

FEDERAL TRADE COMMISSION

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FEDERAL TRADE COMMISSION )  
WORKSHOP ON: ) Matter No.  
MICROECONOMICS CONFERENCE ) P085800  
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FRIDAY, NOVEMBER 19, 2010

Conference Center  
Federal Trade Commission  
601 New Jersey Avenue, N.W.  
Washington, D.C. 20001

The above-entitled hearing was held, pursuant  
to notice, at 9:00 a.m.

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P R O C E E D I N G S

1 Center. Just congregate there or just follow the  
2 directions if they tell us to stay inside. If you spot  
3 suspicious, activity please alert security.

4 So those are all the announcements. Now I  
5 would like to introduce our third keynote speaker,  
6 Fiona Scott Morton, from Yale University School of  
7 Management. Fiona started her career at Stanford  
8 University Graduate School of Business before moving to  
9 the University of Chicago. Since '99 she's been at  
10 Yale, where she is now the professor of economics and  
11 the senior associate dean for faculty development.

12 Her research focuses on empirical studies of  
13 competition among firms in areas such as pricing, entry  
14 and product differentiation. She's published her  
15 research in a variety of excellent journals including  
16 the RAND Journal of Economics, the Journal of  
17 Econometrics and the Quarterly Journal of Economics.

18 She has a BA from Yale and a Ph.D. from MIT,  
19 so please join me in welcoming Fiona Scott Morton.

20 (Applause.)

21 DR. SCOTT MORTON: Thanks.

22 I wrote these remarks last week, but just to  
23 warn you all, unlike the previous two keynotes that  
24 have actually delivered 20 minutes on the same topic  
25 highlighting research they have done, this is going to

1 be a keynote on multiple topics highlighting research  
2 that no one has done, but which I think would be  
3 interesting to do, and is hopefully topical.

4           Why am I giving a talk on healthcare? I  
5 think it's a fascinating industry. We have renewed  
6 focus in this sector because of the recent reform.  
7 Healthcare is a very significant fraction of GDP, and  
8 my experience as a consumer and reading of the  
9 literature suggests that it's really incredibly  
10 inefficient compared to an experience one might have,  
11 for example, walking into Target and trying to buy  
12 something and walking out again.

13           You see a level of efficiency in many  
14 businesses in the United States that you do not see in  
15 the healthcare sector. Is this because management  
16 isn't very good? Is it because it's an inherently  
17 unproductive sector? Is this because incentives are  
18 wrong? Maybe competition is one of the things that we  
19 could look at that would help productivity here.

20           So I'm going to spend the first minute or two  
21 on biosimilar medications. This is mostly to educate  
22 the non-FTC audience. The FTC produced an excellent  
23 report last year on biosimilars, so I'm aware that the  
24 agency is well tooled up here. I think this is an  
25 important area where we're going to see more

1 competition and which could potentially have an impact  
2 on healthcare costs. The reason this is important is  
3 that biologics have a 15 percent market share of  
4 pharmaceutical spending at the moment.

5 This segment is growing at 12 percent a year,  
6 in contrast to traditional pharma or small molecule  
7 drugs, with expenditure on those growing at about 3  
8 percent a year.

9 What's a biosimilar? Well, it is a  
10 subsequent version of an innovator biologic drug that  
11 is marketed after expiration of the innovator's  
12 patents. Currently, an innovator biologic drug does  
13 not face competition from generics. Until the act was  
passed this spring, there was no pathway -- well, there

1 market share, and the prices typically drop  
2 significantly. When you have a molecule that attracts  
3 more than a dozen or 15 entrants, you end up with  
4 prices for the generic that are often at 15 percent of  
5 the original branded price, so it's really a massive  
6 decline.

7           Biosimilars, we think, are going to be  
8 different. This is because they're not exact copies,  
9 so instead of price competition among homogeneous  
10 products, you have differentiated products competing.  
11 Nonetheless, this is going to be the first instance of  
12 direct competition for many of these innovative  
13 products. We expect it to benefit consumers.

14           We also anticipate that we might see some  
15 strategic behavior just because we have seen this in  
16 the existing generic industry. For example, there has  
17 been work on the impact of authorized generics, reverse  
18 payments, or pay-for-delay, these kinds of things, and  
19 so I think that it's fair to consider whether that kind  
20 of behavior could arise in the context of a biosimilar.

21           The FTC report from 2009 that I previously  
22 mentioned talks about the desirability of delinking the  
23 whole patent litigation process from what the FDA does  
24 by way of approval, which I think is a very sensible  
25 point and may help contain undesirable strategic

1 behavior in the biologics area.

2 In order to get the prices of biologics down,  
3 what do we think we should do? We need to have entry  
4 costs that are reasonable, but these are going to be  
5 established by the FDA in the sense of the amount and  
6 standards for testing the new product. There are  
7 intellectual property barriers that are going to just  
8 play out in the courts. This will be very interesting;  
9 and then there's something that I think is new, which  
10 is the process of manufacturing.

11 Biologics are quite delicate to manufacture.  
12 There are multiple steps. How long you cook it, at  
13 what temperature, in what medium, through what filter  
14 it is strained, etc, all make a difference to the final  
15 product. So there's going to be, I think, a whole new  
16 area of entry problems surrounding manufacturing.

17 There's also going to be a whole new set of  
18 problems around contract manufacturers. When an  
19 innovator uses a contract manufacturer, this contract  
20 manufacturer is really going to learn something of  
21 value because the manufacturing really matters and is  
22 tricky. That party will have low entry costs to  
23 producing a biosimilar.

24 The contract manufacturer will have  
25 information that's a competitive advantage and I'm sure



1 the contracts that they sign will reflect the  
2 information that they're gathering and the position  
3 they are in. This will be an interesting area for  
4 future research considering how such contracts might  
5 affect competition.

6           There is also the possibility of significant  
7 multi-market competition. The major makers of  
8 biosimilars are likely to be branded innovator  
9 pharmaceutical manufacturers because the kind of skill  
10 set you need for the two products is rather similar.  
11 You need to do more serious clinical trials and you  
12 have to market differentiated products. The  
13 manufacturing, as noted previously, is really critical.

14           So if I'm making an innovative drug and I  
15 choose to make a biosimilar in someone's market, than  
16 perhaps he's going to do the same thing to me and  
17 launch a biosimilar to compete with my brand. I think  
18 that's quite a different set up than the current  
19 typical industry division that we have, where  
20 essentially you've got brand makers and they compete  
21 hard against generic makers, but they are two different  
22 types of firms.

23           I also think that regulations concerning the  
24 promotion of biologic drugs - which the FTC may  
25 actually have some impact on - is going to matter

1 because these products face less price pressure the  
2 more the buyer views them as differentiated. So of  
3 course, we would expect biosimilar and biologic  
4 manufacturers to try to promote their products to  
5 physicians as being differentiated. For example, you  
6 shouldn't put your patient on my rival's drug because  
7 it's not as good or it's different in a certain way or  
8 whatever.

9 So the way in which the promotion of  
10 biosimilars is allowed to go forward will have an  
11 impact on how close they're viewed as substitutes which  
12 of course will have an impact on final prices.

13 Now I want to change topics and spend the  
14 next ten minutes or so on insurance competition, which  
15 I think is a really, really interesting area in which  
16 there's not very much work.

17 So first, many people think the insurance  
18 industry generally has concentrated markets. That may  
19 be. However, we don't know because the data are just  
20 terrible. One of the only pieces of research I guess  
21 I'll cite in this talk is that Leemore Dafne, David  
22 Dranove, Frank Limbrock, and I are about to come out  
23 with a very tiny paper just pointing out that the  
24 health insurance market share data are terrible. One  
25 data source leaves out HMOs, another leaves out all

1 self-insured employers. The market shares fluctuate  
2 from year to year in ways that are completely  
3 implausible, and so on. I think that since we're  
4 running a lot of government healthcare through the  
5 private sector now, we really need to know more about  
6 this industry, and I think this lack of data is a first  
7 order problem.

8           The reason we don't have data is it's really  
9 hard to ask a person about their health insurance  
10 because it comes usually through their employer, and so  
11 consumers don't know a lot of the details that the  
12 researcher would like to know. It would be great for  
13 research on the insurance industry and policy-making if  
14 somebody in the government figured this out and  
15 collected good data.

16           Why is this a critical policy issue?  
17 Healthcare is 17 percent of GDP. A significant  
18 fraction of our expenditures on healthcare flow through  
19 the private insurance sector. This is the direction in  
20 which we decided to move with healthcare reform. We  
21 didn't choose a single payor system. We didn't  
22 organize a public auction to be the insurer for  
23 subsidized plans. We really are routing people through  
24 the private sector.

25           So if we are paying a markup on all of those

1 dollars due to insufficient competition, that's a large  
2 piece of GDP, and we would like to know that. Perhaps  
3 we have an efficient insurance industry; that may be.  
4 But if we can't get an efficient private insurance  
5 sector, then as a society maybe we need to revisit how  
6 we're using it.

7           So what will health reform do to insurance  
8 competition? I think there are a couple things we  
9 could speculate about. First I have two more papers  
10 that I'm going to cite today on switching costs that  
11 are relevant to these questions. It's possible that  
1r1 with electronic medical records we could really reduce  
are relevant 8o t9  
core relevant 5o t9   core relevant 7o t9   core relevant 8o t9   core relevant

1 through the exchange because of the standardization of  
2 the products. In an exchange I can only sell something  
3 that's bronze or silver or gold, which are all  
4 pre-defined, and it has to be described in a  
5 standardized format.

6           If I've got really easy to shop for products  
7 and they're all standardized and the prices are  
8 transparent and I don't have switching costs, then

1       seems to me that you could make an argument that the  
2       exchange will lower entry costs for insurers. First of  
3       all, there is a large pool of consumers in this  
4       exchange. The mandate to buy increases the size of  
5       that pool presumably.

6                There's a standard for insurance that is set  
7       by the government, not designed by the entrant, and now  
8       the entrant doesn't need to build a distribution  
9       channel because of the exchange. The entrant may have  
10      low entry and distribution costs because all it has to

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1 quality, that gives it some market power. As Kate Ho  
2 and others have shown, people care about these  
3 hospitals when they're thinking about what health plan  
4 they buy. If there's an inelastic demand for that  
5 hospital, we're going to see it charge higher prices,  
6 which will affect the cost of healthcare.

7           It's hard to know what to do about this. You  
8 cannot really divest parts of the hospital like we did  
9 with AT&T. That's not really going to work because  
10 there are significant economies of scope across parts  
11 of a hospital.

12           Another option would be regulating prices.  
13 As a society, we might decide there's nothing we can  
14 do, that this hospital has marketing power and demand  
15 is inelastic. A regulator will just have to regulate  
16 its prices in order to keep costs down.

17           Another option would be to try to create more  
18 cross price elasticity of demand with other hospitals

using some kind of protocol designed by the -2.h 0 TD(17 m ls )Tj-2.8415 0 TD(18



1 condition is the referral to the higher priced hospital  
2 triggered.

3 This type of system is used in the  
4 pharmaceutical area, which is the part of healthcare  
5 with which I'm most familiar. For example, a PBM  
6 takes, let's say, four equivalent brands that treat the  
7 same condition and says to the manufacturer, "All  
8 right, in my pharmacy plan, we prefer Brand A because  
9 Brand A offered me the lowest contract price. Unless  
10 one of you offers a lower price, I will steer my people  
11 to Brand A."

12 The insurer may be able to create some cross  
13 price elasticity of demand across hospitals this way --  
14 in theory. Now, I think of course there are  
15 limitations. This type of program sounds potentially  
16 feasible when you're talking about pregnancy. It  
17 doesn't sound like it would work so well with liver  
18 transplants or other services that are very  
19 specialized. The local community hospital likely  
20 doesn't provide these specialized services, so the  
21 insurer is stuck with the flagship hospital.

22 Now, having said that for many conditions a  
23 patient might be able to obtain care in a different  
24 region. There could be competition between the  
25 flagship hospital in the insurer's city and the next



1 report. Let me talk about four of them.

2 To review, the first provision described in  
3 the report is the most favored nation clause. This is  
4 price protection relative to other insurers. In the  
5 simplest form, suppose I'm Insurer X and I contract  
6 with Hospital A and we agree on a price of a hundred  
7 and a MFN. Then what that means is that Hospital A  
8 must charge a hundred or more to any other insurer that  
9 wants to send patients to Hospital A. If Hospital A  
10 were to reduce price to another insurer to 90, then  
11 Insurer X would be entitled to pay 90 for services at  
12 Hospital A.

13 So MFNs are well known in the antitrust  
14 literature. I have done empirical work myself in the  
15 pharmaceutical industry showing that when the industry  
16 adopts a most favored nation clause, you can actually  
17 drive up average prices.

18 A second provision in the report is called  
19 anti-steering. This means an insurer may not create a  
20 product that steers patients away from certain  
21 providers. I'm the doctor or hospital and contract  
22 with the insurance company, the insurance company is  
23 not allowed to steer its patients away from me, perhaps  
24 using financial incentives.

25 A third provision is guaranteed inclusion.

1 If the hospital signs a contract with the insurance  
2 company saying that the hospital will be part of Plan  
3 A, the hospital also gets to be in Plans B, C and D,  
4 even if Plans B, C and D are a narrower network, or  
5 broader network, or geographically different network  
6 from Plan A.

7 Lastly, we have product participation parity.

8 If the hospital agrees to participate in a rival  
9 insurance company's narrow plan, for example, the  
10 hospital has to participate in my insurance company's  
11 narrow plan also.

12 When one thinks about all of these provisions  
13 operating simultaneously, clearly the contract  
14 environment gets complicated. I haven't thought about  
15 it for too terribly long, but it seems like in this  
16 situation it might just be easier for each insurance  
17 company to sign up every provider to be in every plan  
18 and, perhaps, for there not to be very much price  
19 competition because it's too difficult to bargain with  
20 all these contracts in place, each creating a different  
21 incentive or constraint.

22 I bring this up because I think this web of  
23 contracts is a really interesting possible explanation  
24 for why we have not seen the type of network formation  
25 or formulary design in hospital-insurance contracting

1 that we've seen in pharmaceuticals, for example.

2           Massachusetts changed its law promptly after  
3 the publication of this report. There is a new law,  
4 passed in the summer, that took effect October 1, that  
5 essentially says contracts may not reference other  
6 prices or be contingent on other agreements and that  
7 every contract has to be bilateral between a plan and a  
8 hospital. That means the agreement is between the  
9 hospital and the particular plan rather than the  
10 insurance company and the hospital. The hospital can  
11 make a separate contract with the wide plan, or the  
12 narrow plan, or whatever.

13           Moreover, I cannot force my whole hospital  
14 system to contract with the narrow plan. The narrow  
15 plan has the right to contract separately with each  
16 hospital in that hospital system. Finally, the law  
17 mandates that every insurance provider have a narrow  
18 plan that is at least 12 percent less expensive than  
19 their other baseline plan. This is interesting because  
20 it demonstrates that not only are policy makers  
21 removing barriers to the creation of narrow network,  
22 inexpensive plans, they are actually mandating it. The  
23 law forces insurers to go out and construct the narrow  
24 product that costs less, as well as removing this web  
25 of contracts. So I think it will be very interesting



1           Why might that be? There are good reasons  
2 for off label use.

3           First of all, you may actually have  
4 physicians who know something about the science behind  
5 the drug. They run an experiment and discover some new  
6 use for the drug and then they prescribe the drug for  
7 that use. Secondly, most pediatric uses are off-label  
8 because we don't have enough testing in children. The  
9 same is true with obstetrics.

10           Also there is a lot of off-label use when the  
11 patient is really, really sick and there are no other  
12 options. If a patient hasn't responded to the cancer  
13 drug, the physician is going to try anything he or she  
14 can to save the patient's life.

15           There is also off-label use that has a lot of  
16 scientific support but no official FDA trials because  
17 the innovator has no financial incentive to carry out  
18 the appropriate trials. For example, if I discover  
19 there might be a new use for my drug, but I have two  
20 years left on my patent, it's not worth it for me to  
21 run a test because by the time the use was approved,  
22 the generic entrants would be the beneficiaries. So in  
23 general we have a problem of incentivizing the  
24 collection of valuable information late in the life of  
25 the patent or after it's expired. This is a problem in

1 general - for example, in the case of carrots. Who is  
2 doing a study on carrots? Well, nobody except public  
3 and nonprofit agents because there's no intellectual  
4 property in carrots. However, if you don't have large  
5 randomized trials for a new use, you don't learn about  
6 the right instances to prescribe the drug or the  
7 correct dosing of the drug the way you otherwise might.  
8 Because new uses are profitable, whether on-label, when  
9 found early, or off-label, with no trials, the  
10 innovator has an incentive to go out and find new uses.  
11 So what we see today is the innovator running a lot of  
12 small clinical trials looking for new uses. That's  
13 fine. Some show significant results and many do not.  
14 Next we have to worry about the mechanism by which  
15 these findings are turned into journal articles  
16 distributed to physicians.

