations. If you know the valuations and you know

8   that they've bid their value minus the continuation

9   value, I just would add the continuation value to the

10   bid, and I get back the evaluation.

11   I'm done, and this extends to much more

12   complicated things, and since I'm out of time, I will

13   just say that not only can you do that, you can then go

14   and estimate it. You can go and estimate it with

15   characteristics. You can basically do this in a lot of

16   different ways, and you can get demand for these

17   markets. So that's the summary.

18   DR. NEVO: Thank you. Our discussant is Chris

19   Adams from the FTC.

20   DR. ADAMS: So I'm going to discuss

21   Greg's paper. Thanks for letting me do this. I've been

22   working on this question for awhile now, and I think

23   it's a very interesting one. We have a pretty good idea

24   of how to do demand estimation in markets where prices

25   are set by sellers. We don't have a particularly a good

1   idea how to do demand estimation where prices are set by

2   buyers.

3   So just to summarize what Greg said, he comes up

4   with this equilibrium concept, says that bidders are

5   bidding against his long run distribution of types. He

6   shows that that long run distribution exists. He shows

7   this nice structure on the bids. People bid their value

8   less an option value, and then he shows that we can

9   identify this distribution, this joint distribution of

10   values, which is a thing we're interested in -- demand.

11   We want to know what is your demand for multiple

12   products. And then in the paper he talks about

13   different ways that we could go about doing the

14   estimation.

15   One is we could just observe bids for the same

16   person in a bunch of auctions for different products.

17   Another one is he has this parametric thing, which I

18   didn't really understand, and then the last one is he

19   has a hedonic model which is a little different from a

20   standard one. I didn't quite understand how it's

21   different, but it's a hedonic model.

22   My two suggestions for this are not necessarily

23   an attack or anything on this particular paper. I think

24   Greg and Matt have done a huge effort here. This is

25   putting some foundations on a model or an environment

1   that we don't have a particularly good understanding of

2   how to do the econometrics, and we don't have a great

3   understanding even of what the theory looks like -- what

4   equilibrium concepts would make sense in this type of

5   world.

6   I think both Greg and I would like to go to a

7   world where we have this large market so that the

8   bidders are taking account of the future. They care

9   about the future because they have an option value on

10   the future, but they're in a market like EBay. There

11   are lots and lots of bidders.

12   It's sort of unreasonable to think that they

13   really care about revealing their types and how

14   important is that going to be, but when you write the

15   underlying game, and you write the underlying game that

16   Greg has, that comes up straight away, that it really

17   matters what the types are and what assumptions we

18   should be making about it.

19   It's not necessarily possible for this paper,

20   but one thought is it might be nice if we had put the

21   large in the model instead of in the equilibrium

22   concept. And then wrote down maybe a more standard

23   equilibrium concept and then sort of showed, well, as

24   the number of potential bidders gets large, as the

25   market gets large, that sort of standard equilibrium

1   concept moves to something more like what Greg is

2   suggesting.

3   And that's what I say here. One of the things

4   when I wrote this slide, I thought, well, we could just

5   go to a fairly standard equilibrium concept like we've

6   been using in other parts of demand estimation, so other

7   parts of empirical IO like a Markov type equilibrium

8   concept. What I hadn't realized was that it really

9   hasn't been worked out for these types of imperfect

10   information models, so that's an issue.

11   The other point that I wanted to make which is

12   not at all an attack on this paper, it's just saying you

13   should read my paper. In this paper it's saying, well,

14   we're going to observe all the bids for all the bidders

15   across all the items, and in my paper I look at, well,

16   maybe we can't really do identification like that.

17   Maybe what we could do is we could use auction choice,

18   and if we saw auctions occurring at the same time maybe

19   we could infer what people's valuations were for the

20   product that they didn't choose.

21   So what I have in my head is this choice. I

22   think of these two products as absolutely identical, but

23   there's many people in the world who do not. And I

24   wonder if we just ran hedonics, we could run nice

25   hedonics for bidding, people that bid on Chevys and

1   people that bid on Ford, but I'm not sure that's going

2   to tell us anything about the valuation that people who

3   bid on Fords place on the value of the Chevy, which is a

4   question we're interested in.

5   So the last comment is just I have a paper.

6   Email me. Thank you.

7   DR. NEVO: We have time for maybe one or two

8   questions.

9   Why don't we move on to the next paper and we'll

10   try to catch up, so the next paper is by Ying Fan, who

11   is listed as Yale but is now at Michigan.

12   DR. FAN: Used to be the Yale. Good times.

13   So the title of the paper is "Market Structure

14   and the Product Quality in the U.S. Daily Newspaper

15   Market."

16   So this paper studies the effect of ownership

17   consolidations on the U.S. daily newspaper market. A

18   standard merger analysis typically focuses on the price

19   effects only. In this paper I will take into account

20   both the price effect of ownership consolidation and the

21   effect on ownership consolidation on newspaper

22   characteristics.

23   So two research questions are addressed in this

24   paper. First is: What can we learn? For a specific

25   market, what can we learn from an anti-merger analysis?

1   For example, so here we have a little market

2   with five newspapers. These five newspaper were

3   originally owned by five different publishers, and

4   Knight Ridder, which is actually smaller, acquired

5   McClatchy. And as a result of this acquisition, two

6   newspapers went under one roof, and there are a lot of

7   cross-effects. Now they can be endogenized, so what

8   happened after this ownership consolidation?

9   So specifically what happened to the space of a

10   newspaper devoted to news, which is called news hole in

11   this industry? There is actually a reason, and what

12   happens to the number of staff opinion-section, what

13   happened to the number of reporters, and what happened

14   to the two prices involved in this industry, and

15   advertising rate for advertisers? And also what are the

16   welfare implications? So that's the first research

17   question. What can we learn from this anti-merger

18   analysis of a specific market?

19   The first question tells us what happened

20   depends on the specifics of the market structure, but

21   can we say anything general? So what's the

22   relationship? What's the correlation between the

23   effects of ownership consolidation and the underlying

24   market characteristics? So those are the two questions.

25   So to address the two questions, I set up a

1   model and collect data to estimate the parameters in the

2   model. Based on the estimates, I did two sets of

3   simulations corresponding to the two research questions.

4   And finally I will conclude, if I have time.

5   Since I have only 20 minutes, I'm going to

6   present my model in the graph, which is probably less

7   amusing, so the revenue of a newspaper comes from two

8   parts: selling newspapers to readers, the profit of

9   that part can be negative, and the selling of

10   advertising space to advertisers.

11   So readers care about the price, the

12   subscription price. They care about characteristics of

13   the newspaper, and their decisions determine the demand

14   for newspaper, so I use a multiple discrete choice model

15   to model this part. So that's price, characteristics,

16   and also the demographics of the reader affects the

17   utility that a reader gets from subscribing to a

18   specific newspaper.

19   By the way, i here is a household, J is a

20   newspaper, and T is the year. But since I do not have

21   individual level data, I do not have data on the

22   household level, so I use county demographics to capture

23   the mean part of that effect. And then of course we

24   have unobservable. We have this larger error, and to

25   capture the development of online data, Internet

1   penetration, the online data source, I allow a time

2   trend in the utility from the outside choice. So that's

3   basically the idea of the demand for newspaper.

4   So advertisers care about the price advertisers

5   are charged, which is called advertising rate. They

6   care about circulation of the newspaper and some other

7   characteristic of the newspaper, and their decisions

8   determine the demand for advertising. So facing the two

9   demand sides, there are two demand functions.

10   Newspapers are going to choose newspaper characteristics

11   in the first stage, and the two prices in the second

12   stage, price for readers, price for advertisers.

13   Three characteristics are endogenized, so there

14   are more characteristics considered in the estimation of

15   demand. Three characteristics are endogenized in this

16   paper. First is news hole, the space of a newspaper

17   devoted to news, the second is the staff for opinion

18   section, and the third is the number of reporters for

19   this newspaper as a proxy for how much of the news space

20   is written by its own staff rather than copies from news

21   agencies. So that's basically the idea of the model,

22   and I'm not going into detail.

23   So the model gives me five sets of estimation

24   equations. First is the mean utility equation. It's

25   similar to BLP, except exclusion is needed because it's

1 a multiple-discrete choice model. A household might

2 subscribe to multiple newspapers, but the idea is

3 similar. We can derive a mean utility equation, and

4 then we have advertising line. It's basically the

5 quality of the demands for advertising. There's a

6 separate estimation equation.

7 And then there are three sets of first order

8 conditions, first order condition with respect to

9 advertising rate. We assume that in the data, whatever

10 advertising rate I observe is the optimal choice. And

11 then the first order condition with respect to the

12 subscription price for readers. And the endogenous

13 three characteristics, so there are three first order

14 conditions with respect to the three different

15 characterizations. So that's the estimation equation,

16 and I take that to data.

17 So let me briefly mention the endogeneity

18 problem, because I'm now endogenizing price, PNR,

19 newspaper price and advertising rate and the

20 characteristics so you probably are wondering what are

21 the readers.

22 I am going to choose the graphics, so the idea

23 is the graphics predicts demand, which means it shifts

24 the profit function. Therefore it affects the

25 equilibrium result of the prices and the

1   characteristics.

2   Now, the question is: Okay, you mean that the

3   demographics affect demand. It's included, so it's an

4   excluded instrument. What is the excluded instrument?