17           The innovator chooses which of the  
18 experiments it funds to publish and distribute, and  
19 typically it is not all of them, but a selection. The  
20 selected trials may have positive news about the drug.  
21 It's important to know that all trials must be  
22 registered at their start in a nonprofit clinical trial  
23 database if the sponsor wants to publish them later in  
24 a medical journal; so there is a complete database of  
25 trials available and the physician could work out which



1 had been published and which had not. But, for an  
2 individual doctor, receiving a journal article in her  
3 office, it is difficult and time-consuming to figure  
4 out how many trials of that drug for that use were  
5 started and how many ended up being published. I am  
6 guessing an individual doctor being visited by a  
7 detailing rep is not going to take on that project. In  
8 that case, the physician doesn't know if she is reading  
9 about results that are similar to the other 19 trials  
10 undertaken, or if the results she is reading about were  
11 the only instance of an effect and the other 19 trials  
12 yielded no effect of the drug at all.

13 The innovator has the right to have free  
14 speech and tell physicians about it's trial, of course.  
15 Any one of these articles very likely contains correct  
16 analysis and accurate data and so on. But nonetheless,  
17 I do not think the physician faces the correct  
18 statistical problem when she tries to update her  
19 beliefs about the efficacy of the drug.

20 This is because there is a group of trials  
21 out there, and the physicians are seeing one little  
22 sliver of it. So I think that's an area where some new  
23 research would be very valuable. That's all.

24 (Applause.)

25 DR. SCOTT MORTON: Are there questions? I

1 was crystal clear? Okay.

2 DR. CHESNES: Now we're going to move to

1 PAPER SESSION FOUR: THEORY OF INDUSTRIAL ORGANIZATION.  
2 ROMAN INDERST, Chairman, Goethe University  
3 PRESENTER: HESKI BAR-ISAAC, New York University  
4 DISCUSSANT: JUSTIN JOHNSON, Cornell University  
5 PRESENTER: PATRICK DEGRABA, FCC  
6 DISCUSSANT: LUCY WHITE, Harvard Business School  
7 PRESENTER: VOLKER NOCKE, University of Mannheim

1 the tank away right upfront, which can serve as  
2 motivation as well. This is just a very simple idea  
3 that says that as it becomes easier for consumers to  
4 find quirky stuff that they're going to fall in love  
5 with, firms are going to provide that kind of quirky  
6 stuff or the information that's going to allow people  
7 to figure out that they love this quirky stuff. And  
8 this is going to have equilibrium effects on profits  
9 and sales distributions and market structure, so on and  
10 so forth.

11 So what's going to be interesting and tough  
12 in the paper is to put enough structure to explore what  
13 these equilibrium effects are. A little bit more in  
14 terms of motivation, this goes back to the slides I  
15 inherited from my senior colleagues when I started  
16 teaching microeconomics at NYU where, embarrassingly  
17 still in 2003, the slide said the Internet is going to  
18 make a world with perfect competition. We're going to  
19 see prices converge. We are going to see efficient  
20 firms arise -- and I think there was a feeling, not in  
21 2003, but whenever it was that the slide that I  
22 inherited was written, presumably in the 1990s sometime  
23 -- that the Internet was going to do these magic  
24 things.

25 The first round of empirical studies that

1     were out there looked at price dispersion, so I think  
2     that was the starting point and made the observation  
3     that there was still considerable price dispersion out

1 are enough people buying these very niche products to  
2 add up to something significant.

3 At the same time that we have this evidence  
4 on these long tail effects, there's evidence on the  
5 Internet about superstar effects that the blockbusters  
6 are even more blockbuster-y than they used to be. I  
7 don't know if anyone was doing it last night, but  
8 people are still queuing up at midnight to watch the  
9 new release of the Harry Potter movie or whatever it  
10 is. If I look tired today, I'll leave you to  
11 speculate.

12 Interestingly enough these two things don't  
13 seem to be in contradiction, so there's empirical work  
14 that suggests that we have both these long tail effects  
15 and the superstar effects arising simultaneously. I'll  
16 say a little bit more about that, and the model is  
17 going to be able to generate both effects at the same  
18 time.

19 Really, the jumping off point is the last  
20 bullet point on this slide that's saying that there's  
21 just been tremendous changes to industries. If you  
22 look at the numbers on something like book publishing,  
23 which is a slightly disingenuous thing to do inasmuch  
24 as there's been a lot going on on the production side  
25 as well, we have the rising books on demand and on

1 demand publishing, but at the same time, just the  
2 growth has been dramatic.

3           So between 2002 to 2007 the number of new  
4 book titles in the U.S. rose from 250,000 in '02 to  
5 400,000 in '07. The statistics nicely break out how  
6 much of that has been on demand. About half that  
7 growth has been on demand titles, but the other half of  
8 the growth is in new titles. I think just by  
9 introspection of looking at the phenomena of new  
10 businesses that arise on EBay or the 15 books on how to  
11 be a power seller on EBay that have been written since  
12 EBay's arrival are suggestive to say the least.

13           I'm going to skip this quote. Just say this  
14 is a standard search model, so this is a very exciting  
15 paper to be presenting now. Everybody knows about  
16 search models in the last few weeks, since Peter  
17 Diamond won the Nobel prize in Economics. Some guys in  
18 Sweden did me a big favor in motivating this paper.

19           In the standard search models people are  
20 running around to get price quotes and learn their  
21 metrics. The starting point is sort of the Diamond  
22 model where people are running around to get price  
23 quotes. What we learned from the Diamond model is the  
24 sort of startling result that there's no heterogeneity  
25 in prices in the world.

1           Various people have thought about how we get  
2 more heterogeneity in the price decisions.

3           What we're going to do in this model is  
4 endogenize this heterogeneity to a greater extent by  
5 allowing firms to control it. Firms are going to  
6 control the sort of designs that consumers face, so  
7 there's going to be two interpretations here, and maybe  
8 Justin is going to say a little more about these  
9 things. One is the marketing or information provision  
10 interpretation that says if I tell consumers more about  
11 the good, then they're going to realize to a greater  
12 extent whether they like what they are seeing or  
13 whether they don't like what they're seeing.

14           So the design for us is going to be thought  
15 of as a mean preserving spread. It can be a little  
16 more general than that, but more information, we think,  
17 might lead to more dispersed valuations or on the  
18 designs directly. The point is going to be that search  
19 costs affect both pricing and product variety.

20           To give you an idea of what I mean by a  
21 design that's broader or more niche, I think the design  
22 on the left is one that people are going to feel  
23 relatively similar about, and no one is going to get  
24 super excited or unexcited. The niche design on the  
25 right might invoke stronger responses, quite possibly



1 negatively.

2           So the contribution here is going to be  
3 several fold. There's going to be a modeling  
4 contribution that's going to bring together I think two  
5 classes of models that have been of interest to people  
6 in this room. One is this model on search on the  
7 consumer side and information gathering, and on the  
8 other side, the firm response in terms of providing  
9 more information or design.

10           I think typically these things have been  
11 looked at separately. We're going to bring them

1 quality. Maybe that's what we should run with, but  
2 thinking of variation in terms of marginal costs would  
3 run just as well. It's not terribly important, but  
4 it's going to give me some additional economic insight  
5 to have this ex ante vertical heterogeneity. We can  
6 run the model, and in the paper it's there with a  
7 degenerate distribution where everyone has just the  
8 same vertical quality.

9           A consumer, when they go to a firm, is going  
10 to get this vertical quality. They're going to get  
11 this match. This match is drawn from some  
12 distribution, a parameterized distribution, and the key  
13 thing here is that the firm is going to control that  
14 distribution. The  $F$  that this match is drawn from is  
15 going to be a strategic variable for the firm.

16           On the search side, the search is going to be  
17 completely standard. We've just got constant returns  
18 to the search technology. You can also spend  $C$  to go  
19 visit another firm and get a new price quote.

20           The firm strategy is going to be to choose  
21 prices as usual, but in addition they're going to  
22 choose the design from a parameterized family of  
23 designs. There's a lot of math there. I think it's  
24 going to be easier to show it in terms of the picture.

25           So thinking of firms as choosing between

1 relatively more dispersed and less dispersed designs.  
2 It doesn't have to be at the mean. It doesn't have to  
3 be all rotating at the same point, and again I might  
4 defer to the discussant who might say more about some  
5 of these things.

6 I should say that what we're doing here in  
7 terms of the design, is I adopted the framework that  
8 Johnson and Myatt adopted in their 2006 paper in the  
9 context primarily of a monopoly model, and the  
10 monopolistic competition of a search environment allows  
11 us to think of competition in the choice of designs.

12 So the consumer strategy is going to be a  
13 standard one in the search model. It's just going to  
14 be an optimal stopping problem for the consumer, and  
15 some level of utility that you're going to have to give  
16 them as a firm in order to get them to stop searching.  
17 My  $U$  is just going to be a search threshold. It's a  
18 standard search model, but just has a few more  
19 integrals thrown in to account for the fact that we've  
20 got heterogeneity among these vertical qualities and  
21 different designs potentially.

22 Now consider Nash equilibrium. We're just  
23 going to characterize static Nash here. There is  
24 always going to be a class of boring equilibria where  
25 firms are going to charge very high prices and design



1 have a very crappy firm within a very high cost, it's  
2 going to have to charge a very high price and the only  
3 way that anybody is going to buy at that very high  
4 price is if they absolutely fall in love with the  
5 product.

6 On the other hand, if I'm a very advantaged  
7 firm that's going to charge a relatively low price,  
8 pretty much everyone who comes into my store is going  
9 to want to buy. I don't want to give them any reason  
10 to be disappointed, so I'm going to choose a broad  
11 design. We have enough structure on our demand  
12 functions here so that everything is going to be  
13 monotonic, and so by characterizing the indifferent  
14 firm, we can see that all firms that are worse than the  
15 indifferent firm are going to choose the niche designs  
16 and all firms that are better than the indifferent firm  
17 are going to choose the broad designs.

18 So the characterization is going to be  
19 relatively simple. It is just going to depend on the  
20 stopping rule of the consumer and who is the  
21 indifferent firm.

22 We can characterize a search cost (CB) such  
23 that if search costs are higher than that, all firms  
24 look advantaged and they're going to choose the broad  
25 design. This is a possible result. Similarly, we can

1 characterize a search cost (CN) such that if search  
2 costs are lower than that, than all firms choose niche  
3 designs.

4 In these cases, we get the standard results  
5 that arise in these search models that lower search  
6 costs always make consumers better off. They're always  
7 going to drive down prices and profits for the industry  
8 as a whole.

9 We can potentially get multiplicity depending  
10 on whether CN is bigger than CB. Specifically, when CN  
11 is less than CB, there has to be some coexistence of  
12 different designs in equilibria.

13 What we mean by superstar effect and the long  
14 tail effect - the literature is a little bit fuzzy on  
15 these things - but for us, we're going to take a very  
16 strong stance and we're going to say a superstar effect  
17 is present if when we look at the firm that has the  
18 highest sales, the largest firm in the industry, it  
19 captures an even higher market share as the search cost  
20 falls. We're going to describe that as a superstar  
21 effect.

22 Conversely, we can look at the worst firm in  
23 the industry, the firm with the lowest market share and  
24 ask whether its market share rises as search costs  
25 fall. As the Internet comes in, is the worse firm

1 having a higher market share? If it does, we say a  
2 long tail effect is present. By continuity, similar  
3 things are going to happen in a range around this  
4 single best firm or single worse firm.

5 Surprisingly we get much crisper results, the  
6 more structure we're going to put on our model, so in  
7 particular, if we make some functional form assumptions  
8 on the designs and on the distribution of firm types,  
9 we can get analytic solutions and crisp results.

10 So in particular, because I'm not an  
11 empirical guy who works with extreme value  
12 distributions but an applied theorist who works with  
13 uniform distributions, I'm going to stick with my  
14 uniform distribution. So, I'm going to think about  
15 uniform distributions for the designs and uniform  
16 distributions for the firm types.

17 The notation that's going to be useful to  
18 hold on to here is that the firm types are going to be  
19 distributed between the lowest firms and the highest  
20 firms, and these designs are going to be indexed by  
21 niche and broad with the upper bar representing the  
22 best match in the distribution.

So with that, let me get to my proposition,

1 there's going to be a unique equilibrium associated  
2 with each search cost. Furthermore, when different  
3 firms choose different design strategies, then as those  
4 search costs decrease, consumer surplus increases.

5 So if search costs are lower, consumers are  
6 going to be pickier is another way of interpreting this  
7 result. This is going to lead to firms to be more  
8 niche. The superstar effect always arises, so the best  
9 firm in the industry always captures the higher market  
10 share. The long tail effect can arise but need not  
11 arise, and the profits for both the highest and lowest  
12 quality firms might both go up.

13 The key condition for these profits rising  
14 and for this long tail effect to arise is whether or  
15 not this  $\Theta N$  upper bar minus this  $\Theta B$  upper bar  
16 is bigger than  $H$  minus  $L$ . This is a lot of notation,  
17 but it has some economic interpretation meaning.  $H$   
18 minus  $L$  is capturing vertical differentiation in this  
19 industry, the difference between the best firm and the  
20 worst firm in this industry in the distribution of firm  
21 types for the industry. On the left-hand side we have  
22 something capturing horizontal differentiation. It  
23 measures the importance of changing from broad to niche  
24 designs in terms of the dispersion of match values.

25 So to make this even more concrete, we're



1 going to throw in some numbers and the number in the  
2 interesting case where this long tail effect is going  
3 to arise.

4 Here I'm showing profits of the worst, the  
5 best, and the industry average. What you see is an  
6 interesting non-monotonicity, so these kinks are coming  
7 in where both firms are broad or all firms are niche,  
8 then the usual search cost thing happens. Lower search  
9 costs intensify competition, bring down profits, but in  
10 this region where both designs are present, we've got  
112 11 profits increasing as we reduce the search costs.

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21

122

1 and customers that used to get stuck at those firms are  
2 running around much more than they used to be. They're  
3 stopping at firms where they're really a good match or  
4 they're selling something really fantastic, so you have  
5 dispersion of consumers to both the tail and head of  
6 the distribution.

7 This is another graph that shows the same  
8 thing. Let me conclude by showing you a simple  
9 tractable model that integrates these consumer search  
10 decisions and firm strategic prices but introduces this  
11 relatively new idea of the product design choices.

12 Unsurprisingly, search costs are going to  
13 affect these product design choices, and we get here  
14 prevalence and coexistence of very different design  
15 strategies, so we've got some firms going to these  
16 different extremes, and this has implications for price  
17 and sales distributions.

18 Firms with better technologies are going to  
19 tend to adopt broader designs. This is something  
20 that's sort of been observed I think in other  
21 literature as well, so this comes out in some work of  
22 Anderson and Brynjolfsson in a marketing paper. We get  
23 this result that prices and profits may be  
24 non-monotonic in search costs, and industry profits can  
25 arise as a consequence of lower search costs.

1           I should highlight this isn't at the expense  
 2   of the consumer. Consumers are better off. This is a  
 3   win/win. With these lower search costs, we're getting  
 4   better designs and better matches getting consummated  
 5   here. These long tail and superstar effects arise  
 6   simultaneously, and we can tell you when it is that  
 7   this long tail effects arise and that these industry  
 8   profits can increase. It's when we've got enough  
 9   horizontal differentiation as compared to the vertical  
 10   differentiation. So, if you think of some of this  
 11   empirical work, if you think about what happens with  
 12   bookstores, which are pretty much homogenous goods,  
 13   Syverson, Hortacsu, Onsel and Goldmanis showed that  
 14   Internet penetration drove out small bookstores, so  
 15   this is an environment where there's very little  
 16   horizontal differentiation. They're literally selling  
 17   the same books, and it's just the efficiency that  
 18   dominates.

19           On the other hand, if you think about what

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Th laustpo its is just tise vertical  
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1 mixed strategy in homogenous firm case, but if you're  
2 offended by ex ante heterogeneity and the efficiency of  
3 firms, it's not critical for the results of the model.

4 So I'll leave it there and I'm interested to  
5 hear what Justin has to say.

6 DR. JOHNSON: Well, after yesterday  
7 afternoon, I think I'm supposed to trash your paper,  
8 but actually it's a completely lovely paper, so I'm not  
9 going to do anything crazy like that.

10 I was fortunate enough to see it I guess a  
11 year-and-a-half ago in Paris. It's highly polished.  
12 It's really an excellent paper. Because it is so  
13 highly polished and so progressed, I'm going to spend  
14 more time than usual trying to place it I think in the  
15 literature, explain why I think it's an important  
16 paper, and then perhaps suggest at the end some  
17 additional utility to the framework that's utilized in  
18 this paper.