5   First let me tell you what they are, and then I'm going

6   to explain them. So one set is demographics of all the

7   counties, and demographics of competitors. Let me

8   explain why the second set can be used and an excluded

9   instrument, and then why the first set is will be

10   obvious.

11   So suppose there are two counties. County one

12   has newspaper A and B, and the County 2 has newspaper B,

13   so the demographics in County 2 are going to affect B's

14   decision. And since A and B are direct competitors,

15   demographics in County 2 are going to affect A's

16   decision in the equilibrium because they are

17   competitors. So that doesn't go into the demand system

18   for A directly, and that's why it can be used as an

19   excluded instrument. So that's one bit about estimation

20   that I would like to mention, and I will skip all the

21   details.

22   Now, let's talk about data. So in terms of

23   quantity, I have county-level circulations for each

24   newspaper on the reader side, annual advertising line on

25   the advertiser side, prices and newspaper subscription

1   price for readers, and display advertising rate for

2   advertisers. So, in fact, there are two kinds of

3   advertisements. You see an advertisement next to a

4   piece of news, and that is called an insert.

5   It's basically something that comes along with

6   the newspaper. When you open your newspaper, they all

7   fall out, but I only have data on these pieces. And

8   when I deal with the product, that's the insert. I

9   don't have data in the more ad hoc way. If we have time

10 I can talk about that.

11   So newspaper characteristics: I have data on

12 number of pages, number of staff or opinion section,

13 number of reporters, and frequency. Even though I'm

14 talking about daily newspapers, but they are newspapers

15 that are delivered, published only five days a week,

16 which are considered daily newspapers as well, that can

17 potentially affect your delivery cost.

18   In terms of demographics, I have the number of

19 households in each county, percentage of population over

20 25 with a high education, with a bachelor degree or

21 higher degree, median income and organization. So

22 that's basically an introduction of what kind of data I

23 have.

24   I'm going to actually skip this slide. If we

25 have time we can come back. This is more like the

1   auxiliary stuff. I estimated the model so that I can

2   talk about the simulation.

3   So as mentioned, I have two research questions

4   in mind. One is: What can we learn from this anti

5   merger analysis for a specific market? Corresponding to

6   that question, as simulated, the result of ownership

7   consolidation of Star Tribune and the Pioneer Press

8   basically is the example showed at the very beginning.

9   And then the second question is: What is the

10   correlation between the effect of ownership

11   consolidation and the underlying market characteristics?

12   To answer something like a correlation, I need a

13   lot of data points, so what I did is I simulated the

14   effect of ownership consolidation. By the way, whenever

15   I say merger that just means I'm lazy. What I really

16   meant was ownership consolidation, not two newspapers

17   become one.

18   So to answer that question, what I did is I

19   stimulated the effect of ownership consolidation for all

20   the duopoly and triopoly markets in the sample, which is

21   the last year of my sample. That gives me some thoughts

22   that I can talk about correlation.

23   So let's talk about the first simulation first.

24   This market involves five newspapers. Star Tribune is

25   the biggest one. That's the home county, and Pioneer

1   Press is the second biggest one. Pioneer Press and Star

2   Tribune are the ones that went under one roof, and so

3   that's the coverage of Pioneer Press, and three other

4   small newspapers are involved in this market. One

5   covers here, here, here, and they are linked through

6   those two big newspapers. So here's the result.

7   What I did is I simulated the effect of

8   ownership consolidation without allowing quality

9   adjustment. Just ignore that, what happened. I show it

10   in Table 6. And then I stimulate the effect of

11   ownership consolidation with quality adjustment, with

12   the adjustment of the three characteristics, so there

13   are five findings. I'm going to mention three here.

14   First is no matter whether we consider quality

15   adjustment or not, prices of the two newspapers that are

16   involved in ownership consolidation go up. So, one

17   explanation of that is you can think about the price.

18   So now the owner of Star Tribune owns both

19   newspapers, okay, and then you can even endogenize as

20   the owner of two newspapers. Now I can even endogenize

21   the cross-effect, and the price cross-effect is positive

22   in the sense that if I increase the price, it's going to

23   benefit the other.

24   So they are strategic compliments, and that

25   explains why this is different and why this number is

1   smaller than this number and this is smaller than this

2   number. It is because once we consider the quality

3   effect and the quality factor actually affects the price

4   effect. Let's see why.

5   So if I talk about the effect of ownership

6   consolidation on the characteristics, what I find is,

7   okay, for this two characteristics, it goes down, so the

8   quality goes down, and let me first explain why -- let

9   me first explain why they go down and then let me

10   explain why these go up.

11   So they go down. The story is very similar as

12   to why the price goes up. If I increase the quality of

13   one product, I'm going to hurt the other. So its cross

14   effect is negative, so they are like strategic

15   substitutes. Now, the question is: This is another

16   characteristic, and why does this go up?

17   So the answer here is this characteristic is

18   different from the other in the sense that it also

19   affects the marginal cost; by the marginal cost, I mean

20   the variable cost of various circulations. So no matter

21   how big the circulation is, it's fixed, but if you

22   produce more news, that means more pages to be printed.

23   That means, for each additional household who subscribes

24   to the newspaper, the printing cost is higher. So this

25   characteristic is systematically different from the

1   other two because it also affects the marginal cost.

2   So now if Star Tribune increased the

3   characteristic in this demand, the quality is higher,

4   but at the same time the marginal cost is higher so it's

5   not necessarily an advantage for Star Tribune and not

6   necessarily an advantage for Pioneer Press. Remember

7   that there is pricing competition in the second period.

8   In this specific case, they actually go up, so that's

9   the second finding.

10   Third is if you compare the first row with the

11   second row, Star Tribune is the bigger newspaper and

12   Pioneer Press is the smaller newspaper, so you can find

13   that in both tables. Second row is bigger than the

14   first row.

15   So in English, that means the adjustment of the

16   smaller newspaper is bigger than the adjustment of the

17   bigger newspaper, so this is related to one estimation

18   result saying that this advertising demand is convex in

19   circulation.

20   So my profit function is kind of convex in

21   circulation. It means if I own two newspapers, I have

22   an incentive to shift circulation from my small guy to

23   my big guy for exactly the same amount of shift. There

24   is a loss here. There is a gain here, but because of

25   convexing, the gain is bigger than the loss, so I have a

1   little incentive to shift circulation from small guy to

2   a big guy.

3   Now I'm going to decrease the quality of the

4   newspapers and increase the prices, but I have this

5   incentive, so I'm going to decrease the quality of this

6   small guy by a bigger amount. So, I can shift the

7   circulation from the small guy to the big guy, and that

8   explains the asymmetry of the adjustment, basically the

9   difference between the yellow row and the green row.

10   So here is the welfare implication. Basically

11   what we find is that reader's surplus goes down: Up the

12   ownership consolidation, and we overestimate producer

13   surplus for 80 percent if we ignore quality adjustment.

14   So for different households in different counties that

15   are involved in this market, the effect of ownership

16   consolidation on their surplus is different. Ramsey

17   here is the home county of Pioneer Press, and that's the

18   one that's affected the most.

19   Let me spend two minutes talking about the

20   second simulation. So the second simulation, what I did

21   was I simulated the duopoly market in the five samples.

22   A star here is what is the effect of this ownership

23   consolidation per household reader surplus if we ignore

24   quality adjustment, and I just talked about the star.

25   A dot here is the same thing, the effect of

1   ownership consolidation on reader surplus when there is

2   quality adjustment. And the lines of assessment

3   basically says what the bias is before you ignore

4   quality adjustment, so that's the duopoly. This is a

5   triopoly market, and the dot and the star and the

6   segment means the same thing.

7   Let me go back. So I think there are three

8   variations that are interesting here. One is: Why are

9   the dots different? Some are here, some are here. Why

10   are the dots different. I sorted it by the dots. The

11   second question is: Why are the lines of the second

12   different? Why are the buyers different across markets?

13   Let me go to this graph, so notice the scale is

14   minus 25 here. The third variation is: Why is the

15   graph for duopoly different from the graph for triopoly?

16   So to answer this three questions, I did some

17   very simple regressions. Let me remind you that

18   basically I'm regressing endogenous variables. I'm

19   really just summarizing data here. So the first

20   regression, I regress basically where the dot is. I

21   regress where the dot is, the average per household

22   readers, this welfare change on a bunch of variables

23   that are supposed to capture the market characteristics.

24   So what I find is how much people care about, so the

25   first one is supposed to capture how much people care

1   about reading newspaper in general.

2   Look at the one stream. Suppose people don't

3   care about reading newspapers. You can change the

4   quantity or the quality on the price all day long.

5   Nobody cares. There's no effect, so obviously that

6   matters.

7   Also, how important is the overlap area to the

8   newspapers matters. We can look at another extreme.

9   Suppose there's no overlap here. Then there's no cross

10   effect to listen on the demand side; there's no

11   cross-effect be endogenized so there shouldn't be an

12   effect.

13   Also, the asymmetry of the two largest

14   newspapers matters. That's related to the convexity

15   star, and it's because the big newspaper that has a

16   bigger impact the welfare, that's why this one matters.

17   And also whether the existence of a competitor means the

18   welfare loss for readers, and this one is supposed to

19   capture how big the impact of it is, how important the

20   existence of this competitor is.

21   So basically this regression explained why the

22   dots are different and why the graph for the duopoly is

23   different from the graph for triopoly, and this was

24   supposed to explain about the lengths of the segment of

25   different cross markets.

1   So again whether there exists competitors

2   matters and whether people care about reading newspapers

3   in general matters, and the price elasticity matters.

4   To explain that, I'll probably need one more minute. So

5   I'm actually going to skip that.

6   So here is the conclusion. Do I have a minute

7   to read the conclusion, or you guys can read it?

8   DR. NEVO: Sure.

9   DR. FAN: So basically the message is quality

10   matters. In a merger analysis we care about the

11   characteristics, and the effect of a merger depends on

12   the underlying market structure as you can see. We see

13   these three variations, and the reader's welfare loss is

14   positively correlated with how much people care about

15   reading newspapers in general, and the overlapping of

16   the newspapers that are involved in the merger in

17   ownership consolidation. And that is correlated with

18   the asymmetry of the newspaper sizes and the number of

19   competitors.

20   And profit function is convex in circulation,

21   which means that a multiple newspaper owner or publisher

22   has an incentive to shift the circulation from its small

23   newspaper to its larger newspaper, but because of the

24   partial overlap, it won't shut down one newspaper.

25   So that's it about the paper.

1   DR. NEVO: Thank you. Our discussant is

2   Ambarish Chandra from UBC.

3   DR. CHANDRA: Okay. So let me summarize really

4   quickly what Ying just said in her paper. The goal of

5   the paper is to calculate the welfare effects of

6   newspaper mergers, and the highlight is that most merger

7   analyses is not just in media markets, and most markets

8   only examine price changes. Maybe that's more or less

9   reasonable in many markets, but in media markets,

10 certainly newspaper markets, it's very important to

11 actually consider quality changes or changes in the

12 actual composition of the product.

13   So that's what this paper does, while it's

14 clearly an important concern. And so also we've been

15 seeing over the last few years and accelerating the last

16 few months some pretty big changes in market structure

17 in media markets. So about 30 years ago, there were

18 about 1,600 daily newspapers in the U.S. but ten years

19 that was 1,200.

20   And actually I'm not sure what the latest

21 numbers are, but there have been shut downs and declines

22 of circulation across the country. We're seeing a lot

23 of one newspaper towns go to becoming zero newspaper

24 towns. We're seeing a lot of larger cities that could

25 actually support two newspapers, now just seeing one

1   newspaper.

2   So the latest example is Seattle where it

3   switched from being a two newspaper town to a monopoly,

4   so there's big changes in market structure across the

5   country.

6   What Ying does not so much look at changes in

7   the number of newspapers, she look more at ownership

8   consolidation, but it's the same issue. It's a great,

9   very timely question. It has very important policy

10   implications, so that's what this paper does.

11   So let mention some literature and then I will

12   highlight a couple of abstractions. So, one of the two

13   most important contributions is that the paper

14   generalizes earlier work, just not in newspaper markets

15   but also in media markets in general, which is that

16   household or families consume only one newspaper, only

17   radio station at a time, which is true of a lot of the

18   work in radio markets as well.

19   Now, that's a very easy assumption to make.

20   I've made that assumption myself in previous work, but

21   it's not realistic, and so one of the biggest

22   contributions of this paper is that it actually lays out

23   this very elegant and realistic framework for how

24   households actually consume more than one newspaper.

25   You can use the same framework for households consuming

1   more than one radio station, more than one TV station,

2   so that's clearly a contribution of the paper.

3   I'm going to skip the concerns, they're pretty

4   minor concerns, so that's one of the biggest

5   contributions.

6   The second one is the fact that the newspaper --

7   the paper endogenizes newspaper quality and allows a

8   merger or ownership consolidation to actually lead to

9   changes in the quality of the composition of the

10   newspaper, and that's exactly what we want to think

11   about. We don't want to just think about price effects.

12   If you think about newspapers, and you look on the

13   circulation side, who cares about prices.

14   Prices are in, some cases, set below marginal

15   cost. We're not really worried about increases in

16   prices on the circulation side when we see

17   consolidation. What we really are worried about

18   are things like reduction in opinion diversity or

19   reduction in topics covered, and that's exactly what

20   Ying looks at in this paper, so that's really important

21   for post-merger simulations. It's really important for

22   welfare analysis.

23   And again it's not just in media markets. In

24   most industries we assume that after mergers,

25   characteristics are fixed, and this paper does not do

1   this. It actually endogenizes quality, and so that's a

2   nice contribution to the literature.

3   So because this paper does so much I think

4   that's new, there's naturally a couple areas in which it

5   abstracts away from some issues. Let me just point

6   those out.

7   Actually both of these abstractions deal with

8   advertising, which is pretty much my own area of

9   interest so maybe that's why they stood out to me but

10   the first abstraction is that readers care only about

11   news, they don't care about advertising. There's a lot

12   of conflicting evidence on this in newspapers, in

13   magazine markets, radio stations, and TV stations.

14   You can imagine in radio and TV, it's very clear

15   that advertising is bad for consumers. They draw fewer

16   ads. In print markets, it's not so clear. Maybe they

17   actually like ads. Maybe classified ads in particular

18   might be valuable.

19   In any case even in newspapers it's not that

20   hard for consumers to just switch over or to skip over

21   the ads. And so it's not that strong an assumption,

22   especially given all that Ying is able to achieve by not

23   dealing with the advertising market on the circulation

24   side, so I wanted to highlight that that's one of the

25   abstractions this paper makes.

1   The second one is that the paper sort of assumes

2   that advertisers have the following behavior which is

3   that if you advertise in multiple media or multiple

4   newspapers, you keep advertising until the marginal

5   profit from doing so is zero.

6   Now, that's exactly right in any kind of

7   theoretical or rational framework. That's what

8   advertisers should do. You should treat advertising as

9   some kind of investment. If the marginal profit from

10 investing in advertising in the newspaper exceeds the

11 cost, you should advertise, and if that means

12 advertising in 20 different newspapers, you should do

13 that.

14   So that's the way we should think about it.

15 That's the rational strategy, but I don't think it's a

16 realistic strategy. I think in reality what advertisers

17 do is they have budgets. I think that's actually that's

18 very much the case not just for large national

19 advertisers but for even for small mom and pop stores.

20 They tend to allocate a certain amount of money and they

21 go to the agent and say, here's how much money we have

22 for advertising, get us the best deal, here is the

23 preferred demographic we want, we want let's say

24 affluent, educated consumers or poor minority consumers,

25 whatever it is.

1   In reality I think advertisers tend to have

2   budgets, and if they have budgets, then actually

3   newspapers will care about the advertising prices at

4   competing newspapers. In reality if they didn't, if

5   they followed the strategy that Ling lays out, which

6   again I may point out is actually rational, it wouldn't

7   matter, but I think in reality does matter.

8   So that's a second concern. Let me just point

9   out that actually the fact that Ling has relaxed a lot

10   of the assumptions on the circulation side by

11   allowing households to buy multiple newspapers actually

12   creates this problem. Now again that relaxing of that

13   assumption is good. That's a big advance, but if you

14   allow households to buy multiple newspapers, then you're

15   actually allowing them to overlap.

16   If households only consume one newspaper, then

17   every newspaper would be a monopolist with respect to

18   its own reader base, so you wouldn't have to worry about

19   prices at rivals when you're setting your own

20   advertising price. But if you actually allow households

21   to buy multiple papers, then there would be reader

22   overlap, and in that case advertisers might find it more

23   or less useful to go to a particular newspaper compared

24   to its rivals.

25   The same would hold true in other media markets

1   as well. So in particular, some media may dominate

2   others in terms of demographics, right? And it's

3   interesting to think about a framework where advertising

4   portfolios are kind of like financial portfolios where

5   they're all different assets or investments that you

6   could make, and depending on what kind of target

7   demographic you have, you might choose which of these

8   assets you want to invest in.

9   So I'm not sure it's something that you can fix.

10 I don't think it's even something you need to fix. It's

11 not the highlight of your paper. You're not concerned

12 about advertising, but it might matter for the welfare

13 calculations, and so I think it might be a good idea to

14 point it out.

15   Other concerns. Let me skip these. They're

16 pretty minor concerns. Let me go to the last slide

17 which is about counterfactual. So I think this is very

18 nice work. It endogenizes quality. It allows post

19 merger or post ownership consolidation quality or

20 composition of newspaper to change. That's exactly the

21 way we want to think about this. It's very nice work.

22   One last concern at this point is there's this

23 paper by Lisa George in 2007 which argues that when you

24 have ownership consolidation, you actually can arguably

25 increase welfare for readers because when one chain owns

1   multiple newspapers, it turns out that those newspapers

2   tend to focus on more topics. They tend to have more

3   variety or more diversity, and the reason is very

4   simple.

5   If you have competing newspapers in the same

6   town, a lot of what they are doing is just duplicating

7   each other's work. They're all focusing on the same

8   thing, which is local politics, local sports, local

9   crime, weather. They're just duplicating each other's

10 work. There's not really any real value added there in

11 most cases.

12   When you allow these newspapers to be owned by

13 the same firm or you shut one newspaper down, you're

14 just eliminating all of these duplicating functions, and

15 you're allowing the monopolist to now diversity, cover a

16 wider range of topics, more topics dining or gardening

17 or traveling or whatever it is.

18   So in some sense readers might be better of by

19 having fewer owners in the market. Now, that's not the

20 last word on the subject, but that's a concern and

21 that's something this paper doesn't address because I

22 think in the paper what you have is you've got ownership

23 consolidation. You have on the demand side that readers

24 value having more reporters.