19 So the paper is about product design, and I  
20 want to explain why I think the niche that this paper  
21 addresses within the broader product design literature  
22 is very important and I want to, first of all, discuss  
23 what the papers on product designs are at a very  
24 conceptual level.

25 There's lots of dimensions along which firms

1 can choose their product design. Some of these have  
2 been studied intensely, and others have not, so if we  
3 look at the literature on durability or on innovation,  
4 this is an enormous literature, justifiably. So these  
5 are important topics.

6 If we look at the literature on firms  
7 choosing simply the quality of their products, so  
8 thinking about vertical differentiation, we know  
9 there's a beautiful paper, a 1978 paper by Mussa and  
10 Rosen that delivers an extremely important intuition  
11 that I think most of us are familiar with, asking how  
12 we design this product line so as to facilitate the  
13 extraction of surplus from consumers.

14 I should say there are also some papers on  
15 vertical product line competition, both in a price  
16 setting and in a quantity setting environment. If we  
17 look at horizontal competition, then I think at least  
18 in some loose sense, the literature is less developed.

19 On the one hand, we have a very important  
20 intuition that firms want to take steps to relax price  
21 competition to some extent, and that's an important  
22 take away from a number of the early papers in this  
23 literature, but beyond that, it's not clear to me that  
24 literature has gone as far as it might have. I think  
25 there is one primary reason for that, which is that it

1 turns out to be rather difficult from a technical  
2 perspective to model horizontal price competition  
3 unless you think about a very stark environment such as  
4 a Hotelling line or unless you impose complete symmetry  
5 on firms.

6 When you start on firms, when you start to  
7 hear about firms offering products that are ex ante  
8 different, and there being multiple firms out there,  
9 the problem becomes potentially much more complicated,  
10 so that's one contribution of the paper that we're  
11 talking about today. I'll call it Heski's paper.  
12 Obviously it has two coauthors on it.

13 The other main contribution of Heski's paper  
14 is in incorporating a search environment, and there's  
15 an enormous search literature as well. Search is  
16 extremely important. Yet almost nothing in this  
17 literature incorporates the idea of product design, so  
18 we have this huge literature on search, this huge  
19 literatures on product design, but almost nothing that  
20 simultaneously deals with some of the more realistic  
21 levels of product design or types of product design and  
22 the search problem.

23 So this is why I think this paper is very  
24 important. I should at this point mention a paper by  
25 Nathan Larson, which is sort of contemporaneous to the

1 paper that was discussed today, which I think goes down  
2 a very similar path and is also a very worthwhile paper  
3 to read if you're interested in this topic.

So to talk about( to 2s-2.his topi0tstk abquickly.2404 0 TD(3 )Tj2424

1 even though consumers are searching more and visiting  
2 more firms, the same number of sales exist. Everyone  
3 lowers their price. There was no differential effect  
4 in any firms, so firm profits have to go down. Even  
5 though consumers are better off, the firms are worse  
6 off.

7           If we have endogenous product design so we  
8 have a world where firms are offering different types  
9 of products, we don't need to have this phenomena  
10 arise. So, I just want to talk a little bit more about  
11 why the firms or at least some firms can be better off  
12 in this environment.

13           So let's suppose the search costs go down,  
14 and let's just assume that consumers are better off as  
15 a result. Why might some firms at least be better off?  
16 The intuitive key here is that firms are offering  
17 different types of products and some firms change the  
18 types of products that they offer.

19           So if consumers are better off, it's still  
20 true that when a consumer visits me after a decline in  
21 search costs that I feel like I'm in a worse situation.  
22 That consumer has a better outside option, so I do have  
23 to lower my price. That doesn't necessarily mean I'm  
24 worse off because what happens in this model is there's  
25 a group of firms that in response to the decline in



1 search costs begin offering products that are more  
2 niche in nature.

3           What does it mean for a firm to offer a  
4 product that's more niche in nature? It means that  
5 fewer consumers like that product enough to buy it.  
6 That firm also raises its price, so it's offering a  
7 higher priced product that fewer consumers like. That  
8 means that more consumers who visit that firm don't  
9 actually buy from that firm but go on and search  
10 somewhere else.

11           This implies that there could be a  
12 differential effect on who benefits and who loses from  
13 a decline in search costs. In particular, if I were  
14 already offering a Hello Kitty laptop, for example,  
15 then when search costs decline and all the firms in  
16 this section start offering more niche products, or  
17 whatever Heski called them, that's really great for me  
18 because now more consumers abandon those firms and  
19 spend enough time looking and eventually find my Hello  
20 Kitty laptop, and so many will like it because it's  
21 Hello Kitty and it's so cute and it's pink too, so that  
22 can be good for me.

23           It can also be good for the very best firms,  
24 and the very best firms are going to sell a very high  
25 quality product anyway. They're going to be better off

1 when you get more customers in the search environment,  
2 so here you can get both the long tail effect and the  
3 superstar effect at the same time.

4           Importantly, as Heski says, we'll go with  
5 business school jargon, it's a win/win situation. I am  
6 from a business school, so I think I can say that  
7 without being insulting.

8           I want to point out a couple other approaches  
9 that might deliver similar results, and I want to  
10 emphasize that it's not really in any way meant to  
11 impugn the results here because I think I've already  
12 emphasized that this paper fills an important gap in  
13 the literature by doing the things that I've already  
14 talked about.

15           Directed search: One thing that's become a  
16 lot easier for customers to do is find what they're  
17 looking for, so the search technology that's always  
18 used in the literature is that people just don't  
19 randomly search anymore, totally randomly searching.  
20 But of course it's now much easier for me to say,  
21 "Well, I love Hello Kitty, and I love laptops, so maybe  
22 I'll type in Hello Kitty laptop in Google" and up will  
23 pop Heski's private laptop that he doesn't bring on  
24 business trips. And I might be able to buy it. That's  
25 one way I could easily get the long tail effect.

1           I bet I could probably also get the superstar  
2 effect in a similar model because, again, if I have a  
3 paper or a product that's of inherently high quality,  
4 I'm probably willing to pay more for sponsored search.

5           Include social media, recommendations  
6 potentially through Facebook, people sharing their  
7 thoughts and ideas about what products are good or what  
8 products are bad and I think it's pretty clear that you  
9 could get some sort of cascading. You could get people  
10 sharing products they like with their friends. In as  
11 much as their friends have correlated preferences,  
12 maybe you also can get the long tail effect. I haven't  
13 thought about these carefully, but I think they might  
14 be some interesting directions to explore.

15           Just with another moment here, I want to make  
16 a plug for the general idea behind this paper and some  
17 work that I've done as well. For full disclosure, this  
18 paper considers a framework or analyzes a framework in  
19 which dispersion of preferences is really important.

20           So, it's not about which product is best or  
21 worst. It's about how preferences match the products  
22 that are out there. It turns out that's part of a  
23 general phenomenon, which is how preference dispersion  
24 influences economic activities, and there are a number  
25 of related examples in which you can get similar

1 effects.

2 So if you look at advertising, advertising  
3 that is either of the existive nature or persuasive  
4 nature, actually I heard a comment yesterday afternoon  
5 which had exactly the same effect on demand curves like  
6 pushing them outwards, but advertising that conveys  
7 product specific information of how well it might fit  
8 you actually generates the demand curve. I have some  
9 other examples listed in there that I won't talk about.

10 But just to emphasize that there are a number  
11 of ways in which you can get this dispersion or  
12 diffusion, and the long-term strategic effects are a  
13 little bit more subtle, but not a lot different. So  
14 all I want to say is that there are a few empirical  
15 papers that are starting to pop up, and there may be  
16 some additional opportunities there going forward.

17 Thanks a lot.

18 DR. INDERST: Moving on to the next paper,  
19 this is Patrick DeGraba followed by a discussion by  
20 Lucy White.

21 DR. DEGRABA: So thank you for having me back  
22 to talk about "Naked Exclusion by a Dominant Supplier."

23 Before I start, I will have to give the usual  
24 disclaimer. I'm an employee of the Federal Trade  
25 Commission. I'm on leave at the Federal Communications

1 Commission and so this paper represents neither the  
2 opinion of the FTC or the FCC, so I get economies of  
3 scope in my disclaimer.

4 I started to work on this paper because I  
5 needed to know, for a case I was working on, whether  
6 contracts of the firm where an input supplier says to a  
7 manufacturer, "I'll write you a really big check as  
8 long as you don't use my competitor's input in the  
9 stuff that you make," are that stuff going to generate  
10 harm to consumers?

11 So, there was already some literature on  
12 this, but I wanted to look in particular at a dominant  
13 supplier writing these contracts vis-a-vis a very small  
14 competitor.

15 Papers by Simpson and Wickelgren and  
16 Fumagalli and Motta were a huge advance in this  
17 literature because they tell us when the guy decided  
18 whether to accept an exclusive contract or not is a  
19 competitor with someone else, who is also deciding  
20 whether to accept an exclusive contract, the  
21 competition between them makes offers from someone else  
22 much less profitable for them, and that competition  
23 destroys some of the potential surplus in this market.

24 So there are some nice papers that say that  
25 you have to be worried about when an input supplier

1 goes to competing downstream firms and says, "Here,  
2 just use my product." The problem with this  
3 literature, at least the problem for me, was that all  
4 of these models have the same sort of structure which  
5 says there's an incumbent and there's an entrant, and  
6 all of these things keep the entrant from entering. So  
7 it establishes this guy is a monopolist, and then bad  
8 things happen when you have a monopolist.

9 I was sort of stunned by the fact that I  
10 talked to lots of people, and they would take this  
11 result in the literature and make the statement that  
12 exclusive contracts can only be bad if they completely  
13 drive out a competitor, so either keeping an entrant  
14 from entering or taking a small guy who is already in  
15 the market and driving him out of the market.

16 So the question remains, there are whole  
17 bunch of situations where you have a large input  
18 supplier and a small competitor, and these types of  
19 contracts don't drive the small competitor out. They  
20 do keep them from expanding, but he's in and offering  
21 prices and observing price competition, so the question  
22 is: In those circumstances, can you still get  
23 competitive harm from exclusive contracting?

24 The answer is yes, so that was the motivation  
25 for this model. The formal models that are out there

1 typically use a sort of first mover advantage, that  
2 only the incumbent firm can offer an exclusive  
3 contract, and the entrant who has a better product is  
4 unable to offer an exclusive contract, and the entrant  
5 has to spend some fixed cost  $F$  to enter.

6           So if you want to look at a bunch of  
7 situations and ask empirically, "Do you see this  
8 happening," the answer, of course, is no. You can take  
9 the intuition from those models and apply them to a  
10 world where, in fact, you have a large incumbent or a  
11 large supplier and a small supplier coexisting, but the  
12 large supplier uses these exclusivity type of contracts  
13 to keep down the competition and make customers worse  
14 off.

15           So I wrote down this model to describe this  
16 situation. The advantages of this are, as I said, it  
17 gets rid of a couple of assumptions that don't really  
18 match up with what happens in the world. It also is a  
19 model that gets what are called loyalty discounts or  
20 contracts with a firm, such as, "I'll write you a  
21 really big check if only 10 percent of the stuff that  
22 you use is my competitor's."

23           The existing literature can't generate harm  
24 from those kinds of contracts, so the model spits out  
25 that as a result. It also tells us how big these

1 payments have to be, and this model will also address  
2 what's called a price cost test.

3           One of the propositions in antitrust is that  
4 if you're looking at payments for exclusivity, one of  
5 the ways you can tell whether they're good or bad is to  
6 take the payment, allocate it, if you will, to the  
7 incremental units that get sold because of the  
8 exclusivity contract. Call that an implicit discount;  
9 subtract the implicit discount from the price you  
10 observed to get an effective price.

11           If that effective price is below cost, then  
12 you have a problem, and if that effective price is not  
13 below cost, you don't have a problem. This model is  
14 going to say that's a bad test on the second side, that  
15 in fact there can be situations where the effective  
16 price is above cost and you can still get consumer  
17 harm.

18           So the results from 5,000 feet or 50,000  
19 feet, I got further away: I've got a model where you  
20 have two consumer segments. There's a large segment  
21 that really likes the final good made with a particular  
22 supplier's input, this defines the dominant supplier.  
23 There is also a smaller consumer segment that prefers  
24 the final good made with the rival's input, and they  
25 prefer it just a little.



1           So what the dominant supplier is going to pay  
2           the downstream firms or downstream manufacturers not to  
3           use the rival's input. That payment is going to be the  
4           incremental value of the rival's input in that small  
5           segment, and that payment is going to be enough to keep  
6           all of the downstream manufacturers from using the  
7           rival's input.

8           That establishes the dominant supplier as a  
9           monopolist. He then gets to charge the monopoly input  
10          prices, extracting the monopoly rents from end users,  
11          and then those monopoly profits essentially finance the  
12          payments that got paid to the downstream manufacturers.

13          So in the formal model, there's a dominant  
14          firm D and a small rival R. They each sell inputs to  
15          downstream producers. There are M producers that turn  
16          one unit of input into one unit of output. There are  
17          no costs in this model because it just adds extra  
18          notation.

19          The downstream firms are undifferentiated  
20          Bertrand price competitors except for which input they  
21          use. End users view the downstream manufacturers as  
22          homogenous except for whatever the input is that they  
23          use. Most end users will pay a big premium if the  
24          dominant firm's input is used, and a few of these guys  
25          will pay a small premium if the rival's input is used.

1                   Here is a graph of the market. This entire  
 2                   paper can be done on this graph; so what does this  
 3                   graph say? The green line WD is the willingness to pay  
 4                   by all consumers for a final good with the input from  
 5                   the dominant supplier. And to make life easy, every  
 6                   customer has exactly the same willingness to pay for  
 7                   the dominant supplier's base good.

8                   The red line is a demand curve for the final  
 9                   good with the rival's input. QC is a relatively small  
 10                   number, so all the guys from zero to QC are willing to  
 11                   pay WCR, which is bigger than WD, so those are the guys  
 12t. ~~QC is a relatively small number, so all the guys from zero to QC are willing to pay WCR, which is bigger than WD, so those are the guys~~ ~~who pay a little bit more of a premium~~ 7

1 somewhat controversial amongst theorists, although not  
2 nearly controversial amongst people who do this for a  
3 living: The input suppliers can price discriminate  
4 across market segments.

5           If you don't believe that can happen, there's  
6 a nice little link in the references to New York  
7 state's complaint against Intel, and in that complaint,  
8 there's about a five or six paragraph description of a  
9 discount program where Intel gave credits on an RFP by  
10 RFP basis. It would then decide whether that was going  
11 to be a competitive auction or not so competitive  
12 auction, and it would give discounts on a basically  
13 customer by customer basis.

14           I'm going to use that in here. It's going to  
15 make the math a lot easier. In fact, it's going to  
16 make the math so much easier you don't need math, you  
17 just need the graphs. If you don't like that  
18 assumption, you're not going to like the rest of the  
19 paper.

20           So this little graph basically has four boxes  
21 in it that all have some intuition. Box A is the  
22 incremental value of the small rival's inputs. Box B  
23 is how much profit the dominant firm could generate if  
24 it became a monopolist in the contestable market. Box  
25 E is the extra value that the dominant firm generates

1 in the non contestable segment, and Box C is the value  
2 of the small rival's product in that segment if the  
3 small rival were a monopolist in the non contestable  
4 segment. So, those are the four sort of ideas or the  
5 four variables, if you will, that kind of run all the  
6 analysis here.

7           So we can ask the question: What would  
8 happen if you had a simple Bertrand game where each  
9 input supplier announced a price, and the price for the  
10 input was segment specific, and then the downstream  
11 firms looked at those input prices, treated them as  
12 marginal costs and set retail prices, what would you  
13 get as an equilibrium? You would get basically what  
14 you think of as the standard Bertrand result, and the  
15 blue dotted lines are the prices.

16           In the contestable segment the input price is  
17 really low, and it reflects the difference between the  
18 small rival's value and the dominant firm's value. So,  
19 the dominant firm would set a price at zero in that  
20 segment. The rival would set a price of  $WCR$  minus  $WD$ ,  
21 the incremental value of its good, and it would  
22 basically earn this box here as profit. That's going  
23 to be a huge factor later on.

24           Over in the dominant firm's market, because  
25 consumers are willing to pay a little bit for the small



1           If any producers decide to breach  
2    exclusivity, suppliers get to do another round of  
3    transfer prices because the world just got different,  
4    and so they can offer lower transfer prices in response  
5    to this breach of exclusivity.

6           Once all these transfers prices are set, the  
7    downstream manufacturers set prices and all players  
8    observe all decisions. It's about as vanilla of a  
9    model as you can imagine, and so we're going to ask  
10   what the equilibrium is in that game.

11           It turns out that there are two conditions  
12   that you need for there to be an equilibrium in which  
13   exclusive contracts are offered and accepted. The  
14   first one is the number of firms times that little Box  
15   A is less than B plus C. What does that mean?