25   When you've got consolidation, the number of

1   reporters drops, and so you would conclude that

2   therefore reader welfare goes down. But what really

3   matters is the allocation of these reporters for

4   different topics, and if the newspapers are now covering

5   more topics or the same number of topics, then it might

6   be optimal from a welfare point of view to actually have

7   consolidation, to eliminate all of these reporters who

8   are not adding any value because they're covering the

9   same topics.

10   And so that's not something this paper gets at

11   either, so now again, all that will do I think is just

12   put a lower bound on the welfare loss if you were to

13   consider that issue so I'm not sure it would change

14   anything. And again I don't think it's something you

15   necessarily want to address or you want to necessarily

16   address in this paper. There's too much else going on,

17   but it's something you might want to just acknowledge,

18   so the fact that mergers might actually increase

19   efficiency by eliminating those fixed costs okay.

20   That's it.

21   DR. NEVO: Thank you. Any questions? Okay.

22   DR. SCHMIDT: Dave Schmidt, FTC. I was

23   wondering if you allow for any price discrimination

24   geographically in your model? I mean for subscribers,

25   it would be pretty easy to identify neighborhoods where

1   there are significant overlap between the papers, and

2   you can imagine pretty fierce competition, just like

3   there is in overbuilds with capable television, that you

4   get pretty fierce competition when there's overlap.

5   But they needn't necessarily have that fierce

6   competition in the non-overlap areas, and I was just

7   wondering if you thought about extending in that

8   direction? And I was also wondering how that might

9   influence your instruments using the sort of non-overlap

10   county's demographics, how that might affect it.

11   DR. FAN: Price discrimination does exist on

12   both sides. On the reader side and on the advertisement

13   side. On the reader side, I'm not too concerned because

14   in the data I can tell whether there exists a difference

15   between one price and outside price, every newspaper

16   uses that price, very few newspapers use that price

17   discrimination.

18   What I'm actually more concerned with but I

19   didn't go over in my presentation because of the time

20   constraints is advertisers, that there's all kinds of

21   price discrimination, frequency discount, whether you

22   want advertisement on page A or page Q. It's totally

23   different.

24   And the data I have is the highest possible rate

25   you would pay. If you go to a newspaper for the first

1   time, say I want to publish a little advertisement of

2   one column each, that's a price charge, so that's part

3   actually is where I'm concerned but that's the only data

4   I have.

5   So on the reader side I'm not that concerned.

6   DR. NEVO: Any other questions? Let's move on

7   to our last paper. It's Mitsukuni Nishida. I hope I

8   didn't butcher that too badly.

9   DR. NISHIDA: Is there a pointer here? Thank

10   you for having me here, and let me start with

11   motivation, so in wide range of industries, we observe

12   multi-store firms being store locations. The examples

13   include Family Mart, Lawson, and convenience store

14   industries in Japan, where I studied, or in the U.S. we

15   see Wal-Mart, Target.

16   And the two major features for those multi-store

17   firms is locations. The first one is the headquarters

18   of those firms tried to internalize a trade-off due to

19   clustering its own stores, and let me be clear by what I

20   mean by this trade-off.

21   So suppose we have nine contiguous cells in one

22   region, and headquarters designs a number of stores for

23   each cell. If you increase the number of stores in one

24   particular cell, like in market or cell one, then you

25   might expect that the sales at the store might be

1   decreasing as the number of stores you put increases.

2   At the same time on the cost side, you might be

3   able to save costs of delivery of the cost of

4   advertising by co-locating, and the trade-off can occur

5   within a cell or across cells. I call each cell a

6   market, although it's kind of confusing because demand

7   and cost are not isolated so that's the terminology that

8   I'm going to use for the rest of my talk.

9   The second feature is that when I talk to the

10   industry people, often they recognize that rival chain's

11   decision of where to locate the store. The first

12   question in this paper is to understand the observed

13   network choice, so namely if we see the observed store

14   network choice, what can we learn about the underlying

15   primitives that would generate the store networks.

16   And especially I'm interested in if we can

17   explain the store networks as the outcomes of the game.

18   And this relates to the second research question I'm

19   asking, which is: After we know about the parameters

20   and distribution shock, can we predict new store

21   networks after two chains or two stores merge?

22   This is related in motivation in the sense that

23   in a typical merger evaluation, the regression also

24   seems to focus on changing price, so this is an actual

25   case in Staples/Office Depot merger, firms that sell

1   stationery goods, and the FTC challenged this proposed

2   merger because they predict prices too high.

3   But I think what missing in this argument is

4   what would happen to the store configuration after the

5   merger, but I think it can be very important if the

6   change in store network changes the total profits of the

7   firm side. And for the consumer side, if there's a

8   change in number of stores, and if there's a travel cost

9   to reach to convenience stores or the retail stores,

10   then it might affect consumer's welfare.

11   So what I want to do in this paper is I want to

12   propose a new framework to estimate a game in which two

13   model firms choose a store network. So, if you think

14   about the industry in two stages, in the first stage,

15   after the merger they choose a location, and then in the

16   second stage, they set the price. So this paper does

17   not look at the second stage; it's more focused on the

18   first stage, which is consolidation.

19   So before I talk about the detail of my model,

20   let me just mention the potential difficulties when you

21   deal with this chain entry game. So suppose we have 16

22   contiguous cells and we can construct each model store

23   firm's decision as choosing a vector with dimension 16.

24   So if you think about Family Mart's decision of

25   how many stores to put in and you allow up to four

1   stores, then you have five choices for each cell. So

2   the total number of model store networks is five to the

3   16. And if you think about your competitor's decision,

4   the number of possible outcomes of the game is you have

5   to multiply this number with the same number. So even

6   in a small number of markets, it can easily become

7   intractable to solve for the profit maximizing vector or

8   to find the equilibrium of the game.

9   There's a paper in 2008 that studies K-Mart and

10   Wal-Mart's choice of store locations, and what I'm

11   adding in this paper is now a firm is allowed to decide

12   not only where to locate, not only whether to enter or

13   not enter in a particular market or cell, now they can

14   decide how many stores to enter in each of those cells.

15   By doing this the benefit is that by having

16   multiple stores in the same market, we can actually

17   think about a trade off of clustering within the market.

18   And by construction, if you only have one choice, you

19   don't have this trade-off, which is I think the

20   fundamental feature of such industries.

21   So basically this is the conceptual change that

22   I'm making to the literature and there are two

23   methodological improvements that I'm making.

24   The first one is: We have seen that solving for

25   the equilibrium can be difficult as a two dimensional

1   problem, so I use algorithms theory to reduce the burden

2   of solving for the Nash equilibrium, so this is the

3   first one.

4   And the second thing is I integrate the chain

5   entry model with post-entry outcome, mainly revenue in

6   my paper, and I'm correcting for the selection of

7   entrants. I will talk about in detail in later slides.

8   I applied this methodology to convenience stores

9   in Okinawa. Okinawa is an island. This is a nice data

10   set that in the sense that in this industry, we observe

11   informal pricing across stores within the same chain,

12   not only in Okinawa but at the national level. So that

13   for this industry we can construct the decision of what

14   would happen to the change in price after merger. I

15   also studied the deregulation question, which if I have

16   some time left, I will touch upon.

17   Let me briefly mention empirical questions. The

18   first one is the trade-off that I mentioned, the

19   trade-off of cross link, which is cost savings and

20   business stealing effect tends to be a very important

21   consideration for a chain. And that predicts as a

22   second finding which is after a merger, the acquirer

23   tends to increase the number of stores in city centers

24   in which the population density is very high, but they

25   reduce the number of stores in suburbs, which is

1   seemingly puzzling because what we expect from the

2   intuition is after merger, they reduce the number of

3   stores and possibly increase the price. So I'll talk

4   about why that happens in my project.

5   Okay. Let me briefly mention that in studying

6   entry models, traditional players have the assumption

7   that markets are independent both in terms of demand and

8   cost.

9   So the recent trend of literature that tried to

10   relax this assumption. And also my work is related to

11   literature that tried to integrate the entry model with

12   post-entry outcomes, and yes, let me go to the model.

13   We have two players, Family Mart and Lawson.

14   The biggest guy is Family Mart in Okinawa, and the

15   setting is complete information while simultaneously

16   moving. Each chain chose a vector of NI, and each

17   strategic profile NI, and each element is the number of

18   stores for each cell for a market.

19   Now, so their objective function is total

20   profits for chain i, which is a summation of market or

21   profit function. And over every market, and in this

22   framework, the Nash equilibrium is defined as a pair of

23   store networks that have responses.

24   So let me briefly mention the profit function at

25   the market level. Although this looks complicated, it's

1   actually simple. The profit is just revenue minus

2   costs. And then the expendable revenue is comprised of

3   the business, three types of business stealing effect.

4   This revenue deduction is coming from my own other chain

5   stores or my rival chain stores or the local stores. So

6   this part is store level sales, and this business

7   stealing effect can occur within a market or it can come

8   from adjacent markets, so same thing for all types. And

9   I have revenue shock.

10   So the cost equation is in the same manner, so

11   this part is the store-level cost of chain i in market

12   M, and I have two types of cost savings. The cost

13   savings can come from the same market, the presence of

14   own-stores, own-chain stores in the same market or the

15   presence of own-chain stores in adjacent markets.

16   And I have other variables, other terms that can

17   affect my cost, such as distance to distribution center

18   from my market, or if the market is in a zoned area.

19   And I have cost shocks.

20   So let me explain the motivation for the multi

21   store model that I have. I think one of the biggest

22   features of the model, so suppose you observed very

23   dense cells in terms of number of stores, the binary

24   choice model would model cells with no more than two

25   stores, so we are going to model the yellow markets.

1   And in my case, since I allow multiple stores in the

2   same cell, clearly the first thing to mention is the

3   better data coverage, but more fundamentally.

4   So I mentioned that by having multiple stores,

5   now we can look at the trade-off between stores of the

6   same chain within the same cell, okay, and the third

7   thing, which might be of practical importance which is

8   that by monitoring the old market, we can endogenize the

9   types of model store firms in all markets, and then we

10   can answer the question of what would happen to the

11   store network if two chains merged.

12   So this is the actual data set in Okinawa, so

13   the blue points are the sea, and this is part of Okinawa

14   island, and you can see many markets with more than one

15   store for each chain, okay.

16   But you might say, okay, why don't we just sweep

17   the market. Well, whether we have finer definition of

18   grids so that we can deal with the binary choice model,

19   so then we'll talk about the restrictions that will be

20   required for me to use competition algorithms, and it

21   turns out that you need to impose a strict restriction

22   for the binary choice model, and let me go to the hard

23   idea with competition change.

24   So I have two algorithms. One is to search for

25   the profit maximizing optimal choice an given my rival's

 1   choice, and the second one is solving for the Nash

 2   equilibrium.

 3   Let me start with the second one, so I am not

 4   going into the detail of the supermodular game, but let

 5   me emphasize that it turns out that the chain-empty game

 6   that I have described is familiar when the path is a

 7   business stealing effect across cells, if it's smaller

 8   than the cost savings cost across markets or cells.

 9   So notice that there's no restriction for the

10   trade-off of cross-string within a cell, although I

11   should mention that although it's not on the slide, the

12   business stealing effect from my rival needs to be

13   negative to make it a supermodular game. The next thing

14   about the assumption game and you can actually use round

15   roving algorithms to compute for the Nash equilibrium.

16   So this step, I'm not going into the detail, but

17   this step is like my response. So the issue here is

18   that how do we compute the best response with the

19   dimension of the choice set? And we go to the next

20   algorithm. Go back to the first algorithm, which is to

21   use Tarski fixed point. They are recommended.

22   So suppose you are upgrading your choice set by

23   not only moving the choice of every market but you just

24   focus on the one particular cell, and you update for

25   each market.

1   So this is a function V, and if this function V

2   is increasing, then we know that the profit maximizing

3   store network choice has a lower one and an upper one.

4   So in this example, suppose we have only two markets and

5   the brute force way of finding the profit maximum store

6   network choice is trying 25 choices, but if after

7   computing and narrowing down by each starting from the

8   zero and zero and four and four and if you drive the

9   upper bound and lower bound, then you can actually

10   compete only for four points, that would dramatically

11   reduce the competition.

12   So I'm going to skip to data. In summation, I

13   use a method of stimulation, simulated moments, because

14   the model is not in closed form in the parameters.

15   So okay. So I construct a moment condition for

16   number of stores, and I do the same thing for the

17   revenue. And so I avoid the selection problem by

18   simulation, namely I construct other cost equations

19   which are the revenue and also construct the number of

20   stores, and I stack up those two conditions and estimate

21   at once.

22   Typically the literature uses two steps in which

23   they first estimate selection and then they plug in the

24   estimated parameters or the barriers into outcome

25   estimation, so I do it in one step.

1   I have no time to talk about the details of the

2   estimation, but let me emphasize that if you have my own

3   chain stores in the same market, it means that your

4   revenue decreased by 20 percent of the total sales,

5   which is quite large. But you can see that if you have

6   additional stores in adjacent markets, of the same

7   chain, it does not affect your remedy margin, so demand

8   is much more localized in this one grid.

9   For the cost equation, the key parameters is

10   fortunately not statistically significant for this

11   specification, but let's take this as if we know that

12   this is true and what happens for the after merger.

13   So the way we calculate this counterfactual is

14   that suppose all the demographics and the local chain

15   stores are exogenous, and I use the same summation

16   models that were used for the estimation, and so for the

17   monopolized choice, profit maximizing choice, and right

18   down here is the population, a number of people living,

19   so you can see that this is a city center.

20   Then you can see that in city centers, they're

21   going to increase the number of stores, but in most

22   suburbs or other areas, they reduce the number of

23   stores. And let me explain how I got this result; so

24   suppose this is a city. Suppose this is the city

25   center, and I used to have rivals in four markets but

1   after the merger, they became my chain stores, so I can

2   enjoy the cost savings from more markets so that can

3   affect the business stealing effect by adding more

4   stores in the same market, in the marketplace.

5   Now, that happens only in city centers because

6   if you go to rural markets, I don't have stores in

7   adjacent markets at all in the first place. So this I'm

8   going to skip the regulation, deregulation results.

9   So let me conclude. This paper, proposed a

10   modeling framework for estimation in which two chains

11   choose store networks. Let me just add that we can

12   think of this model to study other instruments such as

13   ATM locations or instead of choosing location in the

14   geographical space, we can think of choosing items in

15   product characteristic space, so this is related to

16   product bringing decision problems and the differences.

17   The nice thing about this I think is that

18   instead of the monopolist choosing optimally their line,

19   we can have a competitor in the model, and I'm currently

20   working on two extensions. The current framework only

21   works for the case in which the number of players cannot

22   exceed two, so this is clearly a strong restriction to

23   make, so that's what I'm working on.

24   Thank you.

25   DR. NEVO: Thank you. Paul Ellickson is our

1   last discussant.

2   DR. ELLICKSON: This is like an economic

3   marathon, some of the people have already fallen down

4   and been dragged off the course, but the wind is at our

5   backs. So I will try not to take too much time.

6   Okay. So these views only express my own

7   opinions and not those of the Ellickson family or other

8   economists with last names that are Norweigian.

9   So this is a paper about understanding how

10   chains or more generally network entities compete, and I

11   personally think that's important. I'm interested in

12   that stuff myself, and it goes beyond just retail

13   chains. It also goes to how you think about starting to

14   endogenize the product characteristics of multi-product

15   firms, a step we've talked about a little bit already

16   today.

17   The trouble is that both modeling and estimating

18   these types of problems is very, very difficult, because

19   firms are essentially making high dimensional choices

20   knowing that rivals do the same. And so even if you

21   think about a problem like Pam Jia's where you have

22   Wal-Mart and K-Mart essentially making enter and don't

23   enter decisions in like 2000 counties, you quickly get

24   to choice sets and potential outcomes or physical

25   outcomes sets that have more elements than the numbers

1   of atoms in the universe.

2   And that means from a practical standpoint, what

3   I'll call full solution methods, which are essentially

4   solving for an equilibrium, and then predicting outcomes

5   of that equilibrium and then matching those predictions

6   to data, are essentially not going to be even feasible

7   if you try to do an exhaustive search that iterates over

8   all the possibilities because that will converge about

9   the same time that the sun burns out, and it won't allow

10   you to get published or get tenure.

11   So there are two basic options that you can

12   follow. One is the one that's being followed here,

13   which is to stick with the full solution approach and

14   then figure out a clever way to narrow the search in

15   some way, and that's going to be sort of this idea that

16   was introduced by Jia, and I'll talk a little bit about

17   how that works. And the other option is to work with

18   inequalities and essentially just estimate off the best

19   response functions of the first order conditions, either

20   by turning it into a game of incomplete information

21   using a two step estimator or going with a moments

22   inequalities approach. And I have a paper that looks at

23   Wal-Mart and K-Mart and Target from that angle, and if

24   you're interested, you can look that up online.

25   So let me just tell you about what the

1   contributions of this paper are. I have to tell you a

2   little bit about what it's building on, and so it's

3   building on this paper by Pam Jia, who was in

4   Econometrica in 2008. And Pam basically introduced this

5   sort of lattice approach where she said, look, if I can

6   show that you a game is supermodular, then I know it's

7   going to have a greatest and least element, so I'm going

8   to use Tarski's theorem, which is going to allow me to

9   start with an initial pre algorithm that is essentially

10   going to bound the set of things that can happen between

11   an upper and a lower bound.

12   I'm oversimplifying things a little bit, but

13   that's going to be a fairly quick exercise and, then you

14   do brute force in between those bounds to search for the

15   actual fixed point that characterizes the equilibrium.

16   So unfortunately, there are pretty strong

17   restrictions that you need to be able to get a

18   supermodular game. In Pam's case it means assuming that

19   the spillovers, meaning the net effect of both business

20   stealing and density economies, have to be positive, so

21   you can't test whether they are density economies. You

22   can just characterize how big they are.

23   The other big restriction is that you can only

24   have two firms, so in some sense you can think of this

25   as you need all these cross-partial derivatives to be

1   positive. In congestive models that's not going to

2   happen because another firm coming in is going to

3   negatively impact your profit, but there's a trick. You

4   can multiply their action by minus one, but it turns out

5   that trick only kind of works if you have two firms.

6   So for this reason, Jia focused on this Wal-Mart

7   K-Mart example, and she only included sort of Bresnahan

8   and Reesy small rural one horse town markets where these

9   guys have at most one outlet per firm, so that meant

10   there were going to be no cities in the model. And that

11   obviously introduces some selection problems and

12   endogeneity problems and you might think also sorts of

13   things that distorts the economic implications since you

14   think these firms are probably taking what happens in

15   cities into account in a pretty big way.