16           Intuitively, if you look at B plus C, that's  
17   the extra profit that the dominant supplier would earn

1 to all of the downstream firms in order to induce them  
2 to be exclusive to himself.

3 And so that first condition simply says if  
4 the sum of the payments you have to make to be a  
5 monopolist is less than the total benefits of becoming  
6 a monopolist, then you make those offers and firms  
7 accept them.

8 Why is  $A$  the amount you have to pay a firm in  
9 order to be exclusive? And the answer is simply this:  
10 The dominant supplier is a monopolist and he charges  
11 the monopoly price in the non contestable segment. If  
12 there's competition or if one of the downstream firms  
13 decides to use a small rival's input, then the dominant  
14 firm lowers its price in that segment from  $WD$  down to  
15 zero, so there's very intense price competition.

16 The only thing that the small rival can earn,  
17 once he's competing with a dominant supplier, is in  
18 fact the incremental value. And that's the most that  
19 he can offer a single firm to stop the firm being  
20 exclusive to the dominant supplier.

21 So as long as the dominant supplier pays the  
22 most that the small rival could pay in terms of  
23 profits, no downstream manufacturer has an incentive to  
24 defect.

25 The first condition simply says the dominant

1 supplier simply has to pay as much as you could earn  
2 from being the only supplier or the only manufacturer  
3 using the small rival's input, and that will keep all  
4 these guys in line.

5           The second condition is a condition on how  
6 big the dominant supplier has to be. Notice  $E$  is the  
7 amount of profit that the dominant supplier earns if  
8 he's competing in a Bertrand world against the small  
9 rival.  $A + B + C$  is the most that the small  
10 rival could earn if he were a monopolist in this entire  
11 market.  $A + B + C$  divided by  $M$  is the most that  
12 the small supplier could pay each of the downstream  
13 firms to be exclusive to him and not be exclusive to  
14 the dominant firm.

15           And so if the most that the small supplier  
16 could pay each firm to be exclusive to him is less than  
17 the profit that the dominant firm would make by getting  
18 one firm to defect, then there's no equilibrium in  
19 which the dominant supplier can be knocked out of the  
20 market. So, that second condition there is just a  
21 condition that says the small supplier is always going  
22 to be competing with the dominant supplier; that's what  
23 I just said about  $MA$  being less than  $B + C$ .

24           That's essentially what makes the equilibrium  
25 run, and again the key thing that makes this model work





1           In this model the profit maximizing thing to  
2 do for the dominant supplier, rather than try to take  
3 over the entire contestable share, is pay each  
4 downstream firm what is the new letter A, which is just  
5 the value to customers between QZ and QC to be  
6 exclusive in that portion of the market, and leave the  
7 smaller portion of zero to QZ portion for manufacturers  
8 to go out and use the dominant supplier's input.

9           That can easily be generated by a contract  
10 that says that everybody's going to sell or the  
11 contract is just a percentage contract. You figure out  
12 what percent of the market zero to QZ is and say, "As  
13 long as you don't use more than that percentage of your  
14 product using the rival's input, then you get the  
15 payment A," and that equilibrium generates exactly the  
16 same result as before, which is in the markets where  
17 the dominant supplier is dominant, he gets to charge a  
18 monopoly price.

19           Consumers are worse off because, first of  
20 all, they're paying a higher price than they would have  
21 in the Bertrand equilibrium. And secondly, in the  
22 contestable market, the QZ minus QC customers would  
23 prefer to be buying final goods that use a small  
24 rival's input when, in fact, they end up buying the  
25 final goods using the dominant firm's firm input, so

1 there's actually a dead weight loss to society as well.

2 I'll presume 20 minutes is up, and I will  
3 leave the rest of these slides undiscussed. Thank you.

4 DR. INDERST: We'll move on to the  
5 discussant, and then we'll move on to the final paper  
6 and possibly have questions right at the end if there's  
7 time.

8 DR. WHITE: Thank you very much for inviting  
9 me to discuss this paper. I really enjoyed it. I  
10 think it's very important. I think if anything,  
11 Patrick probably undersells it because he said that  
12 there's this literature and he wanted to change the  
13 assumptions a bit, but the assumptions of the previous  
14 literature are pretty important and pretty restrictive,  
15 so it's quite important to relax those assumptions to  
16 get a more realistic setting.

17 This paper shows that exclusion can be used  
18 to limit the expansion of a rival supplier who's  
19 already in the market, so it's not just about keeping  
20 entrants out, but it's about keeping small rivals  
21 small.

22 The argument here doesn't depend on making it  
23 impossible for a firm to cover its entry costs because  
24 there are no entry costs. The firm is already in the  
25 market. And as Patrick said, in practice it's also the

1 relevant case. Notice that the previous literature  
2 depends on having some kind of coordination failure  
3 between the firms, and this paper doesn't rely on that  
4 either.

5           So there was a numerical example in the  
6 paper, which I thought you might do in the presentation  
7 but which you actually didn't. I don't know if it's  
8 actually useful to use this side because the numerical  
9 example is a bit misleading in some ways because it's  
10 really a numerical example about the previous  
11 literature.

12           There are two things, the market, R, and D,  
13 the dominant firm, but exogenously R can't offer  
14 exclusive dealing contracts. Only D, the dominant  
15 firm, can do that, so that's what's been done in the  
16 literature so far.

17           Now, if R sells something, then he's going to  
18 be in competition with D because he's not allowed to  
19 offer exclusive contracts, so the maximum profit that  
20 he can earn can be thought of as the value R for R's  
21 products minus the value D for D's products because if  
22 D, you have competition.

23           So if D sells and offers exclusivity, on the  
24 other hand, he can sell his product at D, so the  
25 dominant firm has a choice of selling these products at

1 a D or else letting the rival enter the market. And if  
2 the rival enters the market, the most that rival is  
3 going to be able to get is  $R$  minus  $D$ .

4 So to keep the rival out of the market, you  
5 have to be able to pay all of the downstream firms that  
6 are going to sell the rival's units,  $R$  minus  $D$ , because  
7 that's the maximum surplus that's going to be created  
8 by  $R$  entering.  $R$  minus  $D$  can easily be smaller than  $D$ .

9 So that's the interest for the paper. By  
10 keeping the rival out, you can manage the price and  
11 monopoly price  $D$ , and if he comes in, the most he's  
12 going to make is  $R$  minus  $D$ , which is the competitive  
13 outcome. And so the competitive price that the rival  
14 makes may be a lot smaller than the monopoly profit  
15 that the dominant firm would make if the rival were not  
16 in the market, even though the dominant firm in this  
17 example has an inferior product to the rival firm.

18 Still the monopoly price for the dominant  
19 firm's inferior product is going to be a lot larger  
20 than the competitive price for the rival firm's better  
21 product, and therefore it's profitable for the dominant  
22 firm to exclude the rival.

23 This example depends on the fact that  $R$  isn't  
24 able to fight back by offering exclusive dealing  
25 contracts because if he could, he could pay a higher

1 price to keep the dominant firm out of the market than  
2 the dominant firm could pay to keep the rival out of  
3 the market because the rival's product in this example  
4 is more efficient.

5           So, the contribution of the paper is that you  
6 can show that you can get rid of this assumption. And  
7 how does that work? It's basically because D has  
8 another source of rents to bribe firms to be exclusive,  
9 and another reason to prevent the rival firm from  
10 selling anything. This reason is D has a core market  
11 and in the core market, the dominant firm's product is  
12 more dominant than the rival's product.

13           So the dominant firm's core market is more  
14 valuable than the rival's core market, and so the  
15 dominant firm intuitively is willing to pay more to  
16 protect his core market than the rival firm and is more  
17 able to pay to protect his core market. So in the  
18 battle of the exclusives, the dominant firm wins  
19 because he's got more to protect, and he can also  
20 credibly promise more rents to the downstream firms  
21 because he has a larger monopoly profit in his core  
22 market.

23           So how do we generate this result in the  
24 model? As I said, we've got to introduce two market  
25 segments: One that prefers the D input and one that

1 prefers the R input. The dominant firm can sell into  
2 either market or either type of customers, other the  
3 ones that prefer D or R, and this can't be verified.

4           It can be observed by watching the firms, but  
5 it can't be verified, so I'm giving you this input, and  
6 you're not allowed to sell it into the other market.  
7 This means that if R's input is sold at all, then it  
8 could be used to compete on D's core market, his turf,  
9 reducing D's monopoly profits there. Therefore D has a  
10 very strong reason to prevent R from entering at all  
11 because if R enters into the market where it's actually  
12 more efficient for R to enter, the problem is that  
13 there may be a temptation for this input to somehow  
14 move into the core market of the dominant firm, pollute  
15 that market, and destroy the monopoly's rent there.  
16 And D is very anxious to prevent that.

17           However, the model is symmetric in that R  
18 also has a strong reason for preventing D from entering  
19 his own turf, his core market. So D and R are going to  
20 try to offer exclusivity to prevent competition from  
21 arising, and that's in their mutual interest. They  
22 don't want competition to arise.

23           The problem is that the size of the bribes  
24 that R is able to offer is smaller than the size that  
25 perhaps D is going to offer for two reasons, one of

1       which is more important the other, and that's the one  
2       you focused on in the presentation.

3               The problem is that when D competes in R's  
4       segment, the rent that can be earned in that segment is  
5       smaller because that segment is smaller in terms of  
6       market size and also because in the paper, although you  
7       don't necessarily require it, the amount by which the  
8       rival firm's product is preferred for the dominant  
9       firm's product is smaller in the rival's market than it  
10      is in the dominant firm's market.

11              So, for example, if the D segment is simply  
12      larger in terms of quantity demanded, then D is going  
13      to have a much larger turf to defend, and it's going to  
14      be much easier for him to attract one single dominant  
15      firm away from the rival supplier because he can offer  
16      him a very large market. So, if the rival's trying to  
17      get everybody to be exclusive, then it's very easy for  
18      the dominant firm to attract away one of those firms  
19      because he can offer them a very large market. Also in  
20      the paper, the number of dominant firms that can sell a  
21      product might be rather small compared to the ability  
22      to sell these products, so you don't have to bribe very  
23      many different firms.

24              This model has also the nice feature that  
25      there's no explicit penalty for breaching exclusivity.





1 markets.

2 Or in the alternative, maybe less  
3 realistically but maybe theoretically nicer, you could  
4 -- and Patrick showed you this with a paper -- have a  
5 third of the consumers whose preferences for R are very  
6 strong. In that case, even if the downstream firms can  
7 all sell to anybody, it's still unprofitable to exclude  
8 R from this segment because the preferences in that  
9 segment are so strong. So then you can't use exclusive  
10 dealer contracts because it's unprofitable to exclude  
11 if you have to exclude over all of the consumers, even  
12 the ones who's preferences are very strong, and instead  
13 what you see is partial exclusion which allows multiple  
14 discounts.

15 So the only problem is that what you have  
16 exclusive dealing and zero sales by the rival, or  
17 positive sales but not exclusive dealer contracts  
18 rather than market share contracts.

19 So one suggestion is: Can you build a model  
20 of perhaps the most realistic case where you do see  
21 exclusivity and positive sales? For example, D could  
22 alternatively sign exclusivity deals with some  
23 producers and not others in the same market. One way  
24 to do that would be to introduce capacity constraints  
25 for the downstream firms so you can sign exclusivity

1 deals with, for example, the very largest firms and  
2 then just leave out the very small downstream firms and  
3 they could serve this niche segment with the very high  
4 preferences for R.

5           So, then you could more neatly capture what's  
6 going on in reality. Moreover, it would be quite  
7 interesting if you introduced downstream heterogeneity,  
8 if you could say something about which downstream firms  
9 would be offered the exclusivity payments and which  
10 not.

11           The paper makes an important step forward in  
12 understanding how exclusive dealing can be profitably  
13 used against an already present but smaller rival, but  
14 I think there is still more to understand. For  
15 example, if the exclusive dealing were banned, could  
16 you use any other instruments for the same effect? So,  
17 for example, maybe exclusive territories could be used,  
18 or you could somehow say you're allowed to sell to  
19 those types of consumers, and I would like to sell to  
20 these types of consumers. And maybe you could  
21 replicate the effects of an exclusive dealing using  
22 other instruments.

23           Thank you.

24           DR. INDERST: I think we have to press on in  
25 the interest of time. Our next speaker is Volker.

1           DR. NOCKE: This is a paper on merger policy,  
2 a topic quite fitting to what we're going to see  
3 afterwards.

4           This is joint work with Mike Whinston, and I  
5 should emphasize this is still preliminary, which means  
6 that in the last few weeks, we got some new results  
7 that we have never written up. Therefore the  
8 discussant is unaware of them, for which I apologize,  
9 but none of the main results change.

10           I guess you all know, but when mergers are  
11 proposed to one of the antitrust authorities, the  
12 antitrust authority faces a trade-off. On the one  
13 hand, mergers are likely to create intense market power  
14 because of internalization of competitive  
15 externalities. On the other hand, they create a lot of  
16 new synergies or efficiency gains, which we realize  
17 will be beneficial across society.

18           The first formalization of this trade-off is  
19 due to Oliver Williamson, in a famous paper in AER in  
20 1968, that was sometimes called the Williamson  
21 trade-off.

22           Now, in a beautiful paper by Farrell and  
23 Shapiro, they look at the same kind of trade-off, that  
24 in the firm level and there's sufficient conditions for  
25 a merger to increase consumer surplus and also

1 sufficient condition for a merger to increase equitable  
2 surplus.

3           Now, what these two papers do, and pretty  
4 much all the literature does, is to consider a single  
5 merger in isolation. And what that means in particular  
6 is implicit in the literature is the idea that if the  
7 merger is approved, the market structure changes, but  
8 it's not going to stay the same afterwards. And if the  
9 merger is not approved, then we're going to have just  
10 the pre- market structure continue further.

11           So in particular, there are no future changes  
12 in market structure, no future mergers in particular,  
13 nor does the literature typically look at the question  
14 of whether the merger was actually feasible. The  
15 merger that is being proposed is a selected merger.

16           So I think our first paper on the topic,  
17 "Dynamic Merger Review," addresses the first point  
18 here. It talks about a model of merger opportunities,  
19 where firms have to decide when not to pass mergers at  
20 any point in time and amongst any merger, but the  
21 antitrust authority has to decide which ones to approve  
22 and which ones to block.

23           What we're doing in that first paper, is that  
24 we might see potentially complex dynamic effects in the  
25 sense that when we approve a merger now, it will depend

1 on future market structure. That future market  
2 structure, of course, is the markets have to change an  
3 exogenous structure but are actually endogenous because  
4 whether or not we're going to approve the merger today  
5 will affect the profitability and the consequences of  
6 future mergers. So, the possibility of future mergers  
7 will affect what we're doing now.

8           Despite these particularly complex dynamic  
9 effects, under some condition, the optimal policy of an  
10 antitrust authority that tends to maximize discounted  
11 consumer surplus, has a very simple resolution. It has  
12 a very simple formula, that the antitrust authority can  
13 express by adopting completely a proven policy where it  
14 completely ignores the potential of future mergers and  
15 approves a merger if and only if it doesn't hurt  
consumers given current market strategy.

1 exclusive, so at most, one can be proposed to the  
2 antitrust authority.

3           The main result of the paper is that the  
4 antitrust adopted policy is not naive in the sense that  
5 it's not going to be the case that the antitrust  
6 authority approves a merger if and only if it doesn't  
7 hurt consumers now. Rather, the antitrust authority is  
8 actually going to adopt a standard in terms of the  
9 minimum increase in the consumer surplus level that it  
10 requires. Furthermore, this minimum consumer surplus  
11 increases in that it will cause will actually be  
12 increasing the "size" of the merger, where by size, I  
13 mean the size of the combined pre-merger market shares  
14 of the merger target firm and the acquirer or partner  
15 firm. Now, the combined pre-merger market share is a  
16 naive computation of the post-merger market share.  
17 Thus, one can say that the analysis here provides a  
18 justification for discrimination between mergers based  
19 on a computation of the post-merger Herfindahl index,  
20 in addition to taking into account the effect on  
21 consumer surplus.

22           Now, the best thing to look at is the  
23 simplest possible setting. A firm here can merge with  
24 one of several potential acquirers. So, first of all,  
25 you have the naive computation of the post-merger

1 Herfindahl Index, which is actually the kind of  
2 computation that antitrust authorities do all the time.  
3 That is, you first compute the pre- merger Herfindahl  
4 Index, then you look at the post-merger Herfindahl  
5 index. A naive computation is going to mean that  
6 you're going to assume that all the firms that are not  
7 involved in the merger, have the same market share  
8 post-merger.

9           What we're seeing in this paper is that even  
10 if you knew what the effect of that merger would be on  
11 consumer surplus, you still are going to discriminate  
12 based on this naive computation of the post-merger  
13 Herfindahl Index. I'm going to skip the literature and  
14 turn to the baseline levels.