16   So what this paper does is it relaxes

17   assumptions in a way that allows you to have multiple

18   outlets per market, and that's obviously going to

19   greatly expand the applicability of this approach

20   because it's going to mean you can apply it in cities

21   where firms are throwing more than one dart at a time.

22   You're still going to have to allow or force the

23   spillovers across markets to be positive, but maybe

24   that's not so bad because that are more in this sort of

25   density spillover effect.

1   And apparently he's working on relaxing

2   assumption two, the only two firms at a time stuff,

3   which would be really big because then you could take

4   this beyond just duopolies to other oligopic situations.

5   The other cool thing that he's going to do is

6   provide a mechanism for incorporating some post-entry

7   revenue information, so more than just a discrete choice

8   latent outcome approach, but actually bringing revenues

9   in. And that's going to be useful or in fact key for

10   breaking up the net density economy and business

11   stealing effect into the two different pieces that make

12   that up.

13   Obviously it provides some additional moments to

14   watch and puts things in a dollar metric which is cool,

15   and it might in some ways aid in identification as well.

16   So I had a few questions and suggestions. The

17   first one is just an expositional one, which is that one

18   of the big deliverables of this paper is relaxing the

19   only one store per opinion assumption. Right now

20   there's no intuition provided for why that's okay, other

21   than some math that's actually buried in the appendix,

22   and it's actually a fairly big and surprising result and

23   one that Pam didn't foresee. In fact she directly said

24   in the paper, "You can't have more than one firm per

25   opinion," so it will be nice to put a little bit more

1   intuition in terms of why that's happening. We talked a

2   little bit by Email, and I think I'm giving it a little

3   bit more.

4   Now, the second thing I would like to push on

5   for Nishida to think about is how much and how exactly

6   is the revenue data helping in this particular

7   application? Because one thing that's unfortunate is

8   that he doesn't actually have data on individual stores

9   or individual firms in terms of revenue.

10   He has more aggregate stuff like what is the

11   total revenue in a particular zip code, the kind of

12   stuff you can actually get from the Census of Retail

13   Trade. So there's some aggregation and censoring stuff

14   that's going on that he's having to put a parametric

15   structure on, and there's sort of a question of labeling

16   on whether additional parametric assumptions are helping

17   or hurting in terms of the things that he's interested

18   in identifying.

19   I might say that even if you had store level

20   revenue data, it's hard to know exactly what you should

21   put into the reduced form through working with reduced

22   forms or reduced form revenue equation. And it's not

23   clear what should go in there that shouldn't go in to

24   the sort of "reduced form cost" or C times Q function.

25   They probably have a lot of the same things in there,

1   and so a way of sort of summing this up would be saying

2   it would be nice to have a little bit more discussion of

3   identification, what exactly is the variation that's

4   identifying things.

5   One just concrete and easy suggestion here would

6   be to report the merger counterfactual both with and

7   without the revenue data and sort of give us an idea of

8   how the results change in both cases.

9   So the last thing is not really about this paper

10   but it's sort of more just a thought that was troubling

11   me as I was thinking about this sort of stuff. We know

12   that simultaneous games or simultaneous static mod games

13   generally exhibit multi-equilibrium, and right now in

14   terms of estimation, there's basically three solutions

15   that are on the table.

16   One is to focus on something that's unique

17   across equilibria, like how many firms there are in some

18   cases, although it turns out that's not going to be very

19   useful in a lot of interesting problems. You can

20   arbitrarily change the timing to be sequential in some

21   way and get a unique equilibrium.

22   You could also impose or maybe even estimate a

23   selection rule, and that's what's being done here. Or

24   you can estimate like I said in the running off of these

25   preferences in qualities or first order conditions, but

1 the problem is you might end up getting set

2 identifications instead of point identification.

3   So what's used here is a selection rule, and

4 that's fine. That's going to give you point

5 predictions, and you may risk being misspecified, but

6 you will get point predictions whereas if you did

7 quality stuff, you will have less risk of being

8 misspecified, but you get bound. But putting aside even

9 the estimation stuff, it sort of struck me that as we

10 start estimating more and more complicated structural

11 either static or dynamic equilibrium models, we're going

12 to have to start thinking about what is the appropriate

13 or at least honest way to perform counterfactuals in

14 these models.

15   Because most people just report one equilibrium

16 that they either decided to focus on by the explicit

17 selection rule or they just let the computer find the

18 first one that it tried to find, and that's pretty

19 arbitrary. And we sort of know that in general, for

20 pretty interesting games they're going to be lots of

21 equilibria interest, in fact there's no known mechanisms

22 for necessarily finding all of them.

23   And so it's not that clear if we're trying to be

24 useful to policymakers what we should be reporting to

25 them because if we can't even enumerate the set of

1   possible outcomes, we can't really make probabilistic

2   statements about what is going to happen when we change

3   the parameter values.

4   So that was just sort of something that I

5   thought would be interesting to think about in this

6   particular venue given that there are policy interested

7   people.

8   So overall I thought it was a really nice paper.

9   DR. NEVO: Thank you. Any questions? I want to

10   thank all the authors and discussants.

11   (Applause.)

12   DR. ROTHSTEIN: Now you'll see Dave.

13   We've had a lot today. As Chris said, we've see

14   how the academic community is thinking about some of the

15   problems that the FTC faces. Dave Balan is on the front

16   line of those problems, and so he'll talk for a bit

17   about how he and we actually tackle some of these

18   issues.

19   DR. BALAN: All right. As Chris said, there was

20   an idea that maybe a lot of people who are academics

21   might like to see something about what we actually do

22   here in the Bureau of Economics, and we wanted to choose

23   a topic that had an enforcement angle and maybe also a

24   research angle, something about how we integrated some

25   research from outside of the Commission, and also a

1   little bit of research that we did inside the Commission

2   into a real-world enforcement agenda.

3   On the program, this session has some extremely

4   grandiose title like "Economics Analysis at the FTC,"

5   which is much too broad, so we picked one specific issue

6   (hospital merger enforcement) to focus on. There are

7   many people who could have done something similar to

8   what I'm about to do about a different industry or a

9   different subject, which leads to the question of how it

10   got to be me up here and not somebody else.

11   And the answer is this: Chris Adams had the

12   misfortune of sitting next to me on a plane once, and he

13   was like crammed up against the window, and I was like

14   right next to him, and he no doubt thought that maybe if

15   he just agreed to whatever I said, I would shut up, so

16   he offered me this slot on the program. Of course it

17   didn't work, I kept talking anyway, but he tried and so

18   here I am.

19   So hospital mergers. The government used to win

20   hospital merger cases until it stopped winning hospital

21   merger cases and started losing them. In the '80s and

22   '90s it lost a whole bunch of hospital cases largely on

23   geographic market issues, judges finding markets that

24   were 90 miles wide and stuff, and partly on

25   not-for-profit type issues of whether not-for-profits

1 could or would do anything bad.

2   So the government got the hint after it lost

3 enough times, and it got out of the hospital merger

4 enforcement business, so there was no enforcement for a

5 long time. During that time there were a great many

6 hospital mergers, and there was a decent amount of

7 evidence that a lot of those mergers had caused

8 anticompetitive effects.

9   Mike Vita and Seth Sacher had the first paper in

10 this vein (they're both here at the FTC), and Bill Vogt

11 and Bob Town wrote a survey article where they looked at

12 a whole bunch of evidence, a lot of which suggested that

13 hospital mergers had significant price effects.

14   I should have said at the beginning that these

15 are my views, not those of the Commission or of any

16 individual Commissioner, which is the case.

17   In the early 2000s, then FTC Chairman Tim Muris

18 decided that he wanted to get back into the hospital

19 merger business. The way he thought we should start is

20 with retrospectives, looking at hospital mergers that

21 have actually happened, several of them just studies, no

22 enforcement stuff, just retrospective studies, and then

23 to litigate a case, a retrospective case.

24   That case was the Evanston Hospital case. Of

25 course many of you here are familiar with Evanston.

1   Evanston Hospital had previously acquired Highland Park

2   Hospital in Evanston, Illinois, and the FTC

3   retrospectively challenged that merger.

4   We have this internal court presided over by an

5   administrative law judge and we had a full trial before

6   the administrative law judge, and basically won at the

7   level of the ALJ. The ALJ accepted that the merger had

8   caused a substantial price increase. As you can

9   imagine, since it's a hospital case, the parties made a

10 lot of strong claims about clinical quality

11 improvements, that they claimed were brought about by

12 the merger. Parties in hospital cases often make such

13 claims because, well, first of all, it's sometimes true,

14 and secondly, that's the kind of thing you would say if

15 you wanted to have a sympathetic claim that your merger

16 was going to save people's lives. The ALJ mostly

17 rejected these claims.

18 The ALJ ordered that Highland Park Hospital be

19 divested. Then there was an appeal back to the

20 Commission itself, and the Commission upheld the ALJ's

21 findings, but did not uphold the divestiture remedy.

22 They had a different remedy, which is a story that's too

23 long to get into, but the important point for our

24 purposes is that both the ALJ and the Commission agreed

25 that our basic evidence was right.

1   The empirical analysis that we did in the

2   Evanston case was very straightforward. It was a

3   straightforward difference-in-differences kind of thing.

4   We did difference-in-difference analyses for both price

5   and for clinical quality. The advantage of doing things

6   this way, the advantage of starting with a retrospective

7   case, is it's a way of saying, look, in the past we

8   tried to convince courts that mergers were going to be

9   bad using prospective analyses, and we didn't succeed.

10   If we can show retrospectively that a merger was

11   actually bad, we at least get courts thinking that there

12   is such a thing as an anti-competitive hospital merger,

13   which you might have come to doubt if you looked at our

14   string of horrible losses in prospective cases.

15   You might think that because our case used this

16   direct retrospective evidence of an anti-competitive

17   price increase, that our analysis could afford to be

18   sort of the atheoretic. But theory is still necessary,

19   even in a retrospective case. Even when you do a

20   difference-in-differences analysis, and hopefully you do

21   it right and it's a pretty straightforward thing, you

22   can't be absolutely sure that the merger was the true

23   cause of the measured increase.

24   The parties on the other side might have an

25   alternative even if they concede that there was a price

1   increase as found by the difference-in-differences

2   exercise.

3   And the parties in the Evanston case did indeed

4   have such an alternative explanation, which I won't go

5   into. Chris Garmon, who might be here, and I have a

6   short talkie piece about it in the ABA Economics

7   Committee Newsletter. So theory is important because,

8   in proper Bayesian fashion, the stronger your theory for

9   how a merger could be anti-competitive, the stronger

10   your priors are that the merger in question is a

11   problem, and the more likely you are to believe any

12   given evidence suggesting that it's a problem.

13   Moreover, we definitely needed to sort of retool

14   our theory for future prospective cases because after

15   all, the whole purpose of this retrospective case was to

16   tool up to get back into the prospective hospital merger

17   business. We needed a reboot of the theory.

18   And we did that, and we now have a decent

19   theoretical framework. I have to make a disclaimer here

20   that I am not -- in any non-public case, I'm not saying

21   that the following is what we did say or what we will

22   see because I don't get to decide those things, but

23   here's what I say and what some other people around here

24   say.

25   It's really pretty straightforward. You need a

1   model that respects the institutional facts that

2   patients don't face prices because of insurance, and

3   that prices are set by bargaining between the hospitals

4   and the insurance companies. Patients choose which

5   insurance company to go with on the basis of which

6   service offerings they have, but for the most part

7   patients don't face prices directly; of the choices that

8   their insurer offers, patients can choose any hospital

9   they want with very little difference in their

10   out-of-pocket cost, regardless of the differences

11   between hospitals in the contracted prices at which they

12   contract with insurance companies.

13   So you need a model that respects that feature

14   of hospital markets, and it turns out that you can do

15   that pretty nicely in a pretty simple Nash bargaining

16   framework, which has some deficiencies, but which has

17   most of the intuitive properties that you would want.

18   Hospitals that have attributes that people like get

19   higher prices. Hospitals that face less competition get

20   higher prices.

21   There's one little digression here which I think

22   is worth doing because it's a lesson in how easily you

23   can lose sight of something pretty simple when you're

24   deep in the muck of a case or of a complicated research

25   project. A number of relatively recent papers that

1   develops new methodologies for simulating hospital

2   mergers model hospital merger effects as coming from

3   "all-or-nothing" bargaining, meaning that after the

4   merger, the merged entity is going to say take all our

5   hospitals or take none.

6   It turns out that if "all-or-nothing" bargaining

7   is indeed how bargaining works, you can get a merger

8   effect if and only if the hospitals are substitutes,

9   which is exactly what you want. If "all-or-nothing"

10   bargaining is how the bargaining works, then you can get

11   a merger effect, and how big the merger effect is will

12   depend on how close substitutes the merging parties,

13   which again is exactly what you want.

14   This started to make people think, including

15   some very smart people, that if the negotiations weren't

16   on an "all-or-nothing" basis, then there couldn't be a

17   merger effect. This, of course, is wrong. Absent

18   "all-or-nothing" bargaining, a close relative to the

19   very, very most basic merger intuition still applies.

20   When two potato chip brands merge and there's a

21   price effect, it's not because the firms say buy both

22   kinds of potato chips or buy none, it's because of the

23   simple standard post-merger internalization of lost

24   sales. In hospital mergers, it's almost exactly the

25   same thing. Here the internalization comes from the

1   merging hospitals. It's just saying, hey, if I don't

2   get a contract with this insurer, some of the patients

3   that would have gone to me will go to my merger partner

4   and I'll recapture some of those lost profits.

5   It took a surprisingly long time for a lot of

6   smart people to realize this, to realize that just

7   because "all-or-nothing" bargaining is common in the

8   hospital industry and so our standard is necessary for

9   there to be a merger effect. And this caused sone

10   confusion when we ran into a situation that required us

11   to think about merger effects in an environment where

12   "all-or-nothing" bargaining was absent. I think this is

13   a lesson in not losing the thread of what should be your

14   bedrock intuitions when you're sort of in the muck and

15   things are getting complicated.

16   Keith Brand, who is here somewhere back there,

17   and I have a paper which I'll talk about in a minute

18   because, of course, I have to take this opportunity to

19   flog our paper, but we have a model along the lines

20   described above.

21   Before we get to our paper, I want to talk about

22   these new methodologies that others have developed for

23   simulating hospital mergers. These new methodologies

24   are variations on the theme of a price-concentration

25   study but not the sort of price-concentration studies

1   that people used in the bad old days.

2   In the old days you would define a market, and

3   then you would calculate an HHI in each market, and then

4   you would regress prices on HHI. The unit of

5   observation would be a market, and you would regress

6   prices on the HHIs.

7   These guys who developed these new methodologies

8   are a lot cleverer than that, and most of the cleverness

9   lies in coming up with very innovative concentration

10   measures that don't require a market definition

11   exercise, and which give you a measure for each

12   hospital, basically a measure of market power for each

13   hospital.

14   The measures are designed to capture the

15   substitution between hospitals, and have other

16   attractive properties that I won't discuss here. Prices

17   are regressed on the concentration measure, and again,

18   the unit of observation is a hospital.

19   So, that's what all these guys do, and they

20   generally tend to find that a lot of their simulations

21   produce predictions of pretty significant merger

22   effects. It would be natural to think that we might

23   want to find out how well these simulation methods

24   perform.

25   That's what our paper is about. One way to do

1   this would be to do an empirical exercise where you

2   gather data on a bunch of hospitals, measure the actual

3   effects and then do the stimulation methods on the

4   pre-merger data and then see how close they come to

5   predicting the actual effects. That's a worthwhile

6   thing to do, but is very time and data intensive and

7   that's not what we do.

8   What we do is generate artificial data on

9   hospitals and consumers, and then we have a bargaining

10   model of the sort described above. Right now there's

11   only one insurance company in the model, but we'll soon

12   add more. We solve our model for equilibrium prices and

13   for consumer choices where consumers choose whether to

14   buy insurance and which hospital to use conditional on

15   buying insurance. Then we merge a pair of hospitals

16   together and re-solve the model. The difference between

17   the original vector of prices (one price for each

18   hospital) and the new vector of prices is the "true"

19   merger effect and, of course, it's in quotes because

20   it's all made-up data. Then we take the pre-merger

21   data, apply the simulation methods discussed above and

22   compare the predicted effect to the "true" effect. We

23   perform this exercise for a large number of simulated

24   mergers.

25   To review: You take the pre-merger data, you

1   apply the simulation methods, you get the predicted

2   effects, you compare them to the "true" effects, and you

3   see how well they do. The basic answer is they do

4   pretty well, in the sense that the predicted merger

5   effects are generally pretty close to the "true"

6   effects.

7   In our results so far the simulation methods

8   have some tendency to slightly under-predict the "true"

9   effects, but we're not sure if that will go away or not

10   when we make some planned refinements to the model.

11   Now, of course, it's fair to ask, what the utility of

12   this exercise is. Does showing that the simulation

13   methods do a pretty good job predicting the "true"

14   merger effects from our model with our made-up data

15   constitute evidence that they will do a good job

16   predicting real-world merger effects? If they did a bad

17   job predicting merger the "true" effects, would that be

18   a mark against the simulation methods or a mark against

19   our model?

20   I would offer a limited defense along the

21   following lines. Our model is basically reasonable on

22   theoretical grounds. Reasonable enough that if the

23   simulation methods did a very bad job predicting the

24   "true" effects that come out of our model, it would

25   represent a mark against the methods. In Bayesian

1   terms, if a big divergence between the effects predicted

2   by the simulation methods and the "true" effects would

3   constitute evidence against the methods, then a close

4   correspondence between the two constitutes some evidence

5   for it.

6   Now on to clinical quality. Quality is a big

7   deal in hospital merger cases for the reasons we've

8   already talked about. Parties always claim that their

9   merger is going to improve quality. Sometimes it's even

10   true. It's often not true, but as you can imagine, it

11   would be pretty difficult for the FTC to bring or win a

12   case where there are going to be substantial quality

13   improvements. Even if you believed that there were

14   going to be price increases as a result of the merger,

15   it would be pretty hard to go into court and say, hey, a

16   bunch of people are going to die, but here's this big

17   price increase, so big that it's worth blocking the

18   merger anyway.

19   Now, of course, this doesn't mean there's

20   literally no trade-off between price and quality. You

21   might imagine that if the predicted quality improvement

22   is small enough and the predicted price effect is big

23   enough, the latter would overbalance the former. Also,

24   there is a direct quality effect caused by the price

25   increase, which is that price increases cause insurance

1   premiums to rise, which causes some people to lose their

2   insurance, and there is real evidence that uninsured

3   people have worse health outcomes than insured people.