15           So the model is just a textbook Cournot model  
16 with constant returns to scale, and you make standard  
17 assumptions on demand that ensure the existence of a  
18 unique equilibrium and that the unique equilibrium is  
19 stable. There are  $K$  potential mergers and each one of  
20 these mergers is between Firm 0 and one merger partner,  
21  $k$ . We are going to assume that these mergers partners  
22 are heterogeneous in terms of pre-merger marginal  
23 costs.

24           What is a merger? A merger is an ordered  
25 pair identifying the acquiring firm and the post-merger



1 marginal cost of the combined entity. Post-merger  
2 marginal cost is stochastic and independent across  
3 mergers.

4 The null merger is the status quo, MO. There  
5 are also some technical assumptions about no mass  
6 points as a part of these distributions.

7 If a merger is implemented, then there are  
8 going to be changes in consumer surplus and profits.  
9 Antitrust policy consists of a commitment to approve a  
10 set of mergers,  $A$ , defined by marginal costs. If a  
11 merger is proposed, it is approved if and only if the  
12 post-merger marginal cost falls into a particular  
13 interval or in a particular set  $I$  should say. If the  
14 post-merger marginal costs aren't as such, then the  
15 merger is not approved. Of course the set is chosen by  
16 the antitrust authority.

17 We're going to assume that the antitrust  
18 authority doesn't randomize. It's just a pure strategy  
19 if you would like, and as I mentioned, at most one  
20 merger can be approved.

21 For most of the talk, I'm going to assume  
22 that the antitrust authority's objective is to maximize  
23 expected consumer surplus.

24 So the question is given the antitrust  
25 policy, how do the firms decide which merger to propose

1 to the antitrust authority?

2 We're going to assume that essentially it's a  
3 bargaining process. For now we're going to assume that  
4 it's given by Segal's offer game. Firm 0 makes a  
5 take-it-or-leave it offer to an acquiring firm for  
6 which the increase in combined profits from the merger  
7 is the greatest. Firm 0 is expecting there to be some  
8 transfer if the merger is made. The acquiring firm can  
9 reject the offer, in which case no merger takes place.  
10 Given that, the antitrust authority is then going to  
11 choose its approval set.

12 Let me skip these things given the time; let  
13 me try to make these things graphic. Here the vertical  
14 axis is the change in consumer surplus. The horizontal  
15 axis is the change in the merging firms' bilateral  
16 profits.

17 These different curves refer to different  
18 mergers. For merger  $M_k$ , the post-merger change in  
19 profits and consumer surplus lies somewhere on the  
20 curve labeled  $M_k$ . The curves are upward sloping  
21 because we assume that the post-merger marginal costs  
22 falls, and in this case a given merger is associated  
23 with higher bilateral profits and greater consumer  
24 surplus. Also, these merger curves can be ranked in  
25 the sense that the curve corresponding to the larger

1 merger is to the right of that of the smaller merger.  
2 This occurs because, holding the change in consumer  
3 surplus fixed, bigger mergers are associated with a  
4 greater increase in bilateral profits. Thus, there's  
5 an intrinsic bias in firms' proposal incentives  
6 relative to the interests of consumers. If two mergers  
7 produce the same change in consumer surplus, then the  
8 larger merger will increase profits by more than a  
9 smaller merger.

10 This result doesn't rely on the particular  
11 bargaining. Efficient bargaining gets us the same  
12 thing. The only difference would be that  $\Delta \pi$   
13 would now be aggregate profit instead of bilateral  
14 profit.

15 What is the main result here? The main  
16 result is that because of this intrinsic bias in firm's  
17 proposal incentives, the antitrust authority should  
18 optimally have a policy that discriminates against  
19 larger mergers. It's going to approve the smallest  
20 merger if and only if that merger is CS nondecreasing.  
21 Furthermore, the minimum acceptable change in consumer  
22 surplus levels will be strictly positive for any larger  
23 merger and actually will be increasing in the size of  
24 the merger. In fact, it could be that the largest  
25 mergers will never be approved at all.



1 is advice, analysis of how to analyze this merger in  
2 isolation. What Volker and Mike Whinston, his  
3 coauthor, have done in these two papers is to go beyond  
4 that and start talking in a broader way about more  
5 forward looking merger policy.

6 In their first paper, the 2008 paper that I  
7 guess is now forth coming, they do this by asking:  
8 What are some conditions under which a myopic policy  
9 would be optimal in a broader sense?

10 The key thing that I wanted to communicate to  
11 you is that the answer they give is one that completely  
12 rejects what I think is a very powerful intuition and  
13 an ingredient of real merger policy, which is, "Enough  
14 is enough." In real world merger policy, rightly or  
15 wrongly, if you start with six firms in an industry,  
16 and they're all the same size, two of them can merge,  
17 probably without trouble most of the time these days.  
18 Another two can probably merge with not much trouble.  
19 Then it starts getting hard, and there's an, "Enough is  
20 enough" dynamic.

21 "Enough is enough" fails to show up in the  
22 first Nocke and Whinston paper and I want to explain to  
23 you my understanding why that's true and take from it a  
24 spiritual lesson about these authors and how they think  
25 of merger policy. We'll come back to this.

1           If you think, for example, in the cell phone  
2   PCS world after the introduction of the PCS spectrum in  
3   addition to the cellular spectrum, there were, I  
4   believe, six licenses in each geographic region, and  
5   there was consolidation. At one point I think the FCC  
6   quite explicitly said, "Enough is enough." This is a  
7   very familiar idea to those of you that do merger  
8   policy day-to-day.

9           So what Nocke and Whinston say about the,  
10   "Enough is enough" idea is it doesn't apply in the  
11   Cournot model, and here's why. As Carl and I showed in  
12   our 1990 paper, in the Cournot model, a merger is not  
13   harmful to consumers if and only if the marginal cost  
14   efficiency exceeds the gross margin.

15          In more recent work, you can recognize that  
16   this is what you would get in a differentiated product  
17   setting if the diversion ratio is equal to one. By the  
18   way, Sonia Jaffe, who was here last summer and her  
19   thesis advisor Glen Weyl have studied these issues, but  
20   that's a technical footnote.

21          So what happens if you only allow non harmful  
22   mergers is that a merger that would have been  
23   permissible before the first merger took place is now  
24   all the more permissible because the first merger  
25   reduced  $P$ , and it left the marginal cost efficiencies

1 and the costs for the second proposed merger where they  
2 were.

3           So horizontal mergers become strategic  
4 complements in that setting, so if you have accepted  
5 one, a merger that you would have accepted before is  
6 now all the more acceptable, all the more beneficial.  
7 Is that the world we live in? I wish it were, but it's  
8 really not.

9           The world we live in is one where because we  
10 have to convince skeptical courts, not to mention other  
11 layers of decision makers, if we oppose a merger than  
12 many times we will reluctantly let through a merger  
13 that we think probably will harm consumers to some  
14 extent. I think this is the leading reason in simple  
15 horizontal merger territory why this, "Enough is  
16 enough" thing actually does operate.

But what Nocke and Whinston -TteTn-2.8415yers of decision mae4p12

1           I think it's pretty clear that we face a more  
2     skeptical environment than one that would allow us to  
3     do that. In that sense Nocke and Whinston, as in their  
4     first paper, are pursuing a line of research that takes  
5     a rather optimistic view, at least an optimistic view  
6     of the antitrust in terms of the enforcement  
7     environment.

8           So, if we look at merger retrospectives, as  
9     we're about to do and I think it's fair to say we'll  
10    get a more sophisticated read on this in a few minutes,  
11    we'll see that merger retrospectives tend to fall into  
12    two groups: Those that find price increases and those  
13    that say, "Well, we can't really tell."

14          So even given that there's a non random  
15    selection of mergers to retrospect, I think that tells  
16    you that we're not really starting from the Nocke and  
17    Whinston perspective.

18          A less optimistic perspective is for some  
19    mergers the synergies are indeed expected to benefit  
20    consumers, others we don't know or we have no  
21    particular reason to think that they'll have much  
22    effect either way, and some are expected to harm  
23    consumers. Some of those we think we can block.  
24    Others we think are going to be pretty hard to block,  
25    and what typically happens then is we try to negotiate



1       some remedy.

2               If we think about trying to move the economic  
3       literature on merger policy away from the perhaps over  
4       plowed, here's how to analyze the likely impact of this  
5       merger and implicitly say yes or no to this merger, one  
6       of the things that we should be doing much more of is  
7       thinking about the negotiation of remedies.

8               Another thing we might want to do a lot more  
9       of is figuring out how to make confident and convincing  
10       predictions that are based on, but not limited to,  
11       sophisticated analysis that non economists are going to  
12       find hard to parse.

13              DR. INDERST: I think in light of the time we  
14       should proceed to coffee. When should we back from  
15       break?

16              DR. ROTHSTEIN: 11:25.

17              (Appause.)

18              DR. CHESNES: It's now my pleasure to  
19       introduce our fourth and final keynote speaker of the  
20       public conference, Aviv Nevo, from Northwest  
21       University. We're going to combine the keynote with  
22       the final panel session, so this will all hopefully  
23       work together well.

24              Aviv spent time at Berkeley and MIT before  
25       moving to Northwest in 2004. He's currently a

1 professor in the department of economics in the  
2 marketing department at the Kellogg School as well as a  
3 research associate with the National Bureau of Economic  
4 Research.

5 His work focuses on empirical industrial  
6 organization and econometrics. Much of his work has  
7 been investigating demand for consumer packaged goods  
8 and implications for price competition, mergers, and  
9 marketing.

10 He received his BA from Tel Aviv University  
11 and his Ph.D. from Harvard. I would like to thank him  
12 for representing Northwestern in our partnership in  
13 helping to organize this conference. And importantly,  
14 I would like to thank him for making sure we got our  
15 sandwiches at yesterday's lunch. Please join me in  
16 welcoming Aviv Nevo.

17 (Applause.)

18 DR. NEVO: Thank you. Last year when I was  
19 on the organizing committee, I think Chris asked me to  
20 give a keynote address, and I told him I didn't do  
21 keynote addresses. And I guess you'll see this year, I  
22 still don't do keynote addresses.

23 What I'm going to do here today is just give  
24 sort of several informal comments and try to set up the  
25 panel that we are going to move right into afterwards.

1           So, I'll show this merger simulation  
2 research, and I'll try explain to you what I mean by  
3 that: knowns and unknowns. I also wanted to have  
4 unknown unknowns in there, but when I tried to write  
5 that slide, I realized that there's a little bit of  
6 contradiction here, so I dropped that.

7           As I said, I'm going to offer some discussion  
8 of some issues in the research of merger simulation and  
9 tie it a little bit to the merger retrospective panel  
10 that we're going to have next.

11           My focus, let me just reemphasize, is going  
12 to be on research, and obviously this research has  
13 direct implications for policy, but it's not about  
14 policy. So it's got nothing to do with the merger  
15 guidelines or current policy, but really just thinking  
16 of what we should do in terms of research, and again  
17 the hope is to set up the discussion.

18           So what do I mean by merger simulation? A  
19 couple years ago I was actually on a similar panel to  
20 this in the first FTC microeconomics conference, and I  
21 made a distinction that actually a lot of people later  
22 thought was interesting, so I just wanted to remind  
23 you.

24           I'm going to call my simulation the use of  
25 the model, an economic model, to simulate the likely

1 effect of a merger, and I want to call it a broader  
2 definition from a narrower definition. So, the key  
3 here is really what we mean with the model and is it  
4 economic or not.

5 Now, often merger simulation actually takes  
6 on a much narrower view, which is to basically say,  
7 "Well we're going to estimate demand," and you take

1           When we look at simulation, this is what  
2    people have in mind, this narrow view, instead of  
3    always thinking of the broader view, which in a lot of  
4    the simulation is about bringing a model, an economic  
5    model -- and we can argue what we mean by economic --  
6    but bringing a model to try to predict the effect of  
7    the merger. And I think it's important to separate  
8    between these two when you start making claims or  
9    thoughts about whether we should or should not move  
   forward in using merger simulation.

1 past mergers to generate some prediction of a current  
2 merger." So, turn the measurement exercise into a  
3 model.

4 Now, it might not be an economic model. It  
5 might be a statistical model, so the simplest version  
6 of this is to say, "Well, we saw a merger of two  
7 retailers. In city A, we saw what the effect was and  
8 now we have to look at what happened in city B," and  
9 we're going to ask whether the effect going to be the  
10 same as it was in city A and decide whether we want  
11 that or not. So that's the simplest version.

12 Now, obviously in most cases, we're not going  
13 to have this clean of an experiment. So we see a  
14 merger, say between two supermarkets, and now we are  
15 trying to validate a merger between two office supply  
16 stores, just to randomly make up an example. Then  
17 we're going to say, "Well, that's not going to be the  
18 exact same effect, but let's see. We had a previous  
19 merger which saw the effect more directly between two  
20 pet supply stores." Well, you can think about how pet  
21 supply stores are different than supermarkets and what  
22 the difference is and use that difference to learn  
23 about how office supply stores are different.

24 We're going to have some sort of statistical  
25 model that's going to fit the effects of that, just

1 using the past merger. Then we have to think: Do we  
2 think that's a reasonable model or not.

3 Then the one that I'm going to actually focus  
4 on today in my comments here is the test of model  
5 simulation. So you might say, "Well, while we can do a  
6 pre-merger analysis where we're using this narrow  
7 version of the simulation or a broader version. So,  
8 here is what we predicted the effect of the merger to  
9 be, and here's what it actually was. Did it work? If  
10 not, where did it go wrong?" So, I'll talk a little  
11 bit about the literature that's done this.

12 But before doing that let me just, talk about  
13 two issues in the analysis of merger retrospectives.  
14 And again we'll talk probably more about this during  
15 the panel. This might or might not be an issue, but we  
16 are going to make a selection: In which major  
17 direction do you get to observe?

18 Now, for some things, that's not an issue.  
19 We could say we're just looking at the population of  
20 mergers that have been approved, and we're going to  
21 learn about that population, but we have to realize  
22 whenever we extrapolate that this is a selected sample,  
23 and we have to be careful what population we're going  
24 to extrapolate to.

25 The other issue, which I think of as a

1 concrete issue in any merger perspective, is how much  
2 to actually measure the causal effect of the merger.  
3 You might say it's easy. Look at what the prices were  
4 before the merger, or if we're looking at the prices or  
5 any other effect, what they were before the merger,  
6 what they were after, and we just take the difference.

7 That's basically attributing all the  
8 differences of the merger to the merger, though there  
9 might be other effects going on. So, now we want to  
10 know what happens in some control group and what's a  
11 relevant control? How do we measure that? And those  
12 are issues that we'll get back to.

13 So, let me get back to the third point, which  
14 is the one I want to focus on in a little bit, which  
15 is: How well does the merger simulation perform? Let  
16 me just emphasize most of the evidence on -- I was  
17 almost tempted to say all of the evidence on -- this  
18 very narrow view of merger simulation. And overall the  
19 results I have, as I wrote here are mixed, but actually  
20 I think the results I have -- at best -- they're mixed.

21 We look at our ability using that sort of  
22 simple model to predict the effect of mergers, and  
23 they're probably not as great as we would like them to  
24 be. And again I'm probably trying to use the most  
25 positive language that I can on this. Maybe you could



1 be much more negative about things.

2 Let me give you an example, and it's again an  
3 example that's easy for me to give because I was  
4 actually involved on one side of these. So, I'm going  
5 to look at the acquisition of Chex, a cereal brand, by  
6 General Mills.

7 This happened in the mid 90s. Ralston that  
8 produced Chex decided to do a spin off of its branded  
9 products, Chex was really the main one, and focus on  
10 producing private labels. At the time Ralston had  
11 about a 6 percent market share in the cereal industry,  
12 and Chex was about 2 percent overall, and the rest was  
13 private label of various other kinds of not well known  
14 brands. Ralston decided to focus on those brands  
15 spinning off the Chex division, and it was acquired by  
16 General Mills. I actually have a simulation of that  
17 merger in a 2000 paper that's published in RAND.

18 Recently, Dan Hosken, who I think is here,  
19 did a retrospective study looking at the effects.

20 So, let me try to show you this slide  
21 comparing the differences here, between the simulation,  
22 this narrow view of the simulation, and the  
23 retrospective, so let me show you the positive.

24 The positive is, I think, on average, the  
25 simulation doesn't do that poorly. When you look at

1 the average effect, and averaging across mainly the  
2 main brands here which were Chex, the two main General  
3 Mills brands, Cheerios and Wheaties, there was about a  
4 2 percent price increase. That's what the simulation  
5 predicted, and the retrospective found about 3 percent.  
6 There was a whole range of numbers, but I think 3  
7 percent is kind of roughly in the ball park. It's not  
8 exactly on, but once you put standard errors around  
9 that 2 percent, 3 is definitely in that range. And  
10 that's a good range. You might say the simulation did  
11 well.

12 Well, unfortunately that's not quite the  
13 case. I wish it were, but it's not. Actually it  
14 depends across brands, and I think this did something  
15 quite interesting. Between the brands, actually the  
16 simulation does horribly.

17 Well, the simulation predicted the Chex brand  
18 to have quite a large increase, about 12 percent  
19 without any cost savings. The retrospective found that  
20 basically there was not price increase at all for Chex.  
21 I think, the price increases were not significant, even  
22 ignoring the standard error. Just the estimated  
23 economic effect was less than 1 percent.

24 On the other hand, the simulation predicted  
25 that Cheerios and Wheaties, these were the General

1 Mills products, would see a very modest price increase,  
2 in the 1 to 2 percent range without any cost savings.

3 The retrospective, on the other hand, had a  
4 much larger price increase, about 3 to 4 percent. So  
5 while these two things benefit the large effects for  
6 Chex, the simulation with a small effect for Cheerios  
7 and Wheaties almost by coincidence seemed to sort of  
8 average out to a lot of the same things that were going  
9 into retrospectives. The picture painted here is  
10 actually very different.

11 I guess the one thing I want to comment about  
12 is the simulation results in some sense shouldn't  
13 really be surprising given the model we have had,  
14 because what do we have here? We have a large  
15 manufacturer, General Mills, acquiring a smaller brand.  
16 Now, think of that first order condition from a Nash  
17 Bertrand.

18 Basically what happens now is putting a whole  
19 bunch of cross price elasticities into the Chex first  
20 order condition, so now it's going to take you to  
21 General Mills portfolio of products, and as a result  
22 it's going to increase its price a lot.

23 General Mills, on the other hand, just added  
24 one product, so unless that product is a very close to  
25 substitute one of its own products, it's not going to

1 have a very large effect. So, now you would expect to  
2 see this from the merger simulation. So now you look  
3 at this and think the acquired firm is going to have  
4 the larger price increase. On the other hand the  
5 retrospective found something completely different,  
6 completely the opposite.

7           So the question is really: What is going on  
8 here? What in principle can explain the differences?  
9 The problem with the simulation, I characterized it in  
10 a little bit three different sets. And one you can  
11 say: Well, we got the demand estimates wrong, and I'll  
12 get back to this later, but it's the kind of thing you  
13 like to complain a lot about, maybe overly so.

14           The other is that they got their pricing  
15 model wrong. This idea of Nash Bertrand or the first  
16 order or condition prices according to this model are  
17 just off, and of course we combine the factors. You  
18 can say, "Well, maybe there's cost reductions that we  
19 didn't take into account." That's actually easy to  
20 take into account in a merger simulation.

21           There could be some change in the other  
22 dimensions of the behavior, like promotional activities  
23 that in most of these simulation are held fixed. There  
24 could be new products. There could be other factors as  
25 well, which we don't know on this very simple merger

1 simulation.

2           The problem of course is with the  
3 retrospectives is not all of these issues are talked  
4 about. Maybe there's a wrong control group. Maybe the  
5 event window is not the right event window, and there  
6 could be a number of measurement problems.

7           Of course, you could actually say, "Let's  
8 look at different control groups, let's look at  
9 different event windows and see how that effects the  
10 numbers as well."

11           The one issue that I have with this  
12 particular retrospective, but actually a lot of the  
13 other retrospectives that Dan, and Matt as well,  
14 produce is that sometimes you look at these numbers and  
15 you say: Forget this simulation for a second. Let's  
16 just look between the lines of what these numbers are,  
17 and can I cook up an explanation within the manner that  
18 would rationalize them.

19           So of course the one thing we don't have, but  
20 suppose you actually told me, "This is what someone is  
21 going to do and what the retrospective is going to  
22 find, how can I cook up my model to get that?" A lot  
23 of times it's not impossible.

24           So, let's think of what we have here in this  
25 example. How do we rationalize the fact that Chex had

1       such a small effect and General Mills had a much larger  
2       effect? We can go on the obvious thing, which is to  
3       say, "Well, there is a very, very large cost savings."  
4       You had Ralston, who was now a very small inefficient  
5       firm, not operating to scale, and it got acquired by  
6       General Mills, and General Mills now is going to be  
7       much more efficient. It's going to reduce the cost,  
8       and that's why we're not going to see that big price  
9       increase.

10                If you think of the costs savings, and  
11       actually you can infer that from this, it has to be  
12       huge. I mean, we're talking about 20 to 30 percent at  
13       least, maybe even more, in terms of the reduction in  
14       the cost. And that just seems to me a little bit  
15       larger than what's reasonable or what was even claimed  
16       I think by the parties. I actually don't know. I  
17       obviously had no involvement in that particular merger.

18                You also have to assume that maybe there's  
19       some mismeasurement of the cross elasticities, but then  
20       you would wouldn't see what happens with other brands

1 retrospective and try to rationalize them, just given  
2 an economic story handling them. It was actually  
3 pretty hard because you had to say, "Well, there were  
4 cost savings to this firm, but not this segment and  
5 that."

6           When we're looking back, of course we could  
7 rationalize everything, but then looking at this, we  
8 didn't want to believe that was the case. And it was a  
9 little bit hard, but of course the question is why,  
10 what is going on here.

11           There's a paper by Craig Peters at the DOJ





1 We're getting this before a merger, we have to predict  
2 what the effect will be. You need some sort of a  
3 model. So you say, "Well, forget this demand model,  
4 forget this, let's just run some sort of regression of  
5 price and competition or something like that."

6 So Peters did something like that, and  
7 compared it to merger simulation. Now, I don't know if  
8 this has actually been done systematically. I don't  
9 know if any of the panelists would comment on that but  
10 we return to the question: What is the alternative?

11 Before we go beating up on either this narrow  
12 or broad definition, we have to think: What's the  
13 alternative? Would it be better to do a Herfindahl  
14 type analysis? No, I would say not.

15 Again, just taking as an example Matt and  
16 Dan's work, one of the things that they found was that  
17 there's an inversion of the ranking of the two measures.  
18 I think one of the mergers was 3 to 2, and one was 6 to  
19 5, or I'm probably not getting the numbers exact, but  
20 there's an inversion there as well. So, that's my  
21 point to make.

22 Now, let me just go back to this point of  
23 demand estimation; what's the point about demand? Let  
24 me just sort of say a few things about this. First is  
25 there is no evidence to support the claim that what's

1 really going on is problems with the demand. If  
2 anything, this work from Peters would support that  
3 maybe it's not actually the demand.

4           So, I compare it to the description of the  
5 drunk looking for the keys under the light. If someone  
6 walks outside a bar and you see a drunk looking under  
7 the light. "Well, what are you looking for?" He says,  
8 "My keys." "Oh, did you lose them here?" "No, I lost  
9 them over there in the corner." "Well, why aren't you  
10 looking over there?" "Because the light is here."  
11 It's a little bit like that kind of that story.

12           It's easy to complain about demand. Everyone  
13 likes to complain about BLP and stuff that could go  
14 wrong with it, starting from the tolerance level to the  
15 computational algorithm to the instruments to -- I  
16 didn't invent this to -- you choose whatever it is you  
17 want of that. But in reality, it's not really where  
18 the issues are.

19           Let me just point out that if what we want to  
20 test the demand model, which I think is a very good  
21 thing to do as a side point, doing it as retrospective  
22 is not a very efficient way of doing it. I don't see  
23 how well the merger simulation would be at predicting  
24 this.

25           Let's look at further experiments. Now,



1 things that should be ongoing, but are not. So I guess  
2 I separated them into three groups.

3 In terms of the model simulation, I think  
4 where there's a lot of interesting work being done --  
5 and of course I'm biased because it's stuff I've been  
6 working on -- is dynamics and dynamics can arise for  
7 different reasons. These are durable goods. It can be  
8 habit formation. It can be learning. So, I think  
9 there's a lot of interesting work being done there.

10 We also are doing work on more flexible  
11 models of demand, so working within our framework, but  
12 trying to make demand models more flexible. And  
13 another thing that's a little bit interesting, in my  
14 view, is looking at the whole issue of instruments and  
15 the conditions we use to identify the instruments.  
16 There are two parts here.

17 One is that the instruments are weak, which  
18 has been a big issue in the literature, but is really  
19 always not discussed in the IO literature, at least up  
20 to now. And there's a question about whether the real  
21 transactions are down and how do we do an inference if  
22 these instruments are not valid. So, this is work that  
23 we have done that is similar, and I'm hoping to see  
24 more work on this.

25 On the supply side a lot of the problems are

1 with the model simulation. So, there there's  
2 simulation, no price effect of mergers, and it's  
3 probably also looking at dynamics. I think those are  
4 two active areas.

5 One area that's, as far as I know, really not  
6 getting much attention at all is the focus on the  
7 coordinated effects or generally moving away from the  
8 simple pricing model that we have. But the interesting  
9 thing, I think, is that it might be that this is where  
10 the largest path would be, so really trying to figure  
11 out what is going on. And this simple Nash Bertrand  
12 model is falling, and where exactly it's going, we'll  
13 have to figure that out.

14 I think it's going to be the combined work of  
15 using retrospective studies, using simulation models,  
16 but also I think there's potential for work and some  
17 good economic theory to be done here.

18 Then two final issues that I'm going to put  
19 on policy issues, just because I couldn't really fit  
20 them into the others. One is the issue of uncertainty.  
21 We tend to, for the most part, just ignore the aspect  
22 of uncertainty, so this is a simulation, and we put  
23 standard errors on it but these are standard errors  
24 that are coming from our demand estimates.

25 We just figured those out, but I think

1     there's a deeper issue of how we should think about  
2     this.  And if you just think of the FTC and the DOJ's  
3     problems, it might just be a classical decision  
4     problem, and in some sense economics -- or if you want  
5     statistics -- gives us various ways to look at it.  If  
6     you want to be Bayesian, you can be Bayesian.  If you  
7     want to do Min-Max, you can do Min-Max, or whatever you  
8     want.

9             There's almost no work, theoretical or  
10     empirical, trying to look at that.  Again, this is the  
11     part where I'm not saying one could say, "Well, from a  
12     policy point of view, this is impossible."  This is the  
13     part where I'm talking about academic research.  I'm  
14     not talking about whether this should be in the merger  
15     guidelines or not.  This is a completely separate  
16     point.

17             The final issue is one which I just proposed.  
18     Think of the paper we heard just before the break, that  
19     Nocke and Whinston paper, that whole line of research,  
20     up to now, merger simulation has really focused on  
21     there being a given merger and you have to simulate and  
22     look at that effect.  While I think what they're  
23     proposing is you look at what are the optimal policies,  
24     what are the implications of policy, dynamic  
25     implications in terms of which mergers will we propose

1 or not. And I think there's actually potential here  
2 for feeding this into this literature and tying in with  
3 some of the work that we've seen.

4 So, those are really my comments for now.  
5 I'm happy to open up for questions, or if not, we can  
6 just move directly to the panel on merger  
7 retrospective.

8 UNIDENTIFIED SPEAKER: I guess one question  
9 is you say there is little evidence to worry about  
10 demand estimation. If you look at the Craig Werden -  
11 Steven Chance paper from '99 or Margaret Slade's paper  
12 on the beer mergers from last year where they did  
13 plausible seeming merger simulations with different  
14 demand systems and got extremely different answers, how  
15 do you view that in the context of evidence?

16 DR. NEVO: Let me clarify. If you take a  
17 given data set and you try to estimate different demand  
18 systems, you could get wildly different numbers, but  
19 mergers are just one way, if you want to summarize  
20 those numbers in a particular way, you will get that.

21 It's a little bit hard to evaluate these  
22 papers because a lot of times it's very easy to take a  
23 demand system and get crappy estimates from it. So, in  
24 some sense that's not the right metric. The right  
25 metric, if you want someone who is highly motivated to

1 get it right, in that demand system is taking different  
2 channels and let them work hard at it to get the best  
3 numbers that they can. How different will the numbers  
4 be?

5 So that's a little bit hard to do in this  
6 context. Just to give an example that's shaped this, I  
7 am happy to see some numbers involved in the cigarette  
8 industry. There was an interesting proceeding that had  
9 to do with the settlement agreement, and not going into  
10 a lot of details, but there are a lot of numbers that  
11 were generated from that.

12 That was exactly a case where you got  
13 different experts all working as hard as they could to  
14 get their demand systems right, and what was  
15 interesting to me, at the end was the whole range of  
16 numbers generated there, but you could boil it down to  
17 some various assumptions you made on heterogeneity or  
18 not, validity of instruments or not, dynamics or not.

19 It ended up as actually the functional form  
20 of the demand and I'm not going to say it didn't  
21 matter, but I don't think it was a first order effect.  
22 So, whether you use an AIDS model or BLP model, that  
23 wasn't really the main thing that mattered.

24 I'm not saying you're not going to get  
25 different estimates -- you will -- but I think if you



1 try to get people who are motivated to actually get it  
2 right -- there are a bunch of things about what that  
3 actually means, but at the end of the day, at least  
4 from what I've seen -- the numbers all kind of end up  
5 being similar.

6           These demands are very hard to estimate. You  
7 don't have very good variation, or sometimes you don't  
8 have variation. And when we do have variation, you  
9 might think it's endogenous, so a lot of times you'll  
10 get crappy estimate from all of these models.

11           So that's brought some meaning to my  
12 thoughts.

13           DR. BALAN: So, you've said that there's all  
14 this sophisticated apparatus, and it's not performing  
15 as well as we like. And the answer is even more  
16 sophisticated apparatus, that people are going to  
17 develop.

18           What hope is there for the other kind of  
19 innovation, cost cutting innovation, where we can get  
20 an okay answers with a month of the time, or the person  
21 in the 70th percentile of BE to can come up with  
22 something reasonable?

23           DR. NEVO: I'm not sure. Maybe that's what I  
24 said, but I don't know if that's what I meant to say or  
25 your characterization is wrong. That's not necessarily

1 what I meant to say.

2 I said that what we have right now is not  
3 perfect, that we want to understand what's going wrong  
4 and we want to improve it, but I didn't necessarily say  
5 that it's by putting more complicated structure on it.  
6 I think we should explore alternatives, but what are  
7 the alternatives we put forward?

8 Computing Herfindahls is a very simple thing  
9 to do, but is it doing any better? I don't know. My  
10 impression is not, but I don't really have a  
11 metaanalysis here to show you that that's the  
12 alternative.

13 Running some sort of regression or let's say  
14 regressing price on a bunch of things and trying to use  
15 that to predict the effects of the merger. Again I'm  
16 aware of I think a single paper that did that, the  
17 Peters paper, and I think my reading of the results is  
18 it actually performed worse than merger simulation.

19 Now, you might say, "Well, now there's a cost  
20 benefit, we didn't do quite as well, but it's much  
21 easier to do, that's not a cost estimate that I can  
22 do." You have to know what the cost is of doing  
23 things.

24 What I'm trying to say is I think we need to  
25 look harder at what's going on and not dismiss it and

1 say, "Wow, merger simulation is crappy, we can't trust  
2 it." I think we have to look more carefully at what  
3 exactly is going on and see what are better ways to  
4 improve it.

5 So, I don't necessarily think it's much more  
6 complicated things, but maybe think of different ideas  
7 or different alternatives.

8 DR. BALAN: I don't know if this is probably  
9 the academic incentives of what's publishable at work  
10 here. There's activity in the direction of trying to  
11 fix deficiencies, which of course is a good thing, but  
12 I don't think anybody in your position gets ahead by  
13 saying here's something that works 80 percent as well,  
14 but can be done in a quarter of the time.

DR. NEVO: That's p.

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1 PANEL SESSION TWO: MERGER RETROSPECTIVES  
2 AVIV NEVO, Chairman, NORTHWESTERN UNIVERSITY  
3 LANIER BENKARD, Yale University  
4 JOHN KWOKA, Northeastern University  
5 CHRISTOPHER TAYLOR, FTC

6

7 We are going to head into the panel. We have  
8 three speakers in our panel on merger retrospectives.  
9 We're going to go in, I think, alphabetical order

10 All three have some presentations, so I think  
11 the best way to do this is we'll have each give their  
12 presentations, and then maybe we'll have all three sit  
13 up here and open it to questions from the audience

14 So the first speaker is Lanier Benkard

15 DR. BENKARD: First of all, I'm not quite  
16 sure why they invited me because I've never actually  
17 written a merger retrospective myself, but I have  
18 worked a little bit on merger simulations. And by the  
19 way, I'm also not quite sure why I said yes.

20 Also I think Aviv and I are in agreement on a  
21 lot of things. I'm going to come to similar  
22 conclusions that Avid did and also highlight some of  
23 the things he said maybe in a little bit more in  
24 detail.