4   So for a small enough predicted quality improvement, the

5   quality effects of the price increase might actually be

6   enough to condemn the merger on quality grounds alone.

7   Broadly speaking, parties make two kinds of

8   claims about clinical quality. The first one goes along

9   the following lines. Hospital A is a big, fancy

10   hospital system, and Hospital B is a little, local

11   hospital. A will buy a bunch of stuff for B, that B

12   wouldn't have bought for itself, and B will be better as

13   a result. This story has the obvious flaw that we

14   usually think that, at least to a first approximation,

15   any service that's worth making at B is worth making no

16   matter who owns it.

17   If the benefits exceed the costs, then we expect

18   the investment to be made, and if not, not. So to make

19   a story like this work, you need to invoke differences

20   between the hospitals in the cost of capital or

21   something like that, which leads to other problems, so

22   this is the less plausible of the two types of quality

23   stories. The more plausible of the two types of quality

24   story is that Hospital A has some kind of built-in

25   advantage and that after the merger, that advantage is

1   going to benefit Hospital B.

2   This story might involve some sort of

3   conventional economies of scale claim; perhaps A has

4   already made a high fixed cost, low marginal cost

5   investment that B can just join, and there are some

6   stories like this that are not totally laughable. It

7   might also involve a claim that is really not laughable

8   and in fact has, in some cases, caused us to close our

9   investigations, which is that A is just better, and that

10   if the merger goes through some of that will rub off on

11   B.

12   There really is such a thing as knowing what

13   you're doing in running a hospital, and so these kinds

14   of claims deserve to be taken extremely seriously and

15   were taken extremely seriously in the Evanston case and

16   in the prospective hospital merger cases which I'll now

17   get to talking about.

18   So Evanston happened. We sort of won. We

19   didn't get the remedy we wanted but we sort of won, and

20   then what happened? Well, remember that the main goal

21   was to get us back into the prospective hospital merger

22   business, and there have been two post-Evanston

23   prospective cases.

24   The first one was right nearby in Northern

25   Virginia. A five-hospital system called INOVA wanted to

acquire an independent hospital called Prince William

Hospital in Prince William County. The FTC investigated

and ended up filing for a preliminary injunction in

Federal District Court, and after we filed, the parties

abandoned the merger.

That case had a really happy ending because

Prince William Hospital ended up getting acquired by

another big system, so to the extent that you believe

that there really were some benefits to this independent

hospital affiliating itself with a big system, those

benefits were realized which is a good thing.

Then there's Carillion. Carillion is a big

hospital system in southwest Virginia. The Carillion

case had a new twist because it was the first one where

it wasn't hospitals buying a hospital. Rather, it was

the Carillion system buying two freestanding centers, a

freestanding imaging center and a free standing

outpatient surgery center. Carillion also gave up after

we filed a complaint (in this case in the FTC's internal

court). So we have not yet actually been able to put

our new approach to prospective hospital mergers to the

test in court because everybody gives up because they

don't want to fight with us.

Once again, I disclaim that none of this is

necessarily what we did do or will do in future cases

1   because of course I don't get to decide that, but

2   basically I think that the approach I've described is

3   out there in the world. I think the broader community

4   has seen the cases that we built and taken notice.

5   The INOVA case was public at least to the extent

6   that we filed a public document in court that had some

7   notion of what we were planning to do, although it did

8   not get to the point where there were briefs written, or

9   public court documents where people could really see

10   what we were doing in detail, but I think the broader

11   antitrust community has some idea of what we've been

12   doing here and is at least a little scared of it because

13   they have folded a couple of times so far.

14   So, conclusions. It's late and you guys want to

15   do other stuff than listen to me so I'll be quick.

16   We're back in the hospital merger business. We started

17   with the retrospective Evanston case. We've moved on to

18   prospective cases. The FTC's hospital merger

19   enforcement activity has, I think, satisfied the

20   criteria that the topic of this talk was supposed to

21   have, which is that it is a real world thing of some

22   importance, and it's also closely connected to

23   innovations in the research community, and to some

24   extent also to research within the Bureau of Economics.

25   There have been some innovations on the clinical

1   quality side as well, which I haven't talked about. We

2   had a separate clinical quality expert in these cases,

3   and that was actually its own education for all of us,

4   and some very, very interesting work has been done there

5   as well.

6   So I think the area remains active. I think

7   people are still doing research on it and certainly the

8   enforcement agenda is still alive so I think it's

9   interesting.

10   That's it.

11   DR. ROTHSTEIN: Why don't we take a couple

12   questions for the day? Thanks.

13   DR. VAN BIESEBROECK: I didn't quite understand

14   when you simulate your own data and you re-resolve the

15   model so we know it's going to happen, but when you do

16   this merger simulation, why you didn't get it exactly

17   right.

18   DR. BALAN: If you were using one of these

19   merger simulations methods on real data, the results

20   would be driven by where the hospitals are, where the

21   patients are, some attributes of the patients, some

22   attributes of the hospitals and so on. These would be

23   used to generate concentration measures that are at the

24   heart of the simulation methods.

25   You would then do this price concentration study

1   type thing where you regress price on the concentration

2   measure. You estimate that coefficient. You calculate

3   the change in the concentration measure that will come

4   about as a result of the merger. You multiply that by

5   the coefficient, and then you're done.

6   It works the same way when it's done within the

7   context of our model, except that you perform the

8   simulation method on our made-up pre-merger data.

9   There's certainly no law that says that that's going to

10   produce the exact same answer as actually resolving our

11   model and getting the "true" prices. That's precisely

12   what we're trying to test, how close does it come?

13   There's certainly nothing that says it's going to be

14   identical.

15   DR. VAN BIESEBROECK: So basically when you do

16   these merger simulations, you don't use all the

17   information, you just get summary statistics, and you do

18   it like that?

19   DR. BALAN: It's not the summary statistics. We

20   solved the model once in the pre-merger world. That

21   generates a bunch of patients and their hospital choices

22   that make up the pre -- merger data. Each patient in

23   that data is going to one hospital or the other. You

24   take that whole set of pre-merger data. It's not a

25   sample of it or anything. You take the whole set of pre

1   merger data. You apply the simulation methodologies to

2   the whole thing, and you run that, and you see what it

3   predicts the "true" merger effects.

4   So I may be missing something in the question.

5   It sounds like my answer was nonresponsive.

6   DR. VAN BIESEBROECK: I'm still thinking that

7   when you don't know the demands, you have to make a

8   functional form for demands, assumptions in one of the

9   stimulations, and if that's a different one from the

10   one --

11   DR. BALAN: There is no functional form

12   assumption on demand. The merger simulation methods

13   that we are setting out to test take a bunch of data on

14   prices and who went where and apply these merger

15   simulation methodologies which really are as simple as

16   what I've said.

17   They are these price on concentration measures

18   and get a predicted merger effect. There is no demand

19   estimation here at all. Of course the reason why this

20   is different from more familiar merger simulations is

21   because people don't face prices. In the other merger

22   simulation exercise, there would be a step where you're

23   estimating demand. Keith?

24   DR. BRAND: So we specified demand because we

25   have to model patient choices on insurance and hospital

1   choice given the fact that they have insurance, so it's

2   basically a ride down the straightforward discrete

3   choice model, whether or not to buy insurance, which

4   will be a function of the value of all the hospitals in

5   the network, and then we model the choice of hospital,

6   if that particular patient has actually purchased the

7   insurance or specifically has access to the network.

8   So the object here is instead of testing these

9   measures against the real world data, we're just going

10   to generate data by actually specifying a Nash

11   bargaining problem between one MCO, and in our case it's

12   ten hospitals. And we actually solved the explicit Nash

13   bargaining problem for the pre merger world and then for

14   all the parameterized mergers in those -- among those

15   ten hospitals.

16   You directly solve on those Nash bargaining

17   problems without using these competition measures to

18   generate the prices.

19   So what we're doing is we're taking the "data"

20   that we generate through this Nash bargaining model and

21   our unrated data, and then we'll pretend, okay, suppose

22   I'm looking at a merger in this market and I'm going to

23   get the observed prices which I would see, and I would

24   observe where patients are going. And I'm going to

25   directly apply these competition measures that the

1   authors have discussed earlier, which is not exactly the

2   same as a Nash bargaining model.

3   They are, at best crude, first order

4   approximations to the effect that you would see in a

5   Nash bargaining model, and we're testing how well these

6   crude first order approximations do against the truth

7   when you actually see the truth.

8   DR. BALAN: A much better answer, and this seems

9   like an opportune time to point out that the paper is in

10   the lobby, so anybody who wants to know what it says can

11   have it.

12   DR. ADAMS: Why don't we leave it there and give

13   David a round of applause, and also thanks to everybody

14   today, and thank you, and we'll see you tomorrow.

15   (Applause.)

16   (Whereupon, at 5:25 p.m. the conference was

17   adjourned.)

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1   CERTIFICATE OF REPORTER

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3   DOCKET/FILE NUMBER: PO85800

4   CASE TITLE: MICROECONOMICS CONFERENCE

5   CONFERENCE DATE: November 19, 2009

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7   I HEREBY CERTIFY that the transcript contained

8   herein is a full and accurate transcript of the steno

9   notes transcribed by me on the above cause before the

10   FEDERAL TRADE COMMISSION to the best of my knowledge and

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21   transcript for accuracy in spelling, hyphenation,

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