25 As somebody who hasn't actually written a

1 merger retrospective, in the time since about a month  
2 ago when I was asked to do this, I thought I would  
3 actually go back and familiarize myself with this  
4 literature because it's been given some attention  
5 recently. And I wanted to be sure I knew what I was  
6 working with here, so what I actually did was have an  
7 undergrad go back and do a literature search and go  
8 through this whole literature. I'm going to tell you  
9 some statistics about the literature just to start  
10 with, in part because I think there's been some  
11 activity recently, and people have been talking about  
12 the literature and saying it's deficient, and I wanted  
13 to characterize it and see if I can get a hold on  
14 what's been done.

15           The main criterion for this was looking at  
16 papers that evaluated a past merger that had actually  
17 taken place and had data after the merger. This is a  
18 little bit rough because it was done in the last month,  
19 and if we were to publish something, we would  
20 definitely want to clean it up.

21           We probably missed some papers in some lower  
22 journals I'm guessing, and it's possible that we  
23 misclassified the criterion a little bit so we would  
24 have to go back and fix that to be precise, but this  
25 will be a rough count.

1           First of all, I found 73 papers between 1985  
2   and 2010. I think that's probably quite a bit bigger  
3   than people thought this literature was. Part of that  
4   is probably because we might have used a slightly  
5   looser definition of what a merger retrospective is,  
6   and this is getting a little bit back to what Aviv said  
7   about the narrow versus broader definition.

8           So let me just tell you about the industries  
9   that were covered: railroads, airlines, banks,  
10   hospitals, gasoline, radio, TV are the biggest ones.  
11   The thing that jumps out at me is these are the  
12   industries we study for almost all topics, not just  
13   mergers. I suspect that a lot of this is driven by  
14   data availability, with the possible exception of  
15   hospitals, which I think maybe that was an area of  
16   particular interest in the last ten years, and that  
17   generated some of the papers, but for a lot of the  
18   other industries you will see IO papers on all sorts of  
19   topics on those industries.

20           There are many papers in prestigious  
21   journals, so these papers actually I would say on  
22   average are pretty well placed. You can see RAND has a  
23   lot, AER, and there's actually a lot of stuff in the  
24   finance journals, so there's a lot of pretty good  
25   papers out there.

1           This is an imperfect measure of citations,  
2       since I used the Google Scholar Measure, which is not  
3       very good. By the way, let me tell you this: These  
4       are the top ten cited papers if you remove finance  
5       journals. The reason for doing that is the finance  
6       journals generate a lot more cites than other journals,  
7       and I think it kind of works the counts a bit. By the  
8       way, the top paper here is also a finance paper, but in  
9       the AER.

10           So, what I see when I look at this list is  
11       that there are a lot of good papers here, papers that  
12       are taught in graduate classes at every top university.

13           There are a lot of good papers, important  
14       papers in the literature, and also I would argue that  
15       there's a lot of papers here that when people think  
16       about these merger retrospectives aren't the first  
17       things that come to their mind. In other words, these  
18       are important papers for reasons other than just the  
19       merger retrospective, so I wanted to point that out as  
20       well.

21           This is the last thing I'm going to show you  
22       on the statistics of the literature. This is merger  
23       retrospective publications by year. Before the late  
24       '80s, there weren't really very many. I think I have a  
25       few more years that go back, and it was sort of like





1 after every merger we could go back and document what  
2 happened to the prices. And you can imagine the FTC  
3 has a department that does this, a group of people who  
4 after every merger go back, collect some data, run some  
5 regressions and say: Prices went up 3 percent in this  
6 one; they went down 3 percent in that one. We have a  
7 whole complete catalog of all of the effects of past  
8 mergers.

9 Putting this up as a straw man, what I want  
10 to argue is that that the data would not be very  
11 interesting on its own. I don't think it would be very  
12 useful. An individual study that simply says here's a  
13 past merger and what happened to prices, that only  
14 covers that topic, I think, probably is not very  
15 useful, and I think even a collective catalog might not  
16 be very useful.

17 I'm not going to talk about the fact that  
18 actually each one of these is probably hard to do well.  
19 Aviv touched on those issues, but basically what you  
20 see is prices before the merger happened and prices  
21 after the merger happened. You have a lot of things  
22 that could have changed other than the merger, and it's  
23 hard to come up with control groups and other things.

24 It's actually pretty difficult to do these  
25 things well, and I'm not going to touch on that. I'm

1 going to ignore it. Let's just assume we can do a good  
2 job and get the complete catalog. So, why do I think  
3 such a catalog would not be interesting on its own? I  
4 think it might be useful, but in conjunction with other  
5 stuff, and I'm going to conclude by suggesting what  
6 that other stuff is.

7           So now you have a complete catalog of price  
8 effects of past mergers. Aviv mentioned this problem;  
9 the first problem is we only see price effects for the  
10 selection of mergers that were approved. I think here  
11 I'm going to largely reiterate a point made by Dennis  
12 Carlton in a 2009 paper and probably others that Aviv  
13 mentioned.

14           Suppose the government did a really good job  
15 and only approved mergers that lowered prices. Then  
16 the average past effect across all mergers is negative  
17 so it looks like mergers are pretty good.

18           What if they relaxed the policy a little bit?  
19 Well, then you would have some mergers with a positive  
20 price effect and some with a negative effect. The  
21 average price effect could still be negative. So, what  
22 does a negative price effect mean? Well, it doesn't  
23 necessarily mean that the policy is too strict. A  
24 correct policy would end up with a negative price  
25 effect, and in fact, even if the policy was too lax,

1 you might get a negative price effect, so I don't think  
2 that the average is telling you much.

3 Now, of course you might see some positive  
4 price effects. It may be you would say, "Well, that  
5 means we made mistakes in those cases," but that would  
6 be putting a lot of trust in the government. Basically  
7 that says that we knew with perfect certainty what was  
8 going to happen, but suppose that we make some random  
9 errors. We have a certain amount of information. We  
10 do the best we can. Sometimes we goof and make  
11 positive errors. Sometimes we make negative errors,  
12 but on average we're correct.

13 Well, then there would be some positive price  
14 effects of past mergers, even if we were doing  
15 everything as well as possible and policy was set  
16 appropriately. It might not indicate a systematic  
17 problem. On the comments I made on the previous slide  
18 about on average, you could have a negative price  
19 effect and policy could be set correctly. That would  
20 still be true.

21 You would learn something if the average  
22 price effect was positive because then you would find  
23 that on average, the policy was letting through mergers  
24 that were raising prices, but that seems like a fairly  
25 extreme case, so I think it limits the usefulness. To

1       conclude, price effects may not be helpful in  
2       evaluating the appropriateness of the overall policy.

3                What about individual mergers? I think this  
4       is actually a bigger problem. I think for the most  
5       part, every merger is different, so even in a given  
6       industry, every merger is different. It depends on  
7       things like the closeness of merged and unmerged  
8       products, the firm's products, and consumer  
9       characteristics in the effected market.

10              Every market is different, including threat  
11       of entry and idiosyncratic cost savings available to  
12       the firms. Maybe their headquarters are across the  
13       street from one another in one case and maybe they're  
14       not in another, and, because of that, I think it's  
15       really hard to draw conclusions from the past mergers.

16              For example, related to the papers on airline  
17       mergers, if you asked me about what I think about  
18       future airline mergers, I would say which two? Which  
19       two firms? And I think for every pair, the answer  
20       would be different. If I knew the price effect from  
21       all the past airline mergers, I'm not sure what that  
22       would tell me about the next one.

23              If you look at say, for example, Mercedes  
24       brought Chrysler a little while ago, now they don't own  
25       them anymore, but they brought Chrysler and no one





1 if the model worked or not, as Aviv and others have  
2 done. And if it did not work, try to improve the  
3 model. The thing about this is not only does this  
4 improve merger policy, but it's also a huge benefit to  
5 the field of economics.

6 We really learn about what supply-side  
7 effects are we missing, what's important, what's not  
8 important. Such papers would be potentially, not only  
9 important for merger policy, but also important just in  
10 economics and the kind of things you would expect to  
11 see in top journals, et cetera.

12 Only a handful of papers in the literature do  
13 this. I worked on the Peters paper, Weinberg and  
14 Hosken as well, and I guess Aviv's discussion did it,  
15 evaluating the cereal point, but I actually think this  
16 is a pretty useful way to go forward. And so to the  
17 extent that the literature is deficient, I would say  
18 there's not enough papers like this. That's what I  
19 would say.

20 I'm going to change modes and wrap up. This  
21 is my last thing. There come along times when the FTC  
22 or DOJ would be interested in research in certain  
23 areas. An example of this is the last decade with  
24 hospital mergers, and it strikes me given the fact that  
25 the past literature was mainly in areas where data is

1 plentiful, like you can download it off the web almost,  
2 that one of the biggest impediments to research is  
3 probably data availability. And if the FTC wanted to  
4 promote work in these areas, probably the best way  
5 would be to collect data and make it available.

6 Now, this wouldn't necessarily have to mean  
7 the private, proprietary data that they may not be  
8 allowed to released. Even just an effort to collect



1           Let me thank Chris Adams and other organizers  
2 of this for the opportunity to be here. It's always a  
3 pleasure for me to come back to the FTC where I was  
4 very happy to have served some years ago now. I do  
5 want to talk about, from my perspective, the interest  
6 in merger retrospectives and try to add a little bit to  
7 what's already been said.

8           I want to talk a little bit about a project  
9 that I've undertaken to reexamine a lot of these  
10 studies, and also review with you the findings of one  
11 particular retrospective study that I've done and that  
12 will be published shortly.

13           The recent surge in retrospectives, I think,  
14 has been due to two or three reasons. One of them is,  
15 I suppose, intellectual curiosity. Mergers are an  
16 unbelievably common phenomena, and a very small  
17 fraction of them get reported to the agencies. An even  
18 smaller fraction of them get reviewed, but we are  
19 always interested in understanding what structural  
20 transformation in our economy entails.

21           Our way of looking at this 20 and 40 years  
22 ago was reliant on the structural presumption, and as  
23 that has withered, we have started to ask the harder  
24 questions, the right questions about the effects in  
25 particular cases.

1           The second reason, I think, for the surge is  
2           that there are increasing efforts on the part of the  
3           agencies to refine their merger evaluations and to  
4           challenge only those for which there is some very good  
5           reason for pursuing rather than to take a broader  
6           approach. The need to do that has been underscored and  
7           to some degree has been promoted by the merger  
8           guidelines, which articulate the notion that the  
9           agencies have an explanation for their anticompetitive  
10          concern, and that view has been adopted and maybe  
11          extended perhaps too far by the courts that  
12          increasingly insist on exactly that.

13           There certainly are other cases where the  
14          agency's views have been rejected by other regulatory  
15          agencies that have the final say or the courts that  
16          have seemingly rejected the agency's arguments.

17           We also have a number of cases recently where  
18          agencies have failed to act in cases that many outside  
19          observers believe action may have been warranted. So,  
20          that's the second reason: Simply a refinement in  
21          advance in agency's merger review process.

22           The third reason, I think, is to some degree  
23          methodological, in contrast to some long time ago,  
24          better data as Lanier also pointed out. But also the  
25          greater use of the difference in difference approach,

1 with all its limitations, seems to have invited  
2 reexamination of old questions and examination of some  
3 new ones with a fairly straightforward and serviceable  
4 approach. We can talk about its limitations, but it is  
5 certainly well suited in principal to merger  
6 retrospectives.

7           Merger retrospectives seem to be a new  
8 phenomenon, and that of course is not quite true, as a  
9 review just posted showed. I mean, I date them back I  
10 think to Barton and Sherman's publication in the 1984  
11 Journal of Industrial Economics that looked at  
duplicating microfilm. And they examined, in fact,

1 something like this in a month, a couple of grad  
2 students and myself up at Northeastern have been  
3 working for a somewhat longer time, trying to pull  
4 together those studies and others, less in some  
5 respects and more in other respects, in an effort to  
6 distill from them what it is we can learn about merger  
7 policy.

8           Let me try to explain how it is that our  
9 perspective has, I think, advanced over a simple  
10 survey. The idea is that to understand what we're  
11 doing, I need to specify the objective very clearly.  
12 The purpose of our review is to evaluate not mergers,  
13 but merger policy and to do that by assessing the  
14 outcomes of mergers in cases that rose to some level of  
15 competitive concern.

16           So the vast majority of mergers, of course,  
17 are of no interest to us, nor to most economists. But  
18 there are a lot of studies, including some in these  
19 surveys, that I think are not of great interest to our  
20 stated question either. For example, some of these  
21 studies review groups of mergers, and as a result may  
22 have assessed or concluded that one or two or 14  
23 airline mergers on average raise price by some amount,  
24 but knowing that does not tell us, in fact, whether  
25 merger policy was appropriately implemented in any

1 particular study.

2           So we have kept track of those studies which  
3 simply look at groups of mergers, but we are, in fact,  
4 isolating only those cases that have looked at single  
5 mergers, evaluated single mergers.

6           We have also focused, at the moment, on  
7 published papers for the most part, but include some  
8 number of working papers that certainly seem to meet  
9 the standards of published research. And we have  
10 certainly looked at only those that have arisen in the  
11 U.S. for the obvious reason that we're trying to get  
12 an assessment of U.S. merger policy.

13           The data observations are not all  
14 independent. Some studies cover multiple mergers.  
15 They've been done by the same author. Some studies  
16 cover multiple mergers in the same industries, and as a  
17 result -- as Lanier pointed out and as I'll show in a  
18 moment -- the data really come from a rather non-random  
19 selection of industries. Then too, some mergers have  
20 been reviewed multiple times by different authors, and  
21 we need to pay some attention to that as well.

22           We've also included what we say has been  
23 normative judgment across semi-mergers, domestic  
24 airline code-shares and joint ventures. So we end up  
25 with a result where we have 37 individually studied

1 mergers, again excluding groups of mergers, involving  
2 42 products. And given the multiple observations on  
3 some mergers, we also have 50 observations on prices.

4           The study is not done, and I'm interested in  
5 checking to see who else has additional sources that  
6 don't even appear on our yet- to-do list, but we do  
7 have 50 concrete observations on actual price  
8 inclusions from mergers. Most come from airlines in  
9 our sample. A number of them come from petroleum and  
10 hospitals for all the obvious reasons. These are  
11 industries that are formerly regulated, and have  
12 reporting requirements or for some other reason, the  
13 data has been particularly available.

14           Of those 50, a large fraction have price  
15 increases. 36, or more than 70 percent, of them show  
16 price increases. Two, and only two, show price  
17 reductions. There are 12 estimates that either have  
18 very mixed conclusions or declare the outcome to be  
19 simply uncertain. We also have, as I mentioned, six or  
20 are seven observations from joint ventures and  
21 code-shares. They tend to produce somewhat mixed  
22 results as well.

23           Amongst these studies, what I want to stress  
24 is that we are looking to try to evaluate not just the  
25 outcomes of mergers in close cases where policy

1 agencies review the merger very carefully, but we're  
2 also interested in appending. We are appending to  
3 these data, to these observations, information about  
4 the characteristics of the industry prior to the  
5 merger: concentration, entry barriers, and other  
6 dominating factors, in particular, representations made  
7 by the parties, to the degree that we can determine  
8 those, about what the effects of the mergers would be  
9 in an effort to convince the agencies.

10 We're also looking at what drove the agency  
11 to make its final determination after the fact. With  
12 only 50 observations and about 25 questions, I'm not  
13 what sort of outcome we'll get, but I think this is an  
14 effort to advance the ball in the direction that I  
15 think both Aviv and Lanier have suggested.

16 It's also true, as I mentioned at the outset,  
17 that we're looking only at consummated mergers. We're  
18 keeping track of mergers that were not consummated, as  
19 a result of either being withdrawn before the agency  
20 ruled or rejected in court, to see what it is we may be  
21 able to tell in the very few instances where there's  
22 commentary on that.

23 We're also keeping track of outcomes other  
24 than price. They include cost effects and quality  
25 measures that have been addressed in some small

1 fraction of these cases. We're concerned for all the  
2 reasons previously expressed about methodological  
3 issues, quality control of our own on these studies,  
4 and certainly the selection issues that Dennis Carlton  
5 and others have stressed.

6 I would also like to talk briefly about a  
7 merger retrospective that I myself have done with  
8 another grad student at Northeastern. This is a  
9 reexamination of the USAir/Piedmont merger, which at  
10 the time we did the study, was the last major airline  
11 merger not involving a bankrupt carrier. This dates  
12 back to 1987, 1988, '89.

13 The study is the one that I mentioned is  
14 forthcoming in the Journal of Industrial Economics. It  
15 is similar in most respects, so I want pause to  
16 describe the details to you, which are similar to  
17 difference-in-difference analysis.

18 The study that we undertook is different,  
19 however, from other airline studies, and even from two  
20 other studies done of USAir/Piedmont, one by my  
21 colleague, Steve Morrison, and the other by Craig  
22 Peters. The studies that those individuals did looked  
23 at changes in incumbent concentration in routes where  
24 the two carriers were both serving, and both found  
25 price increases from the merger on those groups.



1           So that kind of study, like I say, has been  
2 done on this merger and others as well. The focus of  
3 our paper was different. It took the spotlight and  
4 directed it to the outskirts of that market and looked  
5 at routes where one of those two, either USAir or  
6 Piedmont, was an incumbent and the other was a  
7 potential entrant, measured, as usually is the case in  
8 these studies, by an end-point-serving carrier.

9           So on those routes, of course, the merger did  
10 not effect incumbent concentration at all. I'm not  
11 saying this is what was done, but a policy that simply  
screened routes for changes in incumbent concentration

1 not the route itself.

2           What we found was that, with the elimination  
3 of the potential entrant, there was a price increase on  
4 those routes of about 5 or 6 percent. That was despite  
5 the fact that there was no change in concentration, due  
6 to the merger at least, and that would seem to  
7 establish the proposition that the elimination of a  
8 potential entrant can representative of competitive  
9 harm. It's not in some sense a surprising proposition,  
10 but one which I think has not really been tested  
11 before.

12           We also looked, of course, for the price  
13 increases on routes where the two were incumbents and  
14 that was about twice as large, as one might well  
15 expect.

16           I want to conclude by saying that it's been  
17 my hope, and certainly I've been pushing my students to  
18 do more studies of this sort, to reexamine past mergers  
19 with better methodology and perhaps additional data or  
20 to reexamine mergers looking at new questions that  
21 haven't really been addressed before.

22           I think the retrospective looking at  
23 potential competition is one such possibility, and my  
24 hope is that in doing that, there will be advances in  
25 our understanding that will feed into merger policy.

1           I was gratified that in the new merger  
2 guidelines, there was mention again of mergers  
3 eliminating a potential competitor as a possible  
4 competitive concern since that language has been in the  
5 guidelines for nearly 20 years.

6           To pick up on a comment that Lanier had made,  
7 it's also been both my hope and my practice -- and in  
8 some of my consulting, I've been involved in a number  
9 of recent mergers for the State Attorneys General - to  
10 try to urge them to insist on data requirements from  
11 the merging parties post-merger. We, in fact, secured  
12 that in at least one instance.

13           I've urged that during the merger guidelines  
14 workshop as well as in the DOJ/FTC guidelines, and I  
15 believe that that it doesn't quite answer the question  
16 of what you do with it. It requires resources to do  
17 anything with post- merger data, but I think it's a  
18 healthy discipline on the parties and on the process to  
19 have that available as a retrospective analysis.

20           I have a greater hope than I think some of  
21 the preceding speakers that these retrospective  
22 studies, with proper extension to some product on the  
23 firms and industries and some further measure of agency  
24 actions on these mergers, will allow us some insight  
25 into improvements in merger policy.

1 Thank you.

2 DR. NEVO: Thank you. Our final speaker is  
3 Chris Taylor.

4 DR. TAYLOR: Okay. I'm Deputy Assistant  
5 Director here in the Antitrust I division of the Bureau  
6 of Economics. The standard disclaimer applies; I don't  
7 think we need to repeat it again.

8 I'm going to mainly talk about some of the  
9 merger retrospectives we've done here at the FTC with a  
10 special emphasis on some petroleum retrospectives,  
11 which I've been very involved with. We have completed  
12 four consummated merger retrospectives in the petroleum  
13 industry, which are working papers, and also have been  
14 published or are forthcoming. We have a couple more in  
15 the works.

16 We have also spent considerable time  
17 reviewing and replicating petroleum studies done by  
18 others, primarily the Government Accountability Office.  
19 They have two studies, but we also replicate some of  
20 the works that have been published by, for example,  
21 Professor Hastings and Chouinard and Perloff.

22 As others have mentioned, the Bureau of  
23 Economics has spent considerable time and resources  
24 doing hospital studies, which have come out as working  
25 papers; there's going to be a special issue of the

- 1 International Journal of the Economics of Business
- 2 which will include those and some related papers.
- 3 There are also papers either by staff here or involving

1           I want to spend at least a minute emphasizing  
2           that, because I have to be ready to defend these  
3           studies in almost a litigation type context, and so I  
4           want to make sure that the results are particularly  
5           robust.

6           So, what do I think we've learned in general?  
7           I want to make this a little more general than just  
8           petroleum retrospectives, but things I think we've  
9           learned that doing retrospectives, by doing these  
10          petroleum retrospectives, and others have referred to  
11          this first point already, that merger retrospectives  
12          sound easy, and they especially sound easy to policy  
13          makers and attorneys.

14          Let me tell you, take the price, the price  
15          change, measure it to some base period, and away we go.  
16          One of the problems in this industry in particular but,  
17          I think others as well, is large numbers of cost  
18          changes, cost shocks, which you have to net out. And  
19          even in this industry, crude oil is obviously a large  
20          part of the cost base of gasoline and diesel fuel, and  
21          that's somewhat easy to control for.

22          There are lots of other cost factors, for  
23          example formulation changes, refinery pipeline  
24          disruptions, diesel effects not being constant, that  
25          you have to spend a great deal of time worrying about.

1 And something others have brought up already this  
2 morning, is that identifying good controls is  
3 difficult. You would like the markets or areas to have  
4 similar demand and supply conditions, but at the same  
5 time not be so linked as to be affected by the  
6 transaction.

7           Something else I would like to expand upon if  
8 we have time and one of the areas for future work --  
9 and we've done some already -- is validating the  
10 controls, thinking about how you could look at how the  
11 controls do in the pre-merger period, testing for false  
12 positive or false negative effects. This was one of  
13 the things we got into in some of the replication  
14 studies we were going into.

15           For example, an earlier version of one of the  
16 published studies that looked at -- this goes into my  
17 next point -- a panel of petroleum mergers. In an  
18 early version of the paper, they actually had mergers  
19 assigned to the wrong states and found effects, and  
20 they found effects of mergers of lubricating oil

1 more common in banking, which is look at large number  
2 of mergers in one study. My opinion is in having tried  
3 to replicate some of those studies, at least in this  
4 industry and I assume a number of industries, that it's  
5 doomed to failure.

6           You find random effects because it's hard to  
7 figure out what the controls actually are. For  
8 example, if you look at a panel of petroleum mergers  
9 across the entire country, on any given merger, the  
10 control group is changing because the mergers effect  
11 some parts of the country and not other parts of the  
12 country. Trying to do these types of merger  
13 retrospectives in a panel approach, I think, is  
14 difficult in most cases, for that reason alone, if not  
15 for others.

16           Briefly, ways to, I think, improve and work  
17 on maybe being able to generalize retrospectives  
18 studies: We need to be very clear about what assets  
19 are involved in the transaction and how those assets  
20 are linked to your anticompetitive theory. So, for  
21 example, describing what assets were involved in the  
22 merger, what are the markets of interest. and how  
23 you're coming up with the but-for price will really at  
24 least begin to get at some of the issues that I think  
25 we were raising earlier about how to generalize these



1 studies.

2 One of the studies that we just finished up  
3 this spring was looking at refinery mergers in the  
4 Northeast, and I spent a lot of time describing the  
5 markets, what the refineries looked like in the  
6 Northeast, what were the potential sources of supply  
7 coming into that market. And in this case, we actually  
8 had a statement by the Commission describing why it did  
9 not take an enforcement action.

10 While it was certainly not a merger  
11 simulation per se, we had some information on, at least  
12 the stated rationale for, why the Commission did or  
13 didn't do what they ultimately did. So this allowed us  
14 to go back in and talk about what we saw  
15 retrospectively relative to what the Commission was  
16 saying prospectively.

17 Another issue I want to talk about is -- and  
18 we raised it earlier -- looking at the identification  
19 strategy and how well it performs out of sample or at

20/5 20/5 that the data was the applicable market system. One of the things that we saw in this case, we made it clear that we did it perfectly.

1 available for replication and giving enough description  
2 within the studies so replication is possible. We've  
3 done this in at least three petroleum cases. In one  
4 case, the data were not available, and so we were  
5 forced to ultimately go out and build our own data set  
6 from other sources.

7 In another case, the data were available. At  
8 least we could purchase it, but it required multiple  
9 conversations with the author to begin to replicate  
10 their results. There was not enough information in the  
11 published study to really start you off on a  
12 replication exercise.

13 So, the last point I want to bring up in  
14 terms of improving the studies is going back to linking  
15 the anticompetitive theory so that the results can be  
16 generalized. Certainly every merger has some unique  
17 aspects, but I think at least within an industry,  
18 there's some fair amount of commonality.

19 One of the reasons that I was originally  
20 drawn to doing some more work on the Arco/Thrifty  
21 merger that Hastings had looked at in her AER paper was  
22 that her empirical design allowed you to distinguish  
23 between a horizontal anticompetitive effect and  
24 potentially other competitive effects.

25 The way she designed her empirics, you could

1 reject that the price effects were coming from  
2 horizontal concentration, but that left open the  
3 question of whether it was some sort of vertical effect  
4 or a re-branding. Once we looked more at the actual  
5 pre-merger state, Thrifty had some Arco branded  
6 stations before they were purchased by Arco.

7 Thrifty also had stations that were being  
8 supplied by Arco, so you actually could have divided  
9 the treatment effects into horizontal, vertical and  
10 re-branding. So we had some possibility going back and  
11 replicating those results and decomposing it, and had  
12 we been able to do that, we would have had more  
13 information about generalizing that study.

14 We could have potentially said, "Look, does  
15 it come from re-branding, is it a vertical story?" As  
16 it was, we ultimately were not able to replicate the  
17 results, but the fact was that we spent some time in  
18 the beginning trying to look more at the actual history  
19 of that transaction and understand where the market was  
20 coming from.

21 So those are some of my thoughts, maybe micro  
22 thoughts, on how to improve retrospective studies.

23 DR. NEVO: I think we have ten minutes for  
24 questions.

25 UNIDENTIFIED SPEAKER: I think it was

1 important that Chris talked about checking the  
2 robustness of these retrospectives and a number of  
3 panelists discussed the Peters' paper. And one thing I  
4 noticed when reading the Peters' paper was that he had  
5 a footnote saying that published estimates of the  
6 actual price impact of the mergers he was looking at  
7 varied substantially.

8           So, the first question is for John: When you  
9 found multiple papers that looked at the same merger,  
10 how close were the estimates to one another? And then  
11 the more general question, maybe more to Lanier or  
12 Aviv, is: If it's not the case that we could select  
13 from the multiple estimates of the effect of the merger  
14 and we can't decide that one of them is the best, how  
15 can we possibly look at and judge merger simulation  
16 models to figure out whether they're doing a good job  
17 when we have multiple candidates for the actual price  
18 effect of the merger?

19           DR. NEVO: Do the speakers want to come up  
20 front so we don't have to run around with a mic?

1 reviewed four times. Three studies found price  
2 increases. One we classified as uncertain. Mind you,  
3 there is some arbitrariness to this, but that would be  
4 a fair description of the study.

5 TBA was also looked at four times with the  
6 same results, three finding price increases and one  
7 ambiguous result. And the three U.S./Piedmont merger  
8 studies all found price increases, so there is a fair  
9 amount of consistency.

10 The magnitudes are also different, and I  
11 don't have all that data with me. As I'm sure you  
12 know, when you start to look at these studies, there  
13 are different specifications. People don't just do a  
14 single regression, and so as a result, trying to  
15 characterize the range of estimates is a little bit  
16 tricky as well, but there's a fair amount of  
17 consistency at least in the multiple evaluations of the  
18 airline mergers.

19 DR. BENKARD: To answer the second question,  
20 you might have a different view of this, but my view is  
21 every industry is different in terms of data  
22 availability and data quality and ability to find  
23 controls and such. I think you can get pretty clear  
24 answers where there's general agreement, and sometimes  
25 you can't.

1           My view is if you can't, then it's going to  
2 be pretty hard to evaluate how you did, but I think  
3 that pretty much sums it up. I think there are a lot  
4 of cases -- and you just gave an example of one,  
5 airlines -- where pretty much no matter how you cut the  
6 data, you find that the loss of a competitor raises  
7 prices. We have general agreement as to what it is  
8 when you go from two to one or three to two, which are  
9 kind of the important ones, but there are cases where  
10 it's very hard because there's too much that's not  
11 observed or not enough data.

12           DR. NEVO: I generally agree and I think you  
13 raised an important point that I think we all tried to  
14 touch on in the presentation, which is intuitively, I  
15 think, merger retrospectives are almost borderline. It  
16 was almost implicit actually in David's question of:  
17 Who would ever publish this?

1       there's a range, and the same actually can be said for  
2       the merger simulation part, so we're going to try to  
3       put the two together. A lot of times you'll walk away  
4       and say, "We don't know." We don't necessarily; it's  
5       very hard to measure exactly what the effects are, so  
6       it's a whole range, and I think it's important that  
7       we're clear about that when we're producing numbers.

8                 UNIDENTIFIED SPEAKER: It's my sense of the  
9       literature that people try to do a good job, and I  
10       would like to ask whether that's a good idea? More  
11       pointedly I think what tends to happen, almost  
12       uniformly, is people take one, or a handful, of mergers  
13       and work pretty hard and put a lot of time into finding  
14       good controls and addressing measurement issues and so  
15       on.

16                So, you get a relatively small number of data  
17       points that have been relatively thoroughly cleaned and  
18       optimized. I would like to ask if you have any general  
19       wisdom on whether that's really the right strategy?  
20       What are the trade-offs between doing a merger  
21       retrospective well versus doing more merger  
22       retrospectives? Both on the supply side, how much  
23       easier it is to do a less careful job, and on the  
24       demand or usefulness side, how much less useful is it  
25       if you do a less careful job?

1           DR. KWOKA: I'm not sure any of us wants to  
2 stand here and endorse that work.

3           DR. NEVO: I'm only going to endorse bad work  
4 by others.

5           DR. BENKARD: I don't even know how to answer  
6 that. I can't imagine that value of a large number of



1           DR. BENKARD: One more follow-up on that: If  
2     you were to develop a methodology that you thought  
3     worked in an industry and then run it on all the  
4     mergers that ever happened in that industry, that might  
5     not be so bad, right? So there might be returns to  
6     scale, I guess is what I'm saying.

6

1 answer all of these questions very systematically, but  
2 it seems to me that's consistent with your question and  
3 the answers we've heard so far.

4 DR. WHITE: The fact that seems to come from  
5 a lot of what you were saying is that, at least from  
6 the IO literature, we should take it that merger policy  
7 is too permissive in the sense that prices on average  
8 seem to rise after merger, the ones that have been  
9 studied in these different studies. Some are mixed,  
10 but we don't see very many where our prices are  
11 falling.

12 I'm just wondering how I reconcile that with  
13 the stylized fact that comes out of the finance  
14 literature, which is mergers generally aren't  
15 profitable. Is there a selection effect going on for  
16 these types of studies -- in the type of mergers that  
17 the IO literature is studying versus the types of  
18 mergers that the finance literature is studying?

19 So, the implication we would take from the IO  
20 literature is that these things are anticompetitive and  
21 firms should be earning more profits because they're  
22 raising prices because we're increasing monopoly power,  
23 but you just don't seem to see that on the profit side,  
24 either from the accounting point of view or from the  
25 shared price point of view.

1 I'm wondering how I understand these sort of  
2 stylized facts in these two different literatures?

3 DR. TAYLOR: I want to make one clarifying  
4 point. I think it depends on the industry in terms of  
5 whether the mergers are generally viewed as  
6 anticompetitive or not. Most of our work on petroleum  
7 mergers has essentially shown no effects. Our work on  
8 airlines, shows more positive effects, and in  
9 hospitals, we have a number of positive observations.

10 It's interesting and, I'll just throw it out  
11 there, the airline industry has been one that's been  
12 consistently unprofitable for a long time, and that's  
13 the industry where we're seeing price effects. So it  
14 makes it even more complicated to reconcile those  
15 effects.

16 DR. BENKARD: I have two comments. First of  
17 all, there is most definitely a selection effect on the  
18 industries that IO people study. 99 percent of mergers  
19 we're not interested in. We're only interested in the  
20 ones where we think there might have been a problem, so  
21 that's definitely true.

22 The other thing about airlines specifically  
23 is that those are accounting profits. I think economic  
24 profits have never really been studied. It's just not  
25 clear. That's the amount of profit that shareholders

1 make, which may not be a correct measure of profits for  
2 airlines. Isn't the answer to that just if they're  
3 unprofitable because there's some agency problem and  
4 the CEO wants to be king of a bigger empire or  
5 something, then the mergers are cost increasing, so  
6 they're unprofitable and they go up?

7 DR. WHITE: (Speaking without a mic). Then  
8 they focus on things that are just irrelevant?

9 DR. NEVO: I think the answer is we don't  
10 know the answer. It might be worth exploring.

11 DR. WHITE: It may be useful to have studies  
12 that are not just focusing on prices, even though  
13 that's what we as IO economists care about, but also if  
14 we think these things are anti-competitive, there  
15 should also be some kind of effect on profits.



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